As confidentially submitted to the Securities and Exchange Commission on March 19, 2021. This draft registration statement has not been publicly filed with the Securities and Exchange Commission and all information herein remains strictly confidential.

Registration No. 333-

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM S-1
REGISTRATION STATEMENT
Under
The Securities Act of 1933

TSCAN THERAPEUTICS, INC.
(Exact name of Registrant as specified in its charter)

Delaware	2836	82-5282075
(State or other jurisdiction of incorporation or organization)	(Primary Standard Industrial Classification Code Number)	(I.R.S. Employer Identification Number)

830 Winter Street
Waltham, Massachusetts 02451
(857) 399-9500
(Address, including zip code, and telephone number, including area code, of Registrant's principal executive offices)

David Southwell
President and Chief Executive Officer
TScan Therapeutics, Inc.
830 Winter Street
Waltham, Massachusetts 02451
(857) 399-9500
(Name, address, including zip code, and telephone number, including area code, of agent for service)

Copies to:

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Approximate date of commencement of proposed sale to the public: As soon as practicable after the effective date of this registration statement.

If any of the securities being registered on this form are to be offered on a delayed or continuous basis pursuant to Rule 415 under the Securities Act of 1933, check the following box. ☐

If this form is filed to register additional securities for an offering pursuant to Rule 462(b) under the Securities Act, please check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this form is a post-effective amendment filed pursuant to Rule 462(c) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

If this form is a post-effective amendment filed pursuant to Rule 462(d) under the Securities Act, check the following box and list the Securities Act registration statement number of the earlier effective registration statement for the same offering. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☐	Accelerated filer	☐
Non-accelerated filer	☒	Smaller reporting company	☒
		Emerging growth company	☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 7(a)(2)(B) of the Securities Act. ☐

CALCULATION OF REGISTRATION FEE

Title of Each Class of Securities to be Registered	Proposed Maximum Aggregate Offering Price(1)(2)	Amount of Registration Fee(3)
Common Stock, $0.0001 par value per share	$	$

(1) Estimated pursuant to Rule 457(o) under the Securities Act of 1933, as amended.
(2) Includes the aggregate offering price of additional shares that the underwriters have the option to purchase.
(3) Calculated pursuant to Rule 457(o) based on an estimate of the proposed maximum aggregate offering price.

The Registrant hereby amends this Registration Statement on such date or dates as may be necessary to delay its effective date until the Registrant shall file a further amendment which specifically states that this Registration Statement shall thereafter become effective in accordance with Section 8(a) of the Securities Act of 1933, as amended, or until the Registration Statement shall become effective on such date as the Commission, acting pursuant to said Section 8(a), may determine.

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The information in this preliminary prospectus is not complete and may be changed. We may not sell these securities until the registration statement filed with the Securities and Exchange Commission is effective. This preliminary prospectus is not an offer to sell these securities, and we are not soliciting offers to buy these securities in any jurisdiction where the offer or sale is not permitted.

PROSPECTUS (Subject To Completion)
Issued , 2021

Shares

COMMON STOCK

TScan Therapeutics, Inc. is offering shares of its common stock. This is our initial public offering and no public market currently exists for our shares of common stock. We anticipate that the initial public offering price will be between $ and $ per share.

We intend to apply to list our common stock on the Nasdaq Global Market under the symbol "TCRX."

We are an "emerging growth company" and a "smaller reporting company" as defined under the federal securities laws. Investing in our common stock involves risks. See "Risk Factors" beginning on page 13.

PRICE $ A SHARE

	Per Share	***Total***
Initial public offering price	*$*	*$*
Underwriting discounts and commissions (1)	*$*	*$*
Proceeds, before expenses, to us	*$*	*$*

(1) See "Underwriters" for a description of the compensation payable to the underwriters.

We have granted the underwriters an option to purchase up to an additional shares of common stock at the initial public offering price less underwriting discounts and commissions to cover over-allotments. If the underwriters exercise this option in full, the total underwriting discounts and commissions payable by us will be $, and the total proceeds, before expenses to us will be $.

The Securities and Exchange Commission and state securities regulators have not approved or disapproved of these securities, or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The underwriters expect to deliver the shares of common stock to purchasers on , 2021.

MORGAN STANLEY *JEFFERIES* *COWEN* *BARCLAYS*

, 2021

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Through and including , 2021 (the 25th day after the date of this prospectus), all dealers effecting transactions in shares of our common stock, whether or not participating in this offering, may be required to deliver a prospectus. This is in addition to a dealer's obligation to deliver a prospectus when acting as an underwriter and with respect to an unsold allotment or subscription.

We and the underwriters have not authorized anyone to provide you with any information or to make any representations other than those contained in this prospectus or in any free writing prospectuses we have prepared. We and the underwriters take no responsibility for, and can provide no assurance as to the reliability of, any other information that others may give you. We are offering to sell, and seeking offers to buy, shares of our common stock only in jurisdictions where offers and sales are permitted. The information contained in this prospectus or in any applicable free writing prospectus is accurate only as of the date of this prospectus or any such free writing prospectus, as applicable, regardless of its time of delivery or of any sale of our common stock. Our business, financial condition, results of operations and future growth prospects may have changed since that date.

For investors outside the United States: Neither we nor any of the underwriters have done anything that would permit this offering or possession or distribution of this prospectus in any jurisdiction where action for that purpose is required, other than in the United States. Persons outside of the United States who come into possession of this prospectus must inform themselves about, and observe any restrictions relating to, the offering of the shares of our common stock and the distribution of this prospectus outside of the United States.

TScan, the TScan logo and our other registered or common law trademarks appearing in this prospectus are the property of TScan Therapeutics, Inc. This prospectus contains references to our trademarks and service marks and to those belonging to other entities. Solely for convenience, trademarks and trade names referred to in this prospectus, including logos, artwork and other visual displays, may appear without the ® or ™ symbols, but such references are not intended to indicate in any way that we will not assert, to the fullest extent under applicable law, our rights or the rights of the applicable licensor to these trademarks and trade names. We do not intend our use or display of other entities' trade names, trademarks or service marks to imply a relationship with, or endorsement or sponsorship of us by, any other entity.

PROSPECTUS SUMMARY

This summary highlights selected information contained elsewhere in this prospectus and is qualified in its entirety by the more detailed information and financial statements included elsewhere in this prospectus. It does not contain all of the information that may be important to you and your investment decision. You should carefully read this entire prospectus, including the sections titled "Risk factors," "Management's discussion and analysis of financial condition and results of operations" and our financial statements and related notes before making an investment decision. In this prospectus, unless context requires otherwise, references to "we," "us," "our," "TScan," or "the Company" refer to TScan Therapeutics, Inc.

Overview

We are a biopharmaceutical company focused on developing a robust pipeline of T cell receptor-engineered T cell, or TCR-T, therapies for the treatment of patients with cancer. Our approach is based on the central premise that we can learn from patients who are winning their fight against cancer in order to treat those who are not. Using one of our proprietary platform technologies, TargetScan, we analyze the T cells of cancer patients with exceptional responses to immunotherapy to discover how the immune system naturally recognizes and eliminates tumor cells in these patients. This allows us to precisely identify the targets of T cell receptors, or TCRs, that are driving these exceptional responses. We aim to use these anti-cancer TCRs to treat patients with cancer by genetically engineering their own T cells to recognize and eliminate their cancer. In addition to discovering TCR-T therapies against novel targets, we are using our ReceptorScan technology to further diversify our portfolio of therapeutic TCRs with TCR-T therapies against known targets. We believe this two-pronged approach will enable us to discover and develop a wide array of potential treatment options for patients with cancer.

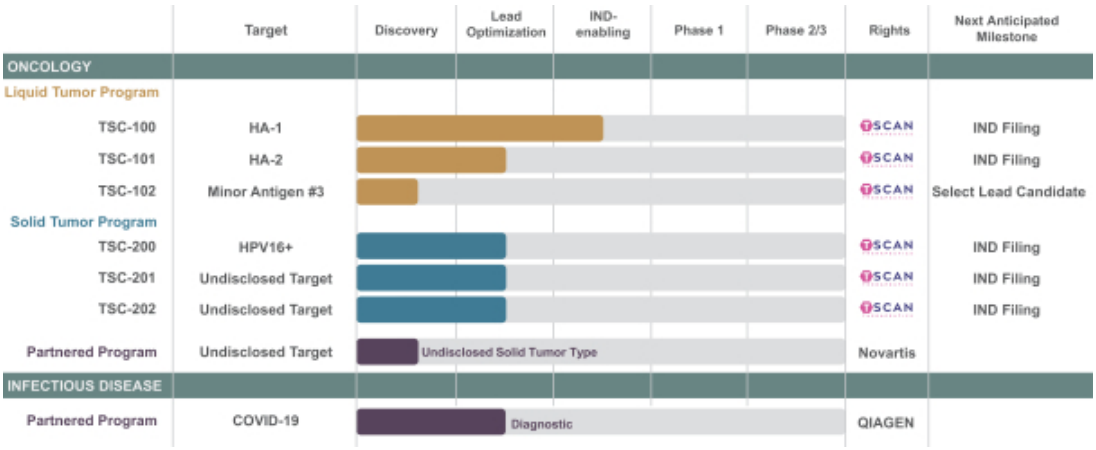
We are advancing a robust pipeline of TCR-T therapy candidates for the treatment of patients with hematologic and solid tumor malignancies. Our lead liquid tumor product candidates, TSC-100 and TSC-101, are in development for the treatment of patients with hematologic malignancies to eliminate residual leukemia and prevent relapse after hematopoietic stem cell transplantation, or HCT. TSC-100 and TSC-101 target HA-1 and HA-2 antigens, respectively, which are well-recognized TCR targets that were identified in patients with exceptional responses to HCT-associated immunotherapy. We plan to submit Investigational New Drug, or IND, applications for TSC-100 and TSC-101 with the U.S. Food and Drug Administration, or FDA, in and , respectively. In addition, we are developing multiple TCR-T therapy candidates for the treatment of various solid tumors. One of the key goals for our solid tumor program is to develop what we refer to as multiplexed TCR-T therapy. We are designing these multiplexed therapies to be a combination of up to three highly active TCRs that are customized for each patient and selected from our bank of therapeutic TCRs, which we refer to as ImmunoBank.

T cells are an essential component of the adaptive immune system and provide protection against cancer, infection, and autoimmune disease. Multiple approaches have been and are continuing to be explored to develop effective T cell-based therapies for the treatment of cancer, including tumor infiltrating lymphocyte, or TIL, therapy and chimeric antigen receptor T cell, or CAR-T, therapy. The success of TIL therapy depends on the specific T cells present in the patient. If their TILs do not have appropriate anti-cancer specificities, the therapy is unlikely to be effective. In addition, TIL therapy has, to date, shown limited applicability for the treatment of liquid tumors. In contrast, CAR-T therapy has proven effective in certain hematological malignancies of lymphoid origin, but have not yet shown efficacy or safety in myeloid malignancies. Additionally, this type of treatment is limited to targets on the surface of tumor cells and has not yet been shown to effectively penetrate solid tumors. Both TIL and CAR-T therapies, as well as other immunotherapies such as checkpoint inhibitors, harness the power of cytotoxic T cells in fighting cancer. Despite demonstrating compelling efficacy, they are only effective in a subset of patients. To address a broader patient population, we believe additional T cell-based approaches are needed that more closely mimic the way the immune system recognizes and fights cancer in patients who are responding to immunotherapy.

Our decision to develop TCR-T therapies for the treatment of cancer is based on our conviction that we can learn from the natural interaction between T cells and tumor cells and harness this information to treat patients by reprogramming their immune systems. We believe that TCR-T therapy combines the benefits of TIL and CAR-T therapies while uniquely addressing their key limitations.

Our Pipeline

We are leveraging our proprietary platform technologies to develop a robust pipeline of TCR-T therapies with the goal of building our ImmunoBank of TCRs to treat a wide range of tumor types. In addition, we are applying our platform to identify targets and TCRs in therapeutic areas outside of oncology, such as autoimmune disorders and infectious disease. Our current pipeline is summarized in the figure below.



In addition, we have an early-stage collaboration with Poseida Therapeutics, Inc. under which we have granted Poseida a license to research and potentially develop and commercialize TCR-T therapies for COVID-19 based on the targets and TCRs we identified using TargetScan.

Our Approach

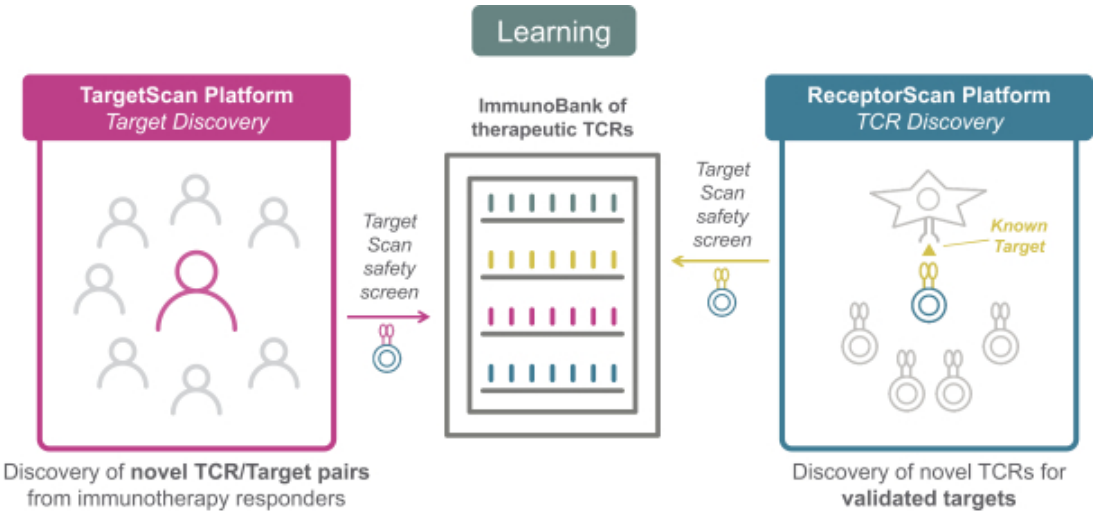
Our approach is based on the central premise that we can **learn** from patients who are winning their fight against cancer in order to **treat** those who are not. Using our proprietary platform technologies, we are analyzing the T cells of cancer patients with exceptional responses to immunotherapy to discover clinically relevant targets and TCRs. We are building ImmunoBank with the goal of delivering customized multiplexed TCR-T therapy to a wide range of patients with cancers.

Learning

When a patient responds to an immunotherapy drug such as an immune checkpoint inhibitor, their tumor shrinks because T cells in their tumor become activated and drive an anti-tumor cytotoxic response. The TCRs of their T cells recognize tumor-specific antigens on tumor cells and signal the T cell to kill the cancer cells. Our approach starts with isolating clinically active anti-cancer T cells from tumor samples of patients who are actively responding to immunotherapy agents. We then use our proprietary TargetScan technology to determine the precise targets being recognized by their TCRs. This provides us with a novel TCR/target pair that can be developed into a TCR-T therapy candidate. We select TCRs that are highly active with no apparent problematic off-target effects to be added to our ImmunoBank. In addition to discovering novel TCR/target pairs, we are

leveraging our proprietary ReceptorScan technology to identify highly active TCRs against previously identified and clinically validated targets. The diagram below illustrates our proprietary discovery process where therapeutic TCR candidates are discovered using either TargetScan or ReceptorScan and those that we characterize as the best TCRs are added to ImmunoBank.

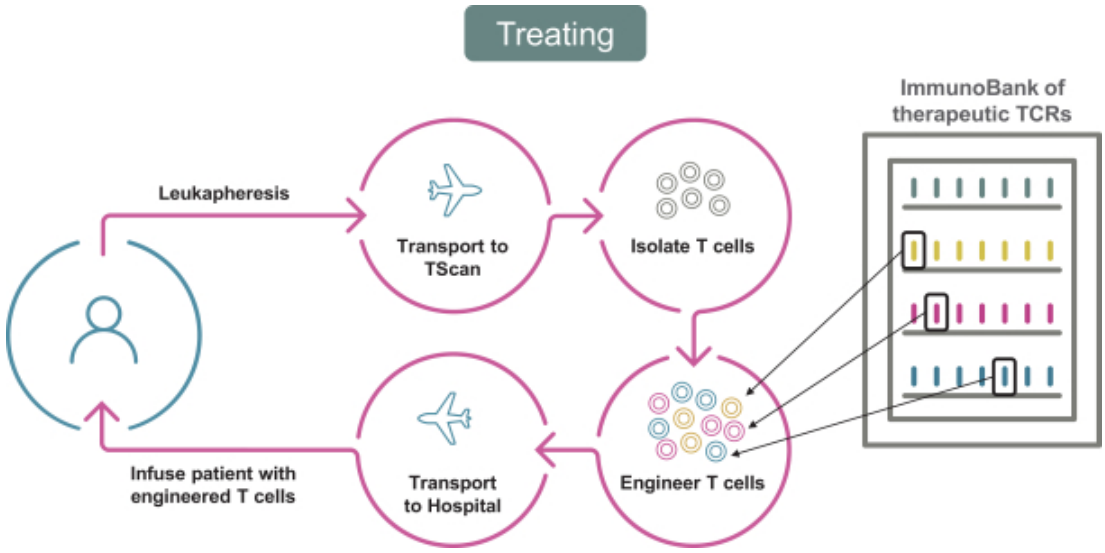
Our Proprietary Target and TCR Discovery Process



Treating

Our discovery process enables us to build and expand ImmunoBank with what we believe represents the most active TCRs isolated from a large group of diverse patients who are responding to immunotherapy. We are developing TCR-T therapies that use these clinically relevant TCRs to reprogram the T cells of patients who do not spontaneously generate effective anti-cancer T cells and thus do not respond to immunotherapy. Our manufacturing process begins with obtaining white blood cells from either the patient or a healthy donor using a procedure called leukapheresis. We will then transport these white blood cells to our in-house manufacturing facility, where we isolate the T cells and genetically engineer them using TCR sequences from ImmunoBank. We believe the continued expansion and diversification of ImmunoBank will enable us to deliver customized multiplexed TCR-T therapy to patients, where each patient's T cells are engineered with multiple TCRs that are matched to their specific tumor and HLA type. Once the T cells are engineered with a combination of the most relevant TCRs, they will be transported back to the hospital and reintroduced into the patient by intravenous infusion. Following the infusion, the engineered T cells, which are designed to recognize multiple targets expressed by the patient's tumor, will proliferate *in vivo* and mount an anti-cancer immune response. Our patient treatment and manufacturing process is summarized in the graphic below.

Our Patient Treatment and Manufacturing Process



We believe that our approach provides us with the following key advantages:

- *Our TCR-T therapies are based on highly active TCRs that are clinically relevant.* Many other approaches to T cell therapy rely on specifically expanding T cells that are already present in the patient. Our platform analyzes anti-cancer T cells from a wide variety of patients who are responding to immunotherapy in order to find the most active and clinically relevant TCRs against each target. We believe this will allow us to develop highly effective TCR-T therapies.
- *Our TCR-T therapies are designed to be used in combination with each other.* We are building our diverse ImmunoBank of TCRs to allow for multiplexed TCR-T therapy, which has the potential to address the heterogeneous nature of solid tumors and to prevent resistance developing due to loss of a single target. We believe this approach may allow us to overcome the limitations and challenges of TCR-T therapy development to date.
- *Our approach is expandable.* ImmunoBank has the flexibility to be used with new and optimized methods of T cell engineering that we may develop over time. We are building ImmunoBank to be compatible with both autologous and allogeneic engineering technologies in order to potentially transition to generating off-the-shelf, allogeneic T cells that have been pre-engineered with our TCRs for direct administration to patients.

Our Platform

Our proprietary platform is designed to: (i) discover anti-cancer TCRs from patients with exceptional responses to immunotherapy; (ii) determine novel targets of clinically relevant TCRs; (iii) discover novel TCRs that recognize clinically validated targets; (iv) identify off-targets of TCRs to eliminate candidates that could potentially pose a safety risk; and (v) manufacture TCR-T therapies efficiently and consistently without the use of viral vectors using our T-Integrate technology. The three central elements of our platform that differentiate us from other cell therapy companies are TargetScan, ReceptorScan, and T-Integrate.

TargetScan. At the core of our proprietary platform is our TargetScan technology that enables us to identify the natural target of a TCR using an unbiased, genome-wide, high-throughput screen. We have developed this technology to be extremely versatile and applicable across multiple therapeutic areas, including cancer, autoimmune

disorders, and infectious diseases. It can be applied to virtually any TCR that plays a role in the cause or prevention of disease. TargetScan is also designed to identify potential off-targets of a TCR and eliminate those TCR candidates that cross-react with proteins expressed at high levels in critical organs. We believe this will allow us to reduce the risk and enhance the potential safety profile of our TCR-T therapy candidates early in development before we initiate clinical trials.

ReceptorScan. To further expand our ability to discover and develop therapeutic TCRs, we have developed our proprietary ReceptorScan technology to enable us to identify and clone highly active TCRs that recognize previously identified clinically validated targets. We co-culture hundreds of millions of $CD8^+$ T cells from either healthy donors or cancer patients with dendritic cells, that display the target antigen of interest to the T cells. T cells that recognize the target of interest proliferate, and are subsequently isolated based on their ability to recognize a fluorescently labeled version of the target. We then use single cell sequencing to identify the specific TCR sequences that recognize the target. Our novel technologies allow us to gene-synthesize hundreds of TCRs simultaneously and to rapidly sort through hundreds of target-specific TCRs in a single high-throughput screen to identify the most active clones. Using ReceptorScan, we have identified our two lead TCR-T therapy candidates, TSC-100 targeting HA-1 and TSC-101 targeting HA-2.

T-Integrate. Cell therapy manufacturing is highly complex, and associated challenges have led to significant delays or failures in the development of many cell therapies. To enable the rapid, cost-effective, and consistent manufacturing of TCRs, we have developed a non-viral vector delivery system that we refer to as T-Integrate. Our TCR-T therapy candidates are manufactured using a transposon/transposase system, in which the DNA encoding the TCR is manufactured as a Nanoplasmid, a non-viral vector. The Nanoplasmid, together with an mRNA sequence encoding a transposase enzyme, is introduced into the T cell by electroporation. After the T cell translates the mRNA into protein, the transposase enzyme inserts the TCR sequence from the Nanoplasmid into the genome of the T cell. This system is highly reproducible, as the only required components are a Nanoplasmid, which is different for each TCR product, and an mRNA, which is constant for all TCR products. Unlike lentivirus, both of these components are routinely manufactured in a cost-effective manner without the need for extensive process development. We believe our manufacturing platform will enable us to efficiently develop and manufacture many different TCR-T therapies, allowing us to deliver customized multiplexed therapy to patients with cancer.

Our Programs

With our differentiated platform as the foundation, we are building a three-pillar research and development strategy to create transformational TCR-T therapies for patients.

1. *Our Liquid Tumor Program.* We are developing our liquid tumor program to treat patients with hematologic malignancies who are undergoing allogeneic HCT. In the first phase of our clinical development strategy, we are initially focusing on well-recognized cancer targets that have been discovered in patients with exceptional responses to HCT-associated immunotherapy, including HA-1 and HA-2. In addition, to further expand our liquid tumor program, we are developing additional product candidates that target other similarly validated antigens, enabling us to expand the addressable patient population.

   We plan to conduct clinical trials of our lead TCR-T therapy candidates, TSC-100 and TSC-101, in parallel, with patients enrolled in treatment arms based on their genotype. Patients who are positive for the target antigen, HA-1 or HA-2, as well as the HLA-A*02:01 allele, which is the HLA type required to display HA-1 and HA-2 on the cell surface for recognition by a T cell, will be eligible for enrollment. Furthermore, eligible patients will require donors who are negative for either the target antigen or the HLA-A*02:01 allele. We plan to incorporate additional product candidates into this trial design as they advance into the clinic, which we believe will allow us to provide a broad array of therapeutic options for the majority of patients with hematologic malignancies receiving HCT. In our

clinical trials of TSC-100 and TSC-101, we also plan to evaluate the potential benefit of combining the two therapies as a multiplexed TCR-T therapy for patients who are positive for both HA-1 and HA-2.

Through the development of our liquid tumor program, we are building a foundation of manufacturing, clinical, and regulatory capabilities, which will be applied to the future development of our broader portfolio of TCR-T therapy candidates for solid tumors.

2. *Our Solid Tumor Program.* We are developing a portfolio of autologous TCR-T therapy candidates that are designed to be used in combination with each other to treat and eliminate solid tumors. Our TSC-200 series of product candidates are designed to elicit an anti-tumor response in patients by targeting cancer-specific antigens in their tumor cells. Our TCR-T therapy candidates include: (i) novel targets that were identified by TargetScan from the T cells of patients responding to immunotherapy and (ii) naturally occurring TCRs specific to a patient's HLA type that recognize these cancer-specific targets. Such targets are not only commonly shared among patients with the same cancer type, but also frequently expressed in multiple solid tumor types, enabling clinical development across multiple indications. We intend to file IND applications with the FDA for our first three solid tumor product candidates, TSC-200, TSC-201, and TSC-202, in .

   Our vision is to create and continuously expand ImmunoBank to enable customized multiplexed TCR-T therapy for a wide range of solid tumor patients. For each patient with a solid tumor malignancy, we plan to analyze their tumor to determine which targets are expressed at high levels in their particular cancer. We will then access ImmunoBank and select up to three TCRs that match their HLA type and address the most highly expressed targets in their tumor. We will use this set of TCRs to genetically reprogram their T cells to recognize these targets, and the resulting T cells will be infused back into the patient as a multiplexed TCR-T therapy.

3. *Strategic Partnerships and Collaborations.* T cells play a fundamental role in many other therapeutic areas beyond cancer, such as autoimmune disorders and infectious disease. We believe that our TargetScan technology is well suited to discover novel antigens for the development of therapeutics, diagnostics, and vaccines in these other therapeutic areas. We intend to opportunistically pursue collaborations with strategic partners for applications of our platform technologies outside our core focus of oncology.

Our Strategy

Our mission is to create life-changing T-cell therapies for patients by unleashing the untapped potential of the human immune system. Our goal is to use our proprietary platform for the identification of novel tumor-specific antigens and clinically active TCRs to become a leader in the development of engineered T-cell therapies for the treatment of liquid and solid tumors. Our strategy includes the following key elements:

- Leverage our proprietary platform technologies to build our diverse ImmunoBank of therapeutic TCRs to treat a wide range of tumor types;
- Advance our lead liquid tumor product candidates, TSC-100 and TSC-101, through clinical development;
- Apply experience from our liquid tumor program to efficiently develop our solid tumor program targeting both novel and previously identified antigens;
- Continue to develop internal manufacturing capabilities based on our non-viral T-Integrate system;
- Develop next generation T-cell engineering capabilities, including allogeneic technologies; and
- Opportunistically pursue strategic partnerships and collaborations to maximize the full potential of our platform in therapeutic areas outside of oncology, such as autoimmune disorders and infectious disease.

Our History and Team

We were founded in early 2018 to discover and develop transformational therapies using a novel T-cell target discovery platform developed by Drs. Stephen Elledge and Tomasz Kula at Brigham and Women's Hospital and Harvard Medical School. Since then, we have made substantial progress building our target and TCR discovery platform technologies, discovering new targets and TCRs, advancing our two lead programs into IND-enabling studies, developing in-house manufacturing capabilities, and, in response to the ongoing COVID-19 pandemic, identifying the targets of T cells from recovering COVID-19 patients. In addition, we have entered into multiple strategic collaborations, including with Novartis Institutes for Biomedical Research, Inc. and QIAGEN Sciences, LLC, as well as an early-stage collaboration with Poseida Therapeutics, Inc.

We have assembled a highly qualified team with deep experience in T-cell biology, high throughput screening, engineering and manufacturing of cell therapies, as well as in all phases of research and clinical development, from early-stage discovery and IND-enabling studies through registrational clinical trials. Our team includes industry veterans with prior experience at academic and research institutions such as Harvard University, Harvard Medical School, and Massachusetts General Hospital, and companies such as BlueRock Therapeutics, LLC, CRISPR Therapeutics, Inc., Editas Medicine, Inc., Human Genome Sciences, Inc., Kite Pharma, Inc., KSQ Therapeutics, Inc., Merrimack Pharmaceuticals, Inc., Regeneron Pharmaceuticals, Inc., Repertoire Immune Medicines, Inc., and SQZ Biotechnologies Company. Since our inception, we have raised an aggregate of $160 million from leading biotechnology investors, including RA Capital Management, Novartis Venture Fund, Novartis Institutes for Biomedical Research, Longwood Fund, Bessemer Venture Partners, GV, 6 Dimensions Capital, Astellas Venture Management, and Pitango HealthTech.

Recent Developments

In January 2021, we issued and sold 70,136,064 shares of Series C convertible preferred stock and received net cash proceeds of $99.7 million.

Risks Associated with Our Business

Investing in our common stock involves substantial risk. Our ability to execute our business strategy is subject to numerous risks, as more fully described in the section entitled "Risk Factors" immediately following this prospectus summary. Some of the most significant challenges and risks are more fully described in the section entitled "Risk Factors" and are summarized in the section entitled "Risk Factors—Risk Factor Summary."

Corporate Information

We were incorporated in the State of Delaware in April 2018. Our principal executive offices are located at 830 Winter Street, Waltham, Massachusetts 02451. Our telephone number is (857) 399-9500. Our website address is www.tscan.com. Information contained on the website is not incorporated by reference into this prospectus, and you should not consider it part of this prospectus. We have included our website address in this prospectus solely as an inactive textual reference.

Implications of Being an Emerging Growth Company and a Smaller Reporting Company

As a company with less than $1.07 billion in revenue during our most recently completed fiscal year, we qualify as an "emerging growth company" as defined in Section 2(a) of the Securities Act of 1933, as amended, or the Securities Act, as modified by the Jumpstart Our Business Startups Act of 2012, or the JOBS Act. As an emerging growth company, we may take advantage of certain exemptions from requirements that are otherwise applicable, in general, to public companies. These provisions include:

- being permitted to present only two years of audited financial statements in addition to any required unaudited interim financial statements with correspondingly reduced disclosure in the section titled

"Management's discussion and analysis of financial condition and results of operations", in registration statements, including this prospectus, subject to certain exceptions;

- an exemption from compliance with the auditor attestation requirement on the effectiveness of our internal control over financial reporting pursuant to the Sarbanes-Oxley Act of 2002;
- an exemption from compliance with any requirement that the Public Company Accounting Oversight Board may adopt regarding mandatory audit firm rotation or a supplement to the auditor's report providing additional information about the audit and the financial statements;
- reduced disclosure about our executive compensation arrangements in our periodic reports, proxy statements, and registration statements, including this prospectus;
- exemptions from the requirements to obtain a non-binding advisory vote on executive compensation or a stockholder approval of any golden parachute arrangements; and
- extended transition periods for complying with new or revised accounting standards.

We will remain an emerging growth company until the earliest to occur of: (i) the last day of the fiscal year in which we have more than $1.07 billion in annual revenue; (ii) the date we qualify as a "large accelerated filer," with at least $700 million of equity securities held by non-affiliates; (iii) the date on which we have issued, in any three-year period, more than $1.0 billion in non-convertible debt securities; and (iv) the last day of the fiscal year ending after the fifth anniversary of the completion of this offering.

We may take advantage of these exemptions until such time that we are no longer an emerging growth company. Accordingly, the information contained herein may be different than the information you receive from other public companies in which you hold stock. Further, pursuant to Section 107 of the JOBS Act, as an emerging growth company, we have elected to take advantage of the extended transition period for complying with new or revised accounting standards until those standards would otherwise apply to private companies. As a result, our operating results and consolidated financial statements may not be comparable to the operating results and financial statements of other companies who have adopted the new or revised accounting standards. It is possible that some investors will find our common stock less attractive as a result, which may result in a less active trading market for our common stock and higher volatility in our stock price.

We are also a "smaller reporting company," meaning that the market value of our stock held by non-affiliates plus the proposed aggregate amount of gross proceeds to us as a result of this offering is less than $700 million and our annual revenue was less than $100 million during the most recently completed fiscal year. We may continue to be a smaller reporting company after this offering if either (i) the market value of our stock held by non-affiliates is less than $250 million or (ii) our annual revenue was less than $100 million during the most recently completed fiscal year and the market value of our stock held by non-affiliates is less than $700 million. If we are a smaller reporting company at the time we cease to be an emerging growth company, we may continue to rely on exemptions from certain disclosure requirements that are available to smaller reporting companies. Specifically, as a smaller reporting company we may choose to present only the two most recent fiscal years of audited financial statements in our future annual reports on Form 10-K and, similar to emerging growth companies, smaller reporting companies have reduced disclosure obligations regarding executive compensation.

For certain risks related to our status as an emerging growth company and a smaller reporting company, see the section titled "Risk Factors—Risks Related to Our Common Stock and this Offering—We are an "emerging growth company" and a "smaller reporting company," and we cannot be certain if the reduced reporting applicable to emerging growth companies and smaller reporting companies will make our common stock less attractive to investors."

THE OFFERING

Common stock offered by us	shares
Option to purchase additional shares of common stock from us	shares
Common stock to be outstanding after this offering	shares (or shares if the underwriters exercise their option to purchase additional shares in full)
Use of proceeds	We estimate that the net proceeds from the sale of shares of common stock in this offering will be approximately $ million (or approximately $ million if the underwriters exercise their option to purchase additional shares in full), based upon an assumed initial public offering price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus, and after deducting underwriting discounts and commissions and estimated offering expenses payable by us. We intend to use the net proceeds from this offering, together with our existing cash, to , as well as for working capital and other general corporate purposes. See the section titled "Use of Proceeds" for additional information.
Risk factors	See "Risk Factors" and the other information included in this prospectus for a discussion of risks you should carefully consider before investing in our common stock.
Proposed Nasdaq trading symbol	"TCRX"

The number of shares of our common stock to be outstanding after this offering is based on shares of our common stock outstanding as of December 31, 2020, after giving effect to the automatic conversion of all outstanding shares of our preferred stock, including 70,136,064 shares of Series C convertible preferred stock issued in January 2021, into an aggregate of 128,053,586 shares of common stock upon the completion of this offering, and excludes the following:

- 11,852,840 shares of common stock issuable upon the exercise of options outstanding under our 2018 Stock Plan, as amended, or the 2018 Plan, as of December 31, 2020, with a weighted-average exercise price of $0.32 per share;
- 9,045,509 shares of common stock issuable upon the exercise of options outstanding under our 2018 Plan, granted after December 31, 2020, at a weighted-average exercise price of $0.76 per share;
- 2,583,398 shares of common stock reserved for future issuance under our 2018 Plan, based on the number of shares available for issuance as of December 31, 2020, plus additional shares of common stock added to the plan in January 2021, less the shares of common stock underlying options granted subsequent to December 31, 2020 and set forth above, which shares will be added to the shares to be reserved under our 2021 Plan, at the time our 2021 Plan becomes effective in connection with this offering;

- shares of common stock that will become available for future issuance under our 2021 Plan, which will become effective upon the effectiveness of the registration statement of which this prospectus forms a part, as well as any automatic increases in the number of shares of common stock reserved for future issuance under the 2021 Plan; and
- shares of common stock that will become available for future issuance under our 2021 Employee Stock Purchase Plan, or the 2021 ESPP, which will become effective upon the effectiveness of the registration statement of which this prospectus forms a part, as well as any automatic increases in the number of shares of common stock reserved for future issuance under the 2021 ESPP.

Unless otherwise indicated, all information in this prospectus reflects and assumes:

- the automatic conversion of all shares of our preferred stock, including the Series C convertible preferred stock issued in January 2021, into shares of common stock upon the completion of this offering;
- the filing and effectiveness of our amended and restated certificate of incorporation and the adoption of our amended and restated bylaws, each of which will occur immediately prior to the completion of this offering;
- no exercise of the underwriters' option to purchase additional shares; and
- no exercise of the outstanding options described above after December 31, 2020.

SUMMARY CONSOLIDATED FINANCIAL DATA

The following tables set forth a summary of our historical consolidated financial data as of, and for, the periods ended on the dates indicated. The summary consolidated statements of operations data for the years ended December 31, 2019 and 2020 and the consolidated balance sheet data as of December 31, 2020 are derived from our audited consolidated financial statements and related notes included elsewhere in this prospectus. You should read these summary financial data together with our financial statements and related notes appearing elsewhere in this prospectus and the information in the section titled "Management's discussion and analysis of financial condition and results of operations." The selected consolidated financial data in this section are not intended to replace our consolidated financial statements and the related notes and are qualified in their entirety by the consolidated financial statements and related notes included elsewhere in this prospectus. Our historical results are not necessarily indicative of the results to be expected in the future.

(in thousands, except share and per share data)	Year ended December 31, 2019	2020
Statement of operations data:		
Revenue:		
Collaboration and license revenue	$ —	$ 1,085
Operating expenses:		
Research and development	9,442	20,577
General and administrative	4,768	6,741
Total operating expenses	14,210	27,318
Loss from operations	(14,210)	(26,233)
Other income:		
Interest income	552	106
Net loss	$ (13,658)	$ (26,127)
Net loss per, basic and diluted	$ (4.33)	$ (3.48)
Weighted average common shares outstanding, basic and diluted	3,157,800	7,511,378

	As of December 31, 2020		
	Actual	Pro forma(1)	Pro forma as adjusted(2)(3)
	(in thousands, except share and per share data)		
Balance sheet data:			
Cash	$ 34,791	$134,491	$
Working capital(4)	18,999	118,699	
Total assets	49,738	149,438	
Total liabilities	32,519	32,519	
Convertible preferred stock	59,681	—	
Accumulated deficit	(43,533)	(43,533)	
Total stockholders' (deficit) equity	(42,462)	116,919	

(1) Pro forma balance sheet data gives effect to (i) the issuance of 70,136,064 shares of Series C convertible preferred stock issued in January 2021 and (ii) the automatic conversion of all outstanding shares of our convertible preferred stock, including the shares of Series C convertible preferred stock issued in January 2021, into an aggregate of 128,053,586 shares of common stock upon completion of this offering, as if such conversion had occurred on December 31, 2020.

(2) The pro forma as adjusted column gives further effect to the sale and issuance of shares of our common stock by us in this offering at the assumed initial public offering price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

(3) The pro forma as adjusted information is illustrative only and will depend on the actual public offering price and other terms of this offering determined at pricing. A $1.00 increase (decrease) in the assumed initial public offering price of $ per share, the midpoint of the estimated offering price range set forth on the cover page of this prospectus, would increase (decrease) the pro forma as adjusted amount of each of cash, working capital, total assets and total stockholders' equity by $ million, assuming that the number of shares of common stock offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions payable by us. An increase (decrease) of 1.0 million shares in the number of shares of common stock offered by us, as set forth on the cover page of this prospectus, would increase (decrease) the pro forma as adjusted amount of each of cash, working capital, total assets and total stockholders' equity by $ million, assuming no change in the assumed initial public offering price of $ per share, the midpoint of the estimated offering price range set forth on the cover page of this prospectus, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

(4) We define working capital as current assets less current liabilities.

RISK FACTORS

Investing in our common stock involves a high degree of risk. You should consider carefully the risks and uncertainties described below, together with all of the other information in this prospectus, including "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our consolidated financial statements and the accompanying notes included elsewhere in this prospectus before deciding whether to invest in shares of our common stock. The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties that we are unaware of or that we deem immaterial may also become important factors that adversely affect our business. If any of the following risks actually occur, our business, financial condition, liquidity, operating results, and prospects could be materially and adversely affected. In that event, the market price of our common stock could decline, and you could lose part or all of your investment. See "Special Note Regarding Forward-Looking Statements."

RISK FACTOR SUMMARY

Our business operations are subject to numerous risks and uncertainties, including those outside of our control, that could cause our actual results to be harmed, including risks regarding the following:

Risks Related to Our Business and Industry

- Our business depends upon the success of our proprietary platform.
- Our limited operating history may make it difficult to evaluate the success of our business.
- We have incurred significant losses since inception, and we expect to incur losses over the next several years and may not be able to achieve or sustain revenues or profitability in the future.
- We have never generated, and may never generate, any revenue from sales of cell therapy products.
- Even if this offering is successful, we will need to obtain substantial additional funding to complete the development and any commercialization of our product candidates, if approved.
- Raising additional capital may cause dilution to our existing stockholders, restrict our operations or require us to relinquish rights to our intellectual property or product candidates on unfavorable terms.

Risks Related to the Development of Our Product Candidates

- Our approach to the discovery and development of product candidates based on our proprietary platform represents a novel approach to cancer treatment, which creates significant challenges for us.
- If we are unable to advance our product candidates through clinical development, obtain regulatory approval and ultimately commercialize our product candidates, or experience significant delays in doing so, our business will be materially harmed.
- Although many of our personnel have extensive experience in clinical development and manufacturing at other companies, we have no direct experience as a company in conducting clinical trials or managing a manufacturing facility for our product candidates.
- Our preclinical studies and clinical trials may fail to demonstrate adequately the safety, potency and purity of any of our product candidates, which would prevent or delay development, regulatory approval and commercialization.
- Our business could be adversely affected by the effects of health epidemics, including the evolving effects of the COVID-19 pandemic and responses thereto.
- We may rely on third parties to manufacture our clinical product supplies, and we may rely on third parties to produce and process our product candidates, if licensed.

- Our product candidates may cause undesirable side effects or have other properties that could halt their clinical development, prevent their regulatory approval, require expansion of the trial size, limit their commercial potential, or result in significant negative consequences.
- If we encounter difficulties enrolling patients in our clinical trials, our clinical development activities could be delayed or otherwise adversely affected.
- The market opportunities for our product candidates may be relatively small and our estimates of the prevalence of our target patient populations may be inaccurate.
- We face significant competition, and our operating results will suffer if we fail to compete effectively.

Risks Related to Manufacturing

- Manufacturing and administering our product candidates is complex and we may encounter difficulties in production.
- We plan to establish our own manufacturing facility and infrastructure in lieu of relying on third parties for the manufacture of our product candidates for certain clinical purposes, which will be costly and time-consuming and may not be successful.
- We may have difficulty validating our manufacturing process as we manufacture TCR-T therapy candidates from an increasingly diverse patient population for our clinical trials.

Risks Related to Government Regulation

- The FDA regulatory approval process is lengthy and time-consuming, and we may experience significant delays in the clinical development and regulatory approval of our product candidates.
- We may be unable to obtain regulatory approval for our product candidates under applicable regulatory requirements.
- Obtaining and maintaining regulatory approval of our product candidates in one jurisdiction does not mean that we will be successful in obtaining regulatory approval of our product candidates in other jurisdictions.
- Recently enacted and future legislation may increase the difficulty and cost for us to obtain marketing approval for and commercialize our product candidates and affect the prices we may obtain.

Risks Related to Our Intellectual Property

- If we are unable to obtain and maintain patent protection for any product candidates we develop and for our technology, or if the scope of the patent protection obtained is not sufficiently broad, our competitors could develop and commercialize products, product candidates and technology similar or identical to ours, and our ability to successfully commercialize any product candidates we may develop may be adversely affected.
- We are currently, and expect in the future to be, party to material license or collaboration agreements.
- Third party claims of intellectual property infringement, misappropriation or other violations may prevent or delay our product discovery and development efforts.

Risks Related to Our Reliance on Third Parties

- If the third parties we plan to rely on to conduct our clinical trials do not properly and successfully carry out their contractual duties or meet expected deadlines, we may not be able to obtain regulatory approval for or commercialize our product candidates.

- We may not realize the benefits of our current or future collaborations, alliances, or licensing arrangements.

RISK FACTORS

Risks Related to Our Business and Industry

Our business depends upon the success of our proprietary platform.

Our success depends on our ability to use our proprietary platform to discover the natural targets of clinically relevant TCRs through our TargetScan technology, to discover highly active TCRs for known targets through our ReceptorScan technology, to genetically engineer patient- or donor-derived T cells safely and reproducibly through our T-Integrate technology, to obtain regulatory approval for product candidates derived from our proprietary platform and related technologies, and to then commercialize our product candidates addressing one or more indications. All of our product candidates will require significant additional clinical and non-clinical development, review and approval by the FDA or other regulatory authorities in one or more jurisdictions, substantial investment, access to sufficient commercial manufacturing capacity and significant marketing efforts before they can be successfully commercialized. Our platform and our product candidates have not yet been evaluated in humans and may never become commercialized. Moreover, all of our current product candidates are being developed using our proprietary platform and leveraging the same or similar technology, manufacturing process and development program. As a result, an issue with one product candidate or failure of any one program to obtain regulatory approval could adversely impact our ability to successfully develop and commercialize all of our other product candidates.

In addition, the success of our proprietary platform in discovering novel targets for TCR-T therapy is dependent on us obtaining tumor samples from cancer patients who actively respond to cancer immunotherapies. If our ability to obtain a significant amount of such tumor samples in a timely manner is compromised due to unforeseen circumstances, we may not be successful in discovering novel targets and creating new product candidates based on such targets.

Our limited operating history may make it difficult to evaluate the success of our business to date and to assess our future viability.

We are a preclinical-stage immunotherapy company with a limited operating history. We commenced operations in April 2018, and our operations to date have been limited to organizing and staffing our company, business planning, raising capital, conducting discovery and research activities, filing patent applications, identifying potential product candidates, undertaking preclinical studies, entering into collaborations, establishing manufacturing for initial quantities of our product candidates, and establishing arrangements for component materials for such manufacturing. All of our product candidates are still in preclinical development. We have not yet demonstrated our ability to successfully initiate, conduct or complete any clinical trials, obtain marketing approvals, manufacture clinical or commercial-scale product or arrange for a third party to do so on our behalf, or conduct sales, marketing and distribution activities necessary for successful product commercialization. Consequently, any predictions about our future success or viability may not be as accurate as they could be if we had a longer operating history.

In addition, as a young business, we may encounter unforeseen expenses, difficulties, complications, delays and other known and unknown factors. We eventually may need to transition at some point from a company with a research and development focus to a company capable of supporting commercial activities. We may not be successful in such a transition.

We expect our financial condition and operating results to continue to fluctuate significantly from quarter to quarter and year to year due to a variety of factors, many of which are beyond our control. Accordingly, the results of any quarterly or annual periods should not be relied upon as indications of future operating performance.

We have incurred significant losses since inception, and we expect to incur losses over the next several years and may not be able to achieve or sustain revenues or profitability in the future.

Investment in biopharmaceutical product development is a highly speculative undertaking and entails substantial upfront capital expenditures and significant risk that any potential product candidate will fail to demonstrate adequate efficacy or an acceptable safety profile, gain regulatory approval and become commercially viable. We are still in the early stages of development of our product candidates and have not yet initiated our first clinical trial. We have no products licensed for commercial sale and have not generated any revenue from product sales to date, and we continue to incur significant research and development and other expenses related to our ongoing operations. We have financed our operations primarily through private placements of our preferred stock.

We have incurred significant net losses in each period since our inception in April 2018. For the years ended December 31, 2019 and 2020, we reported net losses of $13.7 million and $26.1 million, respectively. As of December 31, 2020, we had an accumulated deficit of $43.5 million. We expect to continue to incur significant losses for the foreseeable future, and we expect these losses to increase substantially if and as we:

- continue our research and development efforts to identify and develop lead product candidates and submit investigational new drug applications, or INDs, for such lead product candidates;
- conduct preclinical studies and commence clinical trials for our current and future product candidates based on our proprietary platform;
- develop processes suitable for manufacturing and clinical development
- continue to develop and then expand our manufacturing capabilities;
- seek marketing approvals for any product candidates that successfully complete clinical trials;
- build commercial infrastructure to support sales and marketing for our product candidates;
- expand, maintain and protect our intellectual property portfolio;
- hire additional clinical, regulatory and scientific personnel; and
- operate as a public company.

Because of the numerous risks and uncertainties associated with biopharmaceutical product research and development, we are unable to accurately predict the timing or amount of increased expenses we will incur or when, if ever, we will be able to achieve profitability. Even if we succeed in commercializing one or more of our product candidates, we will continue to incur substantial research and development and other expenditures to develop, seek regulatory approval for, and market additional product candidates. We may encounter unforeseen expenses, difficulties, complications, delays and other unknown factors that may adversely affect our business. The size of our future net losses will depend, in part, on the rate of future growth of our expenses and our ability to generate revenue. Our prior losses and expected future losses have had and will continue to have an adverse effect on our stockholders' equity and working capital.

We have never generated any revenue from sales of cell-therapy products and our ability to generate revenue from cell-therapy product sales and become profitable depends significantly on our success in a number of areas.

Our ability to become profitable depends upon our ability to generate revenue. To date, we have not generated any revenue from sales of any of our product candidates. We do not expect to generate significant revenue unless or until we successfully complete clinical development and obtain regulatory approval of, and then successfully commercialize, at least one of our product candidates. All of our product candidates are in the preclinical stages of development and will require additional preclinical studies, process development, clinical development, regulatory review and approval, substantial investment, access to sufficient commercial

manufacturing capacity and significant marketing efforts before we can generate any revenue from product sales. None of our product candidates have completed IND-enabling studies. TSC-100, one of our lead product candidates targeting HA-1, an epitope present on leukemia cells, is in the early stages of development and has not yet been evaluated in clinical trials and will require additional regulatory review and approval, substantial investment, access to sufficient commercial manufacturing capacity and significant marketing efforts before we can generate any revenue from product sales. Our other product candidates are in early preclinical stages. We have not yet administered any of our product candidates in humans and, as such, we face significant translational risk as our product candidates advance to the clinical stage. Our ability to generate revenue depends on a number of factors, including, but not limited to:

- our ability to develop processes suitable for clinical manufacturing and to obtain related CMC regulatory approvals;
- timely completion of our preclinical studies and clinical trials, which may be significantly slower or cost more than we currently anticipate and will depend substantially upon the performance of third party contractors;
- our ability to complete IND-enabling studies and successfully submit INDs or comparable applications;
- whether we are required by the U.S. Food and Drug Administration (FDA) or similar foreign regulatory authorities to conduct additional clinical trials or other studies beyond those planned to support the approval and commercialization of our product candidates or any future product candidates;
- our ability to demonstrate to the satisfaction of the FDA and similar foreign regulatory authorities the safety, potency, purity and acceptable risk to benefit profile of our product candidates or any future product candidates;
- the prevalence, duration and severity of potential side effects or other safety issues experienced with our product candidates or future product candidates, if any;
- the timely receipt of necessary marketing approvals from the FDA and similar foreign regulatory authorities;
- the willingness of physicians, operators of clinics and patients to utilize or adopt any of product candidates or future product candidates to treat liquid or solid tumors;
- our ability and the ability of third parties with whom we contract to manufacture adequate clinical and commercial supplies of our product candidates or any future product candidates, remain in good standing with regulatory authorities and develop, validate and maintain commercially viable manufacturing processes that are compliant with current good manufacturing practices (cGMP);
- our ability to successfully develop a commercial strategy and thereafter commercialize our product candidates or any future product candidates in the United States and internationally, if licensed for marketing, reimbursement, sale and distribution in such countries and territories, whether alone or in collaboration with others;
- patient demand for our product candidates and any future product candidates, if licensed; and
- our ability to establish, obtain, maintain, protect and enforce intellectual property and proprietary rights in and to our product candidates or any future product candidates.

Many of the factors listed above are beyond our control, and could cause us to experience significant delays or prevent us from obtaining regulatory approvals or commercialize our product candidates. Even if we are able to commercialize our product candidates, we may not achieve profitability soon after generating product sales, if ever. If we are unable to generate sufficient revenue through the sale of our product candidates or any future product candidates, we may be unable to continue operations without continued funding.

Even if this offering is successful, we will need to obtain substantial additional funding to complete the development and any commercialization of our product candidates, if approved. If we are unable to raise this necessary capital when needed, we would be forced to delay, reduce or eliminate our product development programs, commercialization efforts or other operations.

Since our inception, we have financed our operations through private placements of preferred stock. The development of biopharmaceutical product candidates is capital intensive and we expect our expenses to increase substantially during the next few years. As our product candidates enter and advance through preclinical studies and clinical trials, we will need substantial additional funds to expand our clinical, regulatory, quality and manufacturing capabilities. In addition, if we obtain marketing approval for any of our product candidates, we expect to incur significant commercialization expenses related to marketing, sales, manufacturing and distribution. Furthermore, upon the completion of this offering, we expect to incur additional costs associated with operating as a public company.

As of December 31, 2020, we had $34.8 million in cash and cash equivalents. Based on our current operating plan, we believe that our existing cash and cash equivalents will be sufficient to fund our anticipated level of operations through at least the next 12 months without the proceeds from this offering. With the expected net proceeds from this offering, we believe that our cash and cash equivalents will be sufficient to fund our operating expenses and capital expenditure requirements through . Accordingly, the expected net proceeds from this offering will not be sufficient for us to fund any of our product candidates through regulatory approval, and we will need to raise substantial additional capital to complete the development and commercialization of our product candidates through equity offerings, debt financings, marketing and distribution arrangements and other collaborations, strategic alliances and licensing arrangements or other sources. We may also need to raise additional funds sooner if we choose to pursue additional indications for our product candidates or otherwise expand more rapidly than we presently anticipate.

We have based these estimates on assumptions that may prove to be incorrect or require adjustment as a result of business decisions, and we could utilize our available capital resources sooner than we currently expect. Our future capital requirements will depend on many factors, including:

- the scope, rate of progress, costs and results of our drug discovery, preclinical development activities, laboratory testing and clinical trials for our product candidates;
- the number and scope of clinical programs we decide to pursue;
- the scope and costs of manufacturing development and commercial manufacturing activities and our ability to scale them up or out;
- the extent to which we acquire or in-license other product candidates and technologies;
- the cost, timing and outcome of regulatory review of our product candidates, including the potential for regulatory authorities to require that we conduct more studies and trials than those that we currently expect to conduct and the costs of post-marketing studies or risk evaluation and mitigation strategies that could be required by regulatory authorities;
- potential changes in the regulatory environment and enforcement rules;
- the cost and timing of establishing sales and marketing capabilities, if any of our product candidates receive marketing approval;
- the costs of preparing, filing and prosecuting patent applications, maintaining, obtaining, protecting and enforcing our intellectual property and proprietary rights and defending intellectual property-related claims;
- our ability to establish and maintain collaborations on favorable terms, if at all;
- the impact of the COVID-19 pandemic or other external disruptions on our business, results of operations and financial position;
- our efforts to enhance operational systems and our ability to attract, hire and retain qualified personnel, including personnel to support the development of our product candidates;

- potential changes in pharmaceutical pricing and reimbursement infrastructure;
- the costs associated with being a public company; and
- the cost associated with commercializing our product candidates, if they receive marketing approval.

Identifying potential product candidates and conducting preclinical studies and clinical trials is a time consuming, expensive and uncertain process that takes years to complete, and we may never generate the necessary data or results required to obtain marketing approval. In addition, our product candidates, if approved, may not achieve product sales or commercial success. We do not expect to have any products commercially available for sale for many years, if at all. Accordingly, we will need to obtain substantial additional funding in connection with our continuing operations. Adequate additional financing may not be available to us on acceptable terms, or at all, and may be impacted by the economic climate and market conditions. If we are unable to raise capital when needed or on attractive terms, we would be forced to delay, limit, reduce or eliminate our research and development programs or future commercialization efforts or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves. In addition, attempting to secure additional financing may divert the time and attention of management from day-to-day activities and distract from our research and development efforts. We may also seek additional capital due to favorable market conditions or strategic considerations, even if we believe we have sufficient funds for our current or future operating plans.

Raising additional capital may cause dilution to our existing stockholders, restrict our operations or require us to relinquish rights to our intellectual property or product candidates on unfavorable terms to us.

We may seek additional capital through a variety of means, including through collaboration arrangements, public or private equity or debt financings, third party (including government) funding and marketing and distribution arrangements, as well as other strategic alliances and licensing arrangements or any combination of these approaches. However, there can be no assurance that we will be able to raise capital on commercially reasonable terms or at all. To the extent that we raise additional capital through the sale of equity or convertible debt securities, our stockholder ownership interest will be diluted, and the terms may include liquidation preferences or other rights, powers or preferences that may adversely affect rights of our stockholders. To the extent that debt financing is available and we choose to raise additional capital in the form of debt, such debt financing may involve agreements that include covenants limiting or restricting our ability to take certain actions, such as incurring additional debt, making capital expenditures or declaring dividends. If we raise additional capital pursuant to collaborations, licensing arrangements or other strategic partnerships, such agreements may require us to relinquish rights to our technologies or product candidates.

If we are unable to raise additional funds through equity or debt financing or through collaborations, licensing arrangements or strategic partnerships when needed, we may be required to delay, limit, reduce or terminate our product development or commercialization efforts.

Risks Related to the Development of Our Product Candidates

Our approach to the discovery and development of product candidates based on our proprietary platform represents a novel approach to cancer treatment, which creates significant challenges for us.

Our future success depends on the successful development of our product candidates, which target liquid and solid tumors utilizing T-cell receptor therapies, or TCR-T therapies. Advancing our product candidates creates significant challenges for us, including:

- educating medical personnel about the administration of TCR-T therapies on a stand-alone basis or in combination with built-in immune and tumor modulators;

- educating medical personnel regarding the potential side effect profile of our product candidates, such as the potential adverse side effects related to cytokine release syndrome (CRS), graft vs. host disease, neurotoxicity or autoimmune or rheumatologic disorders;
- administering chemotherapy to patients in advance of administering our product candidates, which may increase the risk of adverse side effects;
- sourcing clinical and, if licensed, commercial, supplies for the materials used to manufacture and process our product candidates;
- manufacturing TCR-Ts efficiently and consistently without the use of viral vectors using our T-Integrate technology;
- developing a complete shipment lifecycle and supply chain, including efficiently managing shipment of patient cells from and to clinical sites, minimizing potential contamination to the cell product and effectively scaling manufacturing capacity to meet demand;
- developing processes suitable for clinical manufacturing and obtaining related CMC regulatory approvals;
- managing costs of inputs and other supplies while scaling production;
- using medicines to manage adverse side effects of our product candidates, which may not adequately control the side effects and/or may have a detrimental impact on the potency of the treatment;
- obtaining and maintaining regulatory approval from the FDA for our product candidates; and
- establishing sales and marketing capabilities upon obtaining any regulatory approval to gain market acceptance of a novel therapy.

In developing our product candidates, we have not exhaustively explored different options in the design of the TCR construct and in the method for manufacturing TCR-T therapies. We may find our existing TCR-T therapy candidates and manufacturing process may be substantially improved with future design or process changes, necessitating development of new or additional TCR constructs and further clinical testing and delaying commercial launch of our first products. For example:

- We have made several TCR constructs and used preclinical studies to select product candidates to advance into clinical trials. The preclinical studies are limited in their ability to predict behavior in patients. As we gain experience working with TCR constructs, we may decide to select other TCR constructs for clinical development.
- The process by which patient cells are converted into a TCR-T product has many steps that can influence quality and activity.

We have explored a subset of variables and expect to continue to improve and optimize the manufacturing process. Depending upon the nature of the process changes, we may be compelled to perform bridging studies and/or to re-start clinical development, causing delays in time to market and potentially introducing a risk of failure if new processes do not perform as expected.

We are very early in our development efforts. All of our product candidates are still in preclinical development. If we are unable to advance our product candidates through clinical development, obtain regulatory approval and ultimately commercialize our product candidates, or experience significant delays in doing so, our business will be materially harmed.

We are very early in our development efforts. All of our product candidates are still in preclinical development, with TSC-100, our most advanced product candidate, still in preclinical development and not having completed IND-enabling studies. Our ability to generate product revenues, which we do not expect will

occur for many years, if ever, will depend significantly on the successful development and eventual commercialization of one or more of our product candidates. The success of our product candidates will depend on several factors, including the following:

- successful development of a process suitable for clinical manufacturing
- successful completion of preclinical studies;
- successful initiation of clinical trials;
- successful patient enrollment in and completion of clinical trials;
- receipt and related terms of marketing approvals and licensures from applicable regulatory authorities;
- obtaining and maintaining patent and trade secret protection and regulatory exclusivity for our product candidates;
- making arrangements with third party manufacturers, or establishing manufacturing capabilities, for both clinical and commercial supplies of our product candidates;
- establishing sales, marketing and distribution capabilities and launching commercial sales of our product candidates, if and when approved, whether alone or in collaboration with others;
- acceptance of our product candidates, if and when approved, by patients, the medical community and third party payors;
- effectively competing with other cancer therapies;
- obtaining and maintaining third party coverage and adequate reimbursement;
- maintaining a continued acceptable safety profile of our product candidates following licensure; and
- effectively competing with other therapies.

If we do not achieve one or more of these factors in a timely manner or at all, we could experience significant delays or be unable to successfully commercialize our product candidates, which would materially harm our business.

Although many of our personnel have extensive experience in clinical development and manufacturing at other companies, we have no direct experience as a company in conducting clinical trials or managing a manufacturing facility for our product candidates.

Although many of our personnel have extensive experience in clinical development and manufacturing at other companies, we have no direct experience as a company in conducting clinical trials at TScan. In part because of this lack of experience, we cannot be certain that our ongoing preclinical studies will be completed on time or if the planned preclinical studies and clinical trials will begin or be completed on time, if at all. Large-scale clinical trials would require significant additional financial and management resources and reliance on third party clinical investigators, contract research organizations (CROs) and consultants. Relying on third party clinical investigators, CROs and consultants may force us to encounter delays that are outside of our control.

We currently intend to operate our own cell manufacturing facility for Phase 1 and Phase 2 clinical trials, which will require significant resources, and we have limited direct experience as a company in expanding or managing a manufacturing facility. In part because of this lack of experience, we cannot be certain that our manufacturing facility will be completed on time, if at all, or if the planned clinical trials will begin or be completed on time, if at all. In part because of our inexperience, we may have unacceptable or inconsistent product quality success rates and yields, and we may be unable to maintain adequate quality control, quality assurance and qualified personnel. In addition, if we switch from manufacturing in our own facility to manufacturing in a different facility (for example, at an external contract manufacturing organization) for one or

more of our product candidates in the future or make changes to our manufacturing process, we may need to conduct additional preclinical studies to bridge our modified product candidates to earlier versions. Failure to successfully create and operate our proposed manufacturing facility could adversely affect our process and clinical development timelines, regulatory approvals, and the commercial viability of our product candidates.

Our business is highly dependent on our current product candidates, TSC-100, TSC-101, TSC-102, TSC-200, TSC-201, and TSC-202, and we must complete IND-enabling studies and clinical testing before we can seek regulatory approval and begin commercialization of any of our product candidates.

There is no guarantee that any of our product candidates will proceed in preclinical or clinical development or achieve regulatory approval. The process for obtaining marketing approval for any product candidate is very long and risky and there will be significant challenges for us to address in order to obtain marketing approval as planned or, if at all.

There is no guarantee that the results obtained in current preclinical studies or our planned IND-enabling studies of TSC-100, TSC-101, TSC-102, TSC-200, TSC-201, and TSC-202 will be sufficient to obtain regulatory approval or marketing authorization for such product candidates. Negative results in the development of our lead product candidates may also impact our ability to obtain regulatory approval for our other product candidates, either at all or within anticipated timeframes because, although other product candidates may target different indications, the underlying proprietary platform, manufacturing process and development process is the same for all of our product candidates. Accordingly, a failure in any one program may affect the ability to obtain regulatory approval to continue or conduct clinical programs for other product candidates.

In addition, because we have limited financial and personnel resources and are placing significant focus on the development of our lead product candidates, we may forgo or delay pursuit of opportunities with other future product candidates that later prove to have greater commercial potential. Our resource allocation decisions may cause us to fail to capitalize on viable commercial products or profitable market opportunities. Our spending on current and future research and development programs and other future product candidates for specific indications may not yield any commercially viable future product candidates. If we do not accurately evaluate the commercial potential or target market for a particular future product candidate, we may relinquish valuable rights to those future product candidates through collaboration, licensing or other royalty arrangements in cases in which it would have been more advantageous for us to retain sole development and commercialization rights to such future product candidates.

Our preclinical studies and clinical trials may fail to demonstrate adequately the safety, potency and purity of any of our product candidates, which would prevent or delay development, regulatory approval and commercialization.

Before obtaining regulatory approvals for the commercial sale of our product candidates, including TSC-100, TSC-101, TSC-102, TSC-200, TSC-201, and TSC-202, we must demonstrate through lengthy, complex and expensive preclinical studies and clinical trials that our product candidates are both safe and effective for use in each target indication. Preclinical and clinical testing is expensive and can take many years to complete, and its outcome is inherently uncertain. Failure can occur at any time during the preclinical study and clinical trial processes, and, because our product candidates are in an early stage of development, there is a high risk of failure and we may never succeed in developing marketable products.

The results of preclinical studies and early clinical trials of our product candidates may not be predictive of the results of later-stage clinical trials. There is typically an extremely high rate of attrition from the failure of product candidates proceeding through preclinical studies and clinical trials. Product candidates in later stages of clinical trials may fail to show the desired safety, potency and purity profile despite having progressed through preclinical studies and initial clinical trials. A number of companies in the biopharmaceutical industry have suffered significant setbacks in advanced clinical trials due to lack of potency or efficacy, insufficient durability

of potency or efficacy or unacceptable safety issues, notwithstanding promising results in earlier trials. Most product candidates that commence preclinical studies and clinical trials are never approved as products.

Any preclinical studies or clinical trials that we may conduct may not demonstrate the safety, potency and purity necessary to obtain regulatory approval to market our product candidates. If the results of our ongoing or future preclinical studies and clinical trials are inconclusive with respect to the safety, potency and purity of our product candidates, if we do not meet the clinical endpoints with statistical and clinically meaningful significance, or if there are safety concerns associated with our product candidates, we may be prevented or delayed in obtaining marketing approval for such product candidates. In some instances, there can be significant variability in safety, potency or purity results between different preclinical studies and clinical trials of the same product candidate due to numerous factors, including changes in trial procedures set forth in protocols, differences in the size and type of the patient populations, changes in and adherence to the clinical trial protocols and the rate of dropout among clinical trial participants.

Clinical development involves a lengthy and expensive process with an uncertain outcome, and results of earlier studies and trials may not be predictive of future clinical trial results. If our preclinical studies and clinical trials are not sufficient to support regulatory approval of any of our product candidates, we may incur additional costs or experience delays in completing, or ultimately be unable to complete, the development of such product candidate.

We cannot be certain that our preclinical study and clinical trial results will be sufficient to support regulatory approval of our product candidates. Clinical testing is expensive and can take many years to complete, and its outcome is inherently uncertain. Human clinical trials are expensive and difficult to design and implement, in part because they are subject to rigorous regulatory requirements. Failure or delay can occur at any time during the clinical trial process.

We may experience delays in obtaining the FDA's authorization to initiate clinical trials under future INDs, completing ongoing preclinical studies of our other product candidates, and initiating our planned preclinical studies and clinical trials. Additionally, we cannot be certain that preclinical studies or clinical trials for our product candidates will begin on time, not require redesign, enroll an adequate number of subjects on time, or be completed on schedule, if at all. Clinical trials can be delayed or terminated for a variety of reasons, including delays or failures related to:

- the FDA or comparable foreign regulatory authorities disagreeing as to the design or implementation of our clinical trials;
- delays in obtaining regulatory approval to commence a clinical trial;
- reaching agreement on acceptable terms with prospective CROs and clinical trial sites, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and clinical trial sites;
- obtaining institutional review board (IRB) approval at each clinical trial site;
- recruiting or retaining an adequate number of suitable patients to participate in a clinical trial, including as a result of actions taken by governments and individuals in response to the COVID-19 pandemic;
- having subjects complete a clinical trial or return for post-treatment follow-up;
- clinical trial sites deviating from clinical trial protocol or dropping out of a clinical trial;
- addressing subject safety concerns that arise during the course of a clinical trial;
- adding a sufficient number of clinical trial sites; or
- obtaining sufficient product supply of product candidate for use in preclinical studies or clinical trials from third party suppliers.

We may experience numerous adverse or unforeseen events during, or as a result of, preclinical studies and clinical trials that could delay or prevent our ability to receive marketing approval or commercialize our product candidates, including:

- we may receive feedback from regulatory authorities that requires us to modify the design of our clinical trials;
- clinical trials of our product candidates may produce negative or inconclusive results, and we may decide, or regulators may require us, to conduct additional clinical trials or abandon our research efforts for our other product candidates;
- the number of patients required for clinical trials of our product candidates may be larger than we anticipate, enrollment in these clinical trials may be slower than we anticipate or participants may drop out of our clinical trials at a higher rate than we anticipate;
- our third party contractors may fail to comply with regulatory requirements, fail to maintain adequate quality controls or be unable to provide us with sufficient product supply to conduct and complete preclinical studies or clinical trials of our product candidates in a timely manner, or at all;
- we or our investigators might have to suspend or terminate clinical trials of our product candidates for various reasons, including non-compliance with regulatory requirements, a finding that our product candidates have undesirable side effects or other unexpected characteristics or a finding that the participants are being exposed to unacceptable health risks;
- the cost of clinical trials of our product candidates may be greater than we anticipate;
- the effects of the ongoing COVID-19 global pandemic;
- the quality of our product candidates or other materials necessary to conduct preclinical studies or clinical trials of our product candidates may be insufficient or inadequate;
- regulators may revise the requirements for approving our product candidates, or such requirements may not be as we anticipate; and
- our current or future collaborators may conduct clinical trials in ways they view as advantageous to them but that are suboptimal for us.

If we are required to conduct additional clinical trials or other testing of our product candidates beyond those that we currently contemplate, if we are unable to successfully complete clinical trials of our product candidates or other testing, if the results of these trials or tests are not positive or are only moderately positive or if there are safety concerns, our business and results of operations may be adversely affected and we may incur significant additional costs. Accordingly, our clinical trial costs are likely to be significantly higher than those for more conventional therapeutic technologies or drug product candidates.

We could also encounter delays if a clinical trial is suspended or terminated by us, by the IRBs of the institutions in which such clinical trials are being conducted, by the Data Safety Monitoring Board (DSMB) for such clinical trial or by the FDA or other regulatory authorities. Such authorities may suspend or terminate a clinical trial due to a number of factors, including failure to conduct the clinical trial in accordance with regulatory requirements or our clinical trial protocols, inspection of the clinical trial operations or trial site by the FDA or other regulatory authorities resulting in the imposition of a clinical hold, unforeseen safety issues or adverse side effects, failure to demonstrate a benefit from the product candidates, changes in governmental regulations or administrative actions or lack of adequate funding to continue the clinical trial.

If we experience delays in the completion, or termination, of any preclinical study or clinical trial of our product candidates, the commercial prospects of our product candidates may be harmed, and our ability to generate revenues from any of these product candidates will be delayed or not realized at all. In addition, any delays in completing our preclinical studies or clinical trials may increase our costs, slow down our product

candidate development and approval process and jeopardize our ability to commence product sales and generate revenues. Any of these occurrences may significantly harm our business, financial condition and prospects. In addition, many of the factors that cause, or lead to, a delay in the commencement or completion of clinical trials may also ultimately lead to the denial of regulatory approval of our product candidates.

Our business could be adversely affected by the effects of health epidemics, including the evolving effects of the COVID-19 pandemic, in regions where we, our partners or other third parties on which we rely have significant manufacturing facilities, concentrations of potential clinical trial sites or other business operations. The COVID-19 pandemic has had and may continue have a material effect on our operations as well as the business or operations of our partners or other third parties with whom we or our partners conduct business.

Health epidemics in regions where we have concentrations of potential clinical trial sites or other business operations could adversely affect our business, including by causing significant disruption in the operations of third parties upon whom we rely. For example, the COVID-19 pandemic has presented a substantial public health and economic challenge around the world and is affecting employees, patients, communities and business operations, as well as the U.S. economy and financial markets. Our headquarters is located in the Greater Boston Area. In addition, several of our third party suppliers and contractors are located in countries and regions that have been negatively impacted by the COVID-19 global pandemic. In March 2020, the U.S. government imposed bans and restrictions on travel between the United States, Asia and certain other continents and countries and other countries have restricted travel to and from the United States. Although, the Commonwealth of Massachusetts has permitted businesses to re-open on a limited basis, we have implemented work-from-home policies for a vast majority of our employees. The effects of our work-from-home policies may negatively impact productivity, disrupt our business and delay our clinical programs and timelines, the magnitude of which will depend, in part, on the length and severity of any current or future restrictions and other limitations on our ability to conduct our business in the ordinary course. In connection with these measures, we may be subject to claims based upon, arising out of or related to COVID-19 and our actions and responses thereto, including any determinations that we may make to continue to operate or to re-open our facilities where permitted by applicable law. These and similar, and perhaps more severe, disruptions in our operations could negatively impact our business, financial condition, results of operations and growth prospects.

In addition, our planned clinical trials may be affected by the COVID-19 outbreak. Site initiation and patient enrollment may be delayed due to prioritization of hospital resources toward the COVID-19 outbreak. Some patients may not be able to comply with clinical trial protocols if quarantines impede patient movement or interrupt healthcare services. Similarly, our ability to recruit and retain patients and principal investigators and site staff who, as healthcare providers, may have heightened exposure to COVID-19 and adversely impact our planned clinical trial operations.

Furthermore, while the potential economic impact brought by, and the duration of, the COVID-19 pandemic may be difficult to assess or predict, the pandemic could result in significant and prolonged disruption of global financial markets, reducing our ability to access capital, which could in the future negatively affect our liquidity. In addition, a recession or market correction resulting from the spread of COVID-19 could materially affect our business and the value of our common stock.

While we expect the COVID-19 pandemic to continue to adversely affect our business operations, the extent of the impact on our development and regulatory efforts and the future value of and market for our common stock will depend on future developments that are highly uncertain and cannot be predicted with confidence at this time, such as the ultimate duration of the pandemic, travel restrictions, quarantines, social distancing and business closure requirements in the U.S. and in other countries, and the effectiveness of actions taken globally to contain and treat COVID-19. In addition, to the extent the evolving effects of the COVID-19 pandemic adversely affects our business and results of operations, it may also have the effect of heightening many of the other risks and uncertainties described elsewhere in this “Risk Factors” section.

We may rely on third parties to manufacture our clinical product supplies, and we may rely on third parties to produce and process our product candidates, if licensed.

We currently intend to establish facilities to manufacture our clinical scale product candidates for our Phase 1 and Phase 2 clinical trials for TSC-100, TSC-101, TSC-102, TSC-200, TSC-201, and TSC-202. However, we rely on outside vendors to manufacture supplies for our manufacturing process, and we expect to rely on outside vendors to manufacture our product candidates for registration-enabling additional clinical trials as well as commercial sales. We have not yet caused any product candidates to be manufactured or processed on a commercial scale and may not be able to do so for any of our product candidates. We plan to make changes as we work to optimize the manufacturing process. For example, we may switch or be required to switch from research-grade materials to commercial-grade materials in order to get regulatory approval of our product candidates, which could delay regulatory approval, if any. We cannot be sure that even minor changes in the process will result in therapies that are safe and effective and licensed for commercial sale. In addition, changes in the manufacturing process may result in the need to conduct additional bridging clinical trials to demonstrate product comparability.

The facilities used by us or any contract manufacturers to manufacture our product candidates must be approved by the FDA or other foreign regulatory authorities following inspections that will be conducted after we submit an application to the FDA or other foreign regulatory authorities. If we engage contract manufacturers, we may not control the manufacturing process of, and may be completely dependent on, such contract manufacturing partners for compliance with cGMPs and any other regulatory requirements of the FDA or other regulatory authorities for the manufacture of our product candidates. We have limited control over the ability of any contract manufacturers we engage to maintain adequate quality control, quality assurance and qualified personnel. Even with oversight, the third party may not be able to meet proper quality standard or its contractual obligations. If the FDA or a comparable foreign regulatory authority does not approve these facilities for the manufacture of our product candidates or if it withdraws any approval in the future, we may need to find alternative manufacturing facilities, which would significantly impact our ability to develop, obtain regulatory approval for or market our product candidates, if licensed.

We, and any contract manufacturers we engage for registration-enabling clinical trials, may experience manufacturing difficulties due to limited manufacturing experience, resource constraints or as a result of labor disputes, the ongoing COVID-19 pandemic, the U.S.-China trade war or unstable political environments. If we or any contract manufacturers we engage were to encounter any of these difficulties, our ability to manufacture sufficient product supply for our preclinical studies and clinical trials, or to provide products for patients once approved, would be jeopardized.

Many of the materials and regents we expect to use in our processes are single or sole source, and/or have limited stability and as such supply disruptions could materially impact our ability to develop or manufacture products. For example, the type of cell culture media and cryopreservation buffer that we currently use in our manufacturing process for TSC-100 and TSC-101 are each only available from a limited number of suppliers. In addition, the cell processing equipment and tubing that we use in our current manufacturing process is currently sourced from a single supplier. Any interruption in the supply by those single source suppliers could impact our ability to continue development of any and all of our product candidates on the anticipated timelines or at all.

We cannot guarantee that our product candidates will show any functionality in the solid tumor microenvironment.

There are no approved TCR-T immunotherapies for solid tumors. While we plan to develop product candidates for use in solid tumors, including TSC-200, we cannot guarantee that our product candidates will show any functionality in the solid tumor microenvironment. The cellular environment in which solid tumor cells thrive is generally hostile to T cells due to factors such as the presence of immunosuppressive cells, humoral factors and limited access to nutrients. Our TCR-T-based product candidates may not be able to access the solid

tumor, and even if they do, they may not be able to exert anti-tumor effects in a hostile tumor microenvironment. As a result, our product candidates may not demonstrate potency in solid tumors. If we are unable to make our product candidates function in solid tumors, our development plans and business may be significantly harmed.

Since the number of patients that we plan to dose in our initial clinical trials may be small, the results from such clinical trial, once completed, may be less reliable than results achieved in larger clinical trials, which may hinder our efforts to obtain regulatory approval for our product candidates.

The preliminary results of clinical trials with smaller sample sizes can be disproportionately influenced by various biases associated with the conduct of small clinical trials, such as the potential failure of the smaller sample size to accurately depict the features of the broader patient population, which limits the ability to generalize the results across a broader community, thus making the clinical trial results less reliable than clinical trials with a larger number of patients. As a result, there may be less certainty that such product candidates would achieve a statistically significant effect in any future clinical trials. If we conduct any future clinical trials, we may not achieve a statistically significant result or the same level of statistical significance, if any, that we might have anticipated based on the results observed in our initial clinical trials. In addition, patients who are undergoing allogeneic hematopoietic cell transplantation are very sick and may pass away from complications of their standard clinical transplantation thus making it difficult to ascertain the beneficial effects of the added T-cell therapy. Further, toxicities of the T-cell therapy would be difficult to distinguish from the toxicity of the transplantation itself.

We may not be able to file INDs or IND amendments to commence additional clinical trials on the timelines we expect, and even if we are able to, the FDA may not permit us to proceed.

We expect to submit an IND for TSC-100 and TSC-101 in 2021 and a multi-TCR IND for TSC 200, TSC-201, and TSC-202 in 2022. However, we may not be able to file such INDs on the timelines we expect. For example, we may experience manufacturing delays or other delays with IND-enabling studies. Moreover, we cannot be sure that submission of an IND will result in the FDA allowing clinical trials to begin, or that, once begun, issues will not arise that suspend or terminate clinical trials. Additionally, even if such regulatory authorities agree with the design and implementation of the clinical trials set forth in an IND, we cannot guarantee that such regulatory authorities will not change their requirements in the future. These considerations also apply to new clinical trials we may submit as amendments to existing INDs.

In addition, one of our key goals is to develop treatments consisting of a combination of TCR-T therapies, which we refer to as multiplexed TCR-T therapy. Our plan is to assess the safety and preliminary efficacy of multiplexed TCR-T therapy early in the clinical development of our product candidates (e.g., Phase 1). We cannot guarantee, however, that the FDA will permit us to combine our product candidates with each other in a multiplexed TCR-T therapy before more extensive safety data are available for each individual product candidate or each variation or combination of a multiplexed TCR-T therapy. Any such requirements could result in material delays in the development timelines of our multiplexed TCR-T therapy candidates.

Our product candidates may cause undesirable side effects or have other properties that could halt their clinical development, prevent their regulatory approval, require expansion of the trial size, limit their commercial potential, or result in significant negative consequences.

Undesirable side effects caused by our product candidates could cause us or regulatory authorities, including IRBs, to interrupt, delay, or halt clinical trials and could result in a more restrictive label or the delay or denial of regulatory approval by the FDA or other comparable foreign regulatory authorities. Further, clinical trials by their nature utilize a sample of the potential patient population. With a limited number of subjects and limited duration of exposure, rare and severe side effects of our product candidates may only be uncovered with a significantly larger number of patients exposed to the drug. Because of the design of the dose escalation of our

our planned Phase 1 clinical trials, undesirable side effects could also result in an expansion in the size of our clinical trials, increasing the expected costs and timeline of our clinical trials. Additionally, results of our clinical trials could reveal a high and unacceptable severity and prevalence of side effects or unexpected characteristics, which may stem from our therapies specifically or may be due to an illness from which the clinical trial subject is suffering.

For example, there could be an increased risk of graft-versus-host disease (GvHD) with the TCR-T treatment. GvHD is a common toxicity in patients undergoing allogeneic hematopoietic stem cell transplantation, the focus of our liquid tumor program. GvHD occurs because donor T cells, which are part of the standard stem cell product, misrecognize antigens in the patient as foreign and attack tissues and organs that express those antigens. GvHD may be worsened by our TCR-T therapy candidates because they are derived from donor T cells. While the engineered T cells express a new T-cell receptor that is specific for the intended target antigen and is not expected to cause GvHD, those T cells may have low levels of endogenous T-cell receptors that have the potential to misrecognize patient antigens as foreign and worsen GvHD.

In solid tumor patients, autoimmunity may occur after TCR-T treatment. TCR-T therapies are generated from a patient's own T cells isolated from their peripheral blood. There is a risk that this process will expand a patient's own T cell that has autoreactivity, or that may recognize healthy cells, and upon re-infusion may trigger an autoimmune reaction resulting in damage to normal tissues and potentially even death.

Autoimmune reaction triggered by an interaction between a patient's naturally occurring antibodies and engineered T cells is a theoretical safety risk of product candidates we develop using our proprietary platform. If a patient's self-generated antibodies were directed to a target expressed on the surface of cells in normal tissue (autoantibodies), engineered T cells would be directed to attack these same tissues, potentially resulting in off-tumor effects. These autoantibodies may be present whether or not the patient has an active autoimmune disease. In our clinical testing, we plan to take steps to minimize the likelihood that this occurs, for example by excluding patients with a history of severe autoimmune disease from our trials. There is no guarantee, however, that we will not observe autoimmune reactions in the future and no guarantee that if we do, that we will be able to implement interventions to address the risk.

In addition, immunogenicity, which is the reaction between a patient's immune system and a foreign protein outside of the autoimmune context, is an additional theoretical safety risk of product candidates we develop using our proprietary platform. Patients' immune systems may recognize the TCR construct on the TCR-T product as a foreign protein and fight against it, potentially rendering it ineffective, or even provoking an allergic/anaphylactoid response or other adverse side effects. The immunogenic potential of novel therapeutics like TCR-T therapies is difficult to predict. There is no guarantee that we will not observe immunogenic reactions in the future and no guarantee that if we do, that we will be able to implement interventions to address the risk.

If unacceptable toxicities arise in the development of our product candidates, we could suspend or terminate our clinical trials or the FDA or comparable foreign regulatory authorities, or local regulatory authorities such as IRBs, could order us to cease clinical trials. Competent national health authorities, such as the FDA, could also deny approval of our product candidates for any or all targeted indications. Treatment-related side effects could also affect patient recruitment or the ability of enrolled patients to complete the clinical trial or result in potential product liability claims. In addition, these side effects may not be appropriately recognized or managed by the treating medical staff, as toxicities resulting from T-cell therapy are not normally encountered in the general patient population and by medical personnel. We expect to have to train medical personnel using our product candidates to understand the side effect profile of our product candidates for both our planned clinical trials and upon any commercialization of any product candidates, if licensed. Inadequate training in recognizing or managing the potential side effects of our product candidates could result in patient deaths. Any of these occurrences may significantly harm our reputation as well as business, financial condition and prospects.

Certain patients may lack sufficient T Cells for our autologous product candidates to be effective.

For autologous TCR-T therapy, our TCR-T therapy candidates are manufactured by using a vector to insert genetic information encoding the TCR construct into the patient's own T cells. This manufacturing process is dependent on a collecting a sufficient number of T cells from the patient. We may not be able to effectively treat some patients if they have an insufficient number of T cells to enable our manufacturing process, which could adversely impact our ability to progress the clinical development of such product candidates and could also adversely impact the commercial viability of such product candidates.

Our product candidates may target healthy cells expressing target antigens leading to potentially fatal adverse effects.

Our product candidates target specific antigens that are also expressed on healthy cells. Our product candidates may target healthy cells, leading to serious and potentially fatal adverse effects. In our planned clinical trials of our product candidates, we plan to use a dose escalation model to closely monitor the effect of our product candidates on vital organs and other potential side effects. Even though we intend to closely monitor the side effects of our product candidates in both preclinical studies and clinical trials, we cannot guarantee that products will not target and kill healthy cells.

Our product candidates may have serious and potentially fatal cross-reactivity to other peptides or protein sequences within the body.

Our product candidates may recognize and bind to a peptide unrelated to the target antigen to which it is designed to bind. If this peptide is expressed within normal tissues, our product candidates may target and kill the normal tissue in a patient, leading to serious and potentially fatal adverse effects. Detection of any cross-reactivity may halt or delay any ongoing clinical trials for any TCR-T therapy candidate and prevent or delay regulatory approval. Unknown cross-reactivity of the TCR-T binding domain to related proteins could also occur. We have also developed a preclinical screening process to identify cross-reactivity of T-cell binders. Any cross-reactivity that impacts patient safety could materially impact our ability to advance our product candidates into clinical trials or to proceed to marketing approval and commercialization.

The vectors used to manufacture our TCR-T therapies may incorrectly modify the genetic material of a patient's T cells, potentially triggering the development of a new cancer or other adverse events.

Our TCR-T therapy candidates are manufactured by using a vector to insert genetic information encoding the TCR construct into the patient's T cells. The TCR construct is then integrated into the natural TCR complex and transported to the surface of the patient's T cells. Because the vector modifies the genetic information of the T cell, there is a risk that modification will occur in the wrong place in the T cell's genetic code, leading to vector-related insertional oncogenesis, and causing the T cell to become cancerous. If the cancerous T cell is then administered to the patient with the TCR-T therapy candidates, the cancerous T cell could trigger the development of a new cancer in the patient. We use non-viral transposon / transposase or lentiviral vectors to insert genetic information into T cells. The risk of insertional oncogenesis remains a concern for gene therapy and we cannot assure that it will not occur in any of our ongoing or planned preclinical studies or clinical trials. There is also the potential risk of delayed adverse events following exposure to gene therapy products due to persistent biological activity of the genetic material or other components of vectors used to carry the genetic material. The FDA has stated that vectors possess characteristics that may pose high risks of delayed adverse events. Non-viral transposon/transposase systems have limited clinical history and such their safety profile is still to be determined . If any such adverse events occur, further advancement of our preclinical studies or clinical trials could be halted or delayed, which would have a material adverse effect on our business and operations.

If we encounter difficulties enrolling patients in our clinical trials, our clinical development activities could be delayed or otherwise adversely affected.

We may experience difficulties in patient enrollment in our clinical trials for a variety of reasons. The timely completion of clinical trials in accordance with their protocols depends on, among other things, our ability to enroll a sufficient number of patients who remain in the clinical trial until its conclusion. The enrollment of patients depends on many factors, including:

- the patient eligibility criteria defined in the clinical trial protocol, particularly those who meet the requisite genetic criteria. For example, for our liquid tumor program, patients would have to be HLA-A*02:01 positive and positive for the minor antigen HA-1 or HA-2 to be eligible for treatment with TSC-100 or TSC-101, respectively;
- for our liquid tumor program, the ability to find a donor who has to be mismatched with the patient either for the HLA type or the minor antigen type to ensure that the engineered T-cell therapy does not recognize donor-derived blood cells;
- the impact of the COVID-19 pandemic on clinical trial initiation and enrollment;
- the size of the patient population required for analysis of the clinical trial's primary endpoints;
- the proximity of patients to clinical trial sites;
- the design of the clinical trial;
- our ability to recruit clinical trial investigators with the appropriate competencies and experience;
- our ability to obtain and maintain patient consents;
- reporting of the preliminary results of any of our clinical trials;
- risk that patients enrolled in clinical trials will drop out of the clinical or pass away from disease-related complications or complications from their standard clinical therapy before they can experience benefits of the engineered T-cell therapy ; and
- for patients in our solid tumor program, the patients need for sufficient T cells in order for the engineered T-cell product to be manufactured from their autologous T cells.

In addition, our clinical trials will compete with other clinical trials for product candidates that are in the same therapeutic areas as our product candidates, and this competition will reduce the number and types of patients available to us because some patients who might have opted to enroll in our clinical trials may instead opt to enroll in a clinical trial being conducted by one of our competitors. Since the number of qualified clinical investigators is limited, we expect to conduct some of our clinical trials at the same clinical trial sites that some of our competitors use, which will reduce the number of patients who are available for our clinical trials at such clinical trial sites. Moreover, because our product candidates represent a departure from more commonly used methods for cancer treatment, potential patients and their doctors may be inclined to use conventional therapies, such as chemotherapy and hematopoietic stem cell transplantation, rather than enroll patients in any future clinical trial. Additionally, because some of our clinical trials are expected to be in patients with relapsed/refractory cancer, the patients are typically in the late stages of their disease and may experience disease progression independent from our product candidates, making them unevaluable for purposes of the clinical trial and requiring additional patient enrollment.

Delays in completing patient enrollment may result in increased costs or may affect the timing or outcome of our ongoing and planned clinical trials, which could prevent completion or commencement of these clinical trials and adversely affect our ability to advance the development of our product candidates.

Research and development of biopharmaceutical products is inherently risky. We may not be successful in our efforts to use and enhance our TScan technology discovery platform and TCR technologies to create a pipeline of product candidates and develop commercially successful products, or we may expend our limited resources on programs that do not yield a successful product candidate and fail to capitalize on product candidates or diseases that may be more profitable or for which there is a greater likelihood of success. If we fail to develop additional product candidates, our commercial opportunity will be limited.

A key element of our strategy is to use our TScan technology discovery platform to discover the targets of T-cells in oncology, autoimmune and infectious disease applications to build a pipeline of novel product candidates. We and our collaborators are simultaneously pursuing clinical development of multiple product candidates developed employing our TCR technologies.

We are at an early stage of development and our TScan technology discovery platform has not yet led, and may never lead, to approved or commercially successful products. All of our current product candidates are being developed by leveraging the same or similar underlying proprietary platform, manufacturing process and development program. As a result, an issue with one product candidate or failure of any one program to obtain regulatory approval could lead to a failure of our entire pipeline of product candidates.

Even if we are successful in continuing to build our pipeline, obtaining regulatory approvals and commercializing additional product candidates may require substantial additional funding and are prone to the risks of failure inherent in medical product development.

Investment in biopharmaceutical product development involves significant risk that any potential product candidate will fail to demonstrate adequate efficacy or an acceptable safety profile, gain regulatory approval, and become commercially viable. We cannot provide any assurance that we will be able to successfully advance any of these additional product candidates through the development process. Our research programs may initially show promise in identifying potential product candidates, yet fail to yield product candidates for clinical development or commercialization for many reasons, including the following:

- our research methodology, including our screening technology, may not successfully identify additional product candidates;
- our pursuit of difficult-to-drug targets may make it challenging to design potential product candidates;
- results of clinical trials conducted by others on similar indications or on compounds with similar mechanisms of action could result in our having to conduct additional or cost prohibitive clinical trials, which could delay development and possibly make commercialization prohibitively expensive;
- we may encounter product manufacturing difficulties that limit yield, produce undesirable characteristics, that increase the cost of goods, cause delays, or make the product candidates unmarketable;
- our product candidates may cause adverse effects in patients or subjects, even after successful initial toxicology studies, which may make the product candidates unmarketable;
- our product candidates may not demonstrate a meaningful benefit to patients or subjects; and
- our collaboration partners may change their development profiles or plans for potential product candidates or abandon a therapeutic area or the development of a partnered product.

If any of these events occur, we may be forced to abandon our development efforts for a program or programs, which would have a material adverse effect on our business, operating results and prospects and could potentially cause us to cease operations. Research programs to identify new product candidates require substantial technical, financial and human resources. We may focus our efforts and resources on potential programs or product candidates that ultimately prove to be unsuccessful.

If we are unable to identify suitable compounds for preclinical and clinical development, we will not be able to obtain revenues from sale of drugs in future periods, which likely would result in significant harm to our business prospects and financial position.

The market opportunities for our product candidates may be relatively small as it will be limited to those patients who are ineligible for or have failed prior treatments and our estimates of the prevalence of our target patient populations may be inaccurate.

Cancer therapies are sometimes characterized as first line, second line, or third line, and the FDA often approves new therapies initially only for a particular line of use. When cancer is detected early enough, first line therapy is sometimes adequate to cure the cancer or prolong life without a cure. Whenever first line therapy, usually chemotherapy, antibody drugs, tumor-targeted small molecules, hormone therapy, radiation therapy, surgery, or a combination of these, proves unsuccessful, second line therapy may be administered. Second line therapies often consist of more chemotherapy, radiation, antibody drugs, tumor-targeted small molecules, or a combination of these. Third line therapies can include hematopoietic stem cell transplantation in certain cancers, chemotherapy, antibody drugs and small molecule tumor-targeted therapies, more invasive forms of surgery and new technologies. We expect to initially seek approval of our product candidates in most instances at least as a second or third line therapy, for use in patients to prevent relapse in patients undergoing hematopoietic stem cell transplantation. Subsequently, for those product candidates that prove to be sufficiently safe and beneficial, if any, we would expect to seek approval as a second line therapy and potentially as a first line therapy, but there is no guarantee that our product candidates, even if licensed as a second or third or subsequent line of therapy, would be licensed for an earlier line of therapy, and, prior to any such approvals, we may have to conduct additional clinical trials. Consequently, the potentially addressable patient population for our product candidates may be extremely limited or may not be amenable to treatment with our product candidates.

Our projections of both the number of people who have the cancers we are targeting, as well as the subset of people with these cancers in a position to receive a particular line of therapy and who have the potential to benefit from treatment with our product candidates, are based on our beliefs and estimates. These estimates have been derived from a variety of sources, including scientific literature, surveys of clinics, patient foundations or market research, and may prove to be incorrect. Further, new therapies may change the estimated incidence or prevalence of the cancers that we are targeting. Consequently, even if our product candidates are approved for a second or third line of therapy, the number of patients that may be eligible for treatment with our product candidates may turn out to be much lower than expected.

Our product candidates rely on the use of protein binding domains, or binders, to target specific cancers, which we may develop or which may be developed by third parties. We are limited in our ability to apply our product candidates to a wider range of potential target cancers by our ability to develop, partner for or acquire these binders on commercially reasonable terms.

TCR-T therapies require the use of antigen-specific protein binding domains, or binders, which guide the TCR-Ts and bind to the antigens on the surface of a tumor to target specific types of cancers. Our ability to develop and commercialize our product candidates will depend on our ability to develop these binders or partner for such binders on commercially reasonable terms for use in clinical trials as well as the availability of such binders for use in commercialized products, if licensed. We cannot ensure that we will have a steady supply of binders that we can utilize in combination with the TCR construct to develop future product candidates. If we are unable to enter into such collaborations on commercially reasonable terms or fail to realize the benefits of any such collaboration, we may be limited to using antibody fragments that we are able to independently develop which may limit the ability of our product candidates to target and kill cancer cells.

The failure to enter into a successful collaboration or to develop our own binders may delay our development timelines, increase our costs and jeopardize our ability to develop future product candidates as a commercially viable drug, which could result in delays in product development and harm our business.

We currently have no marketing and sales organization and have no experience as a company in marketing products. If we are unable to establish marketing and sales capabilities or enter into agreements with third parties to market and sell our product candidates, if licensed, we may not be able to generate product revenue.

We currently have no sales, marketing or distribution capabilities and have no experience as a company in marketing products. We intend to develop an in-house marketing organization and sales force, which will require significant capital expenditures, management resources and time. We will have to compete with other pharmaceutical and biotechnology companies to recruit, hire, train and retain marketing and sales personnel.

If we are unable or decide not to establish internal sales, marketing and distribution capabilities, we will pursue collaborative arrangements regarding the sales and marketing of our product candidates, if licensed. However, there can be no assurance that we will be able to establish or maintain such collaborative arrangements, or if we are able to do so, that they will have effective sales forces. Any revenue we receive will depend upon the efforts of such third parties, which may not be successful. We may have little or no control over the marketing and sales efforts of such third parties and our revenue from product sales may be lower than if we had commercialized our product candidates ourselves. We also face competition in our search for third parties to assist us with the sales and marketing efforts of our product candidates.

There can be no assurance that we will be able to develop in-house sales and distribution capabilities or establish or maintain relationships with third party collaborators to commercialize any product in the United States or overseas.

Even if we obtain regulatory approval of our product candidates, the products may not gain market acceptance among physicians, patients, hospitals, cancer treatment centers and others in the medical community.

The use of engineered T cells as a potential cancer treatment is a recent development and may not become broadly accepted by physicians, patients, hospitals, cancer treatment centers and others in the medical community. Various factors will influence whether our product candidates are accepted in the market, including:

- the clinical indications for which our product candidates are licensed;
- physicians, hospitals, cancer treatment centers and patients considering our product candidates as a safe and effective treatment;
- the potential and perceived advantages of our product candidates over alternative treatments;
- our ability to demonstrate the advantages of our product candidates over other TCR-T therapies;
- the prevalence and severity of any side effects;
- the prevalence and severity of any side effects for other adoptive cell therapies, TCR-T therapies and public perception of other adoptive cell therapies, TCR-T therapies;
- product labeling or product insert requirements of the FDA or other regulatory authorities;
- limitations or warnings contained in the labeling approved by the FDA;
- the timing of market introduction of our product candidates as well as competitive products;
- the cost of treatment in relation to alternative treatments;
- the availability of adequate coverage, reimbursement and pricing by third party payors and government authorities;
- willingness of patients to pay out-of-pocket in the absence of coverage by third party payors and government authorities;

- relative convenience and ease of administration, including as compared to alternative treatments and competitive therapies; and
- the effectiveness of our sales and marketing efforts.

In addition, although we are not utilizing embryonic stem cells or replication competent vectors, adverse publicity due to the ethical and social controversies surrounding the therapeutic use of such technologies, and reported side effects from any clinical trials using these technologies or the failure of such clinical trials to demonstrate that these therapies are safe and effective may limit market acceptance of our product candidates. If our product candidates are licensed but fail to achieve market acceptance among physicians, patients, hospitals, cancer treatment centers or others in the medical community, we will not be able to generate significant revenue.

In addition, although our product candidates differ in certain ways from other TCR-T therapy approaches, serious adverse events or deaths in other clinical trials involving engineered TCR, or other T-cell products or with our use of licensed TCR-T therapy candidates, even if not ultimately attributable to our product candidates, could result in increased government regulation, unfavorable public perception and publicity, potential regulatory delays in the testing or licensing of our product candidates, stricter labeling requirements for those product candidates that are licensed, and a decrease in demand for any such product candidates.

Even if our product candidates achieve market acceptance, we may not be able to maintain that market acceptance over time if new products or technologies are introduced that are more favorably received than our product candidates, are more cost effective or render our product candidates obsolete.

A variety of risks associated with marketing our product candidates internationally could materially adversely affect our business.

We plan to seek regulatory approval of our product candidates outside of the United States and, accordingly, we expect that we will be subject to additional risks related to operating in foreign countries if we obtain the necessary approvals, including:

- differing regulatory requirements in foreign countries;
- unexpected changes in tariffs, trade barriers, price and exchange controls and other regulatory requirements;
- economic weakness, including inflation, or political instability in particular foreign economies and markets;
- compliance with tax, employment, immigration and labor laws for employees living or traveling abroad;
- foreign taxes, including withholding of payroll taxes;
- foreign currency fluctuations, which could result in increased operating expenses and reduced revenue, and other obligations incident to doing business in another country;
- difficulties staffing and managing foreign operations;
- workforce uncertainty in countries where labor unrest is more common than in the United States;
- potential liability under the Foreign Corrupt Practices Act of 1977 or comparable foreign regulations;
- challenges enforcing our contractual and intellectual property rights, especially in those foreign countries that do not respect and protect intellectual property rights to the same extent as the United States;
- production shortages resulting from any events affecting raw material supply or manufacturing capabilities abroad; and
- business interruptions resulting from geo-political actions, including war and terrorism.

These and other risks associated with international operations may materially adversely affect our ability to attain or maintain profitable operations.

We face significant competition, and our operating results will suffer if we fail to compete effectively.

The biopharmaceutical industry is characterized by intense competition and rapid innovation. Our competitors may be able to develop other products or drugs that are able to achieve similar or better results. Our potential competitors include larger biotechnology and pharmaceutical companies with greater resources than us, academic institutions, governmental agencies, public and private research institutions and early stage or smaller companies. Many of our competitors have substantially greater financial, technical and other resources, such as larger research and development staff, experienced marketing and manufacturing organizations and well-established sales forces. Further, our competitors may have more financial resources, greater access to capital and diversified product offerings and revenue sources which may give our competitors an advantage over us in weathering the effects of the ongoing COVID-19 global pandemic. In addition, many of these competitors are active in seeking patent protection and licensing arrangements in anticipation of collecting royalties for use of technology that they have developed. Mergers and acquisitions in the biotechnology and pharmaceutical industries may result in even more resources being concentrated in our competitors. Competition may increase further as a result of advances in the commercial applicability of technologies and greater availability of capital for investment in these industries. Our competitors, either alone or with collaborative partners, may succeed in developing, acquiring or licensing on an exclusive basis drug or biologic products that are more effective, safer, more easily commercialized or less costly than our product candidates or may develop proprietary technologies or secure patent protection that we may need for the development of our technologies and products. We believe the key competitive factors that will affect the development and commercial success of our product candidates are safety, potency, purity, tolerability, reliability, convenience of use, price and reimbursement.

Specifically, by genetically engineering T-cell therapies, we face significant competition in the TCR space from multiple companies, including Kite Pharma Inc., a subsidiary of Gilead, Inc., Adaptimmune Therapeutics, Plc., Juno Therapeutics, Inc., a subsidiary of Bristol-Myers Squibb, Inc., Iovance Biotherapeutics, Inc., Achilles Therapeutics plc, Geneos Therapeutics, Inc., PACT Pharma, Inc., Celyad, S.A., Fate Therapeutics, Inc., Nkarta, Inc., Medigene AG, Ziopharm Oncology, Inc., Bayer AG, Novartis AG, Selecta Biosciences, Inc., TCR2 Therapeutics Inc., Adaptive Therapeutics, Inc., Immatics US, Inc., 3T Biosciences, Inc. and Regeneron Pharmaceuticals, Inc. Even if we obtain regulatory approval of our product candidates, the availability and price of our competitors' products could limit the demand and the price we are able to charge for our product candidates. We may not be able to implement our business plan if the acceptance of our product candidates is inhibited by price competition or the reluctance of physicians to switch from existing methods of treatment to our product candidates, or if physicians switch to other new drug or biologic products or choose to reserve our product candidates for use in limited circumstances. Moreover, the development and manufacturing costs associated with engineered T-cell therapies may make it difficult to compete with alternative products that may be simpler and cheaper to develop and manufacture. For additional information regarding our competition, see "Business—Competition."

Our internal computer systems, or those used by our third party CROs or other contractors or consultants, may fail or suffer security breaches or other unauthorized or improper access, which could result in a material disruption of the development programs of our product candidates.

Despite the implementation of security measures, our internal computer systems and those of our current and future CROs and other contractors and consultants are vulnerable to a variety of disruptions and data privacy and information security incidents, including data breaches, attacks by hackers and other malicious third parties (including the deployment of computer viruses, malware, ransomware, denial-of-service attacks, social engineering, and other events that affect service reliability and threaten the confidentiality, integrity, and availability of information), unauthorized access, natural disasters, fires, terrorism, war, telecommunications or electrical interruptions or failures, employee error or malfeasance or other malicious or inadvertent disruptions.

Additionally, the increased usage of computers operated on home networks due to shelter-in-place, stay-at-home advisories or similar restrictions related to the COVID-19 pandemic may make our or our partners' systems more susceptible to security breaches. While we have not experienced any such material system failure or security breach to date, if such an event were to occur and cause interruptions in our operations, it could result in a material disruption of our development programs and our business operations. For example, the loss of data from completed or future preclinical studies and clinical trials could result in delays in our regulatory approval efforts and significantly increase our costs to recover or reproduce the data. Likewise, to the extent we rely on third parties for the manufacture of our product candidates and to conduct clinical trials, similar events relating to their computer systems could also have a material adverse effect on our business, financial condition, results of operations and prospects.

Unauthorized disclosure of sensitive or confidential data, including personally identifiable information, whether through a breach of computer systems, systems failure, employee negligence, fraud or misappropriation, or otherwise, or unauthorized access to or through our information systems and networks, whether by our employees or third parties, could result in negative publicity, legal liability and damage to our reputation. Unauthorized disclosure of personally identifiable information could also expose us to sanctions for violations of data privacy laws and regulations around the world.

As we become more dependent on information technologies to conduct our operations, cyber incidents, including deliberate attacks and attempts to gain unauthorized access to computer systems and networks, may increase in frequency and sophistication. These threats pose a risk to the security of our systems and networks and to the confidentiality, availability and integrity of our data, and these risks apply both to us and to third parties on whose systems we rely for the conduct of our business. Because the techniques used to obtain unauthorized access, disable or degrade service or sabotage systems change frequently and often are not recognized until launched against a target, we and our partners or collaborators may be unable to anticipate these techniques or to implement adequate preventative measures. Further, we do not have any control over the operations of the facilities or technology of our cloud and service providers, including any third party vendors that collect, process and store personal data on our behalf. Our systems, servers and platforms and those of our service providers may be vulnerable to computer viruses or physical or electronic break-ins that our or their security measures may not detect. Individuals able to circumvent such security measures may misappropriate our confidential or proprietary information, disrupt our operations, damage our computers or otherwise impair our reputation and business. We may need to expend significant resources and make significant capital investments to protect against security breaches or to mitigate the impact of any such breaches. There can be no assurance that we or our third party providers will be successful in preventing cyber-attacks or successfully mitigating their effects. To the extent that any disruption or security breach were to result in a loss of, or damage to, our data or applications, or inappropriate disclosure of confidential or proprietary information, we could incur liability and the further development and commercialization of our product candidates could be delayed.

Security incidents, loss of data or modification of information, and other disruptions could compromise information related to our business or prevent us from accessing critical information, result in a significant disruption of our activities and expose us to liability, which could adversely affect our business and our reputation.

In the ordinary course of our business, we collect and store information, including personal information, intellectual property and proprietary business information that we own or control or have an obligation to protect. For example, we collect and store research and development information, employee data, commercial information, customer information and business and financial information. We and our service providers, including security and infrastructure vendors, manage and maintain our data using a combination of on-site systems and cloud-based data centers. We face a number of risks related to protecting critical information, including inappropriate use or disclosure, unauthorized access or acquisition, or inappropriate modification of, critical information. We also face the risk of being unable to access our critical information or technology systems due to actual or threats of ransomware, unauthorized encryption, or other malicious activity. We face the

risk of being unable to adequately monitor, audit and modify our controls over our critical information. These risks extend to third party service providers and subcontractors we use to assist us in managing our information or otherwise process it on our behalf. The secure processing, storage, maintenance and transmission of our critical information is vital to our operations and business strategy, and we devote significant resources to protecting such information.

Although we take reasonable measures to protect critical information and other data from unauthorized access, acquisition, use or disclosure, our information technology and infrastructure and that of our service providers handling and storing information on our behalf may be vulnerable to a variety of disruptions, including data breaches, attacks by hackers and other malicious third parties (including the deployment of computer viruses, malware, ransomware, denial-of-service attacks, social engineering, and other events that affect service reliability and threaten the confidentiality, integrity, and availability of information), unauthorized access, natural disasters, fires, terrorism, war, telecommunications or electrical interruptions or failures, employee error or malfeasance or other malicious or inadvertent disruptions. In particular, the risk of a security breach or disruption, particularly through cyber-attacks or cyber intrusion, has generally increased as the number, intensity, and sophistication of attempted attacks and intrusions from around the world have increased. We may not be able to anticipate all types of security threats, and we may not be able to implement preventive measures that are effective against all such security threats. Because the techniques used by cyber criminals change frequently, may not be recognized until launched, and can originate from a wide variety of sources, including outside groups such as external service providers, organized crime affiliates or terrorist organizations, we and our services providers and other partners may be unable to anticipate these techniques or implement adequate preventative measures. Further, we do not have any control over the operations of the facilities or technology of third parties that collect, process and store sensitive information on our behalf. Any unauthorized access or acquisition, breach, or other loss, of information could result in legal claims or proceedings, and liability under federal, state or foreign laws regarding the privacy and protection of information, including personal information, and could disrupt our operations and harm our reputation. In addition, notice of breaches may be required to affected individuals, regulators, credit reporting agencies or the media. Any such publication or notice could harm our reputation and our ability to compete. The financial exposure from the events referenced above could either not be insured against or not be fully covered through any insurance that we may maintain, and there can be no assurance that the limitations of liability in any of our contracts would be enforceable or adequate or would otherwise protect us from liabilities or damages as a result of the events referenced above. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

Risks Related to Manufacturing

Manufacturing and administering our product candidates is complex and we may encounter difficulties in production, particularly with respect to process development or scaling up of our manufacturing capabilities. If we encounter such difficulties, our ability to provide supply of our TCR-T therapy candidates for clinical trials or for commercial purposes could be delayed or stopped.

The process of manufacturing and administering our product candidates is complex and highly regulated. The manufacture of our product candidates involves complex processes, including the manufacture of a transposon containing the genetic information for our TCR construct, a transposase used to insert the transposon genetic information into the T-cell genome, and manufacturing operations to ensure the safety, integrity, strength, purity, and quality of the final product. More specifically, the manufacture of our product candidates includes harvesting white blood cells from the patient, isolating certain T cells from the white blood cells, combining patient T cells with our delivery vector through a process known as transduction, selection of modified T cells from the population, expanding the selected transduced T cells to obtain the desired dose, aseptically filling product into vessels suitable for storage, distribution, and clinical dosing, and ultimately infusing the modified T cells back into the patient's body. As a result of the complexities entailed in this process, our manufacturing and supply costs will be higher than those at more traditional manufacturing processes and the manufacturing process is less reliable and more difficult to reproduce. Additionally, the number of facilities that are capable of

harvesting patients' cells for the manufacture of our product candidates and other autologous cell therapy products and product candidates is limited. As the number of autologous cell therapy products and product candidates increases, the limited number of facilities capable of harvesting patients' cells could result in delays in the manufacture and administration of our product candidates.

Although we plan to establish our own manufacturing facility, we currently rely on third parties for the manufacture of our vector and other components of our manufacturing process. These third party manufacturers may incorporate their own proprietary processes into our components. We have limited control and oversight of a third party's proprietary process, and a third party may elect to modify its process without our consent or knowledge. These modifications could negatively impact our manufacturing, including product loss or failure that requires additional manufacturing runs or a change in manufacturer, both of which could significantly increase the cost of and significantly delay the manufacture of our product candidates. In addition, we are currently reliant on a single manufacturer for our transposon and transposase, and many of the critical raw materials and reagents used in the process are single or sole source. These third party providers may not be able to provide adequate resources, capacity to meet our needs, timely delivery of material, or may change internal processes or specifications that adversely affect our process or product candidates.

Our manufacturing process is and will be susceptible to product loss or failure due to logistical issues, manufacturing issues associated with the differences in patients' white blood cells, interruptions in the manufacturing process or supply chain, contamination, equipment or reagent failure, process design flaws, operator error, power failures, supplier error and variability in patient characteristics. Even minor deviations from normal manufacturing processes could result in reduced production yields, product defects, product rejection, or other supply disruptions. If for any reason we lose a patient's white blood cells, such material gets contaminated or processing steps fail at any point, the manufacturing process of the TCR-T therapy candidate for that patient will need to be restarted, if possible, and the resulting delay may adversely affect that patient's outcome. If microbial, viral, or other contaminations are discovered in our product candidates or in the manufacturing facilities in which our product candidates or critical raw materials or reagents are made or administered, such manufacturing facilities may need to be closed for an extended period of time to investigate and remedy the contamination.

As our product candidates progress through preclinical studies and clinical trials towards licensure and commercialization, it is expected that various aspects of the manufacturing and administration process will be altered in an effort to optimize processes and results. We have already identified some improvements to our manufacturing and administration processes, but these changes may not achieve the intended objectives, and could cause our product candidates to perform inadequately affecting the results of ongoing or future clinical trials. In addition, such changes may require amendments to be made to regulatory applications or necessitate development of new or additional TCR constructs and further clinical testing, which may further delay the timeframes under which modified manufacturing processes can be used for any of our product candidates.

Developing a commercially viable process is a difficult and uncertain task, and there are risks associated with scaling to the level required for advanced clinical trials or commercialization, including, among others, increased costs, potential problems with process scale-out or scale-up, process reproducibility, stability issues, lot consistency, facility suitability or capacity, staffing, and availability of reagents or raw materials. Competitors have had difficulty reliably producing T-cell therapies in the commercial setting. If we experience similar challenges manufacturing product candidates to approved specifications, this may limit our product candidates' utilization and our ability to receive payment for these product candidates once approved. We may ultimately be unable to reduce the expenses associated with our product candidates to levels that will allow us to achieve a profitable return on investment.

We plan to establish our own manufacturing facility and infrastructure in lieu of relying on third parties for the manufacture of our product candidates for certain clinical purposes and the use of third party manufacturing suites, which will be costly, time-consuming, and which may not be successful.

We are in the process of establishing manufacturing capacity to support our Phase 1 and Phase 2 clinical trials for TSC-100, TSC-101, TSC-102, TSC-200, TSC-201, and TSC-202. We have no experience as a company in setting up, building or managing a manufacturing facility or manufacturing suite, and may never be successful in developing our own manufacturing suite, manufacturing facility or manufacturing capability. We will need to hire additional personnel to manage our operations and facilities and develop the necessary infrastructure to continue the research and development, and eventual commercialization, if licensed, of our product candidates. If we fail to recruit the required personnel, manage our growth effectively, have inadequate facility design or construction, or fail to select the correct location, the development and production of our product candidates could be curtailed or delayed. Even if we are successful in establishing a manufacturing suite or manufacturing facility, our manufacturing capabilities could be affected by cost-overruns, unexpected delays, equipment failures, design or construction flaws, labor shortages, supply disruptions, natural disasters, power failures and numerous other factors that could prevent us from realizing the intended benefits of our manufacturing strategy and have a material adverse effect on our business.

In addition, the FDA, the European Medicines Agency (EMA), and other foreign regulatory authorities may require us to submit samples of any lot of any licensed product together with the protocols showing the results of applicable tests at any time. Under some circumstances, the FDA, the EMA or other foreign regulatory authorities may require that we not distribute a lot until the relevant agency authorizes its release. Slight deviations in the manufacturing process, including those affecting quality attributes and stability, may result in unacceptable changes in the product that could result in lot failures or product recalls, or inability to manufacture product in the future. Lot failures or product recalls could cause us to delay or forgo product launches or clinical trials, which could be costly to us and otherwise harm our business, financial condition, results of operations and prospects. Problems in our manufacturing process could restrict our ability to meet market demand for our product candidates.

We also may encounter problems hiring and retaining the experienced scientific, quality-control and manufacturing personnel needed to operate our manufacturing processes and facility, which could result in delays in production or difficulties in maintaining compliance with applicable regulatory requirements.

Any problems in our manufacturing process or facilities could make us a less attractive collaborator for potential partners, including larger pharmaceutical companies and academic research institutions, which could limit our access to additional attractive development programs.

We may have difficulty validating our manufacturing process as we manufacture TCR-T therapy candidates from an increasingly diverse patient population for our clinical trials.

We have limited process development experience and have not yet established lot to lot or donor consistency with healthy or unhealthy donors. As we develop our clinical products, we may encounter unforeseen difficulties due to quality, quantity, supply timing, or variability issues with donor starting materials and may not be able to develop a robust process or incur additional costs or delays in developing a robust process due to starting material variation or supply.

Although we believe our current manufacturing process is scalable for commercialization, we may encounter challenges in validating our process due to the heterogeneity of the product starting material. While we anticipate that during the early phases of our clinical trials we will be able to adapt our process to account for these differences resulting in a more robust process, we cannot guarantee that issues relating to the heterogeneity of the starting material will not impact our ability to manufacture our product candidates for clinical or commercial distribution.

Risks Related to Government Regulation

The FDA regulatory approval process is lengthy and time-consuming, and we may experience significant delays in the clinical development and regulatory approval of our product candidates.

We have not previously submitted a Biologics License Application (BLA) to the FDA or similar licensure applications to comparable foreign regulatory authorities. A BLA must include extensive preclinical and clinical data and supporting information to establish the product candidate's safety, purity, and potency for each desired indication. The BLA must also include significant information regarding the manufacturing controls for the product. We expect the novel nature of our product candidates to create further challenges in obtaining regulatory approval. Accordingly, the regulatory approval pathway for our product candidates may be uncertain, complex, expensive and lengthy, and licensure may not be obtained.

We may also experience delays in completing planned clinical trials for a variety of reasons, including delays related to:

- the availability of financial resources to commence and complete the planned trials;
- reaching agreement on acceptable terms with prospective CROs and clinical trial sites, the terms of which can be subject to extensive negotiation and may vary significantly among different CROs and clinical trial sites;
- obtaining approval at each clinical trial site by an IRB or ethics committee;
- recruiting suitable patients to participate in a clinical trial;
- having patients complete a clinical trial or return for post-treatment follow-up;
- clinical trial sites deviating from trial protocol or dropping out of a trial;
- adding new clinical trial sites; or
- manufacturing sufficient quantities of qualified materials under cGMPs, including current Good Tissue Practices (cGTPs), and applying them on a subject by subject basis for use in clinical trials.

We could also experience delays if physicians encounter unresolved ethical issues associated with enrolling patients in clinical trials of our product candidates in lieu of prescribing existing treatments that have established safety, efficacy, potency and purity profiles. Further, a clinical trial may be suspended or terminated by us, the IRBs for the institutions in which such trials are being conducted, the Data Monitoring Committee for such trial, or by the FDA or other regulatory authorities due to a number of factors, including failure to conduct the clinical trial in accordance with regulatory requirements or our clinical protocols, inspection of the clinical trial operations or trial site by the FDA or other regulatory authorities resulting in the imposition of a clinical hold, unforeseen safety issues or adverse side effects, failure to demonstrate a benefit from using a product candidate, changes in governmental regulations or administrative actions or lack of adequate funding to continue the clinical trial. If we experience termination of, or delays in the completion of, any clinical trial of our product candidates, the commercial prospects for our product candidates will be harmed, and our ability to generate product revenue will be delayed. In addition, any delays in completing our clinical trials will increase our costs, slow down our product development and approval process and jeopardize our ability to commence product sales and generate revenue.

Securing regulatory approval also requires the submission of information about the biologic manufacturing process and inspection of manufacturing facilities by the relevant regulatory authority. The FDA or comparable foreign regulatory authorities may fail to approve our manufacturing processes or facilities, whether run by us or our contract manufacturing organizations (CMOs). In addition, if we make manufacturing changes to our product candidates in the future, we may need to conduct additional preclinical or clinical studies to bridge our modified product candidates to earlier versions.

Many of the factors that cause, or lead to, a delay in the commencement or completion of clinical trials may ultimately lead to the denial of regulatory approval of our product candidates.

We may be unable to obtain regulatory approval for our product candidates under applicable regulatory requirements. The denial or delay of any such approval would delay commercialization of our product candidates and adversely impact our potential to generate revenue, our business and our results of operations.

The research, testing, manufacturing, labeling, licensure, sale, marketing and distribution of biologic products are subject to extensive regulation by the FDA and other regulatory authorities in the United States and other countries, and such regulations differ from country to country. We are not permitted to market our product candidates in the United States or in any foreign countries until they receive the requisite licensure from the applicable regulatory authorities of such jurisdictions.

The FDA or any foreign regulatory authorities can delay, limit or deny licensure of our product candidates for many reasons, including:

- our inability to demonstrate to the satisfaction of the FDA or the applicable foreign regulatory authority that any of our product candidates are safe, potent and pure;
- the FDA's or the applicable foreign regulatory agency's disagreement with our trial protocol or the interpretation of data from preclinical studies or clinical trials;
- our inability to demonstrate that the clinical and other benefits of any of our product candidates outweigh any safety or other perceived risks;
- the FDA's or the applicable foreign regulatory agency's requirement for additional preclinical studies or clinical trials;
- the results of clinical trials may not meet the level of statistical significance required by the FDA or comparable foreign regulatory authorities for licensure;
- the FDA's or the applicable foreign regulatory agency's failure to approve our manufacturing processes or facilities or those of third party manufacturers upon which we rely;
- the potential for approval policies or regulations of the FDA or the applicable foreign regulatory authorities to significantly change in a manner rendering our clinical data insufficient for licensure;
- the data collected from clinical trials of our product candidates may not be sufficient to the satisfaction of the FDA or comparable foreign regulatory authorities to support the submission of a BLA or other comparable submission in foreign jurisdictions or to obtain licensure of our product candidates in the United States or elsewhere; or
- the approval policies or regulations of the FDA or comparable foreign regulatory authorities may significantly change in a manner rendering our clinical data insufficient for approval.

Any of these factors, many of which are beyond our control, may result in our failing to obtain regulatory approval to market any of our product candidates, which would significantly harm our business, results of operations, and prospects. Of the large number of biological products in development, only a small percentage successfully complete the FDA or other regulatory approval processes and are commercialized. Even if we eventually complete clinical testing and receive licensure from the FDA or applicable foreign regulatory authorities for any of our product candidates, the FDA or the applicable foreign regulatory agency may grant licensure contingent on the performance of costly additional clinical trials which may be required after licensure. The FDA or the applicable foreign regulatory agency also may license our product candidates for a more limited indication or a narrower patient population than we originally requested, and the FDA, or applicable foreign regulatory agency, may not license our product candidates with the labeling that we believe is necessary or desirable for the successful commercialization of such product candidates.

In addition, even if the trials are successfully completed, preclinical and clinical data are often susceptible to varying interpretations and analyses, and we cannot guarantee that the FDA or comparable foreign regulatory authorities will interpret the results as we do, and more clinical trials could be required before we submit our product candidates for approval. To the extent that the results of the clinical trials are not satisfactory to the FDA or comparable foreign regulatory authorities for support of a marketing application, approval of our product candidates may be significantly delayed, or we may be required to expend significant additional resources, which may not be available to us, to conduct additional clinical trials in support of potential approval of our product candidates.

Any delay in obtaining, or inability to obtain, applicable regulatory approval would delay or prevent commercialization of our product candidates and would materially adversely impact our business and prospects.

We may seek orphan drug status for TSC-100, TSC-101, TSC-102, TSC-200, TSC-201 and TSC-202 and some of our other future product candidates, but we may be unable to obtain such designations or to maintain the benefits associated with orphan drug status, including market exclusivity, which may cause our revenue, if any, to be reduced.

Under the Orphan Drug Act, the FDA may grant orphan designation to a drug or biologic intended to treat a rare disease or condition, defined as a disease or condition with a patient population of fewer than 200,000 in the United States, or a patient population greater than 200,000 in the United States when there is no reasonable expectation that the cost of developing and making available the drug or biologic in the United States will be recovered from sales in the United States for that drug or biologic. Orphan drug designation must be requested before submitting a BLA. In the United States, orphan drug designation entitles a party to financial incentives such as opportunities for grant funding towards clinical trial costs, tax advantages and user-fee waivers. After the FDA grants orphan drug designation, the generic identity of the drug and its potential orphan use are disclosed publicly by the FDA. Orphan drug designation does not convey any advantage in, or shorten the duration of, the regulatory review and approval process.

If a product that has orphan drug designation subsequently receives the first FDA approval for a particular active ingredient for the disease for which it has such designation, the product is entitled to orphan product exclusivity, which means that the FDA may not approve any other applications, including a BLA, to market the same biologic for the same indication for seven years, except in limited circumstances such as a showing of clinical superiority to the product with orphan drug exclusivity or if FDA finds that the holder of the orphan drug exclusivity has not shown that it can assure the availability of sufficient quantities of the orphan drug to meet the needs of patients with the disease or condition for which the drug was designated. As a result, even if one of our product candidates receives orphan exclusivity, the FDA can still approve other drugs that have a different active ingredient for use in treating the same indication or disease. Furthermore, the FDA can waive orphan exclusivity if we are unable to manufacture sufficient supply of our product.

We may seek orphan drug designation for TSC-100, TSC-101, TSC-102, TSC-200, TSC-201 and TSC-202 and some or all of our other future product candidates in additional orphan indications in which there is a medically plausible basis for the use of these products. Even when we obtain orphan drug designation, exclusive marketing rights in the United States may be limited if we seek licensure for an indication broader than the orphan designated indication and may be lost if the FDA later determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantities of the product to meet the needs of patients with the rare disease or condition. In addition, although we intend to seek orphan drug designation for other product candidates, we may never receive such designations.

On August 3, 2017, the Congress passed the FDA Reauthorization Act of 2017 (FDARA). FDARA, among other things, codified the FDA's pre-existing regulatory interpretation, to require that a drug sponsor demonstrate the clinical superiority of an orphan drug that is otherwise the same as a previously approved drug for the same rare disease in order to receive orphan drug exclusivity. The new legislation reverses prior precedent holding that the Orphan Drug Act unambiguously requires that the FDA recognize the orphan exclusivity period regardless of

a showing of clinical superiority. The FDA may further reevaluate the Orphan Drug Act and its regulations and policies. We do not know if, when, or how the FDA may change the orphan drug regulations and policies in the future, and it is uncertain how any changes might affect our business. Depending on what changes the FDA may make to its orphan drug regulations and policies, our business could be adversely impacted.

A Breakthrough Therapy designation by the FDA, even if granted for any of our product candidates, may not lead to a faster development or regulatory review or approval process and it does not increase the likelihood that our product candidates will receive marketing approval.

We plan to seek a Breakthrough Therapy designation for TSC-100, TSC-101, TSC-102, TSC-200, TSC-201 and TSC-202 and may seek Breakthrough Therapy designation for some or all of our future product candidates. A breakthrough therapy is defined as a drug or biologic that is intended, alone or in combination with one or more other drugs or biologics, to treat a serious or life-threatening disease or condition and preliminary clinical evidence indicates that the drug, or biologic, may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development. For product candidates that have been designated as breakthrough therapies, interaction and communication between the FDA and the sponsor of the trial can help to identify the most efficient path for clinical development while minimizing the number of patients placed in ineffective control regimens. Biologics designated as breakthrough therapies by the FDA may also be eligible for other expedited approval programs, including Accelerated Approval.

Designation as a breakthrough therapy is within the discretion of the FDA. Accordingly, even if we believe one of our product candidates meets the criteria for designation as a breakthrough therapy, the FDA may disagree and instead determine not to make such designation. In any event, the receipt of a Breakthrough Therapy designation for a product candidate may not result in a faster development process, review or licensure compared to candidate products considered for licensure under non-expedited FDA review procedures and does not assure ultimate approval by the FDA. In addition, even if one or more of our product candidates qualify as breakthrough therapies, the FDA may later decide that the product no longer meets the conditions for qualification. Thus, even though we intend to seek Breakthrough Therapy designation for TSC-100 and some or all of our future product candidates for the treatment of various cancers, there can be no assurance that we will receive breakthrough therapy designation.

A Fast Track designation by the FDA, even if granted for TSC-102, TSC-200, TSC-201 and TSC-202 or any other future product candidates, may not lead to a faster development or regulatory review or approval process, and does not increase the likelihood that our product candidates will receive marketing approval.

If a drug is intended for the treatment of a serious or life-threatening condition and the drug demonstrates the potential to address unmet medical needs for this condition, the drug sponsor may apply for FDA Fast Track designation for a particular indication. We plan to seek Fast Track designation for TSC-100, TSC-101, TSC- 200, TSC-201 and TSC 202 and may seek Fast Track designation for certain of our future product candidates, but there is no assurance that the FDA will grant this status to any of our proposed product candidates. Marketing applications filed by sponsors of products in Fast Track development may qualify for priority review under the policies and procedures offered by the FDA, but the Fast Track designation does not assure any such qualification or ultimate marketing approval by the FDA. The FDA has broad discretion whether or not to grant Fast Track designation, so even if we believe a particular product candidate is eligible for this designation, there can be no assurance that the FDA would decide to grant it. Even if we do receive Fast Track designation, we may not experience a faster development process, review or licensure compared to conventional FDA procedures, and receiving a Fast Track designation does not provide assurance of ultimate FDA approval. In addition, the FDA may withdraw Fast Track designation if it believes that the designation is no longer supported by data from our clinical development program. In addition, the FDA may withdraw any Fast Track designation at any time.

Accelerated approval by the FDA, even if granted for TSC-100, TSC-101, TSC-102, TSC-200, TSC-201 and TSC-202 or any other future product candidates, may not lead to a faster development or regulatory review or approval process and it does not increase the likelihood that our product candidates will receive marketing approval.

We plan to seek approval of TSC-100, TSC-101, TSC-102, TSC-200, TSC-201 and TSC-202, and may seek approval of future product candidates using FDA's accelerated approval pathway. A product may be eligible for accelerated approval if it treats a serious or life-threatening condition and generally provides a meaningful advantage over available therapies. In addition, it must demonstrate an effect on a surrogate endpoint that is reasonably likely to predict clinical benefit or on a clinical endpoint that can be measured earlier than irreversible morbidity or mortality (IMM) that is reasonably likely to predict an effect on IMM or other clinical benefit. As a condition of approval, the FDA may require that a sponsor of a drug or biologic receiving accelerated approval perform adequate and well-controlled post-marketing clinical trials. These confirmatory trials must be completed with due diligence. In addition, the FDA currently requires as a condition for accelerated approval pre-approval of promotional materials, which could adversely impact the timing of the commercial launch of the product. Even if we do receive accelerated approval, we may not experience a faster development or regulatory review or approval process, and receiving accelerated approval does not provide assurance of ultimate FDA approval.

Obtaining and maintaining regulatory approval of our product candidates in one jurisdiction does not mean that we will be successful in obtaining regulatory approval of our product candidates in other jurisdictions.

Obtaining and maintaining regulatory approval of our product candidates in one jurisdiction does not guarantee that we will be able to obtain or maintain regulatory approval in any other jurisdiction, while a failure or delay in obtaining regulatory approval in one jurisdiction may have a negative effect on the regulatory approval process in others. For example, even if the FDA grants marketing approval of a product candidate, comparable regulatory authorities in foreign jurisdictions must also approve the manufacturing, marketing and promotion of the product candidate in those countries. Approval and licensure procedures vary among jurisdictions and can involve requirements and administrative review periods different from, and greater than, those in the United States, including additional preclinical studies or clinical trials as clinical trials conducted in one jurisdiction may not be accepted by regulatory authorities in other jurisdictions. In many jurisdictions outside the United States, a product candidate must be approved for reimbursement before it can be approved for sale in that jurisdiction. In some cases, the price that we intend to charge for any of our product candidates for which we receive marketing approval is also subject to approval.

We may also submit marketing applications in other countries. Regulatory authorities in jurisdictions outside of the United States have requirements for approval of product candidates with which we must comply prior to marketing in those jurisdictions. Obtaining foreign regulatory approvals and compliance with foreign regulatory requirements could result in significant delays, difficulties and costs for us and could delay or prevent the introduction of our product candidates in certain countries. If we fail to comply with the regulatory requirements in international markets and/or receive applicable marketing approvals, our target market will be reduced and our ability to realize the full market potential of our product candidates will be harmed.

In addition, the United Kingdom left the European Union on January 31, 2020, an event commonly referred to as "Brexit," and following the "transition period," on December 30, 2020, the European Union, the European Atomic Energy Community and the United Kingdom signed a Trade and Cooperation Agreement. Brexit imposes new regulatory costs and challenges that may have a material adverse effect on us and our operations. We may face decreased chances to obtain market approval for our product candidates in the European Union, including the possibility that the European Medicines Agency will not accept data from our clinical trials conducted in the United Kingdom or will only do so if we comply with certain conditions. Conversely, since a significant proportion of the United Kingdom's regulatory framework affecting the pharmaceutical and biotechnological industry is derived from European Union directives and regulations, Brexit could materially alter the regulatory regime with respect to our product candidates in the United Kingdom, which may increase

the time and costs associated with obtaining regulatory approval from the relevant authorities. It may also be time-consuming and expensive for us to alter our internal operations in order to comply with new regulations. Altered regulations could also add time and expense to the process by which our product candidates receive regulatory approval in the United Kingdom and the European Union.

Furthermore, following the Brexit vote, the European Union moved the European Medicines Agency's headquarters from the United Kingdom to the Netherlands. This transition may cause disruption in the administrative and medical scientific links between the European Medicines Agency and the UK Medicines and Healthcare products Regulatory Agency, including delays in granting clinical trial authorization or marketing authorization, disruption of import and export of active substance and other components of new drug formulations and disruption of the supply chain for clinical trial product and final authorized formulations. The cumulative effects of the disruption to the regulatory framework may add considerably to the development lead time to marketing authorization and commercialization of products in the European Union and/or the United Kingdom.

Even if we receive regulatory approval of our product candidates, we will be subject to ongoing regulatory obligations and continued regulatory review, which may result in significant additional expense and we may be subject to penalties if we fail to comply with regulatory requirements or experience unanticipated problems with our product candidates.

Any regulatory approvals that we receive for our product candidates will require surveillance to monitor the safety, potency and purity of the product candidate. The FDA may also require a risk evaluation and mitigation strategy in order to license our product candidates, which could entail requirements for a medication guide, physician communication plans or additional elements to ensure safe use, such as restricted distribution methods, patient registries and other risk minimization tools. In addition, if the FDA or a comparable foreign regulatory authority approves our product candidates, the manufacturing processes, labeling, packaging, distribution, adverse event reporting, storage, advertising, promotion, import, export and recordkeeping for our product candidates will be subject to extensive and ongoing regulatory requirements. These requirements include submissions of safety and other post-marketing information and reports, registration, as well as continued compliance with cGMPs, cGTPs and good clinical practices (GCPs) for any clinical trials that we conduct post-licensure. Later discovery of previously unknown problems with our product candidates, including adverse events of unanticipated severity or frequency, or with our manufacturing processes (or those of third parties we engage), or failure to comply with regulatory requirements, may result in, among other things:

- restrictions on the marketing or manufacturing of our product candidates, withdrawal of the product from the market or voluntary or mandatory product recalls;
- revisions to the labeling, including limitation on approved uses or the addition of additional warnings, contraindications or other safety information, including boxed warnings;
- imposition of a Risk Evaluation and Mitigation Strategy (REMS), which may include distribution or use restrictions;
- requirements to conduct additional post-market clinical trials to assess the safety of the product;
- fines, warning letters or holds on clinical trials;
- refusal by the FDA to approve pending applications or supplements to approved applications filed by us or suspension or revocation of license approvals;
- product seizure or detention, or refusal to permit the import or export of our product candidates; and
- injunctions or the imposition of civil or criminal penalties.

The FDA's and other regulatory authorities' policies may change and additional government regulations may be enacted that could prevent, limit or delay regulatory approval of our product candidates. We cannot predict the likelihood, nature or extent of government regulation that may arise from future legislation or

administrative action, either in the United States or abroad. If we are slow or unable to adapt to changes in existing requirements or the adoption of new requirements or policies, or if we are not able to maintain regulatory compliance, we may lose any marketing approval that we may have obtained and we may not achieve or sustain profitability.

The insurance coverage and reimbursement status of newly-approved products is uncertain. Our product candidates may become subject to unfavorable pricing regulations, third party coverage and reimbursement practices, or healthcare reform initiatives, which would harm our business. Failure to obtain or maintain adequate coverage and reimbursement for new or current products could limit our ability to market those products and decrease our ability to generate revenue.

The regulations that govern marketing approvals, pricing, coverage and reimbursement for new drugs vary widely from country to country. In the United States, recently enacted legislation may significantly change the approval requirements in ways that could involve additional costs and cause delays in obtaining approvals. Some countries require approval of the sale price of a drug before it can be marketed. In many countries, the pricing review period begins after marketing or product licensing approval is granted. In some foreign markets, prescription pharmaceutical pricing remains subject to continuing governmental control even after initial approval is granted. As a result, we might obtain marketing approval for a product in a particular country, but then be subject to price regulations that delay our commercial launch of the product, possibly for lengthy time periods, and negatively impact the revenue we are able to generate from the sale of the product in that country. Adverse pricing limitations may hinder our ability to recoup our investment in one or more product candidates, even if any product candidates we may develop obtain marketing approval.

In the United States and markets in other countries, patients generally rely on third party payors to reimburse all or part of the costs associated with their treatment. Adequate coverage and reimbursement from governmental healthcare programs, such as Medicare and Medicaid, and commercial payors is critical to new product acceptance. Our ability to successfully commercialize our product candidates will depend in part on the extent to which coverage and adequate reimbursement for these products and related treatments will be available from government health administration authorities, private health insurers and other organizations. Government authorities and other third party payors, such as private health insurers and health maintenance organizations, decide which medications they will pay for and establish reimbursement levels. The availability of coverage and extent of reimbursement by governmental and private payors is essential for most patients to be able to afford treatments such as gene therapy products. Sales of these or other product candidates that we may identify will depend substantially, both domestically and abroad, on the extent to which the costs of our product candidates will be paid by health maintenance, managed care, pharmacy benefit and similar healthcare management organizations, or reimbursed by government health administration authorities, private health coverage insurers and other third party payors. If coverage and adequate reimbursement is not available, or is available only to limited levels, we may not be able to successfully commercialize our product candidates. Even if coverage is provided, the approved reimbursement amount may not be high enough to allow us to establish or maintain pricing sufficient to realize a sufficient return on our investment.

Reimbursement by a third party payor may depend upon a number of factors, including, but not limited to, the third party payor’s determination that use of a product is:

- a covered benefit under its health plan;
- safe, effective and medically necessary;
- appropriate for the specific patient;
- cost-effective; and
- neither experimental nor investigational.

A primary trend in the U.S. healthcare industry and elsewhere is cost containment. Government authorities and third party payors have attempted to control costs by limiting coverage and the amount of reimbursement for particular medications. In many countries, the prices of medical products are subject to varying price control mechanisms as part of national health systems. In general, the prices of medicines under such systems are substantially lower than in the United States. Other countries allow companies to fix their own prices for medicines, but monitor and control company profits. Additional foreign price controls or other changes in pricing regulation could restrict the amount that we are able to charge for our product candidates. Accordingly, in markets outside the United States, the reimbursement for products may be reduced compared with the United States and may be insufficient to generate commercially reasonable revenues and profits.

There is also significant uncertainty related to the insurance coverage and reimbursement of newly approved products and coverage may be more limited than the purposes for which the medicine is approved by the FDA or comparable foreign regulatory authorities. In the United States, the principal decisions about reimbursement for new medicines are typically made by CMS, an agency within HHS. CMS decides whether and to what extent a new medicine will be covered and reimbursed under Medicare and private payors tend to follow CMS to a substantial degree. No uniform policy of coverage and reimbursement for products exists among third party payors and coverage and reimbursement levels for products can differ significantly from payor to payor. As a result, the coverage determination process is often a time consuming and costly process that may require us to provide scientific and clinical support for the use of our product candidates to each payor separately, with no assurance that coverage and adequate reimbursement will be applied consistently or obtained in the first instance. It is difficult to predict what CMS will decide with respect to reimbursement for fundamentally novel products such as ours. Reimbursement agencies in Europe may be more conservative than CMS. For example, a number of cancer drugs have been approved for reimbursement in the United States and have not been approved for reimbursement in certain European countries. Moreover, eligibility for reimbursement does not imply that any drug will be paid for in all cases or at a rate that covers our costs, including research, development, manufacture, sale, and distribution. Interim reimbursement levels for new drugs, if applicable, may also not be sufficient to cover our costs and may not be made permanent. Reimbursement rates may vary according to the use of the drug and the clinical setting in which it is used, may be based on reimbursement levels already set for lower cost drugs and may be incorporated into existing payments for other services. Our inability to promptly obtain coverage and profitable payment rates from both government-funded and private payors for any approved products we may develop could have a material adverse effect on our operating results, our ability to raise capital needed to commercialize product candidates, and our overall financial condition.

Net prices for drugs may be reduced by mandatory discounts or rebates required by government healthcare programs or private payors and by any future relaxation of laws that presently restrict imports of drugs from countries where they may be sold at lower prices than in the United States. Our inability to promptly obtain coverage and profitable reimbursement rates third party payors for any approved products that we develop could have a material adverse effect on our operating results, our ability to raise capital needed to commercialize products and our overall financial condition.

Increasingly, third party payors are requiring that drug companies provide them with predetermined discounts from list prices and are challenging the prices charged for medical products. We cannot be sure that reimbursement will be available for any product candidate that we commercialize and, if reimbursement is available, the level of reimbursement. Reimbursement may impact the demand for, or the price of, any product candidate for which we obtain marketing approval. In order to obtain reimbursement, physicians may need to show that patients have superior treatment outcomes with our product candidates compared to standard of care drugs, including lower-priced biosimilar versions of standard of care drugs. We expect to experience pricing pressures in connection with the sale of any of our product candidates due to the trend toward managed healthcare, the increasing influence of health maintenance organizations and additional legislative changes. The downward pressure on healthcare costs in general, particularly prescription drugs and surgical procedures and other treatments, has become very intense. As a result, increasingly high barriers are being erected to the entry of new products.

Recently enacted and future legislation may increase the difficulty and cost for us to obtain marketing approval for and commercialize our product candidates and affect the prices we may obtain.

In the United States and some foreign jurisdictions, there have been a number of legislative and regulatory changes and proposed changes regarding the healthcare system that could prevent or delay marketing approval of our product candidates, restrict or regulate post-approval activities and affect our ability to profitably sell any product candidates for which we obtain marketing approval.

In the United States, the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Affordability Reconciliation Act (Affordable Care Act or ACA), was signed into law, intended to broaden access to health insurance, reduce or constrain the growth of healthcare spending, enhance remedies against fraud and abuse, add new transparency requirements for the healthcare and health insurance industries, impose new taxes and fees on the health industry and impose additional health policy reforms.

Among the provisions of the Affordable Care Act that are of importance to our potential product candidates are the following:

- an annual, nondeductible fee payable by any entity that manufactures, or imports specified branded prescription drugs and biologic agents;
- an increase in the statutory minimum rebates a manufacturer must pay under the Medicaid Drug Rebate Program;
- an increase in the discount rate for the federal 340B program to eligible hospitals;
- a new Medicare Part D coverage gap discount program, in which manufacturers must agree to offer 70% point-of-sale discounts off negotiated prices;
- extension of manufacturers' Medicaid rebate liability;
- expansion of eligibility criteria for Medicaid programs;
- expansion of the entities eligible for discounts under the Public Health Service pharmaceutical pricing program;
- a new requirement to annually report drug samples that manufacturers and distributors provide to physicians; and
- a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in and conduct comparative clinical effectiveness research, along with funding for such research.

Since its enactment, there have been judicial and Congressional challenges to certain aspects of the Affordable Care Act, and we expect there will be additional challenges and amendments to the Affordable Care Act in the future. For example, legislation informally titled the Tax Cuts and Jobs Acts (TCJA) was enacted, which, among other things, removed penalties for not complying with the individual mandate to carry health insurance. On December 14, 2018, a U.S. District Court Judge in the Northern District of Texas, ruled that the individual mandate is a critical and inseverable feature of the Affordable Care Act, and therefore, because it was repealed as part of the TCJA, the remaining provisions of the Affordable Care Act are invalid as well. On December 18, 2019, the U.S. Court of Appeals for the 5th Circuit upheld the District Court's decision that the individual mandate was unconstitutional but remanded the case back to the District Court to determine whether the remaining provisions of the ACA are invalid as well. The U.S. Supreme Court is currently reviewing the case, although it is unclear when the Supreme Court will make a decision. It is also unclear how other efforts to challenge, repeal or replace the Affordable Care Act will affect the law or our business.

In addition, other legislative changes have been proposed and adopted since the Affordable Care Act was enacted. In August 2011, the Budget Control Act of 2011, among other things, included aggregate reductions of Medicare payments to providers of 2% per fiscal year, which went into effect on April 1, 2013 and, due to subsequent legislative amendments, will remain in effect through 2030, with the exception of a temporary

suspension from May 1, 2020 through March 31, 2021, unless additional Congressional action is taken. In addition, on January 2, 2013, President Obama signed into law the American Taxpayer Relief Act of 2012, which, among other things, reduced Medicare payments to several providers, including hospitals, and an increase in the statute of limitations period for the government to recover overpayments to providers from three to five years. These new laws may result in additional reductions in Medicare and other healthcare funding and otherwise affect the prices we may obtain.

We expect that other healthcare reform measures that may be adopted in the future may result in additional reductions in Medicare and other healthcare funding, more rigorous coverage criteria, new payment methodologies and in additional downward pressure on the price that we receive for any approved product. Any reduction in reimbursement from Medicare or other government programs may result in a similar reduction in payments from private payors. The implementation of cost containment measures or other healthcare reforms may prevent us from being able to generate revenue, attain profitability or commercialize our product candidates, if approved.

Moreover, there has recently been heightened governmental scrutiny over the manner in which manufacturers set prices for their marketed products. Individual states in the United States have become increasingly aggressive in implementing regulations designed to contain pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures. Legally mandated price controls on payment amounts by third party payors or other restrictions could harm our business, results of operations, financial condition and prospects. In addition, regional healthcare authorities and individual hospitals are increasingly using bidding procedures to determine what pharmaceutical products and which suppliers will be included in their prescription drug and other healthcare programs. This could reduce the ultimate demand for our product candidates, if approved, or put pressure on our product pricing, which could negatively affect our business, results of operations, financial condition and prospects.

Legislative and regulatory proposals have been made to expand post-approval requirements and restrict sales and promotional activities for pharmaceutical products. We cannot be sure whether additional legislative changes will be enacted, or whether the FDA regulations, guidance or interpretations will be changed, or what the impact of such changes on the marketing approvals of our product candidates, if any, may be. In addition, increased scrutiny by Congress of the FDA's approval process may significantly delay or prevent marketing approval, as well as subject us to more stringent product labeling and post-marketing testing and other requirements.

The impact of recent healthcare reform legislation and other changes in the healthcare industry and in healthcare spending on us is currently unknown, and may adversely affect our business model.

Our revenue prospects could be affected by changes in healthcare spending and policy in the United States and abroad. We operate in a highly regulated industry and new laws, regulations or judicial decisions, or new interpretations of existing laws, regulations or decisions, related to healthcare availability, the method of delivery or payment for healthcare products and services could negatively impact our business, operations and financial condition.

There have been, and likely will continue to be, legislative and regulatory proposals at the foreign, federal and state levels directed at broadening the availability of healthcare and containing or lowering the cost of healthcare. We cannot predict the initiatives that may be adopted in the future, including repeal, replacement or significant revisions to the Affordable Care Act. The continuing efforts of the government, insurance companies, managed care organizations and other payors of healthcare services to contain or reduce costs of healthcare and/or impose price controls may adversely affect:

- the demand for our product candidates, if we obtain regulatory approval;
- our ability to set a price that we believe is fair for our product candidates;

- our ability to obtain coverage and reimbursement approval for a product candidate;
- our ability to generate revenue and achieve or maintain profitability;
- the level of taxes that we are required to pay; and
- the availability of capital.

Any reduction in reimbursement from Medicare or other government programs may result in a similar reduction in payments from private payors, which may adversely affect our future profitability.

Regulatory requirements in the United States and abroad governing cell therapy products have changed frequently and may continue to change in the future, which could negatively impact our ability to complete clinical trials and commercialize our product candidates in a timely manner, if at all.

Regulatory requirements in the United States and abroad governing cell therapy products have changed frequently and may continue to change in the future. The FDA has established the Office of Tissues and Advanced Therapies within its Center for Biologics Evaluation and Research to consolidate the review of gene therapy and related products, and has established the Cellular, Tissue and Gene Therapies Advisory Committee, among others, to advise this review. Recently, the National Institutes of Health proposed to revise its guidelines for overseeing gene therapy research, including deleting the protocol registration and reporting requirements for certain therapies and eliminating Recombinant DNA Advisory Committee review and reporting requirements for human gene transfer research.

Inadequate funding for the FDA, the SEC and other government agencies could hinder their ability to hire and retain key leadership and other personnel, prevent new products and services from being developed or commercialized in a timely manner or otherwise prevent those agencies from performing normal business functions on which the operation of our business may rely, which could negatively impact our business.

The ability of the FDA to review and approve new products can be affected by a variety of factors, including government budget and funding levels, ability to hire and retain key personnel and accept the payment of user fees, and statutory, regulatory, and policy changes. Average review times at the agency have fluctuated in recent years as a result. In addition, government funding of the SEC and other government agencies on which our operations may rely, including those that fund research and development activities is subject to the political process, which is inherently fluid and unpredictable.

Disruptions at the FDA and other agencies may also slow the time necessary for new drugs to be reviewed and/or approved by necessary government agencies, which would adversely affect our business. For example, over the last several years the U.S. government has shut down several times and certain regulatory agencies, such as the FDA and the SEC, have had to furlough critical FDA, SEC and other government employees and stop critical activities. If a prolonged government shutdown occurs, it could significantly impact the ability of the FDA to timely review and process our regulatory submissions, which could have a material adverse effect on our business. Further, upon completion of this offering and in our operations as a public company, future government shutdowns could impact our ability to access the public markets and obtain necessary capital in order to properly capitalize and continue our operations.

Separately, in response to the global COVID-19 pandemic, on March 10, 2020, the FDA announced its intention to postpone most foreign inspections of manufacturing facilities and products through April 2020, and subsequently, on March 18, 2020, the FDA announced its intention to temporarily postpone routine surveillance inspections of domestic manufacturing facilities. Regulatory authorities outside the United States may adopt similar restrictions or other policy measures in response to the COVID-19 pandemic. If a prolonged government shutdown occurs, or if global health concerns continue to prevent the FDA or other regulatory authorities from conducting their regular inspections, reviews, or other regulatory activities, it could significantly impact the ability of the FDA or other regulatory authorities to timely review and process our regulatory submissions, which could have a material adverse effect on our business.

Our employees, independent contractors, consultants, commercial partners and vendors may engage in misconduct or other improper activities, including noncompliance with regulatory standards and requirements.

We are exposed to the risk of employee fraud or other illegal activity by our employees, independent contractors, consultants, commercial partners and vendors. Misconduct by these parties could include intentional, reckless and/or negligent conduct that fails to: comply with the regulations of the FDA and other similar foreign regulatory authorities, provide true, complete and accurate information to the FDA and other similar foreign regulatory authorities, comply with manufacturing standards we have established, comply with healthcare fraud and abuse laws in the United States and similar foreign fraudulent misconduct laws or report financial information or data accurately or to disclose unauthorized activities to us. If we obtain FDA approval of any of our product candidates and begin commercializing those products in the United States, our potential exposure under such laws and regulations will increase significantly, and our costs associated with compliance with such laws and regulations are also likely to increase. These laws may impact, among other things, our current activities with principal investigators and research patients, as well as proposed and future sales, marketing and education programs. In particular, the promotion, sales and marketing of healthcare items and services, as well as certain business arrangements in the healthcare industry, are subject to extensive laws designed to prevent fraud, kickbacks, self-dealing and other abusive practices. These laws and regulations may restrict or prohibit a wide range of pricing, discounting, marketing and promotion, structuring and commission(s), certain customer incentive programs and other business arrangements generally. Activities subject to these laws also involve the improper use of information obtained in the course of patient recruitment for clinical trials. The laws that may affect our ability to operate include, but are not limited to:

- the federal Anti-Kickback Statute, which prohibits, among other things, knowingly and willfully soliciting, receiving, offering or paying any remuneration (including any kickback, bribe, or rebate), directly or indirectly, overtly or covertly, in cash or in kind, to induce, or in return for, either the referral of an individual, or the purchase, lease, order or recommendation of any good, facility, item or service for which payment may be made, in whole or in part, under a federal healthcare program, such as the Medicare and Medicaid programs;
- federal civil and criminal false claims laws and civil monetary penalty laws, which prohibit, among other things, individuals or entities from knowingly presenting, or causing to be presented, claims for payment or approval from Medicare, Medicaid, or other third party payors that are false or fraudulent or knowingly making a false statement to improperly avoid, decrease or conceal an obligation to pay money to the federal government;
- the federal Health Insurance Portability and Accountability Act of 1996 (HIPAA), which created new federal criminal statutes that prohibit knowingly and willfully executing, or attempting to execute, a scheme to defraud any healthcare benefit program or obtain, by means of false or fraudulent pretenses, representations, or promises, any of the money or property owned by, or under the custody or control of, any healthcare benefit program, regardless of the payor (for example, public or private) and knowingly and willfully falsifying, concealing or covering up by any trick or device a material fact or making any materially false statements in connection with the delivery of, or payment for, healthcare benefits, items or services relating to healthcare matters;
- HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act of 2009 (HITECH), and their respective implementing regulations, which impose requirements on certain covered healthcare providers, health plans, and healthcare clearinghouses as well as their respective business associates that perform services for them that involve the use, or disclosure of, individually identifiable health information, relating to the privacy, security and transmission of individually identifiable health information without appropriate authorization;
- the federal Physician Payment Sunshine Act, created under the Affordable Care Act and its implementing regulations, which require manufacturers of drugs, devices, biologicals and medical supplies for which payment is available under Medicare, Medicaid or the Children’s Health Insurance

Program (with certain exceptions) to report annually to HHS information related to payments or other transfers of value made to physicians (defined to include doctors, dentists, optometrists, podiatrists and chiropractors) and teaching hospitals, as well as ownership and investment interests held by physicians and their immediate family members; and

- federal consumer protection and unfair competition laws, which broadly regulate marketplace activities and activities that potentially harm consumers.

Additionally, we are subject to state and foreign equivalents of each of the healthcare laws described above, among others, some of which may be broader in scope and may apply regardless of the payor.

Effective upon the closing of this offering, we will adopt a code of business conduct and ethics, but it is not always possible to identify and deter employee misconduct, and the precautions we take to detect and prevent inappropriate conduct may not be effective in controlling unknown or unmanaged risks or losses or in protecting us from governmental investigations or other actions or lawsuits stemming from a failure to be in compliance with such laws or regulations.

Efforts to ensure that our business arrangements with third parties will comply with applicable healthcare laws and regulations will involve substantial costs. Because of the breadth of these laws and the narrowness of the statutory exceptions and safe harbors available, it is possible that some of our business activities could be subject to challenge under one or more of such laws. It is possible that governmental authorities will conclude that our business practices may not comply with current or future statutes, regulations or case law involving applicable fraud and abuse or other healthcare laws and regulations. If our operations are found to be in violation of any of these laws or any other governmental regulations that may apply to us, we may be subject to significant criminal, civil and administrative sanctions including monetary penalties, damages, fines, disgorgement, individual imprisonment, and exclusion from participation in government funded healthcare programs, such as Medicare and Medicaid, additional reporting requirements and oversight if we become subject to a corporate integrity agreement or similar agreement to resolve allegations of non-compliance with these laws, reputational harm, and we may be required to curtail or restructure our operations, any of which could adversely affect our ability to operate our business and our results of operations.

The risk of our being found in violation of these laws is increased by the fact that many of them have not been fully interpreted by the regulatory authorities or the courts, and their provisions are open to a variety of interpretations. Any action against us for violation of these laws, even if we successfully defend against it, could cause us to incur significant legal expenses and divert our management’s attention from the operation of our business. The shifting compliance environment and the need to build and maintain robust and expandable systems to comply with multiple jurisdictions with different compliance and/or reporting requirements increases the possibility that a healthcare company may run afoul of one or more of the requirements.

The provision of benefits or advantages to physicians to induce or encourage the prescription, recommendation, endorsement, purchase, supply, order or use of medicinal products is also prohibited in the EU. The provision of benefits or advantages to physicians is governed by the national anti-bribery laws of EU Member States, such as the U.K. Bribery Act 2010, or the Bribery Act. Infringement of these laws could result in substantial fines and imprisonment. Payments made to physicians in certain EU Member States must be publicly disclosed. Moreover, agreements with physicians often must be the subject of prior notification and approval by the physician’s employer, his or her competent professional organization and/or the regulatory authorities of the individual EU Member States.

These requirements are provided in the national laws, industry codes or professional codes of conduct, applicable in the EU Member States. Failure to comply with these requirements could result in reputational risk, public reprimands, administrative penalties, fines or imprisonment.

We are currently subject to, and may in the future become subject to additional, federal, state and foreign laws and regulations, industry guidelines, and contractual requirements, imposing obligations on how we collect, store, use and process personal information. Our actual or perceived failure to comply with such obligations could harm our business. Ensuring compliance with such laws could also impair our efforts to maintain and expand our customer base, and thereby decrease our revenue.

We are, and may increasingly become, subject to various laws and regulations, as well as contractual obligations and mandatory industry standards relating to privacy and security in the jurisdictions in which we operate. The regulatory environment related to data privacy and security is increasingly rigorous, with new and constantly changing requirements applicable to our business, and enforcement practices are likely to remain uncertain for the foreseeable future. These laws and regulations may be interpreted and applied differently over time and from jurisdiction to jurisdiction, and it is possible that they will be interpreted and applied in ways that may have a material adverse effect on our business, financial condition, results of operations and prospects.

In the United States, various federal and state regulators, including governmental agencies like the Federal Trade Commission, have adopted, or are considering adopting, laws and regulations concerning personal information and data security. Certain state laws may be more stringent or broader in scope, or offer greater individual rights, with respect to personal information than federal, international or other state laws, and such laws may differ from each other, all of which may complicate compliance efforts. For example, the California Consumer Privacy Act of 2018, or CCPA, which increases privacy rights for California residents and imposes obligations on companies that process their personal information and meet certain revenue or volume processing thresholds, came into effect on January 1, 2020, and was further amended by the California Privacy Rights Act (CPRA) on November 3, 2020. Among other things, the CCPA requires covered companies to provide new disclosures to California residents and provide such residents new data protection and privacy rights, including the ability to opt-out of certain sales of personal information. The CPRA significantly modifies the CCPA by expanding residents' rights with respect to certain personal information and creates a new state agency to oversee implementation and enforcement efforts. Many of the CPRA's provisions will become effective on January 1, 2023. The CCPA provides for civil penalties for violations, as well as a private right of action for certain data breaches. This private right of action may increase the likelihood of, and risks associated with, data breach litigation, including class action litigation. In addition, laws in all 50 U.S. states require businesses to provide notice to individuals if certain of their personal information has been disclosed as a result of a qualifying data breach. State laws are changing rapidly and there is discussion in the U.S. Congress of a new comprehensive federal data privacy law to which we may likely become subject, if enacted.

Internationally, laws, regulations and standards in many jurisdictions apply broadly to the collection, use, retention, security, disclosure, transfer, marketing or other processing of personal data. For example, the EU General Data Protection Regulation (GDPR), which became effective on May 25, 2018, is wide-ranging in scope and imposes numerous requirements on companies that process personal data. Specifically, the GDPR greatly increased the European's Commission's jurisdictional reach of its data privacy and security laws and introduced a broad array of requirements for handling personal data, including, for example, requirements to establish a legal basis for processing, higher standards for obtaining consent from individuals to process their personal data, more robust disclosures to individuals, a strengthened individual data rights regime, requirements to implement safeguards to protect the security and confidentiality of personal data that requires the adoption of administrative, physical and technical safeguards, shortened timelines for data breach notifications to appropriate data protection authorities or data subjects, limitations on retention and secondary use of information, increased requirements pertaining to health data and obligations to take certain measures when engaging third party processors in connection with the processing of personal data. EU member states are tasked under the GDPR to enact, and have enacted, certain implementing legislation that adds to and/or further interprets the GDPR requirements and potentially extends our obligations and potential liability for failing to meet such obligations. The GDPR, together with national legislation, regulations and guidelines of the EU member states governing the processing of personal data, impose strict obligations and restrictions on the ability to collect, use, retain, disclose, transfer and otherwise process personal data. In particular, the GDPR also imposes strict obligations, restrictions and rules concerning the rights of individuals to whom the personal data relates, the transfer of personal data to countries outside the

European Economic Area, including the United States, security breach notifications and the security and confidentiality of personal data. The GDPR permits data protection authorities to impose large penalties for violations of the GDPR, including potential fines of up to €20 million or 4% of annual global revenues, whichever is greater, and other administrative penalties. The GDPR also confers a private right of action on data subjects and consumer associations to lodge complaints with supervisory authorities, seek judicial remedies, and obtain compensation for damages resulting from violations of the GDPR. Compliance with the GDPR will be a rigorous and time-intensive process that may increase our cost of doing business or require us to change our business practices, and despite those efforts, there is a risk that we may be subject to fines and penalties, litigation, and reputational harm in connection with our European activities. Following the withdrawal of the United Kingdom from the European Union, data privacy and security laws that are substantially similar to the GDPR are in effect in the United Kingdom, which carry similar risks and authorize similar fines for certain violations.

Certain legal regimes outside of the United States, including in the United Kingdom and under the GDPR, prohibit the transfer of personal data to the United States unless certain measures are in place, including, for example, executing Standard Contractual Clauses, or historically, relying on the receiving entity's certification under the EU-US and/or Swiss-US Privacy Shield Frameworks, or the Privacy Shield Frameworks. The Privacy Shield Frameworks were invalidated, and the adequacy of Standard Contractual Clauses is now in question, following the Court of Justice of the European Union's July 2020 decision in the so-called Schrems II case (Data Protection Commissioner v. Facebook Ireland Limited, Maximillian Schrems (Case C-311/18)). There is no guarantee that any transfer mechanism upon which we rely will be deemed to be valid by the relevant legal authorities, or that mechanisms that are currently deemed to be valid will remain valid in the future. This uncertainty, and its eventual resolution, may increase our costs of compliance, impede our ability to transfer data and conduct our business and harm our business or results of operations.

All of these evolving compliance and operational requirements impose significant costs, such as costs related to organizational changes, implementing additional protection technologies, training employees and engaging consultants and legal advisors, which are likely to increase over time. In addition, such requirements may require us to modify our data processing practices and policies, utilize management's time and/or divert resources from other initiatives and projects. Any failure or perceived failure by us to comply with any applicable federal, state or foreign laws and regulations relating to data privacy and security could result in damage to our reputation, as well as proceedings or litigation by governmental agencies or other third parties, including class action privacy litigation in certain jurisdictions, which would subject us to significant fines, sanctions, awards, injunctions, penalties or judgments. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

If we fail to comply with environmental, health and safety laws and regulations, we could become subject to fines or penalties or incur costs that could have a material adverse effect on the success of our business.

We are subject to numerous environmental, health and safety laws and regulations, including those governing laboratory procedures and the handling, use, storage, treatment and disposal of hazardous materials and wastes. Our operations involve the use of hazardous and flammable materials, including chemicals and biological and radioactive materials. Our operations also produce hazardous waste products. We generally contract with third parties for the disposal of these materials and wastes. We cannot eliminate the risk of contamination or injury from these materials. In the event of contamination or injury resulting from our use of hazardous materials, we could be held liable for any resulting damages, and any liability could exceed our resources. We also could incur significant costs associated with civil or criminal fines and penalties.

Although we maintain workers' compensation insurance to cover us for costs and expenses we may incur due to injuries to our employees resulting from the use of hazardous materials, this insurance may not provide adequate coverage against potential liabilities. We do not maintain insurance for environmental liability or toxic tort claims that may be asserted against us in connection with our storage or disposal of biological, hazardous or radioactive materials.

Even if we are able to commercialize any product candidates, the products may become subject to unfavorable pricing regulations, third party reimbursement practices or healthcare reform initiatives, which would harm our business.

The regulations that govern marketing approvals, pricing, coverage and reimbursement for new drug products vary widely from country to country. Current and future legislation may significantly change the approval requirements in ways that could involve additional costs and cause delays in obtaining approvals. Some countries require approval of the sale price of a drug before it can be marketed. In many countries, the pricing review period begins after marketing or product licensing approval is granted. To obtain reimbursement or pricing approval in some countries, we may be required to conduct a clinical trial that compares the cost-effectiveness of our product candidate to other available therapies. In some foreign markets, prescription pharmaceutical pricing remains subject to continuing governmental control even after initial approval is granted. As a result, we might obtain marketing approval for a product candidate in a particular country, but then be subject to price regulations that delay our commercial launch of the product, possibly for lengthy time periods, and negatively impact the revenues, if any, we are able to generate from the sale of the product in that country. Adverse pricing limitations may hinder our ability to recoup our investment in one or more product candidates, even if our product candidates obtain marketing approval.

Our ability to commercialize any product candidates successfully also will depend in part on the extent to which coverage and adequate reimbursement for these products and related treatments will be available from government healthcare programs, private health insurers and other organizations. Government authorities and third party payors, such as private health insurers and health maintenance organizations, decide which medications they will pay for and establish reimbursement levels. A primary trend in the U.S. healthcare industry and elsewhere is cost containment. Government authorities and third party payors have attempted to control costs by limiting coverage and the amount of reimbursement for particular medications. Increasingly, government authorities and third party payors are requiring that drug companies provide them with predetermined discounts from list prices and are challenging the prices charged for medical products. Coverage and reimbursement may not be available for any product that we commercialize and, even if these are available, the level of reimbursement may not be satisfactory. Reimbursement may affect the demand for, or the price of, any product candidate for which we obtain marketing approval. Obtaining and maintaining adequate reimbursement for our product candidates may be difficult. We may be required to conduct expensive pharmacoeconomic studies to justify coverage and reimbursement or the level of reimbursement relative to other therapies. If coverage and adequate reimbursement are not available or reimbursement is available only to limited levels, we may not be able to successfully commercialize any product candidate for which we obtain marketing approval.

There may be significant delays in obtaining coverage and reimbursement for newly approved drugs, and coverage may be more limited than the purposes for which the drug is approved by the FDA or similar regulatory authorities outside of the United States. Moreover, eligibility for coverage and reimbursement does not imply that a drug will be paid for in all cases or at a rate that covers our costs, including research, development, intellectual property, manufacture, sale and distribution expenses. Interim reimbursement levels for new drugs, if applicable, may also not be sufficient to cover our costs and may not be made permanent. Reimbursement rates may vary according to the use of the drug and the clinical setting in which it is used, may be based on reimbursement levels already set for lower cost drugs and may be incorporated into existing payments for other services. Net prices for drugs may be reduced by mandatory discounts or rebates required by government healthcare programs or private payors and by any future relaxation of laws that presently restrict imports of drugs from countries where they may be sold at lower prices than in the United States. Third party payors often rely upon Medicare coverage policy and payment limitations in setting their own reimbursement policies. Our inability to promptly obtain coverage and adequate reimbursement rates from both government-funded and private payors for any approved products that we develop could have a material adverse effect on our operating results, our ability to raise capital needed to commercialize products and our overall financial condition.

Risks Related to Our Intellectual Property

If we are unable to obtain and maintain patent protection for any product candidates we develop and for our technology, or if the scope of the patent protection obtained is not sufficiently broad, our competitors could develop and commercialize products, product candidates and technology similar or identical to ours, and our ability to successfully commercialize any product candidates we may develop, and our technology may be adversely affected.

Our success will depend in large part on our ability and the ability of our licensors and collaborators to obtain and maintain patent protection and other intellectual property and proprietary rights in the United States and other countries with respect to our technology and our product candidates, their respective components, formulations, combination therapies, methods used to manufacture them and methods of treatment and development that are important to our business, as well as, our ability to operate our business without infringing, misappropriating or otherwise violating the intellectual property rights of others.

Given the early stage of development of our product candidates, our patent portfolio is similarly at a very early stage. In particular, we do not own or exclusively license any issued patents and all of the patent applications we own are provisional applications. In addition, although we plan to file patent applications with respect to TSC-101, TSC-102, TSC-200, TSC-201 and TSC-202, we currently have not filed any patent applications with respect to these product candidates. Accordingly, our current patent rights do not provide us any legal right to prevent third parties from competing with us in any way. If we do not obtain meaningful patent coverage for our product candidates, their respective components, formulations, combination therapies, methods used to manufacture them and methods of treatment, competitors may be able to erode or negate any competitive advantage we may have, which would likely harm our business and ability to achieve profitability. To establish our proprietary position, we have filed provisional patent applications in the United States related to our novel product candidates that are important to our business, and we have exclusively licensed certain patent applications from The Brigham and Women's Hospital, Inc. (or "BWH"); we may in the future also license or purchase issued patents or pending patent applications filed by others. U.S. provisional patent applications are not eligible to become issued patents until, among other things, we file a non-provisional patent application within 12 months of filing of one or more of our related provisional patent applications. With regard to such U.S. provisional patent applications, if we do not timely file any non-provisional patent applications, we may lose our priority date with respect to our provisional patent applications and any patent protection on the inventions disclosed in our provisional patent applications. While we intend to timely file non-provisional patent applications relating to our provisional patent applications, we cannot predict whether any such patent applications will result in the issuance of patents that provide us with any competitive advantage. If we are unable to secure or maintain patent protection with respect to our antibody technology and any proprietary products and technology we develop, our business, financial condition, results of operations, and prospects could be materially harmed.

If the scope of the patent protection we or our existing and potential licensors obtain, if any, is not sufficiently broad, we may not be able to prevent others from developing and commercializing technology and products similar or identical to ours. The degree of patent protection we require to successfully compete in the marketplace may be unavailable or severely limited and may not adequately protect our business or permit us to gain or keep any competitive advantage. We cannot provide any assurances that any of our owned or exclusively licensed pending patent applications that mature into issued patents will include claims with a scope sufficient to protect our current and future product candidates or otherwise provide any competitive advantage. In addition, to the extent that we license intellectual property now or in the future, we cannot provide any assurances that those licenses will remain in force. In addition, the laws of foreign countries may not protect our rights to the same extent as the laws of the United States. Furthermore, patents have a limited lifespan. In the United States, if all maintenance fees are timely paid, the natural expiration of a patent is generally 20 years from its earliest U.S. non-provisional filing date. Various extensions may be available; however, the life of a patent, and the protection it affords, is limited. Even if patents covering our product candidates are obtained, once the patent life has expired for a product candidate, we may be open to competition. Given the amount of time required for the

development, testing and regulatory review of new product candidates, any patents that we may obtain in the future protecting such candidates might expire before or shortly after commercialization of such candidates, if any. As a result, our owned and licensed patent portfolio may not provide us with sufficient rights to exclude others from commercializing product candidates similar or identical to ours.

Even if they are unchallenged, our pending patent applications, if issued, may not provide us with any meaningful protection or prevent competitors or other third parties from designing around our patent claims to circumvent any patents that may issue by developing similar or alternative technologies or therapeutics in a non-infringing manner. For example, a third party may develop a competitive therapy that provides benefits similar to one or more of our product candidates but that uses a formulation and/or a device that falls outside the scope of our patent claims. If any patent protection that we may obtain in the future from the patent applications we hold or pursue with respect to our product candidates is not sufficiently broad to impede such competition, our ability to successfully commercialize our product candidates could be negatively affected, which would harm our business. Similar risks apply to patents or patent applications that we have in-licensed or may in the future in-license.

Patent positions of life sciences companies can be uncertain and involve complex factual and legal questions and are subject of much litigation. No consistent policy governing the scope of claims allowable in the field of antibodies has emerged in the United States. The scope of patent protection in jurisdictions outside of the United States is also uncertain. Changes in either the patent laws or in their interpretation in any jurisdiction that we seek patent protection may diminish our ability to protect our inventions, obtain, maintain, protect and enforce our intellectual property and other proprietary rights; and, more generally, may affect the value of our intellectual property, including the narrowing of the scope of any patents that we may obtain in the future and any that we may license.

The patent prosecution process is complex, expensive, time-consuming and inconsistent across jurisdictions. We may not be able to file, prosecute, maintain, enforce, or license all necessary or desirable patent rights at a commercially reasonable cost or in a timely manner. In addition, we do not intend to pursue, and may not obtain, patent protection in all potentially relevant markets. It is possible that we will fail to identify important patentable aspects of our research and development efforts in time to obtain appropriate or any patent protection or fail to file patent applications covering inventions made in the course of development and commercialization activities before a competitor or another third party files a patent application covering, or publishes information disclosing, a similar, independently-developed invention. Such competitor’s or other third party’s patent application may pose obstacles to our ability to obtain patent protection or limit the scope of the patent protection we may obtain. While we enter into non-disclosure and confidentiality agreements with parties who have access to confidential or patentable aspects of our research and development efforts, including for example, our employees, corporate collaborators, external academic scientific collaborators, CROs, contract manufacturers, consultants, advisors and other third parties, any of these parties may breach the agreements and disclose such output before a patent application is filed, thereby endangering our ability to seek patent protection. In addition, publications of discoveries in the scientific and scholarly literature often lag behind the actual discoveries, and patent applications in the United States and other jurisdictions are typically not published until 18 months after filing, or in some cases not at all. Consequently, we cannot be certain that we or our licensors were the first to make the inventions claimed in our owned or in-licensed patent rights and patent applications or were the first to file for patent protection on the inventions claimed in our pending patent applications.

The issuance, scope, validity, enforceability and commercial value of our and our current or future licensors’ patent rights are highly uncertain. Our and our licensors’ pending and future patent applications may not result in patents being issued that protect our technology or product candidates, in whole or in part, or which effectively exclude others from commercializing competitive technologies and product candidates. Further, the scope of the invention claimed in a patent application can be significantly reduced before the patent is issued, and this scope can be reinterpreted after issuance. Even where patent applications we currently own or that we license now or in the future issue as patents, they may not issue in a form that will provide us with adequate protection to prevent competitors or other third parties from competing with us, or otherwise provide us with a competitive

advantage. Any patents that eventually issue may be challenged, narrowed or invalidated by third parties. Consequently, we do not know whether any of our product candidates will be protectable or remain protected by valid and enforceable patent rights. Our competitors or other third parties may be able to evade or circumvent our patent rights by developing new alternative technologies or products in a non-infringing manner.

The issuance or grant of a patent is not conclusive as to its inventorship, scope, validity or enforceability, and our patents we may obtain in the future may be challenged, invalidated, narrowed or held to be enforceable, including in the courts or patent offices in the United States and abroad, or circumvented. There may be prior art of which we are not aware that may affect the validity or enforceability of a patent claim. There also may be prior art of which we are aware, but which we do not believe affects the validity or enforceability of a claim, but which may, nonetheless, ultimately be found to affect the validity or enforceability of a claim. We may become subject to a third party pre-issuance submission of prior art or opposition, derivation, revocation, re-examination, post-grant and *inter partes* review, or interference proceeding and other similar proceedings challenging any patent rights we may obtain in the future or the patent rights of others, including based on priority of invention or other features of patentability, in the U.S. Patent and Trademark Office (USPTO) or other foreign patent office. An unfavorable determination in any such submission, proceeding or litigation could reduce the scope of, or invalidate, any patent rights we may obtain in the future, allow third parties to use or commercialize our technology or product candidates and compete directly with us, without payment to us (as they can now), or extinguish our ability to manufacture or commercialize product candidates without infringing third party patent rights. Such proceedings also may result in substantial cost and require significant time from our scientists and management, even if the eventual outcome is favorable to us. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could have a material adverse effect on the price of our common stock.

In addition, given the amount of time required for the development, testing and regulatory review of new product candidates, any patents we may obtain in the future protecting such candidates might expire before or shortly after commercialization of such candidates, if any. As a result, our intellectual property may never provide us with sufficient rights to exclude others from commercializing products similar or identical to ours. Moreover, any patents or patent applications that we may own or in-license in the future may be co-owned with third parties. If we are unable to obtain an exclusive license to any such third party co-owners' interest in any such patents or patent applications, such co-owners may be able to license their rights to other third parties, including our competitors, thereby enabling our competitors to market competing products and technology. In addition, we or our licensors may need the cooperation of any such co-owners of any patents that we may own or in-license in the future in order to enforce such patents against third parties, and such cooperation may not be provided to us or our licensors. Any of the foregoing could have a material adverse effect on our competitive position, business, financial conditions, results of operations and prospects.

We could be unsuccessful in obtaining meaningful patent protection on one or more components of our platform technology.

We believe that an important factor in our competitive position is our screening technology platform to identify future product candidates and therapeutic targets. Our screening platform is based in part on technology processes that are (or will be) publicly disclosed in patent applications owned by or licensed to us and we do not currently own or in-license any issued patents that protect our screening platform. Even if these patents issue from these patent applications and provide broad protection, it may be difficult or impossible to detect whether a competitor is practicing the proprietary methods claimed in such patent applications in order to discover their own product candidates and therapeutic targets. In such case, any patents that may issue from patent applications owned by or licensed to us would not provide us protection to prevent such activity. Additionally, a competitor may also practice such methods in a jurisdiction where we have no relevant patent protection. Our competitive position could be weakened by competitors or other third parties practicing the methods claimed in these patent applications in a manner we do not detect or in jurisdictions in which we or our licensors do not obtain any relevant patent protection.

If we fail to comply with any of our obligations under existing or future agreements pursuant to which we license intellectual property rights or technology, if the licenses are terminated or if disputes regarding these licenses arise, we could lose significant rights or technology that are material to our business and could interfere with our ability to operate our business.

We are a party to technology licenses, including in-license agreements with BWH and Provincial Health Services Authority (or "PHSA"), and we may enter into additional licenses in the future. See "Business—License and Collaboration Agreements" for more information regarding our agreement with PHSA. Such licenses do, and may in the future, impose commercial, contingent payment, royalty, insurance, indemnification, and other obligations on us. If we fail to comply with these obligations, our licensors may have the right to terminate the license, in which event we could lose valuable rights under our collaboration agreements and our ability to develop product candidates could be impaired. Additionally, should any such license agreement be terminated for any reason, there may be a limited number of replacement licensors, and a significant amount of time may be required to transition to a replacement licensor.

Our rights to develop and commercialize our product candidates are subject in part to the terms and conditions of third party licenses, pursuant to which we have acquired rights from the applicable licensors. Our rights with respect to such intellectual property may terminate, in whole or in part, if we fail to meet applicable requirements or milestones relating to development and commercialization. We may also lose our rights to develop and commercialize our product candidates under such agreements if we fail to pay required milestones or royalties. In the event of an early termination of our license agreements, all rights licensed and developed by us under these agreements may be extinguished, which may have an adverse effect on our business, financial condition, results of operations and prospects.

We rely on certain of our licensors to prepare, file and prosecute patent applications and maintain patents and otherwise protect the intellectual property we license from them and may continue to do so in the future. We have limited or no control over these activities or any other intellectual property that may be related to our in-licensed intellectual property. For example, we cannot be certain that such activities by these licensors have been or will be conducted in compliance with applicable laws and regulations or will result in valid and enforceable patents and other intellectual property rights. We have limited or no control over the manner in which our licensors initiate an infringement proceeding against a third party infringer of the intellectual property rights, or defend certain of the intellectual property that is licensed to us. It is possible that any licensors' infringement proceeding or defense activities may be less vigorous than had we conducted them ourselves.

These agreements may be complex, and certain provisions in such agreements may be susceptible to multiple interpretations. The resolution of any contract interpretation disagreement that may arise could narrow what we believe to be the scope of our rights to the relevant intellectual property or technology, or increase what we believe to be our financial or other obligations under the relevant agreement, either of which could have a material adverse effect on our business, financial condition, results of operations and prospects.

In addition, a third party may in the future bring claims that our performance under our license agreements, including our sponsoring of clinical trials, interferes with such third party's rights under its agreement with one of our licensors. If any such claim were successful, it may adversely affect our rights and ability to advance our product candidates as clinical candidates or subject us to liability for monetary damages, any of which would have an adverse effect on our business, financial condition, results of operations and prospects.

We are currently, and expect in the future to be, party to material license or collaboration agreements.

We are currently, and expect in the future to be, party to material license or collaboration agreements. These agreements typically impose numerous obligations and restrictions on us, such as various diligence, commercialization, insurance and payment obligations, among others, in order to maintain such licenses. Any of these restrictions or obligations could delay or otherwise negatively impact a transaction that we may wish to enter into. In addition, any termination of these licenses could result in the loss of significant rights and could harm our ability to commercialize our product candidates.

Licensing of intellectual property is of high importance to our business and involves complex legal, business and scientific issues. Disputes may also arise between us and our licensors regarding intellectual property subject to a license agreement, including:

- the scope of rights granted under the license agreement and other interpretation-related issues;
- whether, and the extent to which, our product candidates, technology and processes infringe on intellectual property of the licensor that is not subject to the licensing agreement;
- our right to sublicense patent and other intellectual property rights to third parties under collaborative development relationships;
- the calculation and existence of certain payment obligations under the license agreement;
- our diligence obligations with respect to the use of the licensed technology in relation to our development and commercialization of our product candidates, and what activities satisfy those diligence obligations;
- the inventorship and ownership of inventions, know-how and other intellectual property and proprietary rights resulting from the joint creation or use of intellectual property by our licensors and us and our partners; and
- the priority of invention of patented technology.

If disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangements on acceptable terms, we may be unable to successfully develop and commercialize the affected product candidates.

We are generally also subject to all of the same risks with respect to protection of intellectual property that we license, as we are for intellectual property that we own, which we describe below, and our success will depend in part on the ability of our licensors to adequately obtain, maintain, protect and enforce patent protection for our licensed intellectual property, especially with respect to patent rights which we exclusively in-license. If we or our licensors fail to adequately protect this intellectual property, our ability to commercialize products could suffer.

We rely on certain of our licensors to prepare, file and prosecute patent applications and maintain patents and otherwise protect the intellectual property we license from them and may continue to do so in the future. We have limited control over these activities or any other intellectual property that may be related to our in-licensed intellectual property. For example, we cannot be certain that such activities by these licensors have been or will be conducted in compliance with applicable laws and regulations or will result in valid and enforceable patents and other intellectual property rights. We have limited control over the manner in which our licensors initiate an infringement proceeding against a third party infringer of the intellectual property rights, or defend certain of the intellectual property that is licensed to us. It is possible that any licensors' infringement proceeding or defense activities may be less vigorous than had we conducted them ourselves or may not be conducted in accordance with our best interests.

Furthermore, certain of our licenses may not provide us with exclusive rights to use the licensed intellectual property and technology, or may not provide us with exclusive rights to use such intellectual property and technology in all relevant fields of use and in all territories in which we may wish to develop or commercialize our technology and product candidates in the future. For example, a portion of our intellectual property portfolio is non-exclusively licensed to us and may be used by our licensors or licensed to third parties, and such third parties may have certain enforcement rights with respect to such intellectual property. Thus, patent rights licensed to us could be put at risk of being invalidated or interpreted narrowly in litigation filed by or against our licensors or another licensee or in administrative proceedings brought by or against our licensors or another licensee in response to such litigation or for other reasons. As a result, we may not be able to prevent competitors or other third parties from developing and commercializing competitive products, including in territories covered by our licenses.

Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

Our proprietary position may depend upon patents that are manufacturing, formulation or method-of-use patents, which may not prevent a competitor or other third party from using the same product candidate for another use.

Composition-of-matter patents are generally considered to be the strongest form of intellectual property protection for drug products because such patents provide protection without regard to any particular method of use or manufacture or formulation of the API used. We do not have any issued patents, but our pending owned and in-licensed patent applications include claims that cover compositions of matter of our TSC-100 TCR-T therapy candidate. We cannot be certain that claims in any patent that may issue from our pending owned or in-licensed patent applications will cover the composition-of-matter of any of our current or future product candidates.

If our efforts to protect the proprietary nature of the intellectual property related to our technologies are not adequate, we may not be able to compete effectively in our market.

Biotechnology and pharmaceutical companies generally, and we in particular, compete in a crowded competitive space characterized by rapidly evolving technologies and aggressive defense of intellectual property. The USPTO and various foreign governmental patent agencies require compliance with a number of procedural, documentary, fee payment and other provisions during the patent process. There are situations in which noncompliance can result in abandonment or lapse of a patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. In such an event, competitors might be able to enter the market earlier than would otherwise have been the case.

We rely upon a combination of patent rights, confidentiality agreements, trade secret protection and license agreements to protect the intellectual property related to our technologies. Any disclosure to or misappropriation by third parties of our confidential proprietary information could enable competitors or other third parties to quickly duplicate or surpass our technological achievements, thus eroding our competitive position in our market. We, or any partners, collaborators, licensees or licensors may fail to identify patentable aspects of inventions made in the course of development and commercialization activities before it is too late to obtain patent protection on them. Therefore, we may miss potential opportunities to strengthen our patent position.

It is possible that defects of form in the preparation or filing of our patent applications may exist, or may arise in the future, for example with respect to proper priority claims, inventorship, claim scope, or requests for patent term adjustments. If we or any partners, collaborators, licensees or licensors fail to establish, maintain or protect such patent rights and other intellectual property rights, such rights may be reduced or eliminated. If any partners, collaborators, licensees or licensors are not fully cooperative or disagree with us as to the prosecution, maintenance or enforcement of any patent rights, such patent rights could be compromised. If there are material defects in the form, preparation, prosecution, or enforcement of our patent applications, any patents that may issue from such patent applications may be invalid and/or unenforceable, and such applications may never result in valid, enforceable patents. Any of these outcomes could impair our ability to prevent competition from third parties, which may have an adverse impact on our business, financial condition, results of operations and prospects.

Currently, our patent applications are directed to our TCR-T therapy candidates and accompanying technologies. We seek or plan to seek patent protection for our proprietary platform and product candidates by filing and prosecuting patent applications in the United States and other countries as appropriate. As of December 31, 2020, our patent portfolio consisted of one patent family exclusively licensed from BWH, which family included one pending U.S. non-provisional patent application and five pending foreign non-provisional patent applications relating to methods and compositions for identifying target antigens specific to T cells, and five patent families encompassing an aggregate of 13 U.S. provisional patent applications that we own. The

claims of these patent applications are directed toward various aspects of our product candidates and research programs including compositions of matter directed to SARS-CoV-2 immunodominant antigens, anti-SARS-CoV-2 TCRs, anti-SARS-CoV-2 vaccines, anti-HA-1 TCRs, and a phospholipid scrambling reporter-based T-cell antigen screening platform, as well as related methods of diagnosis, prognosis, treatment, screening, and other uses. These patent applications, if issued, are expected to expire on various dates from 2038 through 2041, in each case without taking into account any possible patent term adjustments or extensions.

We anticipate additional patent applications will be filed both in the United States and in other countries, as appropriate. However, we cannot predict:

- whether and when any patents will issue;
- the degree and range of protection that any patents that may issue will afford us against competitors;
- whether any of our intellectual property will provide any competitive advantage;
- whether any patents that may issue may be challenged, invalidated, modified, revoked, circumvented or found to be unenforceable;
- whether or not others will obtain patents claiming inventions similar to those covered by our patent applications; or
- whether we will need to initiate or defend litigation or administrative proceedings, which may be costly regardless of whether we win or lose.

Additionally, we cannot be certain that the claims in our pending patent applications covering the composition of matter of our product candidates will be considered patentable by the USPTO or patent offices in foreign countries.

Method-of-use patents protect the use of a product for the specified method. If we obtain any of these types of patents, they would not prevent a competitor from making and marketing a product that is identical to one of our product candidates for an indication that is outside the scope of the patented method. Moreover, even if competitors do not actively promote their product for our targeted indications, physicians may prescribe these products "off-label." Although off-label prescriptions may induce or contribute to the infringement of method-of-use patents, the practice is common, and such infringement is difficult to prevent or prosecute.

The strength of patents in the biotechnology and pharmaceutical field involves complex legal and scientific questions and can be uncertain. The patent applications that we own or in-license may fail to result in issued patents with claims that cover our product candidates or uses thereof in the United States or in other foreign countries. Even if the patents do successfully issue, third parties may challenge the validity, enforceability or scope thereof, which may result in such patents being narrowed, invalidated or held unenforceable. If the breadth or strength of protection provided by the patent applications we hold with respect to our product candidates is threatened, it could dissuade companies from collaborating with us to develop, and threaten our ability to commercialize, our product candidates. Further, if we encounter delays in our clinical trials, the period of time during which we could market our product candidates under patent protection would be reduced. Since patent applications in the United States and most other countries are confidential for a period of time after filing, we cannot be certain that we were the first to file any patent application related to our product candidates. Various post-grant review proceedings, such as *inter partes* review and post-grant review, are available for any interested third party to challenge the patentability of claims in any patents issued to us or our licensors. While these post-grant review proceedings have been used less frequently to invalidate biotech patents, they have been successful regarding other technologies, and these relatively new procedures are still changing, and those changes might affect future results. No assurance can be given that, if challenged, any patents that we or our licensors may obtain would be declared by a court to be valid or enforceable or that, even if found valid and enforceable, a competitor's technology or product would be found by a court to infringe any such patent. We may analyze patents or patent applications of our competitors that we believe are relevant and conclude that our activities do not infringe any valid claims of those patents or patent applications, but our conclusions may be erroneous or our

competitors may obtain patents with issued claims, including in patents we consider to be unrelated, that block our efforts or that our product candidates or our activities infringe. Others may independently develop products that have the same effect as our product candidates without infringing any patents we may obtain or any of our other intellectual property rights, or they may design around the claims of any patents that we may obtain.

Recent and future patent reform legislation could increase the uncertainties and costs surrounding the prosecution of our patent applications and the enforcement or defense of any patents we may obtain. In March 2013, under the Leahy-Smith America Invents Act, or the America Invents Act, the United States moved from a "first to invent" to a "first-to-file" system. Under a "first-to-file" system, assuming the other requirements for patentability are met, the first inventor to file a patent application generally will be entitled to a patent on the invention regardless of whether another inventor had made the invention earlier. The America Invents Act included a number of other significant changes to U.S. patent law, including provisions that have affected the way patent applications are prosecuted, redefined prior art and established a new post-grant review system. The effects of these changes are still unclear as the USPTO only recently developed new regulations and procedures in connection with the America Invents Act, and many of the substantive changes to patent law, including the "first-to-file" provisions, only became effective in March 2013. Moreover, the courts have yet to address many of these provisions. Overall, the America Invents Act and its implementation have increased the uncertainties and costs surrounding the prosecution of our patent applications and any enforcement or defense of any patents that we may obtain, which could have a material adverse effect on our business and financial condition.

The degree of future protection for our proprietary rights is uncertain because legal means afford only limited protection and may not adequately protect our rights or permit us to gain or keep our competitive advantage. For example:

- others may be able to make or use compounds or cells that are similar to the biological compositions of our product candidates but that are not covered by the claims of any patents that we may obtain;
- the active biological ingredients in our current product candidates may eventually become commercially available in biosimilar drug products, and no patent protection may be available with regard to formulation or method of use;
- we or our licensors, as the case may be, might not have been the first to file patent applications for these inventions;
- there may be prior public disclosures that could invalidate any patents that we or our licensors may obtain;
- the inventors of our owned or in-licensed patent applications may become involved with competitors, develop products or processes that design around any patents that we may obtain, or become adverse to us or patent applications on which they are named as inventors;
- it is possible that our owned or in-licensed patent applications omit individual(s) that should be listed as inventor(s) or include individual(s) that should not be listed as inventor(s), which may cause any patents that may issue from these patent applications to be held invalid or unenforceable;
- we have engaged and may continue to engage in scientific collaborations, and such collaborators may develop adjacent or competing products to ours that are outside the scope of any patents that we may obtain;
- we may not develop additional proprietary technologies for which we can obtain patent protection;
- product candidates or diagnostic tests we develop may be covered by third parties' patents or other exclusive rights; or
- the patents of others may have an adverse effect on our business.

If we are unable to protect the confidentiality of our trade secrets, our business and competitive position would be harmed.

In addition to the protection afforded by any patent rights we may obtain, we seek to rely on trade secret protection, confidentiality agreements, and license agreements to protect our proprietary know-how, information, technology and other proprietary information that is not patentable, processes for which patents are difficult to enforce and any other elements of our product discovery and development processes that involve proprietary know-how, information, or technology that we have not sought to protect through patent applications. For example, significant elements of our product candidates, including aspects of sample preparation, methods of manufacturing, cell culturing conditions, computational-biological algorithms, and related processes and software, are based on unpatented trade secrets that are not publicly disclosed. It is our policy to require our employees, consultants, outside scientific collaborators, sponsored researchers and other advisors to execute confidentiality agreements upon the commencement of employment or consulting relationships with us. These agreements generally provide that all confidential information concerning our business or financial affairs developed or made known to the individual or entity during the course of the party's relationship with us is to be kept confidential and not disclosed to third parties except in specific circumstances. In the case of employees, the agreements provide that all inventions conceived by the individual, and which are related to our current or planned business or research and development or made during normal working hours, on our premises or using our equipment or proprietary information, are our exclusive property. In addition, we take other appropriate precautions, such as physical and technological security measures, to guard against misappropriation of our proprietary technology by third parties. Despite these measures, we cannot be certain that our trade secrets and other confidential proprietary information will not be disclosed or that competitors will not otherwise gain access to our trade secrets or independently develop substantially equivalent information and techniques. Furthermore, the laws of some foreign countries do not protect proprietary rights to the same extent or in the same manner as the laws of the United States. Courts outside the United States are sometimes less willing to protect trade secrets. As a result, we may encounter significant problems in protecting and defending our intellectual property both in the United States and abroad. If we choose to go to court to stop a third party from using any of our trade secrets, we may incur substantial costs. These lawsuits may consume our time and other resources even if we are successful. If we are unable to prevent unauthorized disclosure of our material intellectual property to third parties, we will not be able to establish or maintain a competitive advantage in our market, which could materially adversely affect our business, operating results and financial condition. For more information, see "Risk Factors—Risks Related to Our Intellectual Property—"We have limited foreign intellectual property rights and may not be able to protect our intellectual property rights throughout the world."

Third party claims of intellectual property infringement, misappropriation or other violations may prevent or delay our product discovery and development efforts.

Our commercial success depends in part on our avoiding infringement, misappropriation or other violation of the patents and proprietary rights of third parties. There is a substantial amount of litigation involving patents and other intellectual property rights in the biotechnology and pharmaceutical industries. We may be exposed to, or threatened with, future litigation by third parties having patent or other intellectual property rights alleging that our product candidates and/or technologies infringe their intellectual property rights. Numerous U.S. and foreign issued patents and pending patent applications, which are owned by third parties, exist in the fields in which we are developing our product candidates or identifying potential product candidates. As the biotechnology and pharmaceutical industries expand and more patents are issued, the risk increases that our product candidates may give rise to claims of infringement of the patent rights of others. Moreover, it is not always clear to industry participants, including us, which patents cover various types of drugs, products or their methods of use or manufacture. Because of the large number of patents and patent applications in our fields, there is a risk that third parties may allege they have patent rights encompassing our product candidates, technologies or methods.

If a third party claims that we infringe, misappropriate or otherwise violate its intellectual property rights, we may face a number of issues, including, but not limited to:

- infringement, misappropriation and other violation of intellectual property claims which, regardless of merit, may be expensive and time-consuming to litigate and may divert our management's attention from our core business;
- substantial damages for infringement, misappropriation or other violation which we may have to pay if a court decides that the product candidate or technology at issue infringes on, misappropriates or otherwise violates the third party's rights, and, if the court finds that the infringement was willful, we could be ordered to pay treble damages and the patent owner's attorneys' fees;
- a court prohibiting us from developing, manufacturing, marketing or selling our product candidates, or from using our proprietary technologies, unless the third party licenses its product rights to us, which it is not required to do;
- if a license is available from a third party, we may have to pay substantial royalties, upfront fees and other amounts, and/or grant cross-licenses to intellectual property rights for our product candidates or using our proprietary technologies; and
- redesigning our product candidates or processes so they do not infringe third party intellectual property rights, which may not be possible or may require substantial monetary expenditures and time.

Some of our competitors or other third parties may be able to sustain the costs of complex patent litigation more effectively than we can because they have substantially greater resources. In addition, any uncertainties resulting from the initiation and continuation of any litigation could have a material adverse effect on our ability to raise the funds necessary to continue our operations or could otherwise have a material adverse effect on our business, results of operations, financial condition and prospects.

Third parties may assert that we are employing their proprietary technology without authorization. Generally, conducting preclinical and clinical trials and other development activities in the United States is not considered an act of infringement. If TSC-100, TSC-101, TSC-102, TSC-200, TSC-201 and TSC-202 or another product candidate is licensed by the FDA, a third party may then seek to enforce its patent by filing a patent infringement lawsuit against us. While we do not believe that any claims that could otherwise have a materially adverse effect on the commercialization of our product candidates, if licensed, are valid and enforceable, we may be incorrect in this belief, or we may not be able to prove it in litigation. In this regard, patents issued in the United States by law enjoy a presumption of validity that can be rebutted only with evidence that is "clear and convincing", a heightened standard of proof. As a result, there is no assurance that a court of competent jurisdiction would invalidate the claims of any such U.S. patent. If any third party patent were held by a court of competent jurisdiction to cover the manufacturing process of our product candidates, constructs or molecules used in or formed during the manufacturing process, or any final product itself, or aspects of our formulations, processes for manufacture or methods of use, including combination therapy or patient selection methods, the holder of any such patent may be able to block our ability to commercialize the product candidate unless we obtained a license under the applicable patent, or until such patent expires or it is finally determined to be held invalid or unenforceable. In any case, such a license may not be available on commercially reasonable terms or at all. If we are unable to obtain a necessary license to a third party patent on commercially reasonable terms, or at all, our ability to commercialize our product candidates may be impaired or delayed, which could in turn significantly harm our business. Even if we obtain a license, it may be non-exclusive, thereby giving our competitors access to the same technologies licensed to us, and it could require us to make substantial licensing and royalty payments. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could have a material adverse effect on the price of our common stock. Any of the foregoing events could harm our business, financial condition, results of operations and prospects.

Parties making claims against us may seek and obtain injunctive or other equitable relief, which could effectively block our ability to further develop and commercialize our product candidates. Defense of these claims, regardless of their merit, could involve substantial litigation expense and would be a substantial diversion of employee resources from our business. In the event of a successful claim of infringement against us, we may have to pay substantial damages, including treble damages and attorneys' fees for willful infringement, obtain one or more licenses from third parties, pay royalties or redesign our infringing products, which may be impossible or require substantial time and monetary expenditure. We cannot predict whether any such license would be available at all or whether it would be available on commercially reasonable terms. Furthermore, even in the absence of litigation, we may need or may choose to obtain licenses from third parties to advance our research or allow commercialization of our product candidates. We may fail to obtain any of these licenses at a reasonable cost or on reasonable terms, if at all. In that event, we would be unable to further develop and commercialize our product candidates. Any of the foregoing events could harm our business, financial condition, results of operations and prospects.

We may not be successful in obtaining or maintaining necessary rights to product components and processes for our development pipeline through acquisitions and in-licenses.

Because additional product candidates may require the use of proprietary rights held by third parties, the growth of our business will likely depend in part on our ability to acquire, in-license or use these proprietary rights. In addition, while we have certain patent rights directed to certain TCR constructs, we may not be able to obtain intellectual property to broad T-cell or TCR-T constructs.

Our product candidates may also require specific formulations to work effectively and efficiently and rights to these formulations may be held by others. Similarly, efficient production or delivery of our product candidates may also require specific compositions or methods, and the rights to these may be owned by third parties. We may be unable to acquire or in-license any formulations, compositions, methods of use, processes or other third party intellectual property rights that we identify as necessary or important to our business operations. We may fail to obtain any of these licenses at a reasonable cost or on reasonable terms, if at all, which would harm our business. We may need to cease use of the compositions or methods covered by such third party intellectual property rights, and may need to seek to develop alternative approaches that do not infringe on such intellectual property rights which may entail additional costs and development delays, even if we were able to develop such alternatives, which may not be feasible. Even if we are able to obtain a license, it may be non-exclusive, thereby giving our competitors access to the same technologies licensed to us. In that event, we may be required to expend significant time and resources to develop or license replacement technology. Moreover, the specific antibodies that will be used with our product candidates may be covered by the intellectual property rights of others.

Additionally, we may collaborate with academic institutions to accelerate our preclinical research or development under written agreements with these institutions. In certain cases, these institutions provide us with an option to negotiate a license to any of the institution's rights in technology resulting from the collaboration. Regardless of such option, we may be unable to negotiate a license within the specified timeframe or under terms that are acceptable to us. If we are unable to do so, the institution may offer the intellectual property rights to others, potentially blocking our ability to pursue our program. If we are unable to successfully obtain rights to required third party intellectual property or to maintain the existing intellectual property rights we have, we may have to abandon development of such program and our business and financial condition could suffer.

The licensing and acquisition of third party intellectual property rights is a competitive area, and companies that may be more established or have greater resources than we do may also be pursuing strategies to license or acquire third party intellectual property rights that we may consider necessary or attractive in order to commercialize our product candidates. More established companies may have a competitive advantage over us due to their size, cash resources and greater clinical development and commercialization capabilities.

We may eventually become involved in lawsuits to protect or enforce our intellectual property and proprietary rights, including any patents that we or our licensors may obtain in the future, which could be expensive, time-consuming and unsuccessful.

In the future, competitors or other third parties may infringe any patents that we or our licensors may obtain. To counter any such future infringement or unauthorized use, we may eventually be required to file infringement claims, which can be expensive and time-consuming. Any claims we assert against perceived infringers could provoke these parties to assert counterclaims against us alleging that we infringe their patents or that our licensors' patents are invalid or unenforceable. In addition, in a patent infringement proceeding, a court may decide that one or more patents that we may obtain in the future is not valid or is unenforceable, in whole or in part, construe the patent's claims narrowly or may refuse to stop the other party from using the technology at issue on the grounds that such patents, if any, do not cover the technology in question. An adverse result in any litigation or defense proceedings could put one or more of such patents, if any, at risk of being invalidated, held unenforceable, or interpreted narrowly and could put our patent applications at risk of not issuing. Asserting any patent rights we may obtain in the future, and defending challenges to our rights, regardless of their merit, would involve substantial litigation expense and would be a substantial diversion of employee resources from our business and we may find it impractical or undesirable to enforce our intellectual property against some third parties.

Post-grant, interference or derivation proceedings provoked by third parties or brought by us or declared by the USPTO may be necessary to determine the validity or priority of inventions with respect to our or our licensors' patent applications or any patents that may issue therefrom. An unfavorable outcome could result in a loss of any patent rights we may have. Furthermore, because of the substantial amount of discovery required in connection with intellectual property litigation, there is a risk that some of our confidential information could be compromised by disclosure during this type of litigation or proceeding. In addition, there could be public announcements of the results of hearings, motions or other interim proceedings or developments. If securities analysts or investors perceive these results to be negative, it could have a material adverse effect on the price of our common stock. Any of the foregoing events could harm our business, financial condition, results of operations and prospects.

Obtaining and maintaining our patent protection depends on compliance with various procedures, document submission, fee payments and other requirements imposed by governmental patent agencies, and our patent protection could be reduced or eliminated for non-compliance with these requirements.

Some of our patent applications may be allowed in the future. We cannot be certain that an allowed patent application will become an issued patent. There may be events that cause withdrawal of the allowance of a patent application. For example, after a patent application has been allowed, but prior to being issued, material that could be relevant to patentability may be identified. In such circumstances, the applicant may pull the application from allowance in order for the USPTO or foreign patent agency to review the application in view of the new material. In that circumstance, the USPTO or the other agency may not re-allow an application in view of the new material. Further, periodic maintenance fees, renewal fees, annuity fees and various other governmental fees on patents and/or patent applications will be due to be paid to the USPTO and foreign patent agencies at several stages over the lifetime of the patents and/or patent applications. The USPTO and various foreign governmental patent agencies also require compliance with a number of procedural, documentary and other similar provisions during the patent application process and following the issuance of a patent. We also may be dependent on our licensors to take the necessary action to comply with these requirements with respect to our licensed intellectual property. While an inadvertent lapse can in many cases be cured by payment of a late fee or by other means in accordance with the applicable rules, there are situations in which noncompliance can result in abandonment or lapse of the patent or patent application, resulting in partial or complete loss of patent rights in the relevant jurisdiction. Noncompliance events that could result in abandonment or lapse of a patent or patent application include, but are not limited to, failure to respond to official actions within prescribed time limits, non-payment of fees and failure to properly legalize and submit formal documents. In such an event, our competitors and other

third parties might be able to enter the market without infringing our or our licensors' patents and patent applications, which could have a material adverse effect on our business, financial condition, results of operations and prospects.

If we obtain any patents covering our product candidates, they could nonetheless be found invalid or unenforceable if challenged in court or the USPTO.

The issuance of a patent is not conclusive as to its inventorship, scope, validity or enforceability. Our in-licensed patents, and any of our owned or in-licensed patent applications that may issue in the future, may be challenged at the USPTO or foreign patent offices in re-examination, *inter partes* review, post-grant review and equivalent proceedings in foreign jurisdictions (such as opposition proceedings). Such proceedings could result in the revocation of or amendment to such patents in such a way that they no longer cover our product candidates or technologies. If we or one of our licensing partners initiates legal proceedings against a third party to enforce a patent that we may obtain in the future covering one of our product candidates, the defendant could counterclaim that such patent is invalid and/or unenforceable. In patent litigation in the United States, counterclaims alleging invalidity and/or unenforceability are commonplace, and there are numerous grounds upon which a third party can assert invalidity or unenforceability of a patent. Grounds for a validity challenge could be an alleged failure to meet any of several statutory requirements, including lack of novelty, obviousness or non-enablement. Grounds for an unenforceability assertion could be an allegation that someone connected with prosecution of the patent withheld relevant information from the USPTO, or made a misleading statement, during prosecution. Third parties may also raise similar claims before administrative bodies in the United States or abroad, even outside the context of litigation. Such mechanisms include re-examination, *inter partes* review, post-grant review and equivalent proceedings in foreign jurisdictions (such as opposition proceedings). Such proceedings could result in revocation or amendment to any patents we may obtain in the future in such a way that they would no longer cover our product candidates. The outcome following legal assertions of invalidity and unenforceability is unpredictable. With respect to the validity question, for example, we cannot be certain that there is no invalidating prior art, of which we, our patent counsel and the patent examiner were unaware during prosecution. If a defendant were to prevail on a legal assertion of invalidity and/or unenforceability, or if we are otherwise unable to adequately protect our rights, we would lose at least part, and perhaps all, of any patent protection we may eventually obtain on our product candidates and technologies. Such a loss of patent protection could have a material adverse impact on our business, financial condition, results of operations and prospects and our ability to commercialize or license our technology and product candidates.

Changes to patent law and its interpretation in the United States and in foreign jurisdictions could diminish the value of patents in general and may impact the validity, scope or enforceability of our patent rights, thereby impairing our ability to protect our product candidates and technologies.

As is the case with other biopharmaceutical companies, our success is heavily dependent on intellectual property, particularly any patents that may issue from our pending patent applications. Changes in either the patent laws or in their interpretation in any jurisdiction that we seek patent protection may diminish our ability to protect our inventions, obtain, maintain and enforce our intellectual property and proprietary rights and, more generally, may affect the value of our intellectual property and proprietary rights. The United States continues to adapt to wide-ranging patent reform legislation that became effective starting in 2012. Moreover, various courts, including the U.S. Supreme Court, have rendered decisions that have narrowed the scope of patent protection available in certain circumstances and weakened the rights of patent owners in certain situations. In addition to increasing uncertainty with regard to our ability to obtain patents in the future, this combination of events has created uncertainty with respect to the value of patents, once obtained. Depending on decisions by the U.S. Congress, the federal courts, and the USPTO, the laws and regulations governing patents could change in unpredictable ways that would weaken our ability to obtain new patents or to enforce patents that we might obtain in the future. For example, in the case *Assoc. for Molecular Pathology v. Myriad Genetics, Inc.*, the U.S. Supreme Court held that certain claims to DNA molecules are not patentable. We cannot predict how future decisions by the courts, Congress or the USPTO may impact the value of our pending patent applications.

Similarly, any adverse changes in the laws and regulations governing patents in other jurisdictions could have an adverse effect on our ability to obtain and effectively enforce our patent rights and have a material adverse effect on our business and financial condition.

We have limited foreign intellectual property rights and may not be able to protect our intellectual property rights throughout the world.

In the United States, we have filed only provisional patent applications, and outside the United States we have made no filings; our only rights outside the United States consist of seven pending patent applications that we exclusively license from BWH. Filing, prosecuting and defending patents on product candidates in all countries throughout the world would be prohibitively expensive, and our intellectual property rights in some countries outside the United States can be less extensive than those in the United States. In addition, the laws of some foreign countries do not protect intellectual property rights to the same extent as the laws in the United States, and we may encounter difficulties in protecting and defending such rights in foreign jurisdictions. Consequently, we may not be able to prevent third parties from practicing our inventions in some or all countries outside the United States, or from selling or importing products made using our inventions in and into the United States or other jurisdictions. Competitors or other third parties may use our technologies in jurisdictions where we have not obtained patent protection to develop their own products and further, may also export otherwise infringing products to territories where we have patent protection, but enforcement is not as strong as in the United States. These products may compete with our product candidates and our patent rights or other intellectual property rights may not be effective or sufficient to prevent them from competing. In addition, certain countries have compulsory licensing laws under which a patent owner may be compelled to grant licenses to other parties. Furthermore, many countries limit the enforceability of patents against other parties, including government agencies or government contractors. In these countries, the patent owner may have limited remedies, which could materially diminish the value of any patents. Most of our patent portfolio is at the very early stage. We will need to decide whether, and in which jurisdictions, to pursue protection for the various inventions in our portfolio prior to applicable filing deadlines.

Many companies have encountered significant problems in protecting and defending intellectual property rights in foreign jurisdictions. The legal systems of certain countries, particularly certain developing countries, do not favor the enforcement of patents, trade secrets and other intellectual property protection, particularly those relating to biopharmaceutical products and biotechnology, which could make it difficult for us to stop the infringement, misappropriation or other violation of our intellectual property rights, including any infringement of any patents we may obtain in the future in such countries, or marketing of competing products in violation of our proprietary rights generally. Proceedings to enforce any patent rights we may obtain in the future in foreign jurisdictions could result in substantial costs and divert our efforts and attention from other aspects of our business, could put our patent applications at risk of not issuing, any patents we obtain in the future at risk of being invalidated or interpreted narrowly and could provoke third parties to assert claims against us. We may not prevail in any lawsuits that we initiate and the damages or other remedies awarded, if any, may not be commercially meaningful. Accordingly, our efforts to establish our intellectual property rights around the world may be inadequate to obtain a significant commercial advantage from the intellectual property that we develop or license.

We may be subject to claims challenging the inventorship or ownership of our patent rights and other intellectual property.

We may be subject to claims that former employees, collaborators or other third parties have an interest in our intellectual property as an inventor or co-inventor. It is our policy to enter into confidentiality and intellectual property assignment agreements with our employees, consultants, and contractors. These agreements generally provide that inventions conceived by the party in the course of rendering services to us will be our exclusive property. However, such agreements may not be honored and may not effectively assign intellectual property rights to us. For instance, the assignment of intellectual property rights may not be self-executing, or the assignment agreements may be breached, and we may be forced to bring claims against current or former

employees, consultants, and contractors, or defend claims that they may bring against us, to determine the ownership of what we regard as our intellectual property. Moreover, there may be circumstances where we are unable to negotiate for such ownership rights.

Disputes regarding ownership or inventorship of intellectual property can also arise in other contexts, such as collaborations and sponsored research. If we are subject to a dispute challenging our rights in or to inventions or other intellectual property, such a dispute could be expensive and time consuming. If we are unsuccessful in defending such claims, in addition to paying monetary damages, unless we are able to obtain a license, which might not be available on commercially reasonable terms or at all, we could lose valuable rights in intellectual property, such as the exclusive ownership of, or right to use, intellectual property that we regard as our own or that is important to our business. Even if we are successful in defending against such claims, litigation could result in substantial costs and be a distraction to management and other employees, and certain customers, licensors or partners may defer engaging with us until the particular dispute is resolved. Any of the foregoing could have a material adverse effect on our business, financial condition, results of operations and prospects.

We may be subject to claims that our employees, consultants or independent contractors have wrongfully used or disclosed trade secrets or other confidential information of their former employers or other third parties or claims asserting ownership of what we regard as our own intellectual property.

We have received, and will continue to receive, confidential and proprietary information from third parties. In addition, we have employed and expect to continue to employ individuals who were previously employed at university or other biotechnology or pharmaceutical companies, including our competitors or potential competitors, in some cases until recently. Although we try to ensure that our employees, consultants, advisors and independent contractors do not use the proprietary information or know-how of others in their work for us, we may be subject to claims that we, our employees, advisors, consultants or independent contractors have deliberately, inadvertently or otherwise used or disclosed intellectual property, including trade secrets or other proprietary information of these former employers, competitors or other third parties, or to claims that we have improperly used or obtained such trade secrets. We may be subject to claims that we or our employees, consultants or independent contractors have inadvertently or otherwise used or disclosed confidential information of these third parties or our employees' former employers or our consultants' or contractors' current or former clients or customers. Litigation may be necessary to defend against these claims. Even if we are successful in defending against these claims, litigation could result in substantial cost and be a distraction to our management and employees. If we are not successful in defending such claims, in addition to paying monetary damages, we could lose access or exclusive access to valuable intellectual property rights and face increased competition to our business. Any of the foregoing could harm our business, financial condition, results of operations and prospects.

We may be subject to claims, and damages resulting from claims, that we or our employees have wrongfully used or disclosed alleged trade secrets of our competitors or are in breach of non-competition or non-solicitation agreements with our competitors.

Many of our employees were previously employed at other pharmaceutical companies, including our competitors or potential competitors, in some cases until recently. We may be subject to claims that we or our employees have inadvertently or otherwise used or disclosed trade secrets or other proprietary information of these former employers or competitors. In addition, we have been and may in the future be subject to claims that we caused an employee to breach the terms of his or her non-competition or non-solicitation agreement. Litigation may be necessary to defend against these claims. Even if we are successful in defending against these claims, litigation could result in substantial costs and could be a distraction to management. If our defense to those claims fails, in addition to paying monetary damages, we may lose valuable intellectual property rights or personnel. Any litigation or the threat thereof may adversely affect our ability to hire employees. A loss of key personnel or their work product could hamper or prevent our ability to commercialize product candidates or potential products, which could have an adverse effect on our business, results of operations, financial condition and prospects.

Patent terms may be inadequate to protect our competitive position on our product candidates for an adequate amount of time. If we do not obtain patent term extension and data exclusivity for any of our current or future product candidates, our business may be materially harmed.

Depending upon the timing, duration, conditions and specifics of any FDA marketing approval of any of our current or future product candidates that we may receive, one or more U.S. patents that we may obtain in the future may be eligible for limited patent term extension under the Drug Price Competition and Patent Term Restoration Act of 1984, or the Hatch-Waxman Amendments, and one or more of our foreign patent rights may be eligible for patent term extension under similar legislation, for example, in the European Union. In the United States, the Hatch-Waxman Amendments permit a patent extension term of up to five years as compensation for effective patent term lost during product development and the FDA regulatory review process. A patent term extension cannot extend the remaining term of a patent beyond a total of 14 years from the date of product approval, only one patent may be extended and only those claims covering the approved drug, a method for using it, or a method for manufacturing it may be extended. However, there are no assurances that the FDA or any comparable foreign regulatory authority or national patent office will grant such extensions, in whole or in part. For example, we may not be granted an extension if we fail to exercise due diligence during the testing phase or regulatory review process, fail to apply within applicable deadlines, fail to apply prior to the expiration of relevant patents, or otherwise fail to satisfy other applicable requirements. Moreover, the applicable time period or the scope of patent protection afforded could be less than we request. If we are unable to obtain patent term extension or term of any such extension is less than we request, the period during which we can enforce our patent rights for the applicable product candidate will be shortened, and our competitors or other third parties may obtain approval to market competing products following expiration of any patents that we may obtain in the future, and our business, financial condition, results of operations, and prospects could be materially harmed.

If our trademarks are not adequately protected, then we may not be able to build name recognition in our markets of interest and our business may be adversely affected.

We rely on both registered and common law protection for our trademarks, and have filed applications to register various trademarks, including "TSCAN THERAPEUTICS" and "TSCAN," for use in connection with our product candidates and services in various countries. These trademarks may not afford adequate protection. Our trademark applications may be provisionally or ultimately refused by the USPTO or the trademark agencies of other countries, or such applications may be challenged by others. We also may not have the financial resources to enforce the rights under these trademarks, which may enable others to use the trademarks and dilute their value. Our trademarks may be challenged, infringed, circumvented or declared generic or determined to be infringing the trademarks of others. In such a case, we may not be able to protect or derive any value from such trademarks, or may be required to cease using a conflicting mark entirely. The value of our trademarks may also be diminished by our own actions, such as failing to impose appropriate quality control when licensing our trademarks. Any of the foregoing could impair the value of, or ability to use, our trademarks, reduce our ability to compete effectively, and have an adverse effect on our business.

Certain of our in-licensed patent rights are, and our future owned and in-licensed patent rights may be, subject to a reservation of rights by one or more third parties, including government march-in rights with regards to certain patents, that may limit our ability to exclude third parties from commercializing product candidates similar or identical to ours.

Certain of our in-licensed patent rights may be subject to a reservation of rights by one or more third parties. Pursuant to the Bayh-Dole Act, the U.S. government has march-in rights with regards to government-funded technology. For example, the U.S. government has certain rights, including march-in rights, to patent rights and technology funded by the U.S. government and licensed to us from BWH. When new technologies are developed with government funding, in order to secure ownership of such patent rights, the recipient of such funding is required to comply with certain government regulations, including timely disclosing the inventions claimed in such patent rights to the U.S. government and timely electing title to such inventions. Any failure to timely elect title to such inventions may provide the U.S. government with the right to, at any time, take title to such

inventions. Additionally, the U.S. government generally obtains certain rights in any resulting patents, including a non-exclusive license authorizing the government to use the invention or to have others use the invention on its behalf. If the government decides to exercise these rights, it is not required to engage us as its contractor in connection with doing so. These rights may permit the U.S. government to disclose our confidential information to third parties and to exercise march-in rights to use or allow third parties to use our licensed technology. The U.S. government can exercise its march-in rights if it determines that action is necessary because we fail to achieve practical application of the government-funded technology, because action is necessary to alleviate health or safety needs, to meet requirements of federal regulations, or to give preference to U.S. industry. In addition, our rights in such inventions may be subject to certain requirements to manufacture products embodying such inventions in the United States. Any exercise by the government of any of the foregoing rights could harm our competitive position, business, financial condition, results of operations, and prospects.

Risks Related to Our Reliance on Third Parties

We plan to rely on third parties to conduct our clinical trials. If these third parties do not properly and successfully carry out their contractual duties or meet expected deadlines, we may not be able to obtain regulatory approval of or commercialize our product candidates.

We plan to utilize and depend upon independent investigators and collaborators, such as medical institutions, CROs, CMOs and strategic partners to conduct our preclinical studies and clinical trials under agreements with us. We expect to have to negotiate budgets and contracts with CROs, trial sites and CMOs which may result in delays to our development timelines and increased costs. We will rely heavily on these third parties over the course of our clinical trials, and we control only certain aspects of their activities. As a result, we will have less direct control over the conduct, timing and completion of these clinical trials and the management of data developed through clinical trials than would be the case if we were relying entirely upon our own staff. Nevertheless, we are responsible for ensuring that each of our studies is conducted in accordance with applicable protocol, legal and regulatory requirements and scientific standards, and our reliance on third parties does not relieve us of our regulatory responsibilities. We and these third parties are required to comply with GCPs, which are regulations and guidelines enforced by the FDA and comparable foreign regulatory authorities for product candidates in clinical development. Regulatory authorities enforce these GCPs through periodic inspections of trial sponsors, principal investigators and trial sites. If we or any of these third parties fail to comply with applicable GCP regulations, the clinical data generated in our clinical trials may be deemed unreliable and the FDA or comparable foreign regulatory authorities may require us to perform additional clinical trials before approving our marketing applications. We cannot provide assurance that, upon inspection, such regulatory authorities will determine that any of our clinical trials comply with the GCP regulations. In addition, our clinical trials must be conducted with biologic product produced under cGMP regulations, including cGTP regulations, and will require a large number of test patients. Our failure or any failure by these third parties to comply with these regulations or to recruit a sufficient number of patients may require us to repeat clinical trials, which would delay the regulatory approval process. Moreover, our business may be implicated if any of these third parties violates federal or state fraud and abuse or false claims laws and regulations or healthcare privacy and security laws.

Any third parties conducting our clinical trials are not and will not be our employees and, except for remedies available to us under our agreements with such third parties, we cannot control whether or not they devote sufficient time and resources to our ongoing, clinical and non-clinical product candidates. These third parties may also have relationships with other commercial entities, including our competitors, for whom they may also be conducting clinical trials or other drug development activities, which could affect their performance on our behalf. If these third parties do not successfully carry out their contractual duties or obligations or meet expected deadlines, if they need to be replaced or if the quality or accuracy of the clinical data they obtain is compromised due to the failure to adhere to our clinical protocols or regulatory requirements or for other reasons, our clinical trials may be extended, delayed or terminated and we may not be able to complete development of, obtain regulatory approval of or successfully commercialize our product candidates. As a result, our financial results and the commercial prospects for our product candidates would be harmed, our costs could increase and our ability to generate revenue could be delayed.

Switching or adding third parties to conduct our clinical trials involves substantial cost and requires extensive management time and focus. In addition, there is a natural transition period when a new third party commences work. As a result, delays occur, which can materially impact our ability to meet our desired clinical development timelines.

We have in the past and may in the future form or seek collaborations or strategic alliances or enter into additional licensing arrangements in the future, and we may not realize the benefits of such collaborations, alliances or licensing arrangements.

We have in the past and may in the future form or seek strategic alliances, create joint ventures or collaborations, or enter into additional licensing arrangements with third parties that we believe will complement or augment our development and commercialization efforts with respect to our product candidates and any future product candidates that we may develop. Any of these relationships may require us to incur non-recurring and other charges, increase our near and long-term expenditures, issue securities that dilute our existing stockholders or disrupt our management and business.

In addition, we face significant competition in seeking appropriate strategic partners and the negotiation process is time-consuming and complex. Moreover, we may not be successful in our efforts to establish a strategic partnership or other alternative arrangements for our product candidates because they may be deemed to be at too early of a stage of development for collaborative effort and third parties may not view our product candidates as having the requisite potential to demonstrate safety, potency and purity and obtain marketing approval.

Further, collaborations involving our product candidates are subject to numerous risks, which may include the following:

- collaborators have significant discretion in determining the efforts and resources that they will apply to a collaboration;
- collaborators may not perform their obligations as expected;
- collaborators may not pursue development and commercialization of our product candidates or may elect not to continue or renew development or commercialization of our product candidates based on clinical trial results, changes in their strategic focus due to the acquisition of competitive products, availability of funding or other external factors, such as a business combination that diverts resources or creates competing priorities;
- collaborators may delay clinical trials, provide insufficient funding for a clinical trial, stop a clinical trial, abandon a product candidate, repeat or conduct new clinical trials or require a new formulation of a product candidate for clinical testing;
- collaborators could independently develop, or develop with third parties, products that compete directly or indirectly with our product candidates;
- a collaborator with marketing and distribution rights to one or more products may not commit sufficient resources to their marketing and distribution;
- collaborators may not properly maintain or defend our intellectual property or proprietary rights or may use our intellectual property or proprietary information in a way that gives rise to actual or threatened litigation that could jeopardize or invalidate our intellectual property or proprietary information or expose us to potential liability;
- disputes may arise between us and a collaborator that cause the delay or termination of the research, development or commercialization of our product candidates, or that result in costly litigation or arbitration that diverts management attention and resources;
- the number and type of our collaborations could adversely affect our attractiveness to future collaborators or acquirers;

- there may be conflicts between different collaborators that could negatively affect those collaborations and potentially others;
- collaborations may be terminated and, if terminated, may result in a need for additional capital to pursue further development or commercialization of the applicable product candidates; and
- collaborators may own or co-own intellectual property covering our product candidates that results from our collaborating with them, and in such cases, we would not have the exclusive right to commercialize such intellectual property.

As a result, if we enter into additional collaboration agreements and strategic partnerships or license our product candidates, we may not be able to realize the benefit of such transactions if we are unable to successfully integrate them with our existing operations and company culture, which could delay our timelines or otherwise adversely affect our business. We also cannot be certain that, following a strategic transaction or license, we will achieve the revenue or specific net income that justifies such transaction. Any delays in entering into new collaborations or strategic partnership agreements related to our product candidates could delay the development and commercialization of our product candidates in certain geographies for certain indications, which would harm our business prospects, financial condition and results of operations.

Our collaboration agreements may grant our collaborators exclusive rights under certain of our intellectual property, and may therefore preclude us from entering into collaborations with others relating to the same or similar compounds, therapeutic targets, indications or diseases. For example, our existing Collaboration and License Agreement with Novartis Institutes for Biomedical Research (Novartis) grants Novartis options to obtain exclusive, worldwide licenses to certain target antigens identified in performance of such agreement and corresponding T-cell receptors for such target antigens. In addition, our collaboration agreements may place restrictions or additional obligations on our ability to license additional compounds in different indications, targets, diseases or geographical locations. If we fail to comply with or breach any provision of a collaboration agreement, a collaborator may have the right to terminate, in whole or in part, such agreement or to seek damages. Many of our collaborators also have the right to terminate the collaboration agreement for convenience. For example, Novartis may terminate its Collaboration and License Agreement with us at any time for any or no reason upon 90 days' notice. If a collaboration agreement is terminated, in whole or in part, we may be unable to continue the development and commercialization of the applicable product candidates, and even if we are able to do so, such efforts may be delayed and result in additional costs. See "Business—License and Collaboration Agreements" for more information regarding our collaboration agreements.

We may in the future determine to partner with additional pharmaceutical and biotechnology companies for development and potential commercialization of therapeutic products. We face significant competition in seeking appropriate collaborators. Our ability to reach a definitive agreement for a collaboration will depend, among other things, upon our assessment of the collaborator's resources and expertise, the terms and conditions of the proposed collaboration and the proposed collaborator's evaluation of a number of factors. If we elect to fund and undertake development or commercialization activities on our own, we may need to obtain additional expertise and additional capital, which may not be available to us on acceptable terms or at all. If we fail to enter into collaborations and do not have sufficient funds or expertise to undertake the necessary development and commercialization activities, we may not be able to further develop our product candidates or bring them to market or continue to develop our discovery platform and our business, prospects, financial condition and results of operations may be materially and adversely affected.

In the future, we may rely on the use of manufacturing suites in third party GMP facilities or third parties to manufacture our product candidates. Our business could be harmed if we are unable to use third party manufacturing suites or if the third party manufacturers fail to provide us with sufficient quantities of our product candidates or fail to do so at acceptable quality levels, prices, or timing.

We are in the process of adding manufacturing capacity at our facilities in Waltham, which we expect to be operational in the second fiscal quarter of 2021, but the build-out and staffing of the manufacturing suite may be

delayed and the suite may never become operational. We have not yet caused our product candidates to be manufactured or processed on a commercial scale and may not be able to do so for any of our product candidates.

We expect to use third parties as part of our manufacturing process for registrational trials for our current pipeline, and we may also use them for product candidates in the future. Our anticipated reliance on a limited number of third party manufacturers exposes us to the following risks:

- we may be unable to identify manufacturers on acceptable terms or at all because the number of potential manufacturers is limited and the FDA must inspect any manufacturers for current cGMP and cGTP compliance as part of our marketing application;
- a new manufacturer would have to be educated in, or develop substantially equivalent processes for, the production of our product candidates;
- our manufacturers may have little or no experience with autologous cell products, which are products made from a patient's own cells, and therefore may require a significant amount of support from us in order to implement and maintain the infrastructure and processes required to manufacture our product candidates;
- our third party manufacturers might be unable to timely manufacture our product candidates or produce the quantity and quality required to meet our clinical and commercial needs, if any;
- our third party suppliers or collaborators from whom we receive our antibodies used in combination with our product candidates may be unable to timely manufacture or provide the applicable antibody or produce the quantity and quality required to meet our clinical and commercial needs;
- contract manufacturers may not be able to execute our manufacturing procedures and other logistical support requirements appropriately;
- our future contract manufacturers may not perform as agreed, may not devote sufficient resources to our product candidates or may not remain in the contract manufacturing business for the time required to supply our clinical trials or to successfully produce, store, and distribute our product , if any;
- manufacturers are subject to ongoing periodic unannounced inspection by the FDA and corresponding state agencies to ensure strict compliance with cGMP, cGTP and other government regulations and corresponding foreign standards. We do not have control over third party manufacturers' compliance with these regulations and standards;
- we may not own, or may have to share, the intellectual property rights to any improvements made by our third party manufacturers in the manufacturing process for our product candidates;
- our third party manufacturers could breach or terminate their agreements with us;
- raw materials and components used in the manufacturing process, particularly those for which we have no other source or supplier, may not be available or may not be suitable or acceptable for use due to material or component defects;
- our contract manufacturers and critical reagent suppliers may be subject to inclement weather, as well as natural or man-made disasters;
- our contract manufacturers may have unacceptable or inconsistent product quality success rates and yields, and we have no direct control over our contract manufacturers' ability to maintain adequate quality control, quality assurance and qualified personnel; and
- our contract manufacturers may be adversely affected by the ongoing COVID-19 pandemic, the ongoing U.S.-China trade war, political unrest in countries where we or our partners operate, earthquakes and other natural or man-made disasters, equipment failures, labor shortages, power failures, and numerous other factors.

Each of these risks could delay or prevent the completion of our clinical trials or the approval of any of our product candidates by the FDA, result in higher costs or adversely impact commercialization of our product candidates. In addition, we will rely on third parties to perform certain specification tests on our product candidates prior to delivery to patients. If these tests are not appropriately done and test data are not reliable, patients could be put at risk of serious harm and the FDA could place significant restrictions on our company until deficiencies are remedied.

The manufacture of biological drug products is complex and requires significant expertise and capital investment, including the development of advanced manufacturing techniques and process controls. Manufacturers of biologic products often encounter difficulties in production, particularly in scaling up or out, validating the production process and assuring high reliability of the manufacturing process (including the absence of contamination). These problems include logistics and shipping, difficulties with production costs and yields, quality control, including stability of the product, intermediates, or raw materials, product testing, operator error and availability of qualified personnel, as well as compliance with strictly enforced federal, state and foreign regulations. Furthermore, if contaminants are discovered in our supply of our product candidates or in the manufacturing facilities, such manufacturing facilities may need to be closed for an extended period of time to investigate and remedy the contamination. We cannot provide assurance that any stability failures or other issues relating to the manufacture of our product candidates will not occur in the future.

We may fail to manage the logistics of collecting and shipping patient material to our manufacturing site (or that of any third party we engage) and shipping the product candidate back to the patient. Logistical and shipment delays and problems caused by us, our vendors or other factors not in our control, such as weather, could prevent or delay the delivery of product candidates to patients. Additionally, we have to maintain a complex chain of identity and chain of custody with respect to patient material as it moves to the manufacturing facility, through the manufacturing process and back to the patient. Failure to maintain chain of identity and chain of custody could result in patient death, loss of product or regulatory action.

Our product candidates rely on the availability of specialty materials, which may not be available to us on acceptable terms or at all.

Our product candidates require specialty materials, some of which are manufactured by small companies with limited resources and experience to support a commercial product. We do not have long-term contracts with many of these suppliers and may not be able to contract with them on acceptable terms or at all. In addition, a number of our suppliers normally support blood-based hospital businesses and generally do not have the capacity to support commercial products manufactured under cGMP by biopharmaceutical firms or may divert their resources towards hospitals rather than us. Our suppliers may be ill-equipped to support our needs, especially in non-routine circumstances like an FDA inspection or medical crisis, such as widespread contamination. We may experience delays in receiving key materials to support clinical or commercial manufacturing. For example, in 2020, we experienced significant delays in receiving shipments of materials utilized in our cell expansion process as a result of the distributor prioritizing distribution of such products for medical use, rather than product candidate development, and, subsequently, increased demand following the easing of state and federal workplace restrictions.

In addition, some of our raw materials are currently sourced from a single supplier, or a small number of suppliers. For example, the type of cell culture media and cryopreservation buffer that we currently use in our manufacturing process for TSC-100 and TSC-101 are each only sourced from a limited number of suppliers. In addition, the cell processing equipment and tubing that we use in our current manufacturing process is only sourced from a single supplier. We also use certain biologic materials, that are available from multiple suppliers, but each version may perform differently, requiring us to characterize them and potentially modify some of our protocols if we change suppliers. We cannot be sure that these suppliers will remain in business, or that they will not be purchased by one of our competitors or another company that is not interested in continuing to produce these materials for our intended purpose. Accordingly, if we no longer have access to these suppliers, we may experience delays in our clinical or commercial manufacturing which could harm our business or results of operations.

Our manufacturing process needs to comply with FDA regulations relating to the quality and reliability of such processes. Any failure to comply with relevant regulations could result in delays in or termination of our clinical programs and suspension or withdrawal of any regulatory approvals.

In order to commercially produce our product candidates either at our own facility or at a third party's facility, we will need to comply with the FDA's cGMP regulations and guidelines, including cGTPs. We may encounter difficulties in achieving quality control and quality assurance and may experience shortages in qualified personnel. We are subject to inspections by the FDA and comparable foreign regulatory authorities to confirm compliance with applicable regulatory requirements. Any failure to follow cGMP, cGTP or other regulatory requirements or delay, interruption or other issues that arise in the manufacture, fill-finish, packaging, or storage of our TCR-T therapy candidates as a result of a failure of our facilities or the facilities or operations of third parties to comply with regulatory requirements or pass any regulatory authority inspection could significantly impair our ability to develop and commercialize our TCR-T programs, including leading to significant delays in the availability of our TCR-T therapy candidates for our clinical trials or the termination of or suspension of a clinical trial, or the delay or prevention of a filing or approval of marketing applications for our Product candidates. Significant non-compliance could also result in the imposition of sanctions, including warning or untitled letters, fines, injunctions, civil penalties, failure of regulatory authorities to grant marketing approvals for our Product candidates, delays, suspension or withdrawal of approvals, license revocation, seizures or recalls of products, operating restrictions and criminal prosecutions, any of which could damage our reputation and our business.

If our third party manufacturers use hazardous and biological materials in a manner that causes injury or violates applicable law, we may be liable for damages.

Our research and development activities involve the controlled use of potentially hazardous substances, including chemical and biological materials, by our third party manufacturers. Our manufacturing is (and any third party manufacturers we engage are) subject to federal, state and local laws and regulations in the United States governing the use, manufacture, storage, handling and disposal of medical and hazardous materials. Although we believe that our manufacturers' procedures for using, handling, storing and disposing of these materials comply with legally prescribed standards, we cannot completely eliminate the risk of contamination or injury resulting from medical or hazardous materials. As a result of any such contamination or injury, we may incur liability or local, city, state or federal authorities may curtail the use of these materials and interrupt our business operations. In the event of an accident, we could be held liable for damages or penalized with fines, and the liability could exceed our resources. We do not have any insurance for liabilities arising from medical or hazardous materials. Compliance with applicable environmental laws and regulations is expensive, and current or future environmental regulations may impair our research, development and production efforts, which could harm our business, prospects, financial condition or results of operations.

Risks Related to Employee Matters and Managing Growth

We are highly dependent on our key personnel, and if we are not successful in attracting and retaining highly qualified personnel, we may not be able to successfully implement our business strategy.

Our ability to compete in the highly competitive biotechnology and pharmaceutical industries depends upon our ability to attract and retain highly qualified managerial, scientific and medical personnel. We are highly dependent on our management, scientific and medical personnel, including our Chief Executive Officer and our Chief Scientific Officer. The loss of the services of any of our executive officers, other key employees and other scientific and medical advisors, and an inability to find suitable replacements could result in delays in product development and harm our business.

We conduct our operations at our facility in Waltham, Massachusetts. This region is headquarters to many other biopharmaceutical companies and many academic and research institutions. Competition for skilled personnel in our market is intense and may limit our ability to hire and retain highly qualified personnel on

acceptable terms or at all. Changes to U.S. immigration and work authorization laws and regulations, including those that restrain the flow of scientific and professional talent, can be significantly affected by political forces and levels of economic activity. Our business may be materially adversely affected if legislative or administrative changes to immigration or visa laws and regulations impair our hiring processes and goals or projects involving personnel who are not U.S. citizens.

To encourage valuable employees to remain at our company, in addition to salary and cash incentives, we have provided stock options that vest over time. The value to employees of stock options that vest over time may be significantly affected by movements in our stock price that are beyond our control, and may at any time be insufficient to counteract more lucrative offers from other companies. Despite our efforts to retain valuable employees, members of our management, scientific and development teams may terminate their employment with us on short notice. Although we have employment agreements with our key employees, these employment agreements provide for at-will employment, which means that any of our employees could leave our employment at any time, with or without notice. Our success also depends on our ability to continue to attract, retain and motivate highly skilled junior, mid-level and senior managers as well as junior, mid-level and senior scientific and medical personnel.

We will need to grow the size of our organization, and we may experience difficulties in managing this growth.

As of December 31, 2020, we had 57 full-time employees and 1 part-time employee. As our development and commercialization plans and strategies develop, and as we transition into operating as a public company, we expect to need additional managerial, operational, sales, marketing, financial and other personnel, as well as additional facilities to expand our operations. Future growth would impose significant added responsibilities on members of management, including:

- identifying, recruiting, integrating, maintaining and motivating additional employees;
- managing our internal development efforts effectively, including the clinical and FDA review process for our product candidates, while complying with our contractual obligations to contractors and other third parties; and
- improving our operational, financial and management controls, reporting systems and procedures.

Our future financial performance and our ability to commercialize our product candidates will depend, in part, on our ability to effectively manage any future growth, and our management may also have to divert a disproportionate amount of its attention away from day-to-day activities in order to devote a substantial amount of time to managing these growth activities.

We currently rely, and for the foreseeable future will continue to rely, in substantial part on certain independent organizations, advisors and consultants to provide certain services, including substantially all aspects of regulatory approval, and clinical trial management. There can be no assurance that the services of independent organizations, advisors and consultants will continue to be available to us on a timely basis when needed, or that we can find qualified replacements. In addition, if we are unable to effectively manage our outsourced activities or if the quality or accuracy of the services provided by consultants is compromised for any reason, our clinical trials may be extended, delayed or terminated, and we may not be able to obtain regulatory approval of our product candidates or otherwise advance our business. There can be no assurance that we will be able to manage our existing consultants or find other competent outside contractors and consultants on economically reasonable terms, or at all.

If we are not able to effectively expand our organization by hiring new employees and expanding our groups of consultants and contractors, or we are not able to effectively build out new facilities to accommodate this expansion, we may not be able to successfully implement the tasks necessary to further develop and commercialize our product candidates and, accordingly, may not achieve our research, development and commercialization goals.

Business disruptions could seriously harm our future revenue and financial condition and increase our costs and expenses.

Our operations, and those of our CROs, CMOs and other contractors and consultants, could be subject to earthquakes, power shortages, telecommunications failures, water shortages, floods, hurricanes, typhoons, fires, extreme weather conditions, medical epidemics and other natural or man-made disasters or business interruptions, for which we are predominantly self-insured. The occurrence of any of these business disruptions could seriously harm our operations and financial condition and increase our costs and expenses. Our ability to obtain clinical supplies of our product candidates could be disrupted if the operations of these suppliers are affected by a man-made or natural disaster or other business interruption.

If product liability lawsuits are brought against us, we may incur substantial liabilities and may be required to limit commercialization of our product candidates.

We face an inherent risk of product liability as a result of the planned clinical testing of our product candidates and will face an even greater risk if we commercialize any products. For example, we may be sued if our product candidates cause or are perceived to cause injury or are found to be otherwise unsuitable during clinical testing, manufacturing, marketing or sale. Any such product liability claims may include allegations of defects in manufacturing, defects in design, a failure to warn of dangers inherent in the product, negligence, strict liability or a breach of warranties. Claims could also be asserted under state consumer protection acts. If we cannot successfully defend ourselves against product liability claims, we may incur substantial liabilities or be required to limit commercialization of our product candidates. Even successful defense would require significant financial and management resources. Regardless of the merits or eventual outcome, liability claims may result in:

- decreased demand for our product candidates or products that we may develop;
- injury to our reputation;
- withdrawal of clinical trial participants;
- initiation of investigations by regulators;
- costs to defend the related litigation;
- a diversion of management’s time and our resources;
- substantial monetary awards to trial participants or patients;
- product recalls, withdrawals or labeling, marketing or promotional restrictions;
- loss of revenue;
- exhaustion of any available insurance and our capital resources;
- the inability to commercialize any product candidate; and
- a decline in our share price.

Failure to obtain or retain sufficient product liability insurance at an acceptable cost to protect against potential product liability claims could prevent or inhibit the commercialization of products we develop, alone or with corporate collaborators. Although we have clinical trial insurance, our insurance policies also have various exclusions, and we may be subject to a product liability claim for which we have no coverage. We may have to pay any amounts awarded by a court or negotiated in a settlement that exceed our coverage limitations or that are not covered by our insurance, and we may not have, or be able to obtain, sufficient capital to pay such amounts. Even if our agreements with any future corporate collaborators entitle us to indemnification against losses, such indemnification may not be available or adequate should any claim arise.

U.S. federal income tax reform could adversely affect us.

On December 22, 2017, the United States enacted the "Tax Cuts and Jobs Act", or TCJA, that significantly reformed the Code. The TCJA, among other things, contained significant changes to corporate taxation, including a reduction of the corporate tax rate from a top marginal rate of 35% to a flat rate of 21%, the limitation of the tax deduction for net interest expense to 30% of adjusted earnings (except for certain small businesses), the limitation of the deduction for net operating loss carryforwards (NOLs) arising in taxable years beginning after December 31, 2017 to 80% of current year taxable income and elimination of NOL carrybacks for losses arising in taxable years ending after December 31, 2017 (though any such NOLs may be carried forward indefinitely), the imposition of a one-time taxation of offshore earnings at reduced rates regardless of whether they are repatriated, the elimination of U.S. tax on foreign earnings (subject to certain important exceptions), the allowance of immediate deductions for certain new investments instead of deductions for depreciation expense over time, and the modification or repeal of many business deductions and credits. The financial statements contained herein reflect the effects of the TCJA based on current guidance. However, there remain uncertainties and ambiguities in the application of certain provisions of the TCJA, and, as a result, we made certain judgments and assumptions in the interpretation thereof.

As part of Congress's response to the COVID-19 pandemic, the Families First Coronavirus Response Act (FFCR Act) was enacted on March 18, 2020, and the Coronavirus Aid, Relief, and Economic Security Act (CARES Act) was enacted on March 27, 2020. Both contain numerous tax provisions. In particular, the CARES Act retroactively and temporarily (for taxable years beginning before January 1, 2021) suspends application of the 80%-of-income limitation on the use of NOLs, which was enacted as part of the TCJA. It also provides that NOLs arising in any taxable year beginning after December 31, 2017 and before January 1, 2021 are generally eligible to be carried back up to five years. The CARES Act also temporarily (for taxable years beginning in 2019 or 2020) relaxes the limitation of the tax deductibility for net interest expense by increasing the limitation from 30% to 50% of adjusted taxable income.

Regulatory guidance under the TCJA, the FFCR Act and the CARES Act is and continues to be forthcoming and such guidance could ultimately increase or lessen impact of these laws on our business and financial condition. It is also likely that Congress will enact additional tax legislation in connection with the COVID-19 pandemic, some of which could have an impact on our company. In addition, it is uncertain if and to what extent various states will conform to the TCJA, the FFCR Act or the CARES Act.

Our ability to utilize our net operating loss carryforwards and certain other tax attributes may be limited.

Under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended, if a corporation undergoes an "ownership change" (generally defined as a greater than 50% change (by value) in its equity ownership over a three-year period), the corporation's ability to use its pre-change net operating loss carryforwards and other pre-change tax attributes to offset its post-change taxable income may be limited. As a result of our most recent private placements and other transactions that have occurred over the past three years, we may have experienced, and, upon closing of this offering, may experience, an "ownership change." We may also experience ownership changes in the future as a result of subsequent shifts in our stock ownership. As of December 31, 2020, we had U.S. federal net operating loss carryforwards of $17.6 million and U.S. federal research and development tax credit carryforwards of $1.5 million that expire through 2040 and which could be limited if we experience an "ownership change." The reduction of the corporate tax rate under the TCJA may cause a reduction in the economic benefit of our net operating loss carryforwards and other deferred tax assets available to us. Under the TCJA, federal net operating losses generated after December 31, 2017 will not be subject to expiration.

Risks Related to our Common Stock and to this Offering

There has been no prior public market for our common stock, the stock price of our common stock may be volatile or may decline regardless of our operating performance and stockholders may not be able to resell their shares at or above the initial public offering price.

There has been no public market for our common stock prior to this offering. The initial public offering price for our common stock will be determined through negotiations between the underwriters and us and may vary from the market price of our common stock following this offering. If a purchaser of shares of our common stock in this offering, may not be able to resell those shares at or above the initial public offering price. An active or liquid market in our common stock may not develop upon the completion of this offering or, if it does develop, it may not be sustainable. The market price of our common stock may fluctuate significantly in response to numerous factors, many of which are beyond our control, including:

- overall performance of the equity markets;
- our operating performance and the performance of other similar companies;
- results from our ongoing clinical trials and future clinical trials with our current and future product candidates or of our competitors;
- delays in the commencement, enrollment and the ultimate completion of clinical trials;
- changes in our projected operating results that we provide to the public, our failure to meet these projections or changes in recommendations by securities analysts that elect to follow our common stock;
- regulatory actions with respect to our product candidates;
- regulatory or legal developments in the United States and other countries;
- the level of expenses related to future product candidates or clinical development programs;
- our failure to achieve product development or commercialization goals or regulatory approval milestones in the timeframe we announce;
- changes in hospital or ECP practices;
- announcements of acquisitions, strategic alliances or significant agreements by us or by our competitors;
- developments or disputes concerning intellectual property or proprietary rights;
- our ability to obtain, maintain, protect and enforce our intellectual property and proprietary rights;
- recruitment or departure of key personnel;
- the economy as a whole and market conditions in our industry, including conditions resulting from COVID-19;
- variations in our financial results or the financial results of companies that are perceived to be similar to us;
- financing or other corporate transactions, or inability to obtain additional funding;
- trading activity by a limited number of stockholders who together beneficially own a majority of our outstanding common stock;
- the expiration of market standoff or contractual lock-up agreements;
- the size of our market float; and
- any other factors discussed in this prospectus.

In addition, the stock markets have experienced extreme price and volume fluctuations that have affected and continue to affect the market prices of equity securities of many biopharmaceutical companies. Stock prices of many biopharmaceutical companies have fluctuated in a manner unrelated or disproportionate to the operating performance of those companies. In the past, stockholders have filed securities class action litigation following periods of market volatility. If we were to become involved in securities litigation, it could subject us to substantial costs, divert resources and the attention of management from our business and adversely affect our business.

If securities or industry analysts do not publish research or publish inaccurate or unfavorable research about our business, our stock price and trading volume could decline.

The trading market for our common stock will depend in part on the research and reports that securities or industry analysts publish about us or our business. Securities and industry analysts do not currently, and may never, publish research on our company. If no or only very few securities analysts commence coverage of us, or if industry analysts cease coverage of us, the trading price for our common stock would be negatively affected. If one or more of the analysts who cover us downgrade our common stock or publish inaccurate or unfavorable research about our business, our common stock price would likely decline. If one or more of these analysts cease coverage of us or fail to publish reports on us regularly, demand for our common stock could decrease, which might cause our common stock price and trading volume to decline.

Purchasers of shares of our common stock in this offering will experience substantial and immediate dilution.

Purchasers of shares of our common stock in this offering will experience substantial and immediate dilution in the pro forma net tangible book value per share of $ per share as of December 31, 2020, based on an assumed initial public offering price of our common stock of $ per share, the midpoint of the price range on the cover page of this prospectus, because the price that a purchaser pays will be substantially greater than the pro forma net tangible book value per share of the common stock that the purchaser acquires. This dilution is due in large part to the fact that our earlier investors paid substantially less than the initial public offering price when they purchased their shares of our capital stock. Purchasers in this offering will experience additional dilution upon exercise of options to purchase common stock under our equity incentive plans, upon vesting of options to purchase common stock under our equity incentive plans, if we issue restricted stock to our employees under our equity incentive plans or if we otherwise issue additional shares of our common stock.

Substantial amounts of our outstanding shares may be sold into the market when lock-up periods end. If there are substantial sales of shares of our common stock, the price of our common stock could decline.

The price of our common stock could decline if there are substantial sales of our common stock, particularly sales by our directors, executive officers and significant stockholders, or if there is a large number of shares of our common stock available for sale and the market perceives that sales will occur. After this offering, we will have outstanding shares of our common stock, based on the number of shares outstanding as of December 31, 2020. All of the shares of common stock sold in this offering will be available for sale in the public market, unless purchased by our affiliates or existing stockholders. Substantially all of our outstanding shares of common stock are currently restricted from resale as a result of “lock-up” agreements (which may be waived by Morgan Stanley & Co. LLC, Jefferies LLC, Cowen and Company, LLC, and Barclays Capital Inc. with or without notice), as more fully described in “Shares Eligible for Future Sale.” These shares will become available to be sold 181 days after the date of this prospectus. Shares held by directors, executive officers and other affiliates will be subject to volume limitations under Rule 144 under the Securities Act of 1933, as amended, or the Securities Act, and various vesting agreements.

After our initial public offering, certain of our stockholders will have rights, subject to some conditions and subject to the lock-up agreements described above, to require us to file registration statements covering their shares or to include their shares in registration statements that we may file for ourselves or our stockholders,

subject to lockup agreements. We also intend to register shares of common stock that we have issued and may issue under our employee equity incentive plans. Once we register these shares, they will be able to be sold freely in the public market upon issuance, subject to existing market standoff or lock-up agreements (including the lock-up agreements described above).

The market price of the shares of our common stock could decline as a result of the sale of a substantial number of our shares of common stock in the public market or the perception in the market that the holders of a large number of shares intend to sell their shares.

The concentration of our stock ownership will likely limit our stockholders' ability to influence corporate matters, including the ability to influence the outcome of director elections and other matters requiring stockholder approval.

Based upon shares outstanding as of December 31, 2020, prior to this offering, our executive officers, directors and the holders of more than 10% of our outstanding common stock, in the aggregate, beneficially owned approximately % of our common stock, and upon the completion of this offering, that same group, in the aggregate, will beneficially own approximately % of our common stock, assuming no purchases of shares in this offering by any members of this group, no exercise by the underwriters of their option to purchase additional shares, no exercise of outstanding options or warrants and after giving effect to the issuance of shares in this offering. As a result, these stockholders, acting together, will have significant influence over all matters that require approval by our stockholders, including the election of directors and approval of significant corporate transactions. Corporate actions might be taken even if other stockholders, including those who purchase shares in this offering, oppose them. This concentration of ownership might also have the effect of delaying or preventing a change of control of our company that other stockholders may view as beneficial.

In addition, pursuant to a nominating agreement with Baker Brothers Life Sciences, L.P. and 667, L.P. (collectively, the BBA Funds), pursuant to which, among other things, we agreed to support the nomination of, and cause our board of directors (or the nominating committee thereof) to include in the slate of nominees recommended to our stockholders for election as directors at each annual or special meeting of our stockholders at which directors are to be elected, one person designated from time to time by the BBA Funds, subject to the requirements of fiduciary duties under applicable law and the terms and conditions of such Nominating Agreement. The agreement only applies during the period beginning at the closing of our initial public offering until the earliest of the occurrence of (1) such time as the BBA Funds and their affiliates, collectively, no longer beneficially own at least 75% of the Series C convertible preferred stock purchased by the BBA Funds in such Series C convertible preferred stock financing, or such number of shares of our common stock issued upon conversion of such number of shares of Series C convertible preferred stock (in either case, as adjusted for any stock split, stock dividend, combination, or other recapitalization or reclassification or similar transaction), (2) such time as BBA and their affiliates, collectively, no longer beneficially own at least 2% of our then outstanding voting common stock, and (3) the third anniversary of the closing of our initial public offering. For more information regarding this nominating agreement, see the section entitled "Management—Board composition." This concentration of ownership may prevent or discourage unsolicited acquisition proposals or offers for our common stock that you or other stockholders may feel are in your or their best interest as one of our stockholders.

We are an "emerging growth company" and a "smaller reporting company," and we cannot be certain if the reduced reporting requirements applicable to emerging growth companies and smaller reporting companies will make our common stock less attractive to investors.

We are an "emerging growth company" as defined in the JOBS Act and we intend to take advantage of some of the exemptions from reporting requirements that are applicable to other public companies that are not emerging growth companies, including:

- the option to present only two years of audited financial statements, in addition to any required unaudited interim financial statements, with correspondingly reduced "Management's Discussion and Analysis of Financial Condition and Results of Operations" disclosure;
- not being required to comply with the auditor attestation requirements of Section 404(b) of the Sarbanes Oxley Act;

- not being required to comply with any requirement that may be adopted by the Public Company Accounting Oversight Board regarding mandatory audit firm rotation or a supplement to the auditor's report providing additional information about the audit and the financial statements;
- not being required to disclose certain executive compensation-related items such as the correlation between executive compensation and performance and comparisons of the chief executive officer's compensation to median employee compensation; and
- not being required to submit certain executive compensation matters to stockholder advisory votes, such as "say-on-pay," "say-on-frequency," and "say-on-golden parachutes."

The JOBS Act permits an "emerging growth company" such as us to take advantage of an extended transition period to comply with new or revised accounting standards applicable to public companies. We have elected to take advantage of this extended transition period.

We cannot predict if investors will find our common stock less attractive because we will rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may be more volatile. We may take advantage of these reporting exemptions until we are no longer an emerging growth company. We will remain an emerging growth company until the earlier of (1) the last day of the fiscal year (a) following the fifth anniversary of the completion of this offering, (b) in which we have total annual gross revenue of at least $1.07 billion or (c) in which we are deemed to be a large accelerated filer, which means the market value of our common stock that is held by non-affiliates exceeds $700 million as of the prior June 30th and (2) the date on which we have issued more than $1.0 billion in non-convertible debt during the prior three-year period.

Even after we no longer qualify as an emerging growth company, we may still qualify as a "smaller reporting company," which would allow us to continue to take advantage of many of the same exemptions from disclosure requirements, including not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act and reduced disclosure obligations regarding executive compensation in this prospectus and our periodic reports and proxy statements. We cannot predict if investors will find our common stock less attractive because we may rely on these exemptions. If some investors find our common stock less attractive as a result, there may be a less active trading market for our common stock and our stock price may be more volatile.

Requirements associated with being a public company will increase our costs significantly, as well as divert significant company resources and management attention.

After the completion of this offering, we will be subject to the reporting requirements of the Securities Exchange Act of 1934, as amended, or the Exchange Act, or the other rules and regulations of the Securities and Exchange Commission, or the SEC, or any securities exchange relating to public companies. Compliance with the various reporting and other requirements applicable to public companies requires considerable time and attention of management and we will incur significant legal, accounting and other expenses that we did not incur as a private company. We cannot provide assurance that we will satisfy our obligations as a public company on a timely basis.

In addition, as a public company, it may be more difficult or more costly for us to obtain certain types of insurance, including directors' and officers' liability insurance, and we may be forced to accept reduced policy limits and coverage or incur substantially higher costs to obtain the same or similar coverage. The impact of these events could also make it more difficult for us to attract and retain qualified personnel to serve on our board of directors, our board committees or as executive officers.

If we fail to maintain proper and effective internal controls, our ability to produce accurate and timely financial statements could be impaired, which could result in sanctions or other penalties that would harm our business.

After the completion of this offering, we will be subject to the reporting requirements of the Exchange Act, the Sarbanes-Oxley Act and the rules and regulations of the Nasdaq Global Market, or Nasdaq. The Sarbanes

Oxley Act requires, among other things, that we maintain effective disclosure controls and procedures and internal controls over financial reporting. Commencing with our fiscal year ending the year after this offering is completed, we must perform system and process design evaluation and testing of the effectiveness of our internal controls over financial reporting to allow management to report on the effectiveness of our internal controls over financial reporting in our Form 10-K filing for that year, as required by Section 404 of the Sarbanes-Oxley Act. To achieve compliance with Section 404 within the prescribed period, we will be engaged in a process to document and evaluate our internal control over financial reporting, which is both costly and challenging. In this regard, we will need to continue to dedicate internal resources, including through hiring additional financial and accounting personnel, potentially engage outside consultants and adopt a detailed work plan to assess and document the adequacy of internal control over financial reporting, continue steps to improve control processes as appropriate, validate through testing that controls are functioning as documented and implement a continuous reporting and improvement process for internal control over financial reporting. This will require that we incur substantial additional professional fees and internal costs to expand our accounting and finance functions and that we expend significant management efforts. Prior to this offering, we have never been required to test our internal controls within a specified period and, as a result, we may experience difficulty in meeting these reporting requirements in a timely manner.

We may discover weaknesses in our system of internal financial and accounting controls and procedures that could result in a material misstatement of our financial statements. Our internal control over financial reporting will not prevent or detect all errors and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud will be detected.

If we are not able to comply with the requirements of Section 404 of the Sarbanes-Oxley Act in a timely manner, or if we are unable to maintain proper and effective internal controls over financial reporting, we may not be able to produce timely and accurate financial statements. If that were to happen, our investors could lose confidence in our reported financial information, the market price of our stock could decline and we could be subject to sanctions or investigations by the SEC or other regulatory authorities including equivalent foreign authorities.

We will have broad discretion in the use of the net proceeds from this offering and may not use them effectively.

We cannot specify with any certainty the particular uses of the net proceeds that we will receive from this offering, but we currently expect such uses will include funding our development of , and other general corporate purposes, which may include the hiring of additional personnel, capital expenditures and the costs of operating as a public company. We will have broad discretion in the application of the net proceeds, including working capital and other general corporate purposes, and purchasers in this offering and other stockholders may disagree with how we spend or invest these proceeds. The failure by our management to apply these funds effectively could adversely affect our business and financial condition. Pending their use, we may invest the net proceeds from our initial public offering in a manner that does not produce income or that loses value. These investments may not yield a favorable return to our investors.

We do not intend to pay dividends for the foreseeable future.

We have never declared nor paid cash dividends on our capital stock. We currently intend to retain any future earnings to finance the operation and expansion of our business, and we do not expect to declare or pay any dividends in the foreseeable future. Consequently, stockholders must rely on sales of their common stock after price appreciation, which may never occur, as the only way to realize any future gains on their investment.

We could be subject to securities class action litigation.

In the past, securities class action litigation has often been brought against a company following a decline in the market price of its securities. This risk is especially relevant for us because biopharmaceutical companies have experienced significant stock price volatility in recent years. If we face such litigation, it could result in substantial costs and a diversion of management's attention and resources, which could harm our business.

Our operating results may fluctuate significantly, which makes our future operating results difficult to predict and could cause our operating results to fall below expectations or our guidance.

Our quarterly and annual operating results may fluctuate significantly in the future, which makes it difficult for us to predict our future operating results. Our operating results may fluctuate due to a variety of factors, many of which are outside of our control and may be difficult to predict, including the following:

- the timing and success or failure of clinical trials for our product candidates or competing product candidates, including the nature of the data obtained from such clinical trials, or any other change in the competitive landscape of our industry, including consolidation among our competitors or partners;
- our ability to successfully recruit patients for preclinical studies and clinical trials, and any delays caused by difficulties in such recruitment efforts;
- our ability to obtain regulatory approval for our product candidates, and the timing and scope of any such approvals we may receive;
- the timing and cost of, and level of investment in, research and development activities relating to our product candidates, which may change from time to time;
- the cost of manufacturing our product candidates, which may vary depending on the quantity of production and the terms of our agreements with manufacturers;
- our ability to attract, hire and retain qualified personnel;
- expenditures that we will or may incur to develop additional product candidates;
- the level of demand for our product candidates should they receive approval, which may vary significantly;
- the risk/benefit profile, cost and reimbursement policies with respect to our product candidates, if approved, and existing and potential future drugs that compete with our product candidates;
- the changing and volatile U.S., European and global economic environments, including impact of COVID-19; and
- future accounting pronouncements or changes in our accounting policies.

The cumulative effects of these factors could result in large fluctuations and unpredictability in our quarterly and annual operating results. As a result, comparing our operating results on a period-to-period basis may not be meaningful. This variability and unpredictability could also result in our failing to meet the expectations of industry or financial analysts or investors for any period. If our revenue or operating results fall below the expectations of analysts or investors or below any forecasts we may provide to the market, or if the forecasts we provide to the market are below the expectations of analysts or investors, the price of our common stock could decline substantially. Such a stock price decline could occur even when we have met any previously publicly stated guidance we may provide.

Delaware law and provisions in our amended and restated certificate of incorporation and amended and restated bylaws that will be in effect at the completion of this offering could make a merger, tender offer or proxy contest difficult, thereby depressing the trading price of our common stock.

Following the completion of this offering, our status as a Delaware corporation and the anti-takeover provisions of the Delaware General Corporation Law may discourage, delay or prevent a change in control by prohibiting us from engaging in a business combination with an interested stockholder for a period of three years after the person becomes an interested stockholder, even if a change of control would be beneficial to our existing stockholders. In addition, our amended and restated certificate of incorporation and amended and restated bylaws that will be in effect at the completion of this offering will contain provisions that may make the acquisition of our company more difficult, including the following:

- a classified board of directors with three-year staggered terms, which could delay the ability of stockholders to change the membership of a majority of our board of directors;
- the ability of our board of directors to issue shares of preferred stock and to determine the price and other terms of those shares, including preferences and voting rights, without stockholder approval, which could be used to significantly dilute the ownership of a hostile acquiror;
- the exclusive right of our board of directors to elect a director to fill a vacancy created by the expansion of our board of directors or the resignation, death or removal of a director, which prevents stockholders from being able to fill vacancies on our board of directors;
- a prohibition on stockholder action by written consent, which forces stockholder action to be taken at an annual or special meeting of our stockholders;
- the requirement that a special meeting of stockholders may be called only by a majority vote of our entire board of directors, the chairman of our board of directors or our chief executive officer, which could delay the ability of our stockholders to force consideration of a proposal or to take action, including the removal of directors;
- the requirement for the affirmative vote of holders of at least 66 2/3% of the voting power of all of the then-outstanding shares of the voting stock, voting together as a single class, to amend the provisions of our amended and restated certificate of incorporation or our amended and restated bylaws, which may inhibit the ability of an acquiror to effect such amendments to facilitate an unsolicited takeover attempt; and
- advance notice procedures with which stockholders must comply to nominate candidates to our board of directors or to propose matters to be acted upon at a stockholders' meeting, which may discourage or deter a potential acquiror from conducting a solicitation of proxies to elect the acquiror's own slate of directors or otherwise attempting to obtain control of us.

In addition, as a Delaware corporation, we are subject to Section 203 of the Delaware General Corporation Law. These provisions may prohibit large stockholders, in particular those owning 15% or more of our outstanding voting stock, from merging or combining with us for a certain period of time. A Delaware corporation may opt out of this provision by express provision in its original certificate of incorporation or by amendment to its certificate of incorporation or bylaws approved by its stockholders. However, we have not opted out of this provision.

These and other provisions in our amended and restated certificate of incorporation, amended and restated bylaws and Delaware law could make it more difficult for stockholders or potential acquirors to obtain control of our board of directors or initiate actions that are opposed by our then-current board of directors, including delay or impede a merger, tender offer or proxy contest involving our company. The existence of these provisions could negatively affect the price of our common stock and limit opportunities for stockholders to realize value in a corporate transaction.

For information regarding these and other provisions, see the section titled "Description of Capital Stock."

Our amended and restated certificate of incorporation provides that the Court of Chancery of the State of Delaware and the federal district courts of the United States will be the exclusive forum for substantially all disputes between us and our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers or employees.

Our amended and restated certificate of incorporation will provide that the Court of Chancery of the State of Delaware is the exclusive forum for any derivative action or proceeding brought on our behalf, any action asserting a breach of fiduciary duty, any action asserting a claim against us arising pursuant to the Delaware General Corporation Law, our certificate of incorporation or our bylaws or any action asserting a claim against us that is governed by the internal affairs doctrine. This provision would not apply to claims brought to enforce a duty or liability created by the Exchange Act, the Securities Act or any other claim for which the federal courts have exclusive jurisdiction. Our amended and restated certificate of incorporation provides further that the federal district courts of the United States will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Exchange Act and the Securities Act, including claims arising from this offering. These choices of forum provisions may limit a stockholder's ability to bring a claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees and may discourage these types of lawsuits. Furthermore, the enforceability of similar choice of forum provisions in other companies' certificates of incorporation has been challenged in legal proceedings, and it is possible that a court could find these types of provisions to be inapplicable or unenforceable. While the Delaware courts have determined that such choice of forum provisions are facially valid, a stockholder may nevertheless seek to bring a claim in a venue other than those designated in the exclusive-forum provisions, and there can be no assurance that such provisions will be enforced by a court in those other jurisdictions. If a court were to find the exclusive-forum provision contained in our amended and restated certificate of incorporation to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could harm our business.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This prospectus contains forward-looking statements that involve substantial risks and uncertainties. All statements other than statements of historical facts contained in this prospectus, including statements regarding our future results of operations and financial position, future revenue, business strategy, prospects, product candidates, planned preclinical studies and clinical trials, results of clinical trials, research and development costs, regulatory approvals, timing and likelihood of success, as well as plans and objectives of management for future operations, are forward-looking statements. These statements involve known and unknown risks, uncertainties and other important factors that are in some cases beyond our control and may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements.

The words “may,” “will,” “should,” “would,” “expect,” “plan,” “anticipate,” “could,” “intend,” “target,” “project,” “contemplate,” “believe,” “estimate,” “predict,” “potential” or “continue” or the negative of these terms or other similar expressions are intended to identify forward looking statements. Forward-looking statements contained in this prospectus include, but are not limited to, statements about:

- the beneficial characteristics, safety, efficacy, therapeutic effects and potential advantages of our TCR-T therapy candidates;
- our expectations regarding our preclinical studies being predictive of clinical trial results;
- the timing of the initiation, progress and expected results of our preclinical studies, clinical trials and our research and development programs;
- our plans relating to developing and commercializing our TCR-T therapy candidates, if approved, including sales strategy;
- estimates of the size of the addressable market for our TCR-T therapy candidates;
- our manufacturing capabilities and the scalable nature of our manufacturing process;
- our estimates regarding expenses, future milestone payments and revenue, capital requirements and needs for additional financing;
- our expectations regarding competition;
- our anticipated growth strategies;
- our ability to attract or retain key personnel;
- our ability to establish and maintain development partnerships and collaborations;
- our expectations regarding federal, state and foreign regulatory requirements;
- regulatory developments in the United States and foreign countries;
- our ability to obtain and maintain intellectual property protection for our proprietary platform technology and our product candidates;
- the anticipated trends and challenges in our business and the market in which we operate;
- the sufficiency of our existing capital resources to fund our future operating expenses and capital expenditure requirements;
- the effect of the COVID-19 pandemic, including mitigation efforts and political, economic, legal and social effects, on any of the foregoing or other aspects of our business or operations; and
- our anticipated use of our existing resources and the proceeds from this offering and our ability to obtain additional financing in the future.

These forward-looking statements are subject to a number of risks, uncertainties and assumptions, including those described in the section titled "Risk factors" elsewhere in this prospectus. Moreover, we operate in a very competitive and rapidly changing environment. New risks emerge from time to time and it is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make. In light of these risks, uncertainties and assumptions, the forward- looking events and circumstances discussed in this prospectus may not occur and actual results could differ materially and adversely from those anticipated or implied in the forward-looking statements.

You should not rely upon forward-looking statements as predictions of future events. The forward-looking statements contained in this prospectus are made as of the date of this prospectus, and although we believe that the expectations reflected in the forward-looking statements are reasonable, we cannot guarantee that the future results, advancements, discoveries, levels of activity, performance or events and circumstances reflected in the forward-looking statements will be achieved or occur. Moreover, except as required by law, neither we nor any other person assumes responsibility for the accuracy and completeness of the forward-looking statements. We undertake no obligation to update publicly any forward-looking statements for any reason after the date of this prospectus to conform these statements to actual results or to changes in our expectations.

You should read this prospectus and the documents that we reference in this prospectus and have filed with the SEC as exhibits to the registration statement of which this prospectus is a part with the understanding that our actual future results, levels of activity, performance and events and circumstances may be materially different from what we expect.

INDUSTRY AND MARKET DATA

This prospectus contains estimates, projections and other information concerning our industry, our business and the markets for our product candidates, including data regarding the estimated size of such markets and the incidence of certain medical conditions. We obtained the industry, market and similar data set forth in this prospectus from our internal estimates and research, and from academic and industry research, publications, surveys and studies conducted by third parties, including governmental agencies. Industry publications and third party research, surveys and studies generally indicate that their information has been obtained from sources believed to be reliable. Our estimates of the potential market opportunities for our product candidates include a number of key assumptions based on our industry knowledge, industry publications and third party research, surveys and studies, which may be based on a small sample size and fail to accurately reflect market opportunities. Information based on estimates, forecasts, projections, market research or similar methodologies is inherently subject to uncertainties and actual events or circumstances may differ materially from events and circumstances that are assumed in this information. Unless otherwise expressly stated, we obtained this industry, business, market and other data from reports, research surveys, studies and similar data prepared by us and third parties, industry, medical and general publications, government data and similar sources.

USE OF PROCEEDS

We estimate that the net proceeds from this offering will be approximately $ million, or $ million if the underwriters exercise their option to purchase additional shares in full, assuming an initial public offering price of $ per share, the midpoint of the estimated price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

Each $1.00 increase (decrease) in the assumed initial public offering price of $ per share, the midpoint of the estimated price range set forth on the cover page of this prospectus, would increase (decrease) the net proceeds to us from this offering by $ million, assuming that the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. We may also increase or decrease the number of shares we are offering. An increase (decrease) of 1.0 million shares in the number of shares offered by us, as set forth on the cover page of this prospectus, would increase (decrease) our net proceeds from this offering by $ million, assuming no change in the assumed initial public offering price per share and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

As of December 31, 2020, we had cash of $34.8 million. In addition, we issued and sold 70,136,064 shares of our Series C convertible preferred stock in January 2021 for an aggregate of $99.7 million in net proceeds. We currently intend to use the net proceeds from this offering, together with our existing cash, as follows:

- approximately $ million to $ million to ;
- approximately $ million to $ million to ; and
- the remainder for working capital and other general corporate purposes, which may include the hiring of additional personnel, capital expenditures and the costs of operating as a public company.

This expected use of the net proceeds from this offering represents our intentions based upon our current plans and business conditions, which could change in the future as our plans and business conditions evolve. As of the date of this prospectus, we cannot predict with certainty all of the particular uses for the net proceeds to be received upon the completion of this offering or the amounts that we will actually spend on the uses set forth above. The amounts and timing of our actual expenditures and the extent of our preclinical, clinical and future development activities may vary significantly depending on numerous factors, including the progress of our and our development partner's development efforts, the status of and results from our planned clinical trials, the timing of regulatory submissions and the outcome of regulatory review, the timing and costs associated with the manufacture and supply of product candidates for clinical development or commercialization, as well as any collaborations that we may enter into with third parties for our product candidates, and any unforeseen cash needs. As a result, we will retain broad discretion over the allocation of the net proceeds from this offering.

Based on our planned use of the net proceeds from this offering and our existing cash, we estimate that such funds will be sufficient to enable us to fund our operating expenses and capital expenditure requirements through . We have based these estimates on assumptions that may prove to be wrong and we could use our capital resources sooner than we currently expect.

We may also use a portion of the net proceeds from this offering for the acquisition or in-license of other therapeutic products, businesses or technologies, although we have no current agreements or commitments for any material acquisitions or licenses of any products, businesses or technologies. Pending our use of the net proceeds from this offering, we plan to invest the net proceeds in a variety of capital preservation investments, including short-term interest-bearing investment-grade securities, certificates of deposit or government securities.

DIVIDEND POLICY

We have never declared or paid any cash dividends on our capital stock and we do not currently intend to pay any cash dividends on our capital stock for the foreseeable future. We currently intend to retain all available funds and any future earnings to support operations and to finance the growth and development of our business. Our future ability to pay cash dividends on our capital stock may also be limited by the terms of any future debt or preferred securities or any future credit facility.

CAPITALIZATION

The following table sets forth our cash and our capitalization as of December 31, 2020:

- on an actual basis;
- on a pro forma basis to give effect to (i) the issuance and sale of 70,136,064 shares of Series C convertible preferred stock in January 2021 for net cash proceeds of $99.7 million; (ii) the automatic conversion of all outstanding shares of our preferred stock, which includes our Series C convertible preferred stock, into an aggregate of 128,053,586 shares of common stock upon completion of this offering, as if such conversion had occurred on December 31, 2020; and (iii) the filing and effectiveness of our amended and restated certificate of incorporation, which will occur immediately prior to the completion of this offering; and
- on a pro forma as adjusted basis to give further effect to the sale and issuance of shares of our common stock by us in this offering at the assumed initial public offering price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

You should read this information in conjunction with our financial statements and the related notes appearing elsewhere in this prospectus, as well as the section of this prospectus titled “Management’s discussion and analysis of financial condition and results of operations.”

	As of December 31, 2020		
	Actual	Pro Forma	Pro Forma as Adjusted(1)
	(in thousands, except share and per share data)		
Cash and cash equivalents	$ 34,791	$134,491	$
Preferred stock: Convertible preferred stock (Series A Preferred Stock and Series B Preferred Stock), $0.0001 par value; 57,917,522 shares authorized; 57,917,522 shares issued and outstanding, actual; no shares authorized, issued, and outstanding, pro forma and pro forma as adjusted	59,681	—	
Stockholders’ (deficit) equity:			
Preferred stock, $0.0001 par value per share; no shares authorized, issued and outstanding, actual; shares authorized, no shares issued and outstanding, pro forma and pro forma as adjusted	—	—	
Common stock, $0.0001 par value per share; 86,000,000 shares authorized, 12,907,933 shares issued and 9,314,183 outstanding, actual; 165,210,543 shares authorized, 140,961,519 shares issued and 137,367,769 outstanding, pro forma; shares authorized, shares issued and outstanding, pro forma as adjusted	1	14	
Additional paid-in capital	1,070	160,438	
Accumulated deficit	(43,533)	(43,533)	
Total stockholders’ (deficit) equity	(42,462)	116,919	
Total capitalization	$ 17,219	$116,919	$

(1) The pro forma as adjusted information is illustrative only and will depend on the actual public offering price and other terms of this offering determined at pricing. A $1.00 increase (decrease) in the assumed initial public offering price of $ per share, the midpoint of the estimated offering price range set forth on the cover page of this prospectus, would increase (decrease) the pro forma as

adjusted amount of each of cash, additional paid-in capital, total stockholders' equity and total capitalization by $ million, assuming that the number of shares of common stock offered by us, as set forth on the cover page of this prospectus, remains the same and after deducting estimated underwriting discounts and commissions payable by us. An increase (decrease) of 1.0 million shares in the number of shares of common stock offered by us, as set forth on the cover page of this prospectus, would increase (decrease) the pro forma as adjusted amount of each of cash, additional paid-in capital, total stockholders' equity and total capitalization by $ million, assuming no change in the assumed initial public offering price of $ per share, the midpoint of the estimated offering price range set forth on the cover page of this prospectus, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

The above table excludes the following:

- 11,852,840 shares of common stock issuable upon the exercise of options outstanding under our 2018 Plan, as of December 31, 2020, with a weighted-average exercise price of $0.32 per share;
- 9,045,509 shares of common stock issuable upon the exercise of options outstanding under our 2018 Plan, granted after December 31, 2020, at a weighted-average exercise price of $0.76 per share;
- 2,583,398 shares of common stock reserved for future issuance under our 2018 Plan, based on the number of shares available for issuance as of December 31, 2020, plus additional shares of common stock added to the plan in January 2021, less the shares of common stock underlying options granted subsequent to December 31, 2020 and set forth above , which shares will be added to the shares to be reserved under our 2021 Plan, at the time our 2021 Plan becomes effective in connection with this offering;
- shares of common stock that will become available for future issuance under our 2021 Plan, which will become effective upon the effectiveness of the registration statement of which this prospectus forms a part, as well as any automatic increases in the number of shares of common stock reserved for future issuance under the 2021 Plan; and
- shares of common stock that will become available for future issuance under our 2021 ESPP, which will become effective upon the effectiveness of the registration statement of which this prospectus forms a part, as well as any automatic increases in the number of shares of common stock reserved for future issuance under the 2021 ESPP.

DILUTION

If you invest in our common stock in this offering, your ownership interest will be immediately diluted to the extent of the difference between the assumed initial public offering price per share of our common stock and the pro forma as adjusted net tangible book value per share of our common stock immediately after this offering.

As of December 31, 2020, our historical net tangible book value (deficit) was $(42.5) million, or $(4.56) per share of common stock. Our historical net tangible book value (deficit) represents our total tangible assets less our liabilities and preferred stock, which is not included in stockholders' (deficit). Our historical net tangible book value (deficit) per share represents historical net tangible book value (deficit) divided by 9,314,183 shares of common stock outstanding as of December 31, 2020.

Our pro forma net tangible book value as of December 31, 2020, was $116.9 million, or $0.85 per share of common stock, after giving effect to (i) the issuance and sale of 70,136,064 shares of Series C convertible preferred stock for net cash proceeds of $99.7 million in January 2021; and (ii) the automatic conversion of all outstanding shares of our preferred stock, which includes our Series C convertible preferred stock, into an aggregate of 128,053,586 shares of common stock immediately prior to the completion of this offering.

After giving further effect to our sale of shares of common stock in this offering at an assumed initial public offering price of $ per share, the midpoint of the estimated price range set forth on the cover page of this prospectus and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us, our pro forma as adjusted net tangible book value as of December 31, 2020 would have been $ million, or $ per share. This represents an immediate increase in pro forma as adjusted net tangible book value of $ per share to our existing stockholders and an immediate dilution of $ per share to investors purchasing common stock in this offering. We determine dilution per share to new investors participating in this offering by subtracting pro forma as adjusted net tangible book value per share after this offering from the assumed initial public offering price per share paid by investors participating in this offering. The following table illustrates this dilution to new investors on a per share basis:

Assumed initial public offering price per share		$
Historical net tangible book value (deficit) per share as of December 31, 2020	$(4.56)	
Increase in historical net tangible book value per share attributable to conversion of our outstanding preferred stock	5.41	
Pro forma net tangible book value per share as of December 31, 2020	0.85	
Increase in pro forma net tangible book value per share attributable to new investors in this offering		
Pro forma as adjusted net tangible book value per share immediately after this offering		
Dilution per share to new investors purchasing shares in this offering		$

The pro forma as adjusted dilution information discussed above is illustrative only and will depend on the actual initial public offering price and other terms of this offering determined at pricing. A $1.00 increase (decrease) in the assumed initial public offering price of $ per share, the midpoint of the estimated price range set forth on the cover page of this prospectus, would increase (decrease) the pro forma as adjusted net tangible book value by $ per share and the dilution per share to new investors by $ per share, assuming the number of shares offered by us, as set forth on the cover page of this prospectus, remains the same, after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us. An increase (decrease) of 1.0 million shares in the number of shares we are offering would increase (decrease) our pro forma as adjusted net tangible book value by $ million, or $ per share, and the pro forma dilution per share to investors in this offering by $ per share, assuming no change in the assumed initial public offering price, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

If the underwriters' option to purchase additional shares in this offering is exercised in full, the pro forma as adjusted net tangible book value would be $ million, representing an immediate increase in pro forma as adjusted net tangible book value per share of $ to existing stockholders and immediate dilution per share to new investors participating in this offering of $, assuming an initial public offering price of $ per share, the midpoint of the price range set forth on the cover page of this prospectus, and after deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

The table below summarizes, as of December 31, 2020, on the pro forma as adjusted basis described above, the number of shares of our common stock, the total consideration, and the average price per share paid to us by our existing stockholders and to be paid by new investors participating in this offering at an assumed initial public offering price of $ per share, the midpoint of the estimated price range set forth on the cover page of this prospectus, and before deducting estimated underwriting discounts and commissions and estimated offering expenses payable by us.

	Shares purchased		Total consideration		Weighted-average price per share
	Number	Percent	Amount	Percent	
Existing stockholders		%	$	%	$
New investors					
Total		100%	$	100%	

The table above assumes no exercise of the underwriters' option to purchase additional shares in this offering. If the underwriters' option to purchase additional shares is exercised in full, the number of shares held by existing stockholders will be reduced to % of the total number of shares of common stock to be outstanding upon completion of this offering, and the number of shares of common stock held by new investors participating in this offering will be increased to % of the total number of shares of common stock to be outstanding upon completion of the offering.

Each $1.00 increase (decrease) in the assumed initial public offering price of $ per share would increase (decrease) total consideration paid by new investors by $ million and increase (decrease) the percent of total consideration paid by new investors by %, assuming the number of shares we are offering, as set forth on the cover page of this prospectus, remains the same. We may also increase or decrease the number of shares we are offering. An increase (decrease) of 1,000,000 in the number of shares offered by us would increase (decrease) total consideration paid by new investors by $ million, assuming no change in the assumed initial price to the public.

The tables and discussion above are based on the number of shares of our common stock outstanding as of December 30, 2020 and excludes the following:

The above table excludes the following:

- 11,852,840 shares of common stock issuable upon the exercise of options outstanding under our 2018 Plan, as of December 31, 2020, with a weighted-average exercise price of $0.32 per share;
- 9,045,509 shares of common stock issuable upon the exercise of options outstanding under our 2018 Plan, granted after December 31, 2020, at a weighted-average exercise price of $0.76 per share;
- 2,583,398 shares of common stock reserved for future issuance under our 2018 Plan, based on the number of shares available for issuance as of December 31, 2020, plus additional shares of common stock added to the plan in January 2021, less the shares of common stock underlying options granted subsequent to December 31, 2020 and set forth above , which shares will be added to the shares to be reserved under our 2021 Plan, at the time our 2021 Plan becomes effective in connection with this offering;

- shares of common stock that will become available for future issuance under our 2021 Plan, which will become effective upon the effectiveness of the registration statement of which this prospectus forms a part, as well as any automatic increases in the number of shares of common stock reserved for future issuance under the 2021 Plan; and
- shares of common stock that will become available for future issuance under our 2021 ESPP, which will become effective upon the effectiveness of the registration statement of which this prospectus forms a part, as well as any automatic increases in the number of shares of common stock reserved for future issuance under the 2021 ESPP.

To the extent that any outstanding options are exercised or new awards are granted under our equity compensation plans, new investors will experience further dilution.

MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

You should read the following discussion and analysis of our financial condition and results of operations together with our financial statements and related notes included elsewhere in this prospectus. Some of the information contained in this discussion and analysis or set forth elsewhere in this prospectus, including information with respect to our plans and strategy for our business and related financing, includes forward-looking statements that involve risks and uncertainties. As a result of many factors, including those factors set forth in the "Risk Factors" and "Special Note Regarding Forward-Looking Statements" sections of this prospectus, our actual results could differ materially from the results described in or implied by the forward-looking statements contained in the following discussion and analysis.

Overview

We are a biopharmaceutical company focused on developing a robust pipeline of T cell receptor-engineered T cell, or TCR-T, therapies for the treatment of patients with cancer. Our approach is based on the central premise that we can learn from patients who are winning their fight against cancer in order to treat those who are not. Using one of our proprietary platform technologies, TargetScan, we analyze the T cells of cancer patients with exceptional responses to immunotherapy to discover how the immune system naturally recognizes and eliminates tumor cells in these patients. This allows us to precisely identify the targets of T cell receptors, or TCRs, that are driving these exceptional responses. We aim to use these anti-cancer TCRs to treat patients with cancer by genetically engineering their own T cells to recognize and eliminate their cancer. In addition to discovering TCR-T therapies against novel targets, we are using our ReceptorScan technology to further diversify our portfolio of therapeutic TCRs. We believe this two-pronged approach will enable us to discover and develop a wide array of potential treatment options for patients with cancer.

We are advancing a robust pipeline of TCR-T therapy candidates for the treatment of patients with hematologic and solid tumor malignancies. Our lead liquid tumor product candidates, TSC-100 and TSC-101, are in development for the treatment of patients with hematologic malignancies to eliminate residual leukemia and prevent relapse after hematopoietic stem cell transplantation, or HCT. TSC-100 and TSC-101 target HA-1 and HA-2 antigens, respectively, which are well-recognized TCR targets that were identified in patients with exceptional responses to HCT-associated immunotherapy. In addition, we are developing multiple TCR-T therapy candidates for the treatment of various solid tumors. One of the key goals for our solid tumor program is to develop what we refer to as multiplexed TCR-T therapy. We are designing these multiplexed therapies to be a combination of up to three highly active TCRs that are customized for each patient and selected from our bank of therapeutic TCRs, which we refer to as ImmunoBank.

Since our inception in 2018, we have devoted our efforts to raising capital, obtaining financing, filing, prosecuting and maintaining intellectual property rights, organizing and staffing our company and incurring research and development costs related to the identification of novel targets for TCRs and development of TCR-T therapies to target and eliminate cancer cells. We do not have any therapies approved for sale and have not generated any revenue from product sales. To date, we have funded our operations primarily with proceeds from sales of convertible preferred stock and revenue received under our collaboration agreement with Novartis Institutes for Biomedical Research, Inc., or Novartis, and licensing agreements with QIAGEN Sciences, LLC, or Qiagen, and Poseida Therapeutics, Inc., or Poseida. Through December 31, 2020, we have received gross proceeds of $60.0 million from sales of our convertible preferred stock. Under the terms of our Collaboration and License Agreement with Novartis, we received a $20.0 million upfront payment and agreed to invest an estimated $10.0 million in research costs that will be reimbursed by Novartis over the research term. During January 2021, we received an additional $99.7 million of net cash proceeds from the sale of our Series C convertible preferred stock.

We have incurred significant operating losses since our inception. We reported net losses of $13.7 million and $26.1 million for the years ended December 31, 2019 and 2020, respectively. As of December 31, 2020, we had an accumulated deficit of $43.5 million. We expect to continue to incur significant expenses and increasing operating losses for the foreseeable future. We expect that our expenses and capital expenditures will increase substantially in connection with our ongoing activities, particularly if and as we:

- continue our research and development efforts to identify and develop product candidates and submit investigational new drug applications, or INDs, for such product candidates;
- conduct preclinical studies and commence clinical trials for our current and future product candidates based on our proprietary platform;
- develop processes suitable for manufacturing and clinical development
- continue to develop and expand our manufacturing capabilities;
- seek marketing approvals for any product candidates that successfully complete clinical trials;
- build commercial infrastructure to support sales and marketing for our product candidates;
- expand, maintain and protect our intellectual property portfolio;
- hire additional clinical, regulatory and scientific personnel; and
- operate as a public company.

We will not generate revenue from sales of our therapies unless and until we successfully complete clinical development and obtain regulatory approval for one or more of our product candidates. If we obtain regulatory approval for any of our product candidates, we expect to incur significant expenses related to developing our commercialization capability to support the sales, marketing and distribution of those therapies. Further, following the completion of this offering, we expect to incur additional costs associated with operating as a public company.

As a result, we will need substantial additional funding to support our continuing operations and pursue our growth strategy. Until such time as we can generate significant revenue from sales of our therapies, if ever, we expect to finance our operations through a combination of equity offerings, debt financings, or other capital sources, including collaborations with other companies, and other strategic transactions. We may be unable to raise additional funds or enter into such other agreements or arrangements when needed on favorable terms, or at all. If we fail to raise capital or enter into such agreements as, and when, needed, we may have to significantly delay, scale back, or discontinue the development and commercialization of one or more of our product candidates.

Because of the numerous risks and uncertainties associated with TCR-T therapy candidate development, we are unable to accurately predict the timing or amount of increased expenses or when, or if, we will be able to achieve or maintain profitability. Even if we are able to generate sales of our therapies, we may not become profitable. If we fail to become profitable or are unable to sustain profitability on a continuing basis, then we may be unable to continue our operations at planned levels and be forced to reduce or terminate our operations.

We believe that the expected net proceeds from this offering, together with our existing cash will enable us to fund our operating expenses and capital expenditures into . We have based this estimate on assumptions that may prove to be wrong, and we could exhaust our available capital resources sooner than we expect. See “—Liquidity and capital resources” and “Risk factors—Risks related to our financial position and need for additional capital.”

Impact of COVID-19

In March 2020, the World Health Organization declared the COVID-19 outbreak a pandemic. The ongoing COVID-19 global and national health emergency has caused significant disruption in the international and

United States economies and financial markets. The spread of COVID-19 has caused illness, quarantines, cancellation of events and travel, business and school shutdowns, reduction in business activity and financial transactions, labor shortages, supply chain interruptions and overall economic and financial market instability and business disruptions for us and many of our vendors.

In response to public health directives and orders and to help minimize the risk of the virus to employees, we have taken a series of actions aimed at safeguarding our employees and business associates, including implementing a flexible work-at-home policy. These disruptions could result in increased costs of execution of development plans or may negatively impact the quality, quantity, timing and regulatory usability of data that we would otherwise be able to collect. While these disruptions are currently expected to be temporary, there is considerable uncertainty around the duration of these disruptions. Therefore, the related financial impact and duration cannot be reasonably estimated at this time.

Components of Results of Operations

Revenue

To date, our revenue has been derived from our one collaboration and two licensing agreements. We have not generated any revenue from the sale of therapies to date, nor do we expect to originate revenues therefrom in the near future, if at all. If our development efforts for our product candidates are successful and result in regulatory approval or if we enter into additional license or collaboration agreements with third parties, we may generate additional revenue in the future from sales of our therapies, payments from license or collaboration agreements that we may enter into with third parties, or any combination thereof. However, there can be no assurance as to when we will generate such revenue, if at all. We expect that our revenue for at least the next several years will be derived primarily from collaborations and licenses that we may enter into in the future, if any.

Collaboration Revenue

In March 2020, we entered into a Collaboration and License Agreement, or the Novartis Agreement, with Novartis Institutes for Biomedical Research, Inc., or Novartis, to collaborate on their research efforts to discover and develop novel TCR-T therapies. Under the Novartis Agreement, we will identify and characterize TCRs in accordance with a research plan, transfer data arising from the research plan, and Novartis will have the option to license and develop TCRs for up to three novel targets identified in performance of the collaboration during the collaboration period of the Novartis Agreement. Novartis will also have rights of first negotiation for certain additional targets and TCRs identified in performance of the collaboration during a defined period. We are free to develop TCRs against targets not licensed by Novartis.

The collaboration includes an upfront fee and research funding together totaling $30.0 million and potential milestone payments contingent on clinical, regulatory and sales success that could aggregate in the hundreds of millions of dollars. In addition to the milestones, Novartis will pay us mid-single to low double-digit royalties on net sales for each therapy.

The Novartis Agreement is within the scope of ASC 606 under which we have identified a single performance obligation consisting of the research services, data reporting and participation in a joint steering committee. During the year ended December 31, 2020, we recognized $0.8 million of revenue associated with the Novartis Agreement. We expect to recognize the remaining arrangement consideration over the expected research term, which is not expected to exceed 3 years.

Operating Expenses

Research and Development Expenses

Research and development expenses consist primarily of costs incurred in connection with our research activities, including our therapeutic discovery efforts, preclinical trials and the development of our proprietary

platform technologies and product candidates. We expense research and development costs as incurred, which include:

- employee-related expenses, including salaries, bonuses, benefits, stock-based compensation, and other related costs for those employees involved in research and development efforts;
- expenses incurred in connection with our research programs, including under agreements with third parties, such as consultants and contract research organizations, or CROs;
- the cost of raw materials, developing and scaling our manufacturing process, and manufacturing our product candidates for use in our research and preclinical studies, including under agreements with third parties, such as consultants, contractors, and CMOs;
- laboratory supplies and research materials;
- facilities, depreciation, and other expenses, which include direct and allocated expenses for rent and maintenance of facilities and insurance; and
- payments made under third party licensing agreements.

We expense research and development costs as incurred. Non-refundable advance payments that we make for goods or services to be received in the future for use in research and development activities are recorded as prepaid expenses. The prepaid amounts are expensed as the related goods are delivered or the services are performed, or when it is no longer expected that the goods will be delivered or the services rendered. Upfront payments under license agreements are expensed upon receipt of the license, and annual maintenance fees under license agreements are expensed in the period in which they are incurred. Milestone payments under license agreements are accrued, with a corresponding expense being recognized, in the period in which the milestone is determined to be probable of achievement and the related amount is reasonably estimable.

Our direct external research and development expenses consist of costs that include fees, reimbursed materials, direct material costs, and other costs paid to consultants, contractors, CMOs and CROs in connection with our development and manufacturing activities. We do not allocate employee costs, general laboratory supplies, and facilities expenses, including depreciation or other indirect costs, to specific product development programs because these costs are deployed across multiple programs and our platform technology and, as such, are not separately classified.

Product candidates in later stages of clinical development generally have higher development costs than those in preclinical and earlier stages of clinical development, primarily due increased size and duration of later stage clinical trials. We expect that our research and development expenses will increase substantially in connection with our planned preclinical and clinical development activities in the near term and in the future. At this time, we cannot accurately estimate or know the nature, timing and costs of the efforts that will be necessary to complete the preclinical and clinical development of any of our product candidates. The successful development and commercialization of our product candidates is highly uncertain. This is due to the numerous risks and uncertainties associated with therapeutic development and commercialization, including the following:

- the number and scope of preclinical and clinical programs we decide to pursue;
- the timing and progress of preclinical and clinical development activities for each program;
- our ability to raise additional funds necessary to complete preclinical and clinical development of and commercialize our product candidates;
- the progress of the development efforts of parties with whom we may enter into collaboration arrangements;
- our ability to maintain our current research and development programs and to establish new ones;

- our ability to establish new licensing or collaboration arrangements;
- the successful initiation and completion of clinical trials with safety, tolerability and efficacy profiles that are satisfactory to the U.S. Food and Drug Administration, or the FDA, or any comparable foreign regulatory authority;
- the receipt and related terms of regulatory approvals from applicable regulatory authorities;
- the availability of raw materials for use in the manufacture of our product candidates;
- our ability to consistently manufacture our product candidates for use in clinical trials;
- our ability to establish and operate a manufacturing facility, or secure manufacturing supply through relationships with third parties;
- our ability to obtain and maintain patents, trade secret protection and regulatory exclusivity, both in the United States and internationally;
- our ability to protect our rights in our intellectual property portfolio;
- the commercialization of our product candidates, if and when approved;
- obtaining and maintaining third party insurance coverage and adequate reimbursement;
- the acceptance of our product candidates, if approved, by patients, the medical community and third party payors;
- competition with other products and therapies; and
- a continued acceptable safety profile of our therapies following approval.

A change in the outcome of any of these variables with respect to the development of any of our product candidates could significantly change the costs and timing associated with the development of these product candidates. We may never succeed in obtaining regulatory approval for any of our product candidates or in establishing market acceptance for any product candidates that may be approved.

General and Administrative Expenses

General and administrative expenses consist primarily of salaries and personnel expenses, including stock-based compensation, for our personnel in executive, legal, finance and accounting, human resources, and other administrative functions. General and administrative expenses also include legal fees relating to corporate matters; professional fees paid for accounting, auditing, consulting, and tax services; insurance costs; travel expenses; and facility costs not otherwise included in research and development expenses.

We anticipate that our general and administrative expenses will increase in the future as we increase our headcount to support our continued research activities and development of our product candidates. We also anticipate that we will incur significantly increased accounting, audit, legal, regulatory, compliance and director and officer insurance costs as well as investor and public relations expenses associated with operating as a public company. In addition, if we obtain regulatory approval for a product candidate and do not enter into a third party commercialization collaboration, we expect to incur significant expenses related to building a sales and marketing team to support sales, marketing and distribution activities.

Other Income

Other income consists primarily of interest earned on our cash balances held in financial institutions.

Income Taxes

Since our inception, we have not recorded any U.S. federal or state income tax benefits for the net losses we have incurred in any year or for our earned research and development tax credits, due to the uncertainty of

realizing a benefit from those items. As of December 31, 2020, we had federal and state net operating loss carryforwards of $17.6 million and $16.7 million, respectively, which may be used to offset future taxable income, if any. These amounts expire at various dates through 2040. The federal net operating losses generated in and after 2018 can be carried forward indefinitely. As of December 31, 2020, we had federal and state tax credit carryforwards of $1.5 million and $0.8 million, respectively. These amounts expire at various dates through 2035. Due to the degree of uncertainty related to the ultimate use of the deferred tax assets, we have fully reserved these tax benefits, as the determination of the realization of the deferred tax benefits was not determined to be more likely than not.

Results of Operations

The following table summarizes our results of operations for the years ended December 31, 2019 and 2020:

	Year Ended December 31,		
	2019	2020	Change
	(in thousands)		
Revenue			
Collaboration and license revenue	$ —	$ 1,085	$ 1,085
Operating expenses:			
Research and development	9,442	20,577	11,135
General and administrative	4,768	6,741	1,973
Total operating expenses	14,210	27,318	13,108
Loss from operations	(14,210)	(26,233)	(12,023)
Other income:			
Interest income	552	106	(446)
Net loss	$ (13,658)	$ (26,127)	$ (12,469)

Revenue

We had no revenue for the year ended December 31, 2019 compared to $1.1 million for the year ended December 31, 2020. The increase in revenue was associated with the recognition of the $1.1 million of revenue primarily associated with the Novartis Agreement. The revenue generated from the Novartis Agreement is expected to increase significantly in 2021.

Research and Development Expenses

Research and development expenses were $9.4 million for the year ended December 31, 2019 compared to $20.6 million for the year ended December 31, 2020. The increase in research and development expenses was primarily attributable to a $4.6 million increase in laboratory supplies, research material, and preclinical studies. Additionally, there was a $3.8 million increase in personnel expenses, including an increase of $0.1 million related to stock-based compensation expense and a $2.7 million increase in professional fees, facility-related expenses and other expenses due to the expansion of leased facilities.

General and Administrative Expenses

General and administrative expenses were $4.8 million for the year ended December 31, 2019 compared to $6.7 million for the year ended December 31, 2020. The increase in general and administrative expense was primarily due to a $1.4 million increase in legal and professional fees, as well as a $0.4 million increase in personnel expenses, which includes an increase of $0.3 million related to stock-based compensation expense and an increase of $0.1 million in other expenses.

Other Income

Other income for the year ended December 31, 2019 was $0.6 million, compared to $0.1 million for the year ended December 31, 2020. The decrease primarily related to the money market interest rates decreasing due to the COVID-19 pandemic and a draw down on cash to fund operations.

Liquidity and Capital Resources

Sources of Liquidity

We have not generated any revenue from product sales and have incurred net losses and negative cash flows from our operations. We have not generated any product revenue and have incurred net losses and negative cash flows from our operations. Our primary use of cash is to fund operating expenses, which consist primarily of research and development expenditures, and to a lesser extent, general and administrative expenditures. Under the terms of the Novartis Agreement, we received an upfront payment of $20 million. Additionally, Novartis is obligated to reimburse us for costs incurred to perform the research and development activities of up to $10 million. As of December 31, 2020, we had cash and restricted cash of $35.4 million. In January 2021, we issued and sold 70,136,064 shares of Series C convertible preferred stock for net cash proceeds of $99.7 million.

Funding requirements

We expect our expenses to increase substantially in connection with our ongoing activities, particularly as we advance our research programs into preclinical and clinical development. In addition, we expect to continue to incur additional costs associated with operating as a public company. The timing and amount of our operating expenditures will depend largely on:

- the identification of additional research programs and product candidates;
- the scope, progress, costs and results of preclinical and clinical development of any product candidates we may develop;
- the costs, timing and outcome of regulatory review of any product candidates we may develop;
- our decision to initiate a clinical trial, not to initiate a clinical trial or to terminate a clinical trial;
- our decision to build manufacturing capabilities;
- investing in next-generation T-cell engineering capabilities;
- changes in laws or regulations applicable to any product candidates we may develop, including but not limited to clinical trial requirements for approvals;
- the cost and timing of obtaining materials to produce adequate supply for any preclinical or clinical development of any product candidate we may develop;
- the costs and timing of future commercialization activities, including manufacturing, marketing, sales and distribution, for any product candidate we may develop for which we obtain marketing approval;
- the legal costs involved in prosecuting patent applications and enforcing patent claims and other intellectual property claims;
- additions or departures of key scientific or management personnel;
- our ability to establish and maintain collaborations on favorable terms, if at all, as well as the costs and timing of any collaboration, license or other arrangement, including the terms and timing of any milestone payments thereunder; and
- the costs of operating as a public company.

We believe that the net proceeds from this offering, together with our existing cash and cash equivalents, will enable us to fund our operating expenses and capital expenditure requirements into . We have

based this estimate on assumptions that may prove to be wrong, and we could utilize our available capital resources sooner than we expect.

Until such time, if ever, as we can generate substantial product revenue, we expect to finance our operations through a combination of equity offerings, debt financings, collaborations, strategic alliances and marketing, distribution or licensing arrangements. To the extent that we raise additional capital through the sale of equity or convertible debt securities, your ownership interest will be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect your rights as a common stockholder. Debt financing and preferred equity financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making acquisitions or capital expenditures or declaring dividends. If we raise additional funds through additional collaborations, strategic alliances or marketing, distribution or licensing arrangements with third parties, we may have to relinquish valuable rights to our technologies, future revenue streams, research programs or product candidates, or grant licenses on terms that may not be favorable to us. If we are unable to raise additional funds through equity or debt financings or other arrangements when needed, we may be required to delay, limit, reduce or terminate our research, product development or future commercialization efforts, or grant rights to develop and market product candidates that we would otherwise prefer to develop and market ourselves.

We have not yet received regulatory approval for or commercialized any of our product candidates and do not expect to generate revenue from product sales for several years, if at all. We do not expect to generate any product revenue unless and until we (1) complete development of any of our product candidates; (2) obtain applicable regulatory approvals; and (3) successfully commercialize or enter into collaborative agreements for our product candidates. We do not know with certainty when, or if, any of these items will ultimately occur. We expect to incur continuing significant losses for the foreseeable future and our losses to increase as we ramp up our preclinical and clinical development programs. We may encounter unforeseen expenses, difficulties, complications, delays and other currently unknown factors that could adversely affect our business.

Moreover, following the completion of this offering, we will be a publicly traded company and will incur significant legal, accounting and other expenses that we were not required to incur as a private company. In addition, the Sarbanes-Oxley Act of 2002, as well as rules adopted by the SEC and Nasdaq, requires public companies to implement specified corporate governance practices that are currently not applicable to us as a private company. Pursuant to Section 404 of the Sarbanes-Oxley Act of 2002, or Section 404, we will first be required to furnish a report by our management on our internal control over financial reporting for the year ending December 31, 2021. However, while we remain an emerging growth company or a smaller reporting company, we will not be required to include an attestation report on internal control over financial reporting issued by our independent registered public accounting firm. To achieve compliance with Section 404 within the prescribed period, we will be engaged in a process to document and evaluate our internal control over financial reporting, which is both costly and challenging. In this regard, we will need to continue to dedicate internal resources, potentially engage outside consultants and adopt a detailed work plan to assess and document the adequacy of internal control over financial reporting, continue steps to improve control processes as appropriate, validate through testing that controls are functioning as documented and implement a continuous reporting and improvement process for internal control over financial reporting. We expect these rules and regulations will increase our legal and financial compliance costs and will make some activities more time-consuming and costly.

We will require additional capital to develop our product candidates and fund our operations into the foreseeable future. We anticipate that we will eventually need to raise substantial additional capital, the requirements for which will depend on many factors, including:

- the scope, timing, rate of progress and costs of our drug discovery efforts, preclinical development activities, laboratory testing and clinical trials for our product candidates;
- the number and scope of clinical programs we decide to pursue;

- the cost, timing and outcome of preparing for and undergoing regulatory review of our product candidates;
- the scope and costs of development and manufacturing activities;
- the cost and timing associated with commercializing our product candidates, if they receive marketing approval;
- the amount of revenue, if any, received from commercial sales of our product candidates, should any of our product candidates receive marketing approval;
- the achievement of milestones or occurrence of other developments that trigger payments under any collaboration agreements we might have at such time;
- the extent to which we acquire or in-license other product candidates and technologies;
- the costs of preparing, filing and prosecuting patent applications, maintaining and enforcing our intellectual property rights and defending intellectual property-related claims;
- our ability to establish and maintain collaborations on favorable terms, if at all;
- our efforts to enhance operational systems and our ability to attract, hire and retain qualified personnel, including personnel to support the development of our product candidates and, ultimately, the sale of our products, following FDA approval;
- our implementation of various computerized information systems;
- impact of COVID-19 on our clinical development or operations; and
- the costs associated with being a public company.

A change in the outcome of any of these or other variables with respect to the development of any of our product candidates could significantly change the costs and timing associated with the development of that product candidate. Furthermore, our operating plans may change in the future, and we will continue to require additional capital to meet operational needs and capital requirements associated with such operating plans. If we raise additional funds by issuing equity securities, our stockholders may experience dilution. Any future debt financing into which we enter may impose upon us additional covenants that restrict our operations, including limitations on our ability to incur liens or additional debt, pay dividends, repurchase our common stock, make certain investments or engage in certain merger, consolidation or asset sale transactions. Any debt financing or additional equity that we raise may contain terms that are not favorable to us or our stockholders.

Adequate funding may not be available to us on acceptable terms or at all. Our potential inability to raise capital when needed could have a negative impact on our financial condition and our ability to pursue our business strategies. If we are unable to raise additional funds as required, we may need to delay, reduce, or terminate some or all development programs and clinical trials. We may also be required to sell or license our rights to product candidates in certain territories or indications that we would otherwise prefer to develop and commercialize ourselves. If we are required to enter into collaborations and other arrangements to address our liquidity needs, we may have to give up certain rights that limit our ability to develop and commercialize our product candidates or may have other terms that are not favorable to us or our stockholders, which could materially and adversely affect our business and financial prospects. See the section of this prospectus titled “Risk Factors” for additional risks associated with our substantial capital requirements.

Cash Flows

The following table summarizes our sources and uses of cash for each of the periods presented:

	Year Ended December 31,		Change
	2019	2020	
	(in thousands)		
Net cash provided by (used in) operating activities	$ (12,522)	$ (3,023)	$ 9,499
Net cash used in investing activities	(1,247)	(4,238)	(2,991)
Net cash provided by financing activities	34,812	288	(34,524)
Net increase (decrease) in cash and restricted cash	$ 21,043	$ (6,973)	$(28,016)

Operating Activities

During the year ended December 31, 2019, operating activities used $12.5 million of cash, due to our net loss of $13.7 million, partially offset by non-cash charges of $0.7 million and net cash provided by changes in our operating assets and liabilities of $0.3 million.

During the year ended December 31, 2020, operating activities used $3.0 million of cash, due to our net loss of $26.1 million, partially offset by non-cash charges of $1.8 million and net cash provided by changes in our operating assets and liabilities of $21.3 million. Net cash provided by changes in our operating assets and liabilities primarily consisted of a $19.4 million increase in deferred revenue from the upfront payment in the Novartis Agreement.

Investing Activities

During the year ended December 31, 2019 and 2020, net cash used in investing activities was $1.2 million and $4.2 million, respectively, related to the purchases of property and equipment.

Financing Activities

During the year ended December 31, 2019, net cash provided by financing activities was $34.8 million, consisting primarily of net proceeds from our issuance of convertible preferred stock.

During the year ended December 31, 2020, net cash provided by financing activities was $0.3 million, consisting primarily of net proceeds from the exercise of common stock options.

Critical Accounting Policies and Significant Judgments and Estimates

Our financial statements are prepared in accordance with generally accepted accounting principles in the United States, or GAAP. The preparation of our financial statements and related disclosures requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, costs and expenses, and the disclosure of contingent assets and liabilities in our financial statements. We base our estimates on historical experience, known trends and events, and various other factors that we believe are reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. We evaluate our estimates and assumptions on an ongoing basis. Our actual results may differ from these estimates under different assumptions or conditions. While our significant accounting policies are described in more detail in Note 2 to our financial statements included elsewhere in this prospectus, we believe that the following accounting policies are those most critical to the judgments and estimates used in the preparation of our financial statements.

Revenue Recognition

To date, our revenues have consisted of consideration related to the Novartis Agreement. We adopted the provisions of Accounting Standards Update 2014-09, *Revenue from Contracts with Customers* (Topic 606), or ASC 606, on January 1, 2018. In accordance with ASC 606, we recognize revenue when our customers obtain control of promised goods or services, in an amount that reflects the consideration which we expect to receive in exchange for those goods or services.

To determine the appropriate amount of revenue to be recognized for arrangements determined to be within the scope of ASC 606, we perform the following five steps: (i) identification of the promised goods or services in the contract; (ii) determination of whether the promised goods or services are performance obligations including whether they are distinct in the context of the contract; (iii) measurement of the transaction price, including the assessment of the constraint on variable consideration; (iv) allocation of the transaction price to the performance obligations; and (v) recognition of revenue when, or as we satisfy each performance obligation.

As part of the accounting for arrangements under ASC 606, we must use significant judgment to determine the performance obligations based on the determination under step (ii) above. We also use judgment to determine whether milestones or other variable consideration, except for royalties and sales-based milestones, should be included in the transaction price as described below. We recognize revenue based on those amounts when, or as, the performance obligations under the contract are satisfied.

We utilize judgment to assess the nature of the performance obligation to determine whether the performance obligation is satisfied over time or at a point in time and, if over time, the appropriate method of measuring progress. We evaluate the measure of progress each reporting period and, if necessary, adjust the measure of performance and related revenue recognition. The measure of progress, and the resulting periods over which revenue should be recognized, are subject to estimates by management and may change over the course of the arrangement, which are subject to review by the joint steering committee, or JSC. Such a change could have a material impact on the amount of revenue we record in future periods. We concluded that the transfer of control to the customer for the performance obligation occurs over the time period that the research and development services are provided by us. We recognize revenue for the performance obligation as those services are provided using an input method, based on the cumulative costs incurred compared to the total estimated costs expected to be incurred to satisfy the performance obligation. The cost-to-cost method is, in management's judgment, the best measure of progress towards satisfying the performance condition.

At the inception of each arrangement that includes research, development or regulatory milestone payments, we evaluate whether the milestones are considered likely to be met and estimate the amount to be considered for inclusion in the transaction price using the most-likely-amount method. If it is probable that a significant reversal in the amount of cumulative revenue recognized would not occur, the associated milestone value is included in the transaction price. For milestone payments due upon events that are not within our control, such as regulatory approvals, we are not able to assert that it is likely that the regulatory approval will be granted and that it is probable that a significant reversal in the amount of cumulative revenue recognized will not occur until those approvals are received. In making this assessment, we evaluate factors such as the scientific, clinical, regulatory, commercial, and other risks that must be overcome to achieve the particular milestone. There is considerable judgment involved in determining whether it is probable that a significant reversal in the amount of cumulative revenue recognized would not occur.

We reevaluate the transaction price and our total estimated costs expected to be incurred at the end of each reporting period and as uncertain events, such as changes to the expected timing and cost of certain research, development and manufacturing activities that we are responsible for, are resolved or other changes in circumstances occur. If necessary, we will adjust our estimate of the transaction price or our estimates of the total costs expected to be incurred.

Accrued Research and Development Expenses

As part of the process of preparing our financial statements, we are required to estimate our accrued research and development expenses. This process involves estimating the level of service performed and the associated cost incurred for the service when we have not yet been invoiced or otherwise notified of actual costs. The majority of our service providers invoice us in arrears for services performed, on a pre-determined schedule or when contractual milestones are met; however, some require advance payments. We make estimates of our accrued expenses as of each balance sheet date in the financial statements based on facts and circumstances known to us at that time. At each period end, we corroborate the accuracy of these estimates with the service providers and make adjustments, if necessary. Examples of estimated accrued research and development expenses include those related to fees paid to:

- Vendors in connection with discovery and preclinical development activities;
- CROs in connection with preclinical and clinical studies and testing; and
- CMOs in connection with the process development and scale up activities and the production of materials.

We record the expense and accrual related to contract research and manufacturing based on our estimates of the services received and efforts expended considering a number of factors, including our knowledge of the progress towards completion of the research, development, and manufacturing activities; invoicing to date under contracts; communication from the contract research organizations, contract manufacturing organizations and other companies of any actual costs incurred during the period that have not yet been invoiced; and the costs included in the contracts and purchase orders. The financial terms of these agreements are subject to negotiation, vary from contract to contract, and may result in uneven payment flows. There may be instances in which payments made to our vendors will exceed the level of services provided and result in a prepayment of the expense. In accruing service fees, we estimate the time period over which services will be performed and the level of effort to be expended in each period. If the actual timing of the performance of services or the level of effort varies from the estimate, we adjust the accrual or the amount of prepaid expense accordingly. Although we do not expect our estimates to be materially different from amounts actually incurred, our understanding of the status and timing of services performed relative to the actual status and timing of services performed may vary and may result in reporting amounts that are too high or too low in any particular period. To date, there have not been any material adjustments to our prior estimates of accrued research and development expenses.

Stock-Based Compensation

We measure all stock-based awards granted based on the fair value on the date of the grant using the Black-Scholes option-pricing model for options or the difference, if any, between the purchase price per share of the award and the fair value of our common stock for restricted common stock awards. Compensation expense for those awards is recognized over the requisite service period, which is generally the vesting period of the respective award.

We use the straight-line method to record the expense of awards with only service-based vesting conditions. The Black-Scholes option-pricing model uses as inputs the fair value of our common stock and assumptions we make for the volatility of our common stock, the expected term of our common stock options, the risk-free interest rate for a period that approximates the expected term of our common stock options, and our expected dividend yield.

Determination of Fair Value of Common Stock

As there has been no public market for our common stock to date, the estimated fair value of our common stock has been determined by our board of directors as of the date of each option grant, with input from management, considering our most recently available third party valuations of common stock and our board of

directors' assessment of additional objective and subjective factors that it believed were relevant and which may have changed from the date of the most recent valuation through the date of the grant. These third party valuations were performed in accordance with the guidance outlined in the American Institute of Certified Public Accountants' Accounting and Valuation Guide, *Valuation of Privately-Held-Company Equity Securities Issued as Compensation*. Our common stock valuations were prepared using either an option pricing method, or OPM, or a hybrid method, both of which used market approaches to estimate our enterprise value. The hybrid method is a probability-weighted expected return method, or PWERM, where the equity value in one or more of the scenarios is calculated using an OPM. The PWERM is a scenario-based methodology that estimates the fair value of common stock based upon an analysis of future values for the company, assuming various outcomes. The common stock value is based on the probability-weighted present value of expected future investment returns considering each of the possible outcomes available as well as the rights of each class of stock. The future value of the common stock under each outcome is discounted back to the valuation date at an appropriate risk-adjusted discount rate and probability weighted to arrive at an indication of value for the common stock. A discount for lack of marketability of the common stock is then applied to arrive at an indication of value for the common stock. The OPM treats common stock and preferred stock as call options on the total equity value of a company, with exercise prices based on the value thresholds at which the allocation among the various holders of a company's securities changes. Under this method, the common stock has value only if the funds available for distribution to stockholders exceeded the value of the preferred stock liquidation preferences at the time of the liquidity event, such as a strategic sale or a merger. These third party valuations were performed at various dates, which resulted in valuations of our common stock of $0.24 per share as of June 30, 2018, $0.30 per share as of July 8, 2019, $0.64 per share as of June 10, 2020, $0.71 per share as of January 15, 2021 and $1.41 per share as of March 1, 2021. In addition to considering the results of these third party valuations, our board of directors considered various objective and subjective factors to determine the fair value of our common stock as of each grant date, including:

- the price at which we sold shares, or expected to sell shares, of our preferred stock and the superior rights and preferences of the preferred stock relative to our common stock at the time of each grant;
- the progress of our research and development programs;
- our stage of development and commercialization and our business strategy;
- external market conditions affecting the biopharmaceutical and biotechnology industries, and trends within those industries;
- our financial position, including cash on hand, and our historical and forecasted performance and operating results;
- the lack of an active public market for our common stock and our preferred stock;
- the likelihood of achieving a liquidity event, such as an initial public offering, or IPO, or a sale of our company in light of prevailing market conditions; and
- the analysis of IPOs and the market performance of similar companies in our industry.

The assumptions underlying these valuations represented management's best estimate, which involved inherent uncertainties and the application of management's judgment. As a result, if we had used significantly different assumptions or estimates, the fair value of our common stock and our stock-based compensation expense could have been materially different.

Once a public trading market for our common stock has been established in connection with the completion of this offering, it will no longer be necessary for our board of directors to estimate the fair value of our common stock in connection with our accounting for granted stock options and other such awards we may grant, as the fair value of our common stock will be determined based on the quoted market price of our common stock.

As of December 31, 2020, based on the assumed initial public offering price per share of $, the midpoint of the price range set forth on the cover page of this prospectus, the aggregate intrinsic value of our outstanding stock options, was $ million, with $ million related to vested stock options.

Recently Issued Accounting Pronouncements

We do not believe that any recently issued accounting pronouncements will materially impact our financial position and results of operations.

Emerging Growth Company and Smaller Reporting Company Status

The Jumpstart Our Business Startups Act of 2012 permits an "emerging growth company" such as us to take advantage of an extended transition period to comply with new or revised accounting standards applicable to public companies until those standards would otherwise apply to private companies. We have elected not to "opt out" of such extended transition period, which means that when a standard is issued or revised and it has different application dates for public or private companies, we will adopt the new or revised standard at the time private companies adopt the new or revised standard and will do so until such time that we either (i) irrevocably elect to "opt out" of such extended transition period or (ii) no longer qualify as an emerging growth company. We may choose to early adopt any new or revised accounting standards whenever such early adoption is permitted for private companies.

We are also a "smaller reporting company", meaning that the market value of our stock held by non-affiliates plus the proposed aggregate amount of gross proceeds to us as a result of this offering is less than $700 million and our annual revenue was less than $100 million during the most recently completed fiscal year. We may continue to be a smaller reporting company after this offering if either (i) the market value of our stock held by non-affiliates is less than $250 million or (ii) our annual revenue was less than $100 million during the most recently completed fiscal year and the market value of our stock held by non-affiliates is less than $700 million. If we are a smaller reporting company at the time we cease to be an emerging growth company, we may continue to rely on exemptions from certain disclosure requirements that are available to smaller reporting companies. Specifically, as a smaller reporting company we may choose to present only the two most recent fiscal years of audited financial statements in our Annual Report on Form 10-K and, similar to emerging growth companies, smaller reporting companies have reduced disclosure obligations regarding executive compensation.

Quantitative and Qualitative Disclosures about Market Risks

We are exposed to market risk related to changes in interest rates. As of December 31, 2020, we had cash and cash equivalents of $35.4 million, which included restricted cash of $0.6 million, which were held in savings accounts at banking institutions and money market funds that invest in U.S. Government securities. Interest income is sensitive to changes in the general level of interest rates; however, due to the nature of these investments, an immediate 10% change in market interest rates would not have a material effect on the fair market value of our cash balance or on our financial position or results of operations.

We are not currently exposed to significant market risk related to changes in foreign currency exchange rates. Our operations may be subject to fluctuations in foreign currency exchange rates in the future. We do not believe that inflation has had a material effect on our business, financial condition, or results of operations during the years ended December 31, 2019 and 2020. Our operations may be subject to inflation in the future.

BUSINESS

Overview

We are a biopharmaceutical company focused on developing a robust pipeline of T cell receptor-engineered T cell, or TCR-T, therapies for the treatment of patients with cancer. Our approach is based on the central premise that we can learn from patients who are winning their fight against cancer in order to treat those who are not. Using one of our proprietary platform technologies, TargetScan, we analyze the T cells of cancer patients with exceptional responses to immunotherapy to discover how the immune system naturally recognizes and eliminates tumor cells in these patients. This allows us to precisely identify the targets of T cell receptors, or TCRs, that are driving these exceptional responses. We aim to use these anti-cancer TCRs to treat patients with cancer by genetically engineering their own T cells to recognize and eliminate their cancer. In addition to discovering TCR-T therapies against novel targets, we are using our ReceptorScan technology to further diversify our portfolio of therapeutic TCRs with TCR-T therapies against known targets. We believe this two-pronged approach will enable us to discover and develop a wide array of potential treatment options for patients with cancer.

We are advancing a robust pipeline of TCR-T therapy candidates for the treatment of patients with hematologic and solid tumor malignancies. Our lead liquid tumor product candidates, TSC-100 and TSC-101, are in development for the treatment of patients with hematologic malignancies to eliminate residual leukemia and prevent relapse after hematopoietic stem cell transplantation, or HCT. TSC-100 and TSC-101 target HA-1 and HA-2 antigens, respectively, which are well-recognized TCR targets that were identified in patients with exceptional responses to HCT-associated immunotherapy. We plan to submit Investigational New Drug, or IND, applications with the U.S. Food and Drug Administration, or FDA, for TSC-100 and TSC-101 in and , respectively. In addition, we are developing multiple TCR-T therapy candidates for the treatment of various solid tumors. One of the key goals for our solid tumor program is to develop what we refer to as multiplexed TCR-T therapy. We are designing these multiplexed therapies to be a combination of up to three highly active TCRs that are customized for each patient and selected from our bank of therapeutic TCRs, which we refer to as ImmunoBank.

T cells are an essential component of the adaptive immune system and provide protection against cancer, infection, and autoimmune disease. Multiple approaches have been and are continuing to be explored to develop effective T cell-based therapies for the treatment of cancer, including tumor infiltrating lymphocyte, or TIL, therapy and chimeric antigen receptor T cell, or CAR-T, therapy. The success of TIL therapy depends on the specific T cells present in the patient. If their TILs do not have appropriate anti-cancer specificities, the therapy is unlikely to be effective. In addition, TIL therapy has, to date, shown limited applicability for the treatment of liquid tumors. In contrast, CAR-T therapy has proven effective in certain hematological malignancies of lymphoid origin, but have not yet shown efficacy or safety in myeloid malignancies. Additionally, this type of treatment is limited to targets on the surface of tumor cells and has not yet been shown to effectively penetrate solid tumors. Both TIL and CAR-T therapies, as well as other immunotherapies such as checkpoint inhibitors, harness the power of cytotoxic T cells in fighting cancer. Despite demonstrating compelling efficacy, they are only effective in a subset of patients. To address a broader patient population, we believe additional T cell-based approaches are needed that more closely mimic the way the immune system recognizes and fights cancer in patients who are responding to immunotherapy.

Our decision to develop TCR-T therapies for the treatment of cancer is based on our conviction that we can learn from the natural interaction between T cells and tumor cells and harness this information to treat patients by reprogramming their immune systems. We believe that TCR-T therapy combines the benefits of TIL and CAR-T therapies while uniquely addressing their key limitations.

The development of TCR-T therapy requires three key prerequisites: (i) an effective anti-cancer TCR; (ii) knowledge of the precise peptide antigen, a protein or other molecule to which an antibody binds, that is

recognized by the TCR; and (iii) confirmation that the TCR does not recognize problematic off-targets. We believe that our approach provides us with the following key advantages:

- *Our TCR-T therapies are based on highly active TCRs that are clinically relevant.* Many other approaches to T-cell therapy rely on specifically expanding T cells that are already present in the patient. Our platform analyzes anti-cancer T cells from a wide variety of patients who are responding to immunotherapy in order to find the most active and clinically relevant TCRs against each target. We believe this will allow us to develop highly effective TCR-T therapies.
- *Our TCR-T therapies are designed to be used in combination with each other.* We are building our diverse ImmunoBank of TCRs to allow for multiplexed TCR-T therapy, which has the potential to address the heterogeneous nature of solid tumors and to prevent resistance developing due to loss of a single target. We believe this approach may allow us to overcome the limitations and challenges of TCR-T therapy development to date.
- *Our approach is expandable.* ImmunoBank has the flexibility to be used with new and optimized methods of T-cell engineering that we may develop over time. We are building ImmunoBank to be compatible with both autologous and allogeneic engineering technologies in order to potentially transition to generating off-the-shelf, allogeneic T cells that have been pre-engineered with our TCRs for direct administration to patients.

Our proprietary platform is designed to: (i) discover anti-cancer TCRs from patients with exceptional responses to immunotherapy; (ii) determine novel targets of clinically relevant TCRs; (iii) discover novel TCRs that recognize clinically validated targets; (iv) identify off-targets of TCRs to eliminate candidates that could potentially pose a safety risk; and (v) manufacture TCR-T therapies efficiently and consistently without the use of viral vectors using our T-Integrate technology. The three central elements of our platform that differentiate us from other cell therapy companies are TargetScan, ReceptorScan, and T-Integrate.

TargetScan. At the core of our proprietary platform is our TargetScan technology that enables us to identify the natural target of a TCR using an unbiased, genome-wide high-throughput screen. We have developed this technology to be extremely versatile and applicable across multiple therapeutic areas, including cancer, autoimmune disorders, and infectious diseases. It can be applied to virtually any TCR that plays a role in the cause or prevention of disease. Using TargetScan, we have identified more than 40 shared antigens in patient tumors, and over 90% of these targets have not previously been publicly identified as targets for TCR-T therapy. We believe this provides us with a competitive advantage, because not only are we among the first to identify these targets as tumor-specific antigens, but we have already identified highly active TCRs that recognize these targets. TargetScan is also designed to identify potential off-targets of a TCR and eliminate those TCR candidates that cross-react with proteins expressed at high levels in critical organs. We believe this will allow us to reduce the risk and enhance the potential safety profile of our TCR-T therapy candidates early in development before we initiate clinical trials.

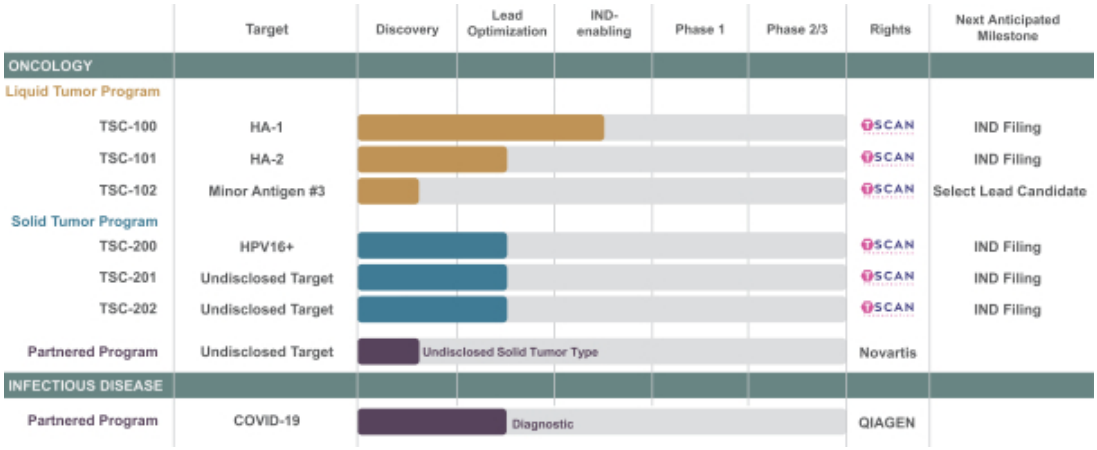
ReceptorScan. To further expand our ability to discover and develop therapeutic TCRs, we have developed our proprietary ReceptorScan technology to enable us to identify and clone highly active TCRs that recognize known or clinically validated targets. We co-culture hundreds of millions of $CD8^+$ T cells from either healthy donors or cancer patients with dendritic cells, also referred to as antigen-presenting cells, that display the target antigen of interest to the T cells. T cells that recognize the target of interest proliferate, and are subsequently isolated based on their ability to recognize a fluorescently labeled version of the target. We then use single cell sequencing to identify the specific TCR sequences that recognize the target. Our novel technologies allow us to gene-synthesize hundreds of TCRs simultaneously and to rapidly sort through hundreds of target-specific TCRs in a single high-throughput screen to identify the most active clones. Using ReceptorScan, we have identified our two lead TCR-T therapy candidates, TSC-100 targeting HA-1 and TSC-101 targeting HA-2.

T-Integrate. Manufacturing cell therapies is highly complex, and associated challenges have led to significant delays or failures in the development of many cell therapies. To enable the rapid, cost-effective, and

consistent manufacturing of TCR-Ts, we have developed a non-viral vector delivery system that we refer to as T-Integrate. Our TCR-T therapy candidates are manufactured using a transposon/transposase system, in which the DNA encoding the TCR is manufactured as a Nanoplasmid, a non-viral vector. The Nanoplasmid, together with an mRNA sequence encoding a transposase enzyme, is introduced into the T cell by electroporation. After the T cell translates the mRNA into protein, the transposase enzyme inserts the TCR sequence from the Nanoplasmid into the genome of the T cell. This system is highly reproducible, as the only required components are a Nanoplasmid, which is different for each TCR product, and an mRNA, which is constant for all TCR products. Unlike lentivirus, both of these components are routinely manufactured in a cost-effective manner without the need for extensive process development. We believe our manufacturing platform will enable us to efficiently develop and manufacture many different TCR-T therapies, allowing us to deliver customized multiplexed therapy to patients with cancer.

Our Pipeline

We are leveraging our proprietary platform technologies to develop a robust pipeline of TCR-T therapies with the goal of building our ImmunoBank of TCRs to treat a wide range of tumor types. In addition, we are applying our platform to identify targets and TCRs in therapeutic areas outside of oncology, such as autoimmune disorders and infectious disease. Our current pipeline is summarized in the figure below.



In addition, we have an early-stage collaboration with Poseida Therapeutics, Inc. under which we have granted Poseida a license to research and potentially develop and commercialize TCR-T therapies for COVID-19 based on the targets and TCRs we identified using TargetScan.

With our differentiated platform as the foundation, we are building a three-pillar research and development strategy to create transformational TCR-T therapies for patients.

1. *Our Liquid Tumor Program.* We are developing our liquid tumor program to treat patients with hematologic malignancies who are undergoing allogeneic HCT. In the first phase of our clinical development strategy, we are initially focusing on clinically validated cancer targets that have been discovered in patients with exceptional responses to HCT-associated immunotherapy, including HA-1 and HA-2. In addition, to further expand our liquid tumor program, we are developing additional product candidates that target other similarly validated antigens, enabling us to expand the addressable patient population.

   We plan to conduct clinical trials of our lead TCR-T therapy candidates, TSC-100 and TSC-101, in parallel, with patients enrolled in treatment arms based on their genotype. Patients who are positive for the target antigen, HA-1 or HA-2, as well as the HLA-A*02:01 allele, which is the HLA type required

to display HA-1 and HA-2 on the cell surface for recognition by a T cell, will be eligible for enrollment. Furthermore, eligible patients will require donors who are negative for either the target antigen or the HLA-A*02:01 allele. We plan to incorporate additional product candidates into this trial design as they advance into the clinic, which we believe will allow us to provide a broad array of therapeutic options for the majority of patients with hematologic malignancies receiving HCT. In our clinical trials of TSC-100 and TSC-101, we also plan to evaluate the potential benefit of combining the two therapies as a multiplexed TCR-T therapy for patients who are positive for both HA-1 and HA-2.

Through the development of our liquid tumor program, we are building a foundation of manufacturing, clinical, and regulatory capabilities, which will be applied to the future development of our broader portfolio of TCR-T therapy candidates for solid tumors.

2. *Our Solid Tumor Program.* We are developing a portfolio of autologous TCR-T therapy candidates that are designed to be used in combination with each other to treat and eliminate solid tumors. Our TSC-200 series of product candidates are designed to elicit an anti-tumor response in patients by targeting cancer-specific antigens in their tumor cells. Our TCR-T therapy candidates include: (i) novel targets that were identified by TargetScan from the T cells of patients responding to immunotherapy and (ii) naturally occurring TCRs specific to a patient's HLA type that recognize these cancer-specific targets. Such targets are not only commonly shared among patients with the same cancer type, but also frequently expressed in multiple solid tumor types, enabling clinical development across multiple indications. We intend to file IND applications with the FDA for our first three solid tumor product candidates, TSC-200, TSC-201, and TSC-202, in .

   Our vision is to create and continuously expand ImmunoBank to enable customized multiplexed TCR-T therapy for a wide range of solid tumor patients. For each patient with a solid tumor malignancy, we plan to analyze their tumor to determine which targets are expressed at high levels in their particular cancer. We will then access ImmunoBank and select up to three TCRs that match their HLA type and address the most highly expressed targets in their tumor. We will use this set of TCRs to genetically reprogram their T cells to recognize these targets, and the resulting T cells will be infused back into the patient as a multiplexed TCR-T therapy.

3. *Strategic Partnerships and Collaborations.* T cells play a fundamental role in many other therapeutic areas beyond cancer, such as autoimmune disorders and infectious disease. We believe that our TargetScan technology is well suited to discover novel antigens for the development of therapeutics, diagnostics, and vaccines in these other therapeutic areas. We intend to opportunistically pursue collaborations with strategic partners for applications of our platform technologies outside our core focus of oncology.

Our History and Team

We were founded in early 2018 to discover and develop transformational therapies using a novel T-cell target discovery platform developed by Drs. Stephen Elledge and Tomasz Kula at Brigham and Women's Hospital and Harvard Medical School. Since then, we have made substantial progress building our target and TCR discovery platform technologies, discovering new targets and TCRs, advancing our two lead programs into IND-enabling studies, developing in-house manufacturing capabilities, and, in response to the ongoing COVID-19 pandemic, identifying the targets of T cells from recovering COVID-19 patients. In addition, we have entered into multiple strategic collaborations, including with Novartis Institutes for Biomedical Research, Inc., and QIAGEN Sciences, LLC, as well as an early-stage collaboration with Poseida Therapeutics, Inc.

We have assembled a highly qualified team with deep experience in T-cell biology, high throughput screening, engineering and manufacturing of cell therapies, as well as in all phases of research and clinical development, from early-stage discovery and IND-enabling studies through registrational clinical trials. Our team includes industry veterans with prior experience at academic and research institutions such as Harvard University, Harvard Medical School, and Massachusetts General Hospital, and companies such as BlueRock Therapeutics, LLC, CRISPR Therapeutics, Inc., Editas Medicine, Inc., Human Genome Sciences, Inc., Kite Pharma, Inc., KSQ Therapeutics, Inc., Merrimack Pharmaceuticals, Inc., Regeneron Pharmaceuticals, Inc., Repertoire Immune Medicines, Inc., and SQZ Biotechnologies Company. Since our inception, we have raised an

aggregate of $160 million from leading biotechnology investors, including RA Capital Management, Novartis Venture Fund, Novartis Institutes for Biomedical Research, Longwood Fund, Bessemer Venture Partners, GV, 6 Dimensions Capital, Astellas Venture Management, and Pitango HealthTech.

Our Strategy

Our mission is to create life-changing T-cell therapies for patients by unleashing the untapped potential of the human immune system. Our goal is to use our proprietary platform for the identification of novel tumor-specific antigens and clinically active TCRs to become a leader in the development of engineered T-cell therapies for the treatment of liquid and solid tumors. Our strategy includes the following key elements:

- ***Leverage our proprietary platform technologies to build our diverse ImmunoBank of therapeutic TCRs to treat a wide range of tumor types***. Our TargetScan technology enables us to identify novel antigens that are broadly expressed across multiple types of solid tumors. In order to ensure that the antigens identified are clinically relevant, we use TCRs from tumor samples of patients with exceptional responses to immunotherapy. Our platform allows us assess the specificity and cytotoxicity of these TCRs to develop a portfolio of TCR-T therapy candidates with therapeutic potential. As we continue to expand our screening technology, we believe we will be able to generate our ImmunoBank of therapeutic TCRs with the diversity required to treat many solid tumors using multiplexed therapy.
- ***Advance our lead liquid tumor product candidates, TSC-100 and TSC-101, through clinical development.*** Our two lead programs, TSC-100 and TSC-101, are designed to target HA-1 and HA-2, respectively, both of which are antigens with clinically demonstrated anti-tumor effects in patients who naturally develop T cells specific to these targets. Using our ReceptorScan technology, we generated hundreds of highly active TCRs that recognize HA-1 and HA-2. We selected TSC-100 and TSC-101 based on their superior potency and lack of off-target effects. We plan to submit INDs for TSC-100 in and for TSC-101 in . In addition, through our liquid tumor programs, we are building a foundation of manufacturing, clinical and regulatory capabilities to support the development of our broad portfolio of TCR-T therapies.
- ***Apply experience from our liquid tumor program to efficiently develop our solid tumor program targeting both novel and previously identified antigens.*** Using our TargetScan technology, we have identified over 40 novel antigens based on tumor samples from patients who are actively responding to immunotherapy. We are initially developing our TSC-200 series of TCR-T therapies against three selected target antigens that are frequently expressed across multiple solid tumor types. In parallel, we are using our ReceptorScan technology to identify highly active TCRs against clinically validated targets to further supplement our ImmunoBank of therapeutic TCRs. We believe that the treatment of solid tumors will require a combination of several TCR-T therapies, which we refer to as ‘multiplexed therapy’. We plan to leverage the foundation built from our liquid tumor programs to efficiently develop a robust portfolio of TCR-T therapy candidates and expand ImmunoBank to enable multiplexed TCR-T therapies for solid tumors.
- ***Continue to develop manufacturing capabilities based on our non-viral T-Integrate system***. We believe that in-house manufacturing capabilities substantially facilitate the successful early development of cell therapies. For our TCR-T therapy candidates, we have developed a non-viral gene delivery system, which we refer to as T-Integrate, based on transposons that are designed to enable cost-effective and consistent cell manufacturing with short development times. We have built an internal good manufacturing practices, or GMP, manufacturing facility that we expect will provide sufficient capacity to support all of our clinical programs through Phase 2 clinical trials.
- ***Develop next generation T-cell engineering capabilities***. Our long-term vision is to build an allogeneic repository of off-the-shelf, genetically engineered T cells and provide multiplexed TCR-T therapies to patients with a wide range of malignancies. Although our initial solid tumor programs are

autologous, we are developing T-cell engineering technologies and in-house manufacturing capabilities to transition our therapeutic TCRs to allogeneic therapies based on T cells derived from healthy donors or induced pluripotent stem cells, or iPSCs. We are also exploring additional next generation technologies, such as *in vivo* T-cell engineering, to further advance our T-cell engineering capabilities.

- ***Opportunistically pursue strategic partnerships and collaborations to maximize the full potential of our platform***. Our platform represents a powerful tool to identify targets and TCRs in therapeutic areas outside of oncology, such as autoimmune disorders and infectious disease. We intend to seek strategic partners with proven clinical development and commercialization capabilities for certain targets and/or assets that do not overlap with our internal programs or our core focus. To date, we have established a partnership for COVID-19 with QIAGEN Sciences, LLC for the development of a T cell-based diagnostic, and an early-stage collaboration with Poseida Therapeutics, Inc. for the development of TCR-T therapies.

Background on T-Cell Therapies

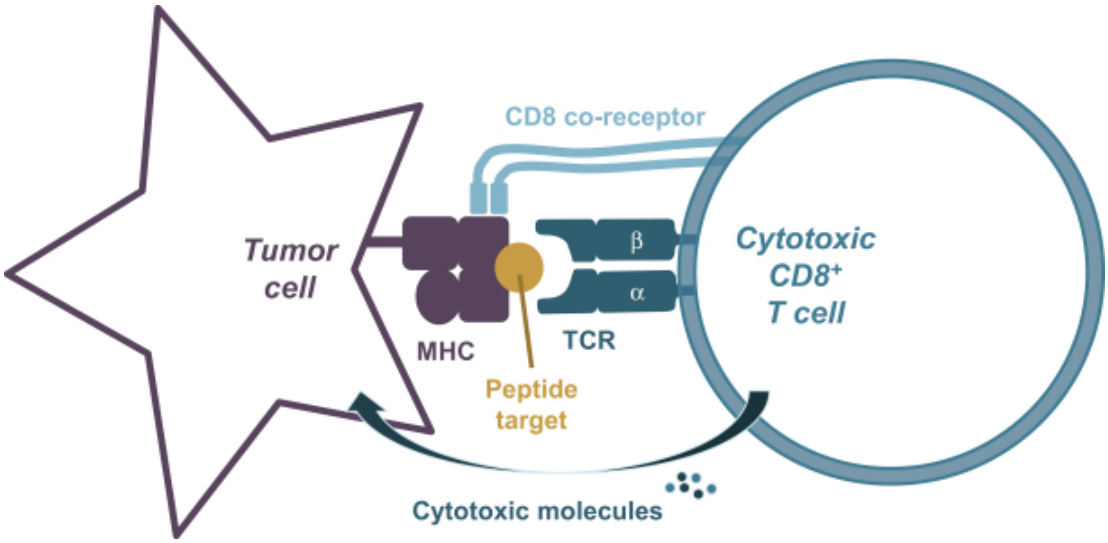
The human immune system constantly provides a natural and highly effective defense against cancer, which only forms when tumor cells find a way to evade the immune system. The treatment of cancer was revolutionized about a decade ago with the advent of immunotherapy – therapeutic approaches designed to re-enable or re-direct immune cells to recognize and fight cancer. Over the past 10 years, a suite of immuno-oncology drugs has been approved and adopted as part of routine clinical practice. Successes in immuno-oncology came initially from the approval of immune checkpoint inhibitors and more recently from the development of cellular therapies, such as CAR-T and TIL therapies. These therapies all harness the power of cytotoxic T cells in fighting both hematologic malignancies and solid tumors. Although these therapies have demonstrated compelling efficacy, they are only effective in a subset of patients. To address a broader patient population, we believe additional T cell-based approaches are needed that more closely mimic the way the immune system recognizes and fights cancer in patients who are responding to immunotherapy.

Overview of T-Cell Biology

T cells are an essential component of the adaptive immune system and provide protection against cancer, infection, and autoimmune disease. T cells are classically divided into two primary types of activating cells: helper T cells and cytotoxic T cells. Helper T cells, which express the CD4 co-receptor, function by providing signals to other immune cells for activation and recruitment. Cytotoxic T cells, which express the CD8 co-receptor, function by killing any cells in the human body that are expressing unnatural proteins, including proteins that are not expressed in normal tissue, proteins that arise from mutated genes, or proteins derived from pathogens. By definition, tumor cells are abnormal and make a wide variety of unnatural proteins. T cells are activated and exert their helper or cytotoxic function when their T cell receptors, or TCRs, recognize antigens displayed on the surface of malignant or infected cells.

Virtually every cell in the body has a mechanism for displaying on its surface a sampling of every protein that is being made by the cell. This includes all normal proteins as well as aberrant proteins if the cell is cancerous or proteins from pathogens if the cell has been infected. Cellular proteins are broken down into short fragments, or peptides, by the proteasome, and these peptides are loaded into Major Histocompatibility Complexes, or MHCs, to be displayed on the outside of the cell. These peptide/MHC complexes are recognized by TCRs on cytotoxic $CD8^+$ T cells, as shown in the graphic below. Because the TCR recognizes both the peptide and the MHC, a TCR only functions correctly when both the peptide and the correct MHC are present.

TCRs on Cytotoxic CD8+ T Cells Recognize the Peptide/MHC Complexes of Tumor Cells



MHC proteins, which present different peptides to the human immune system, are highly variable among people. An individual's MHC proteins are determined by their Human Leukocyte Antigen, or HLA, type. Although there are many different HLA types, some are quite common. For example, 42% of individuals in the United States are positive for the HLA-A*02:01 allele, or variant. TCRs are often referred to as "HLA-restricted" because they are only able to interact with specific HLA types. For this reason, TCR-T therapy harnesses the exquisite specificity of the TCR-peptide-MHC interaction to selectively target tumor cells.

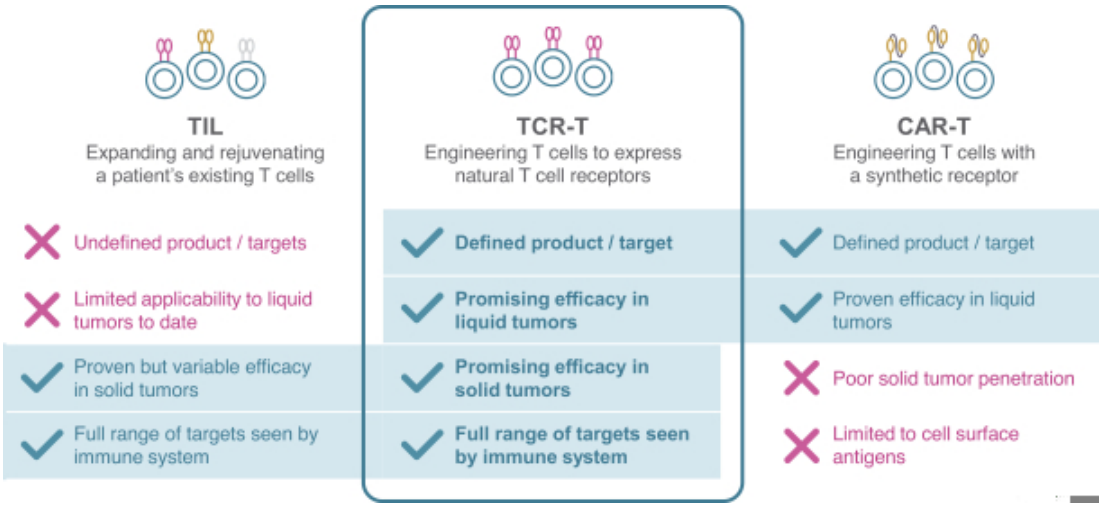
Current Approaches to T-Cell Therapy

Multiple approaches are being explored to develop effective T cell-based therapies for the treatment of cancer. One approach is to isolate naturally occurring T cells from a patient's tumor, referred to as TILs, expand and activate those cells *ex vivo*, and then return them to the patient via intravenous infusion. Although the targets of these T cells are not known, it is presumed that T cells isolated from a tumor are enriched in T cells directed against cancer cells. This approach, however, depends on the specific T cells present in the patient. If the patient's TILs do not have appropriate anti-cancer specificities or if their TILs cannot be adequately expanded *ex vivo*, the therapy is unlikely to be effective.

A different approach that has proven effective in certain hematological malignancies is to identify targets that are preferentially expressed on the surface of tumor cells, such as CD19. Antibody fragments that recognize these targets are used to create an artificial construct that links the antibody to key signaling elements required for T-cell activation. The resulting CAR is incorporated genetically into a patient's T cells, thereby redirecting those cells to recognize and fight the patient's cancer. Although CAR-T therapies have been highly effective in certain tumor types, leading to multiple approved products, the benefit of these therapies and the addressable cancer indications have been limited by several factors. First, it is likely that there is a relatively limited set of truly tumor-specific cell surface antigens. In general, most antigens expressed on the surface of tumor cells are also expressed on normal cells, resulting in therapies that, even if effective, have a narrow therapeutic window and are vulnerable to potentially life-threatening toxicities. Second, CAR-T cells rely on antibody fragments that recognize cell-surface proteins, precluding intracellular proteins as potential targets. Third, CAR-T therapies generally do not efficiently penetrate solid tumors, which to date has limited their applicability to hematologic malignancies.

In contrast to CAR-T therapies, naturally occurring TCRs offer two important benefits compared to antibody-containing artificial receptors. First, TCRs are the natural receptors used by the T cell to recognize foreign antigens. As such, they are optimized to stimulate the T cell appropriately when they engage their targets on a tumor cell. An appropriately stimulated T cell will not only kill the tumor cell, but also produce cytokines that stimulate other immune cells and make copies of itself, or proliferate, to further augment the immune response. Balancing all the cellular responses of a T cell is something that has been finely tuned over millions of years of evolution and is best mediated by naturally occurring TCRs, rather than by artificial constructs. Second, TCRs can recognize a much broader set of antigens, including peptides derived from both cell surface and intracellular proteins, whereas CARs are restricted to recognizing only cell surface proteins. MHC-I peptides are predominantly derived from intracellular proteins rather than extracellular proteins, which dramatically increases the universe of potential cancer-specific antigens that can be recognized by TCRs compared to CARs. We believe TCR-T therapy combines the benefits of TIL and CAR-T therapies while uniquely addressing their key limitations, as shown below.

Comparison of T-Cell Therapy Modalities



The development of TCR-T therapy requires three key prerequisites: (i) an effective anti-cancer TCR; (ii) knowledge of the precise peptide antigen that is recognized by the TCR; and (iii) confirmation that the TCR does not recognize problematic off-targets. Each of these prerequisites is technically challenging. Historically, targets of anti-cancer T-cell clones were identified through a manual and labor intensive process, and the identification of each target was often a multi-year project. As a result, only a few dozen targets have been identified to date and most clinical development efforts are focused on a short list of the most promising targets.

Our Approach

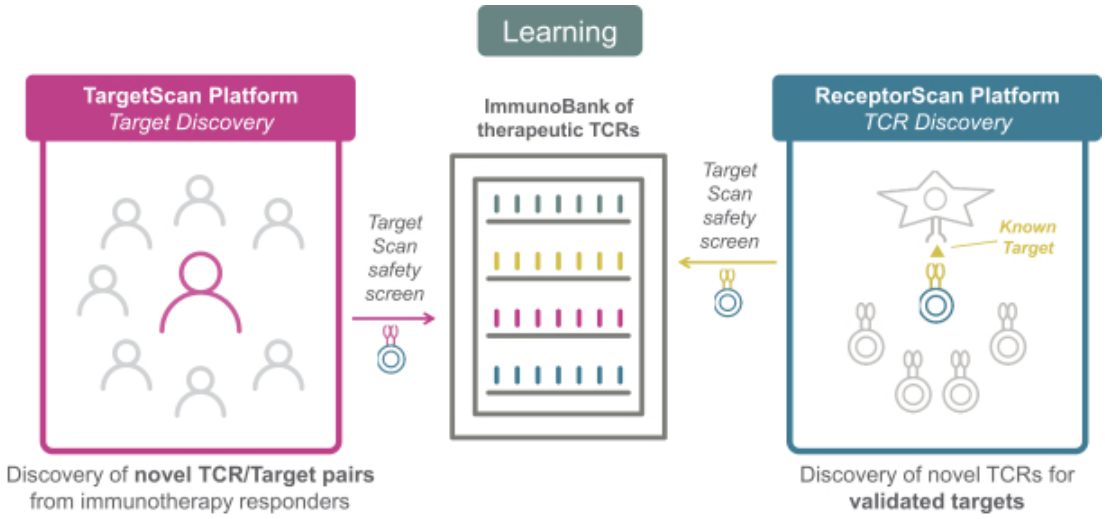
Our approach is based on the central premise that we can ***learn*** from patients who are winning their fight against cancer in order to ***treat*** those who are not. Using our proprietary platform technologies, we are analyzing the T cells of cancer patients with exceptional responses to immunotherapy to discover clinically relevant targets and TCRs. We are building ImmunoBank with the goal of delivering customized multiplexed TCR-T therapy to a wide range of patients with cancers.

Learning

When a patient responds to an immunotherapy drug such as an immune checkpoint inhibitor, their tumor shrinks because T cells in their tumor become activated and drive an anti-tumor cytotoxic response. The TCRs of their T cells recognize tumor-specific antigens on tumor cells and signal the T cell to kill the cancer cells. Our approach starts with isolating clinically active anti-cancer T cells from tumor samples of patients who are actively responding to immunotherapy agents. We then use our proprietary TargetScan technology to determine the precise targets being recognized by their TCRs. This provides us with a novel TCR/target pair that can be developed into a TCR-T therapy candidate. The advantage of our approach is that when we identify a new target, we know the target is immunologically relevant – the human immune system has already used that target to recognize and fight cancer. Furthermore, we have already identified a TCR that recognizes the target and, importantly, is associated with a meaningful clinical response in a patient. To de-risk clinical development of the TCR, we use our TargetScan technology to scan across every peptide sequence in the entire human proteome with the goal of ensuring that it does not have any problematic off-target effects. We then select TCRs that are highly active with no apparent problematic off-target effects to be added to ImmunoBank.

In addition to discovering novel TCR/target pairs, we are leveraging our proprietary ReceptorScan technology to identify highly active TCRs against previously identified and clinically validated targets. Once we identify these highly active TCRs, we use our TargetScan technology to reduce the risk that they exhibit problematic off-target effects, which de-risks their subsequent clinical development. The diagram below illustrates our proprietary discovery process where therapeutic TCR candidates are discovered using either TargetScan or ReceptorScan and those that we characterize as the best TCRs are added to ImmunoBank.

Our Proprietary Target and TCR Discovery Process



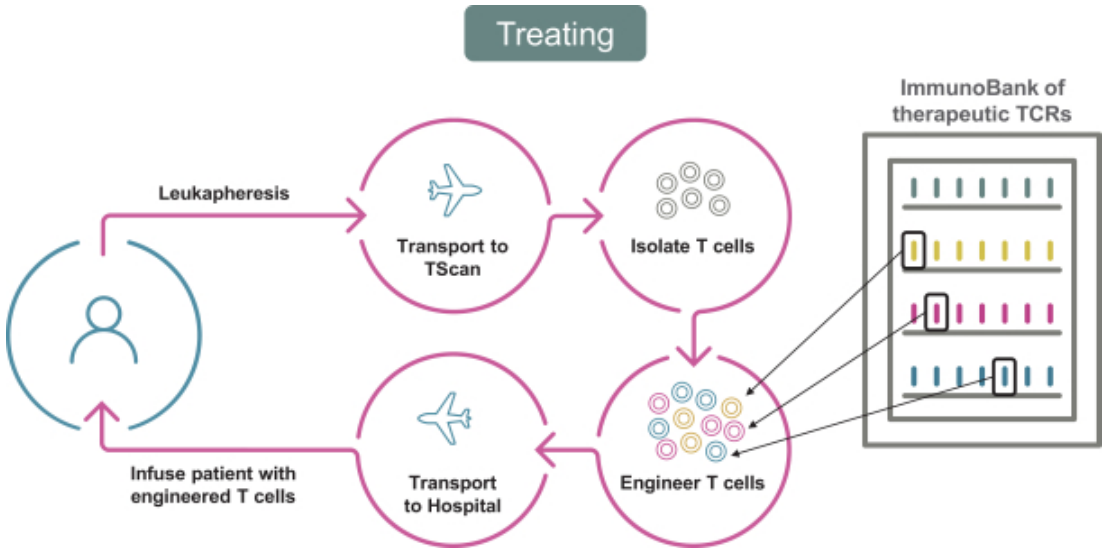
Treating

Our discovery process enables us to build and expand ImmunoBank with what we believe represents the most active TCRs isolated from a large group of diverse patients who are responding to immunotherapy. We are developing TCR-T therapies that use these clinically relevant TCRs to reprogram the T cells of patients who do not spontaneously generate effective anti-cancer T cells and thus do not respond to immunotherapy. Our manufacturing process begins with obtaining white blood cells from either the patient or a healthy donor using a

procedure called leukapheresis. We will then transport these white blood cells to our in-house manufacturing facility, where we isolate the T cells and genetically engineer them using TCR sequences from ImmunoBank. We believe the continued expansion and diversification of ImmunoBank will enable us to deliver customized multiplexed TCR-T therapy to patients, where each patient's T cells are engineered with multiple TCRs that are matched to their specific tumor and HLA type. For example, if a patient's tumor expresses high levels of cancer target X, their T cells will be reprogrammed with a TCR that recognizes target X.

Once the T cells are engineered with a combination of the most relevant TCRs, they will be transported back to the hospital and reintroduced into the patient by intravenous infusion. Following the infusion, the engineered T cells, which are designed to recognize multiple targets expressed by the patient's tumor, will proliferate *in vivo* and mount an anti-cancer immune response. Our patient treatment and manufacturing process is summarized in the graphic below.

Our Patient Treatment and Manufacturing Process



Key Features of Our Approach

We believe there are three key advantages to our approach:

- *Our TCR-T therapies are based on highly active TCRs that are clinically relevant.* Many other approaches to T cell therapy rely on specifically expanding T cells that are already present in the patient. Our platform analyzes anti-cancer T cells from a wide variety of patients who are responding to immunotherapy in order to find the most active and clinically relevant TCRs against each target. We believe we can develop highly effective TCR-T therapies.
- *Our TCR-T therapies are designed to be used in combination with each other.* We are building our diverse ImmunoBank of TCRs to allow for multiplexed TCR-T therapy, which has the potential to address the heterogeneous nature of solid tumors and to prevent resistance developing due to loss of a single target. We believe this approach may allow us to overcome the limitations and challenges of TCR-T therapy development to date.

- *Our approach is expandable.* ImmunoBank has the flexibility to be used with new and optimized methods of T cell engineering that we may develop over time. We are building ImmunoBank to be compatible with both autologous and allogeneic engineering technologies in order to potentially transition to generating off-the-shelf, allogeneic T cells that have been pre-engineered with our TCRs for direct administration to patients.

Our Platform

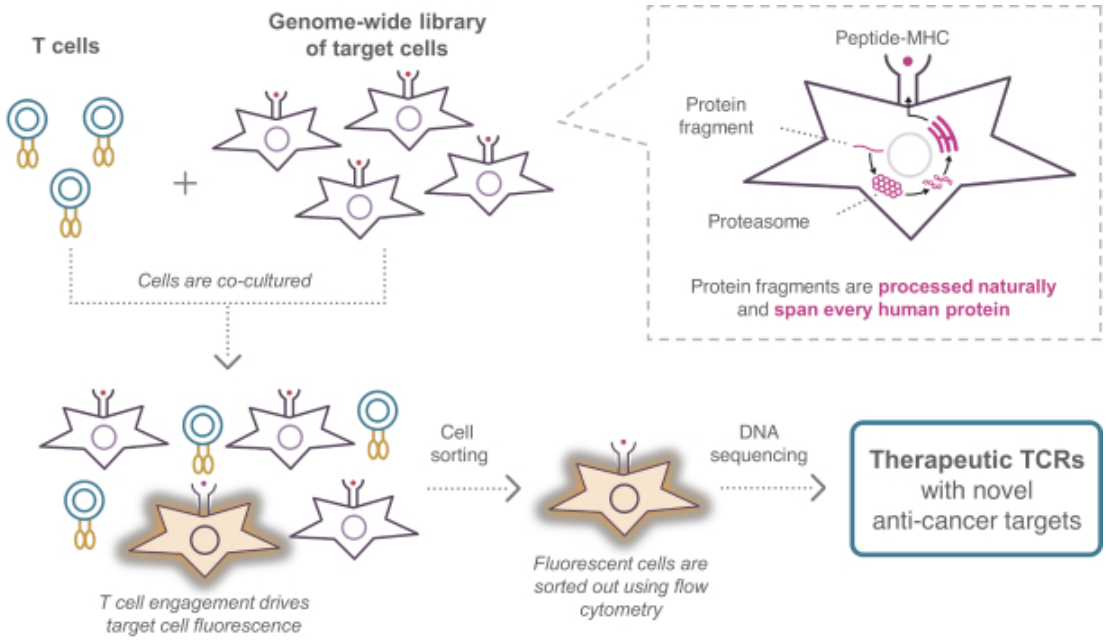
Our proprietary platform is designed to: (i) discover anti-cancer TCRs from patients with exceptional responses to immunotherapy; (ii) determine novel targets of clinically relevant TCRs; (iii) discover novel TCRs that recognize clinically validated targets; (iv) identify off-targets of TCRs to eliminate candidates that could potentially pose a safety risk; and (v) manufacture TCR-T therapies efficiently and consistently without the use of viral vectors using our T-Integrate technology. The three central elements of our platform that differentiate us from other cell therapy companies are TargetScan, ReceptorScan, and T-Integrate.

TargetScan—Identification of Novel Targets of Clinically Active TCRs

At the core of our proprietary platform is our TargetScan technology that enables us to identify the natural target of a TCR using an unbiased, genome-wide, high-throughput screen. We have developed this technology to be extremely versatile and applicable across multiple therapeutic areas, including cancer, autoimmune disorders, and infectious diseases. It can be applied to virtually any TCRs that plays a role in the cause or prevention of disease. TargetScan is also designed to identify potential off-targets of a TCR and eliminate those TCR candidates that cross-react with proteins expressed at high levels in critical organs. We believe this will allow us to reduce the risk and enhance the potential safety profile of our TCR-T therapy candidates early in development before we initiate clinical trials.

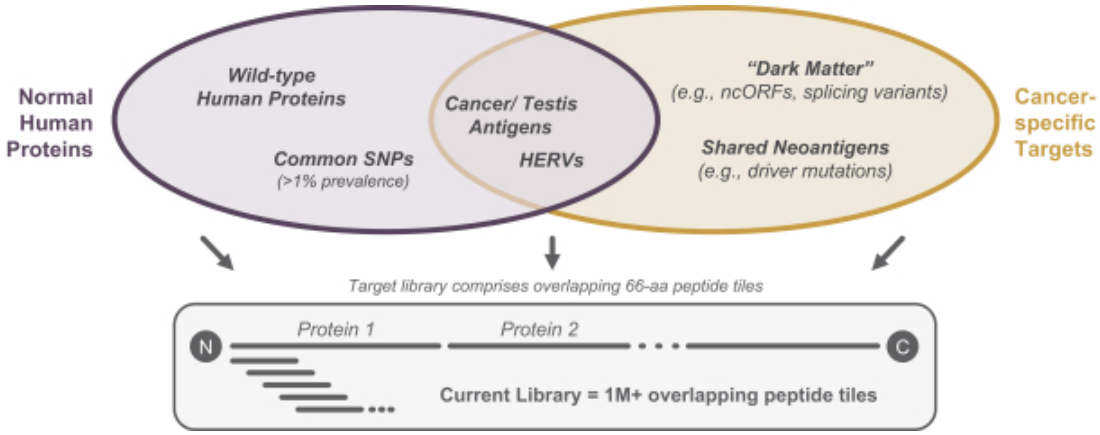
To identify the target of a clinically active TCR found in the T cells of a patient actively responding to immunotherapy, we mix T cells expressing that TCR with a genome-wide library of target cells where every cell in the library expresses a different protein fragment. In each target cell, the protein fragment is processed naturally by the proteasome or immunoproteasome and the resulting peptides are displayed on cell-surface MHC proteins. If a T cell recognizes the peptide-MHC complex on a target cell, it attempts to kill the target cell, thereby activating a proprietary fluorescent reporter in the target cell. By isolating fluorescent target cells and sequencing their expression cassettes, TargetScan reveals the natural target(s) of the T cell, as shown below. This technology was published as a feature article in *Cell* in 2019.

Overview of Our Proprietary TargetScan Technology



Central to this technology is the library of protein fragments used for any given TargetScan screen. Our proprietary libraries comprise hundreds of thousands of specific sequences that collectively include most or all of the targets that a TCR could potentially recognize. For example, our current Oncology Target Discovery Library (version 3.0) comprises over one million clones, each expressing a unique protein fragment. Collectively, these fragments span every human protein encoded in the human genome, along with all single nucleotide polymorphisms, or SNPs, which are single amino acid variations in naturally occurring proteins, observed at over 1% frequency in the human population. In addition, the library includes elements that are specific to cancer cells, which are particularly interesting to us as potential targets: common oncogenic driver mutations, cancer/testis antigens, human endogenous retroviruses, or HERVs, and a large collection of sequences that are not translated in normal tissue but frequently translated in human cancers. We constructed our libraries using a tiling pattern of overlapping fragments to provide complete and redundant coverage of every targeted sequence, as shown in the graphic below.

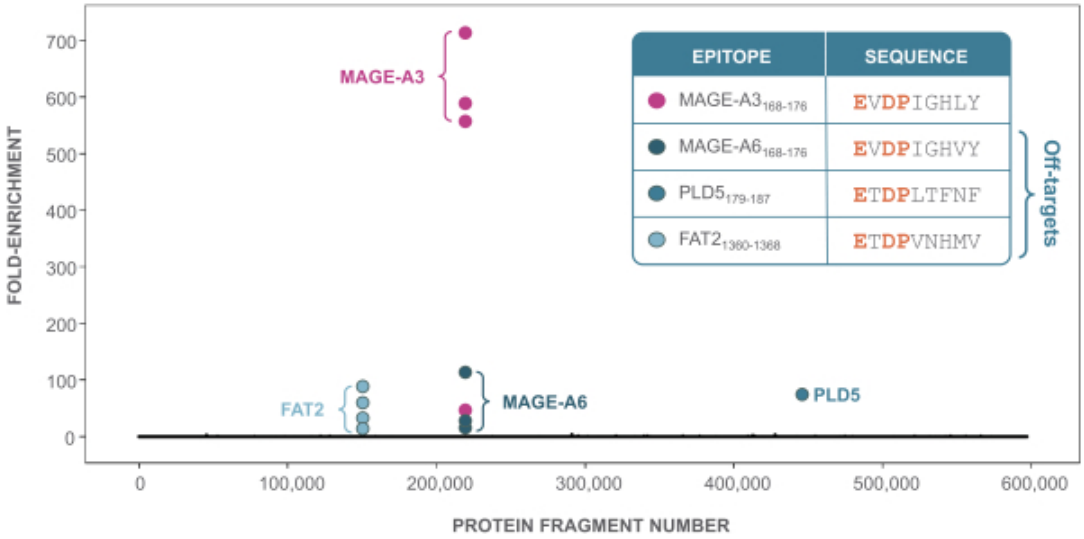
Oncology Target Discovery Library (Version 3.0)



Our Oncology Target Discovery Library allows us to precisely identify the novel targets recognized by TCRs from patients who are actively responding to immunotherapy. In addition, because the library comprehensively covers every non-mutated human protein sequence, we are also able to fully characterize all potential off-target interactions for any given TCR, which we believe will help us reduce the risk and enhance the potential safety profile of our TCR-T therapy candidates before we advance them to clinical development. Furthermore, we can use our screen for any HLA type, enabling target discovery across a wide range of patient demographics.

We have validated our TargetScan technology with a proof-of-concept screen using our Oncology Target Discovery Library (version 2.0), which included approximately 600,000 protein fragments spanning every human protein. Using a TCR known to recognize MAGE-A3, our screen, as shown below, correctly identified MAGE-A3 as its natural target, and also identified three off-targets, including two that are unrelated at the gene level to MAGE-A3 and would likely not have been identified in a bioinformatic search. The ability to identify problematic off-targets is critical as TCR-T therapies engineered with TCRs that recognize off-targets expressed at high levels in critical organs could cause toxicities, thereby limiting their therapeutic potential.

TargetScan Proof-of-Concept:
Target Screen of MAGE-A3 Specific TCR Identifies MAGE-A3 and Three Off-Target

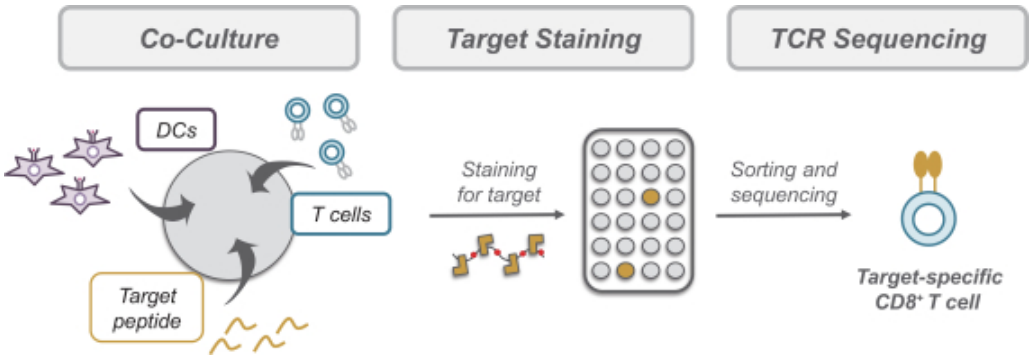


Using TargetScan, we have identified more than 40 shared antigens in patient tumors, and over 90% of these targets have not previously been identified as targets for TCR-T therapy. We believe this provides us with a competitive advantage, because not only are we among the first to identify these targets as tumor-specific antigens, but we have already identified highly active TCRs that recognize these targets.

ReceptorScan—Discovery of Novel Therapeutic TCRs for Known Targets

To further expand our ability to discover and develop therapeutic TCRs, we have developed our proprietary ReceptorScan technology to enable us to identify and clone highly active TCRs that recognize previously identified, clinically validated targets. As shown in the graphic below, we co-culture hundreds of millions of $CD8^+$ T cells from either healthy donors or cancer patients with dendritic cells that display the target antigen of interest to the T cells. T cells that recognize the target of interest proliferate, and are subsequently isolated based on their ability to recognize a fluorescently labeled version of the target. We then use single cell sequencing to identify the specific TCR sequences that recognize the target. Our novel technologies allow us to gene-synthesize hundreds of TCRs simultaneously and to rapidly sort through hundreds of target-specific TCRs in a single high-throughput screen to identify the most active clones. Using ReceptorScan, we have identified our two lead TCR-T therapy candidates, TSC-100 targeting HA-1 and TSC-101 targeting HA-2.

Overview of Our Proprietary ReceptorScan Technology



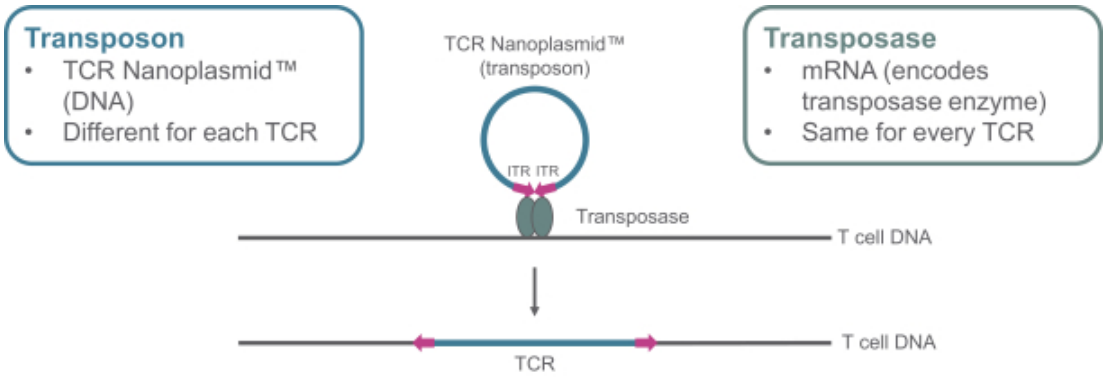
T-Integrate—Genetic Engineering of T Cells Using Transposons

Cell therapy manufacturing is highly complex, and associated challenges have led to significant delays or failures in the development of many cell therapies. To enable the rapid, cost-effective, and consistent manufacturing of TCRs, we have developed a non-viral vector delivery system that we refer to as T-Integrate. Our manufacturing platform enables us to introduce any of the TCRs from ImmunoBank, along with additional genetic elements such as CD8 that further augment T-cell function, into the genomes of patient- or donor-derived T cells.

Genetically engineering a T cell requires two steps: (1) delivering DNA encoding the TCR into the nucleus of a T cell and (2) integrating that DNA into the genome of the T cell. These two steps are often accomplished through the use of retroviral vectors, such as lentivirus, by packaging RNA encoding the TCR into lentiviral particles, which are then used to infect T cells. Although effective, manufacturing lentiviral particles is time-consuming, costly, and often highly variable. In addition, each new TCR requires extensive process development, as the TCR sequence affects the efficiency with which it is packaged into the lentivirus.

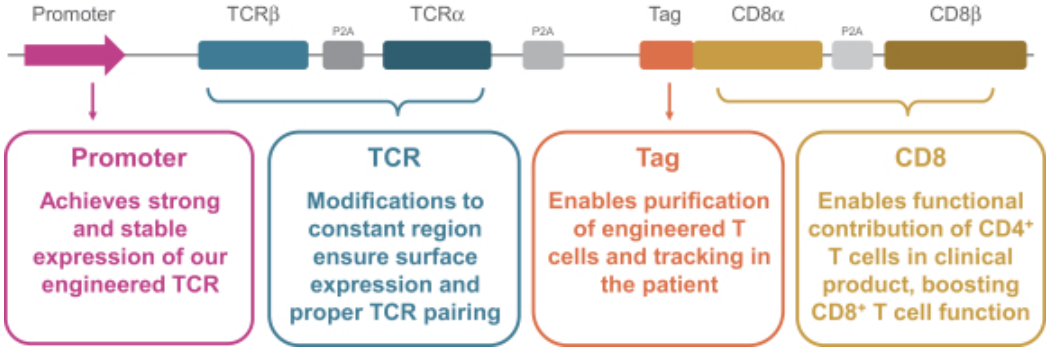
As a more efficient and reproducible alternative to lentivirus, we have developed T-Integrate to genetically engineer T cells using a transposon/transposase system, as shown in the graphic below. In this system, DNA encoding the TCR is manufactured as a Nanoplasmid and enables DNA delivery using a smaller plasmid footprint. The Nanoplasmid, together with an mRNA sequence encoding a transposase enzyme, is introduced into the T cell by electroporation. After the T cell translates the mRNA into protein, the transposase enzyme inserts the TCR sequence from the Nanoplasmid into the genome of the T cell. This system is highly reproducible, as the only required components are a Nanoplasmid, which is different for each TCR product, and mRNA, which is constant for all TCR products. Unlike lentivirus, both of these components are routinely manufactured in a cost-effective manner without the need for extensive process development. We believe our manufacturing platform will enable us to efficiently develop and manufacture many different TCR-T therapies, allowing us to deliver customized multiplexed therapy to patients with cancer.

Our T-Integrate Manufacturing Platform



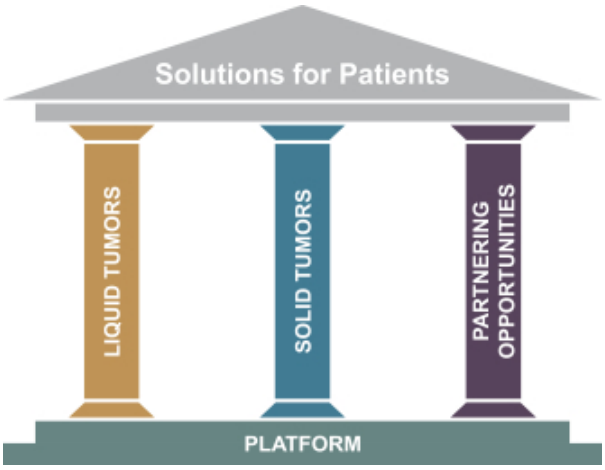
Our transposon vector includes both the beta and alpha chains of the TCR under the control of a strong promoter. This is designed to ensure that high levels of the TCR are produced on the surface of the T cells and that the TCRs that are normally expressed in the patient or donor's T cells, or the 'endogenous' TCRs, are suppressed. We have also introduced specific alterations in the constant region of the TCR to further augment its stability. In addition to the TCR, our transposon construct includes genes encoding the alpha and beta chains of the cell-surface protein CD8. CD8 forms a complex with the TCR and is necessary for the TCR to recognize its target on tumor cells. Including the CD8 co-receptor in our construct enables us to genetically reprogram both major types of T cells: cytotoxic T cells that naturally make their own CD8 and helper T cells that do not make CD8. Our final TCR-T therapies are a mixture of both cytotoxic and helper T cells that have been reprogrammed to recognize and eliminate tumor cells expressing the relevant targets. We also included a short peptide tag at the beginning of CD8 alpha in our construct. This tag does not interfere with the function of CD8 alpha, but provides a way to easily purify the engineered T cells during our manufacturing process. An illustration of the construct of our TCR-T therapies is shown below.

Construct of our TCR-T Therapies



Our Programs

With our differentiated platform as our foundation, we are building a three-pillar research and development strategy to create transformational TCR-T therapies for patients, as shown below.

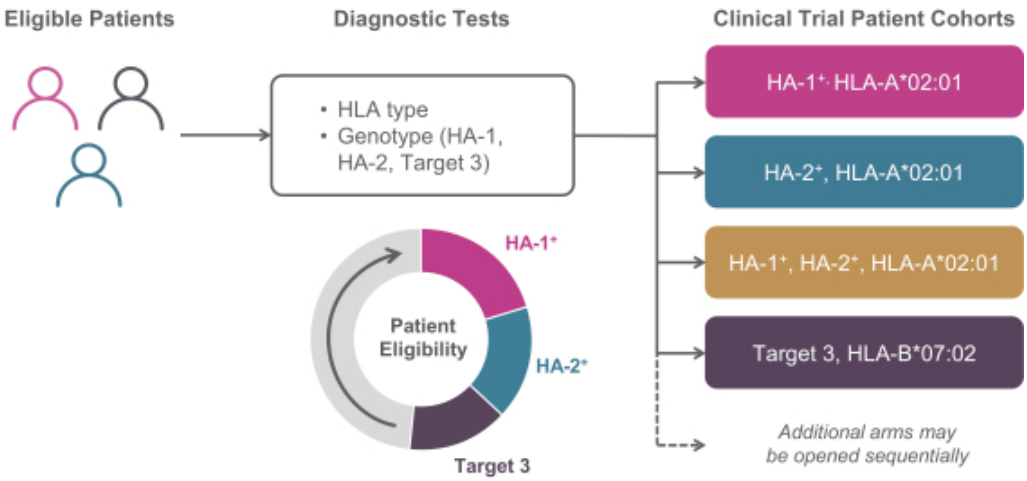


Our Liquid Tumor Program

We are developing our liquid tumor program to treat patients with hematologic malignancies who are undergoing for allogeneic HCT. In the first phase of our clinical development strategy, we are initially focusing on well-recognized cancer targets that have been discovered in patients with exceptional responses to HCT-associated immunotherapy, including HA-1 and HA-2. In addition, to further expand our liquid tumor program, we are developing additional product candidates that target other similarly validated antigens, enabling us to expand the addressable patent population.

We plan to conduct clinical trials of our lead TCR-T therapy candidates, TSC-100 and TSC-101, in parallel, with patients enrolled in treatment arms based on their genotype, as shown below. Patients who are positive for the target antigen, HA-1 or HA-2, as well as the HLA-A*02:01 allele, which is the HLA type required to display HA-1 and HA-2 on the cell surface for recognition by a T cell, will be eligible for enrollment. Furthermore, eligible patients will require donors who are negative for either the target antigen or the HLA-A*02:01 allele. We also plan to incorporate additional product candidates into this trial design as they advance into the clinic, which we believe has the potential to allow us to provide a broad array of therapeutic options for the majority of patients with hematologic malignancies receiving HCT. In our clinical trials of TSC-100 and TSC-101, we also plan to evaluate the potential benefit of combining the two therapies as a multiplexed TCR-T therapy for patients who are positive for both HA-1 and HA-2.

Our Clinical Development Strategy for Multiple TCR-T Therapies

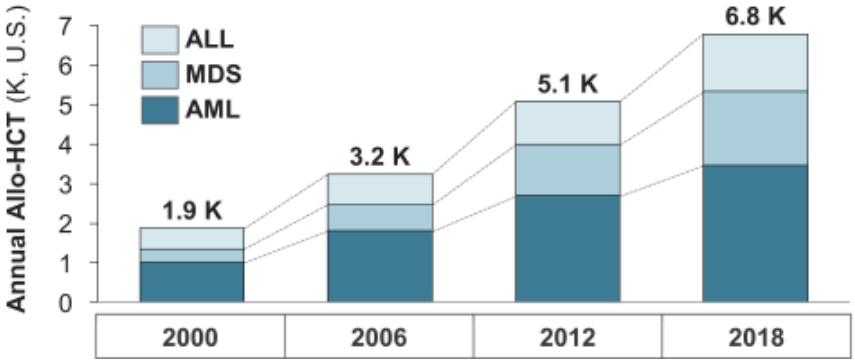


Background on Hematologic Malignancies

Hematopoietic stem cell transplantation, or HCT, has become the standard of care for many hematologic malignancies. When a patient with leukemia undergoes HCT, they start by receiving a conditioning regimen of high dose chemotherapy with or without radiation. This regimen is intended to kill both the patient's leukemia cells as well as their native blood cells and blood cell precursors, including hematopoietic stem cells in their bone marrow. The patient then receives hematopoietic stem cells from an MHC-matched donor. The stem cells engraft in their bone marrow and start to repopulate their body with new blood cells, which are now genetically identical to the donor. HCT has demonstrated the rare opportunity in cancer treatment to generate long-term remissions or cures. For example, patients with acute myeloid leukemia, or AML, who receive HCT have a five-year post-transplant survival rate of 41%.

Approximately 7,000 allogeneic HCT procedures are performed yearly in the United States, primarily in patients with AML or acute lymphocytic leukemia, or ALL. As a curative therapy for many hematologic malignancies, use of HCT has been steadily increasing over the last two decades, as shown below, with increased use driven largely by increasing donor availability, an increase in disease prevalence due to aging populations, and improved conditioning regimens permitting broader use in older patient segments. While the approval of CAR-T therapies has significantly impacted the treatment of B-cell malignancies over the last decade, HCT in non-B cell malignancies is anticipated to remain the standard of care for patients. In addition, adoption of safer and more effective conditioning regimens is anticipated to continue to drive an increasing use of HCT in patient segments previously deemed too old or unfit for transplant or those who failed to achieve proper remission prior to transplant.

The Number of Allogeneic HCT Procedures in the U.S. Continues to Rise



However, despite the increasing use of HCT and the resulting clinical benefits or cures, up to half of the patients who receive HCT relapse, at which point there are limited treatment options and the prognosis is very poor. Clinical observations have shown that if the T cells of the donor recognize certain minor histocompatibility antigens, or miHAs, in the patient's leukemia cells, such as proteins that have single amino acid differences between the patient and the donor, the T cells of the donor drive a specific graft vs. leukemia, or GvL, effect, whereby the engrafted donor T cells detect remaining leukemia as foreign and eliminate the remaining disease. As a result, the patient often experiences a long-term remission from their cancer, or even a complete cure. If the miHAs are also expressed in non-hematopoietic tissues, the patient may develop graft vs. host disease, or GvHD, but if the miHAs are only expressed in blood cells, a specific GvL effect is observed without an increase in GvHD. Our liquid tumor program is focused on targeting miHAs that are exclusively expressed in hematopoietic cells in order to induce the GvL effect while potentially mitigating the risk of GvHD.

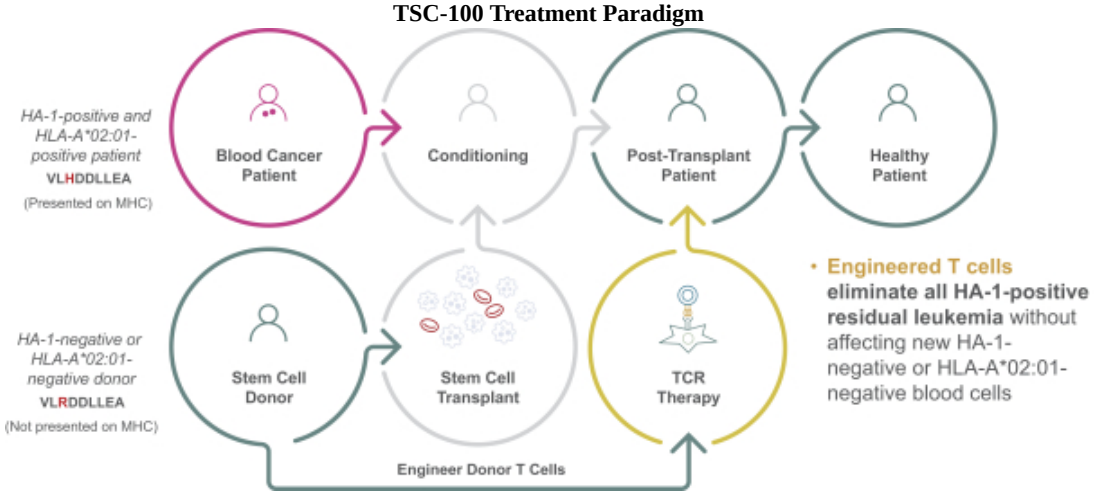
TSC-100

TSC-100 is an allogeneic TCR-T therapy candidate directed at eliminating all native blood cells, including residual cancer cells, in HA-1-positive and HLA-A*02:01-positive patients with hematologic malignancies who undergo HCT using a donor who is either HA-1-negative or HLA-A*02:01-negative. Using ReceptorScan, we screened over a hundred million CD8+ T cells and identified and assessed hundreds of highly active TCRs that recognize the HA-1 antigen. We selected TCR-100a based on its superior affinity, cytotoxic activity, and specificity compared to the others. TSC-100 is designed to elicit an anti-tumor response in patients by targeting HA-1, which is present on malignant and normal blood cells of HA-1-positive patients but not on any of the new, donor-derived blood cells they receive from a donor who is either HA-1-negative or HLA-A*02:01-negative. We believe that donor T cells specifically engineered to express TCR-100a will generate an anti-tumor effect in patients, leading to a reduction in relapse rates and an increase in long-term survival. We plan to file an IND for TSC-100 with the FDA in .

HA-1 was one of the first miHAs to be discovered in a patient undergoing HCT. HA-1 is a peptide antigen derived from the protein ARHGAP45, which is an intracellular protein expressed at high levels in all blood cells but not in any other tissue. ARHGAP45 comes in two forms. In HA-1-positive individuals, the peptide has the sequence VL**H**DDLLEA and, if the individual has the HLA type A*02:01, the antigen is efficiently displayed on the surface of blood cells. In HA-1-negative individuals, the peptide has the sequence VL**R**DDLLEA, and the HA-1 antigen is not displayed. Approximately 60% of people have the VL**H**DDLLEA sequence and approximately 42% of people in the United States have the HLA type A*02:01, which means that approximately 25% of individuals in the United States are HA-1-positive with the specific HLA type required for antigen expression. Studies of patients receiving HCT have shown that in cases where the T cells of an HA-1-negative donor naturally develop a response to HA-1 in an HA-1-positive patient, the T cells mediate a specific GvL effect and the patient often experiences a long-term remission. TSC-100 is based on this clinical observation and is designed to specifically cause this GvL effect in patients receiving HCT.

We are developing TSC-100 as a treatment for patients with cancer who are HA-1-positive and have been deemed eligible for HCT. For each patient, a healthy donor who is HA-1-negative or HLA-A*02:01-negative will be identified. Hematopoietic stem cells isolated from that donor will be used as the source of transplant material. In parallel, T cells isolated from the same donor will be genetically engineered to recognize HA-1. Once engraftment of donor stem cells is established in the patient, TSC-100 will be infused into the patient with the goal of eliciting a highly specific anti-tumor effect. The engineered donor T cells are designed to recognize and eliminate all of the patient's native blood cells, including residual leukemia cells, which are HA-1-positive, thereby preventing relapse and potentially promoting complete cures. Because the patient's new healthy blood cells are derived from the donor and are therefore either HA-1-negative or HLA-A*02:01-negative, we believe that TSC-100 should have minimal toxic side effects. A summary of the treatment paradigm for TSC-100 is illustrated below.

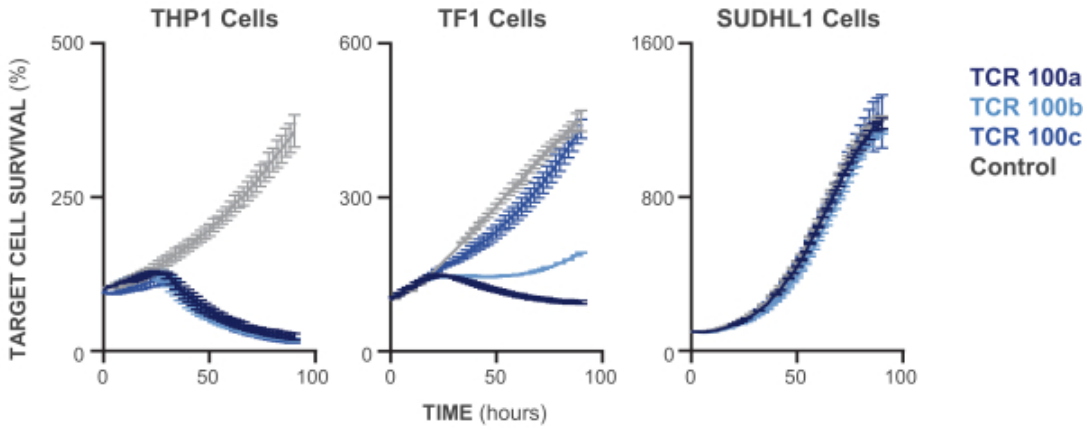
TSC-100 Treatment Paradigm



Preclinical Data

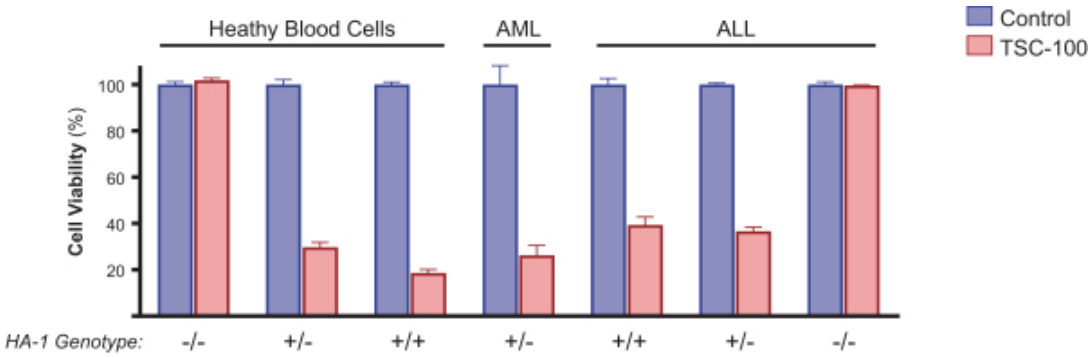
Using ReceptorScan, we screened over 175 million T cells from six healthy donors to identify naturally occurring TCRs specific for HA-1. We then extensively characterized over 300 of these TCRs for their ability to specifically recognize and kill tumor cells that express HA-1. We prioritized TCRs with the highest potency in cytotoxicity assays and in their production of cytokines associated with increased T-cell activation and function. Through this screening process, we identified TCR-100a, which exhibited superior potency compared to the other TCRs. We assessed the *in vitro* HA-1-specific cytotoxicity of TCR-100a using cell lines with various levels of HA-1 expression, as shown below. THP1, a cell line that expresses moderate levels of HA-1, was susceptible to cell killing by multiple TCRs we tested. However, TF1, a cell line that expresses less than half the level of HA-1 expressed by THP1, was sensitive to cell killing by TCR-100a but was resistant to almost all other
HA-1-specific TCRs, including TCRs reported in the literature. Our preclinical studies also demonstrated that SUDHL1 cells, which lack HA-1 expression, were resistant to all tested HA-1-specific TCRs, as expected, highlighting the high selectivity and potential safety of TCR-T therapies.

***In Vitro* Studies Demonstrate Superior HA-1-Specific Cytotoxicity of TCR-100a Compared to Other TCRs**



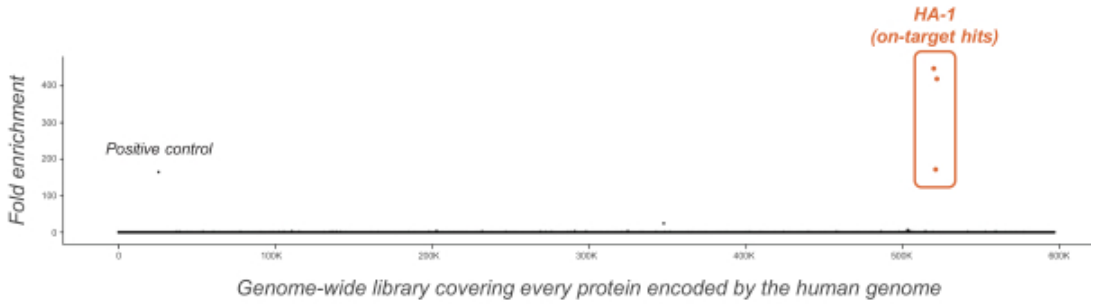
Because people inherit two copies of every chromosome, one from their mother and one from their father, everyone has two copies of the ARHGAP45 gene. HA-1-positive patients can therefore be either homozygous for HA-1 (+/+), with both genes encoding the HA-1-positive peptide (VL**H**DDLLEA), or heterozygous for HA-1 (+/-), with one gene encoding the HA-1-positive peptide and the other encoding the HA-1-negative peptide (VL**R**DDLLEA). To ensure that TSC-100 is able to effectively eliminate healthy blood cells and leukemia cells that are either homozygous HA-1-positive (+/+) or heterozygous HA-1-positive (+/-), we assessed the activity of TSC-100 against blood cells derived from a variety of healthy donors and patients with AML and ALL. As shown below, TSC-100 eliminates both homozygous and heterozygous healthy blood cells and leukemia cells.

TSC-100 Displays Specific Cytotoxic Activity Towards HA-1-positive Cells



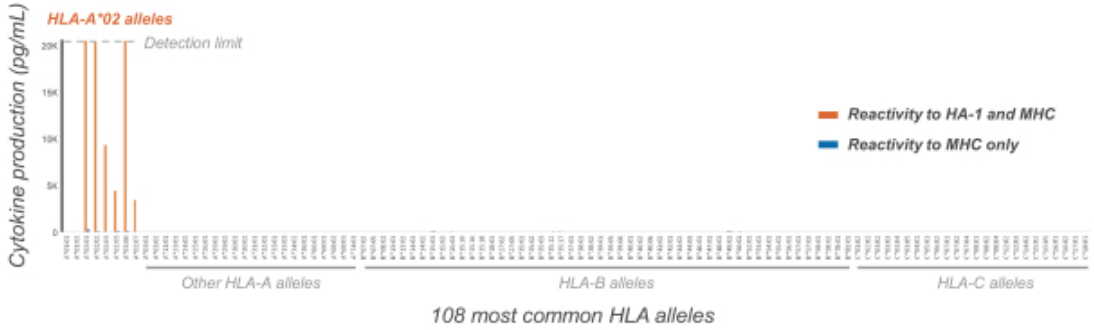
Previous clinical studies by others with TCRs that exhibited unexpected off-target effects led to significant toxicities. In order to reduce the potential for TCR-100a to exhibit problematic off-target effects, we used
TargetScan to comprehensively scan for any other potential targets recognized by TCR-100a. This screen was performed using a subset of our Oncology Target Discovery Library (version 2.0), which includes approximately 600,000 protein fragments and collectively spans every protein encoded in the human genome as well as all common SNPs. As shown below, all three protein fragments in the library that contain the HA-1-positive peptide antigen were strongly enriched in the screen and no significant off-target interactions were observed. In contrast, some of the other HA-1-specific TCRs identified by ReceptorScan did exhibit off-target effects, highlighting our ability to select candidates that we believe have favorable risk/benefit profiles.

TargetScan Screen Reveals No Significant Off-Targets for TCR-100a



To further evaluate the potential safety profile of TSC-100, we screened TCR-100a against HA-1-positive and HA-1-negative cells that individually express each of the 108 most common HLA alleles. In the HA-1-positive cells, TCR-100a was able to mediate efficient recognition in cells expressing HLA-A*02:01 as well as in cells expressing two related HLA types, HLA-A*02:02 and HLA-A*02:06. This suggests that patients with any of these three HLA types could potentially benefit from TSC-100. Notably, TCR-100a showed no recognition of HA-1-negative cells across all 108 HLA types, indicating low risk of alloreactivity or misrecognizing other antigens on other HLA types, as shown below.

TSC-100 Shows No Detectable Alloreactivity Across 108 Different HLA Types



TSC-101

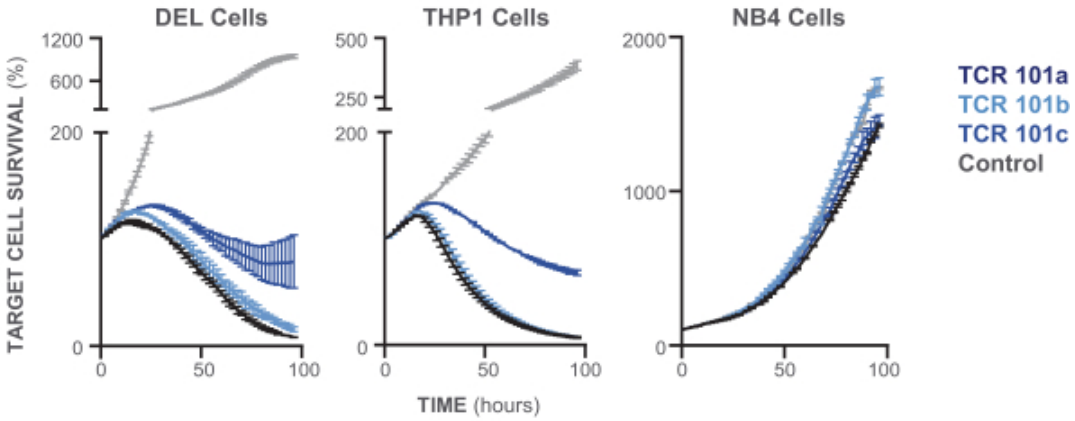
Similar to TSC-100, TSC-101 is an allogeneic TCR-T therapy candidate directed at eliminating residual cancer cells in HA-2-positive and HLA-A*02:01-positive patients with hematologic malignancies who undergo HCT using a donor who is either HA-2-negative or HLA-A*02:01-negative. HA-2, which is derived from the protein MYO1G, is another miHA that has been identified to be clinically relevant. In patients who naturally develop HA-2-specific T cells, a GvL effect has been observed and these patients experience long-term remissions. Using ReceptorScan, we have identified a highly active TCR, which we refer to as TCR-101a, that recognizes HA-2. We intend to file an IND for TSC-101 in .

Unlike HA-1, the HA-2 antigen is highly prevalent, with approximately 95% of individuals in the United States being HA-2-positive. However, as with HA-1, a specific HLA type, HLA-A*02:01, which is present in approximately 42% of individuals in the United States, is required to display the HA-2 antigen on the cell surface for recognition by a T cell. As a result, approximately 40% of HCT patients would be positive for both HA-2 and HLA-A*02:01 and therefore be eligible for treatment with TSC-101 using a donor who is negative for

HLA-A*02:01, regardless of whether the donor is HA-2-positive or HA-2-negative. Such donors are straightforward to identify and should be available to most patients who undergo half-matched, or haploidentical, transplantation using family members as donors, as patients typically have between two and three potential haploidentical donors.

Similar to TCR-100a, we used ReceptorScan to identify TCR-101a amongst a screen of 240 million T cells. We tested TCR-101a *in vitro* using cell lines and found superior antigen binding and cytotoxicity compared with more than 300 other TCRs assessed. As shown in the figure below, TCR-101a had superior activity against DEL cells, which have high levels of HA-2, and THP-1 cells, which have low levels of HA-2. In addition, TCR-101a had no effect against NB4 cells, which do not express HLA-A*02:01, indicating that TCR-101a should not affect donor blood cells that are HLA-A*02:01-negative. We are currently conducting preclinical studies using TargetScan to assess potential off-target effects and performing alloreactivity studies to ensure that other HLA types are not misrecognized.

TCR-101a Demonstrates Superior Cytotoxicity *in vitro* Compared to Other TCRs



TSC-102 and Additional Liquid Tumor Programs

To broaden the eligible HCT patient population beyond those who have the HLA type A*02:01, we have identified a third miHA that requires a different HLA type, B*07:02, to be displayed on the surface of blood cells. Like HA-1 and HA-2, this target was identified in HCT patients who achieved durable complete remissions from their hematologic cancers with little to no GvHD. This antigen is highly expressed in normal and malignant hematopoietic cells and is not expressed in normal tissues, based on publicly available databases. We are developing TSC-102 as an allogeneic TCR-T therapy candidate directed at eliminating residual cancer cells in patients with hematologic malignancies who are positive for both this antigen and HLA-B*07:02 and undergo HCT using a donor who is negative for either the target or this specific HLA type.

Approximately 25% of the population has the HLA type B*07:02, and the antigen we have chosen is present in about 72% of these individuals. Therefore, approximately 18% of patients undergoing HCT would be eligible for treatment with TSC-102. Using ReceptorScan, we have identified over 1,000 potential TCRs that recognize this target and studies are underway to identify the most potent TCR candidate. We are continuing to conduct target validation studies and to assess our TCR candidates using TargetScan.

In addition to TSC-102, we are continuing to explore additional miHA targets to provide a broad array of therapeutic options for the majority of patients with hematologic malignancies receiving HCT.

Clinical Development Plan for Our Liquid Tumor Program

Background on Types of HCT

Patients with acute leukemias who undergo allogeneic HCT have heterogeneous outcomes that are primarily related to two main variables: (i) the intensity or doses of the conditioning regimen they receive prior to the stem cell infusion and (ii) the type of donor who provides the stem cells.

High-intensity conditioning regimens are called myeloablative conditioning and associated with higher mortality rates. They are therefore reserved for young and relatively fit patients. Lower-intensity regimens are called reduced-intensity conditioning, or RIC, and better tolerated, but are associated with higher relapse rates. TSC-100 and TSC-101 are both designed to substantially reduce relapse rates, and we plan to enroll patients who are eligible for RIC-based HCT with the goal of improving clinical outcomes for these patients.

There are different types of donors who are eligible for allogeneic HCT procedures. Donors who are siblings of the patient and are perfectly matched for 8 out of 8 HLA alleles are considered the highest priority donor type for patients undergoing allogeneic HCT, but these types of donor are available for less than a third of patients. For the majority of patients, the choice is between an unrelated donor who is perfectly matched for 8 out of 8 HLA alleles, referred to as a matched unrelated donor, or MUD, or a family member such as a sibling, parent or child who has a half-match with the patient, referred to as a haploidentical donor, or haplo. Historically, haplo donor transplantation was associated with much higher GvHD than MUD-transplants, but a recent treatment regimen that uses chemotherapy given 3 days after stem cell infusion called post-transplantation cyclophosphamide, or PTCy, specifically kills immune cells that cause GvHD. As a result, haplo transplants with PTCy have recently achieved equivalent outcomes as MUD transplants and are rapidly increasing in usage in the United States and worldwide.

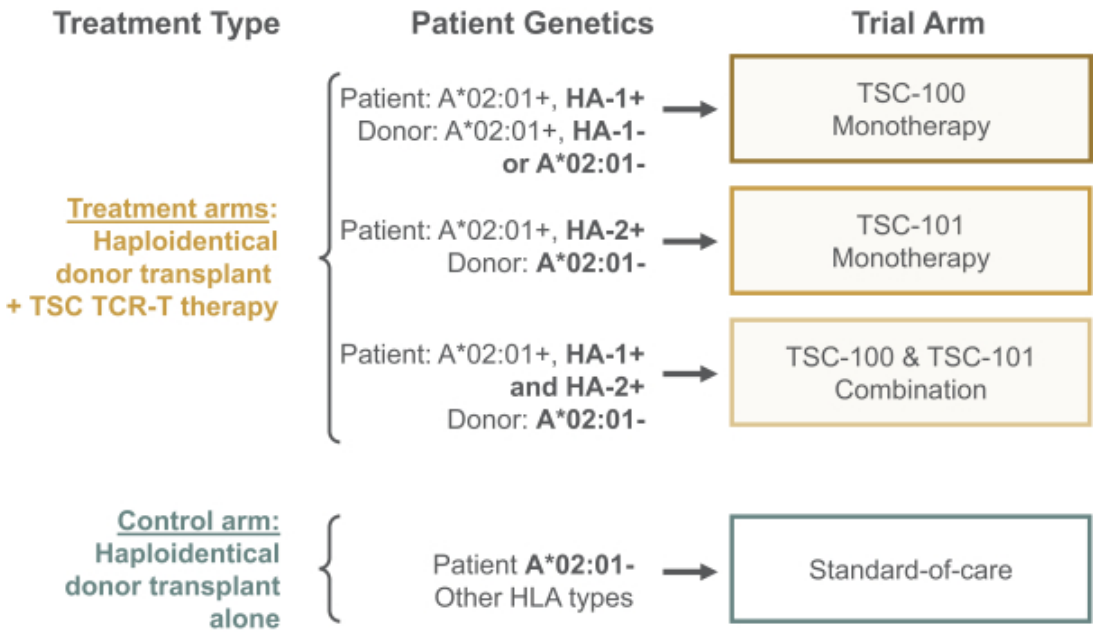
The use of haplos greatly expands the donor pool for patients undergoing HCT and provides patients with the optionality to choose donors who are mismatched on specific HLA types, such as A*02:01, as opposed to being mismatched on certain minor antigens, such as HA-1 or HA-2. We are developing TSC-100 and TSC-101 with a specific focus on patients undergoing haplo donor transplantation with donors who are negative for either the miHA or the specific HLA type. We believe the engineered donor T cells will recognize any residual leukemia cells, which are target-positive, in the patient and prevent relapse with the potential to promote complete cures. Because the patient's new healthy blood cells are derived from the donor and are therefore either target-negative or not able to express the target, we believe TSC-100 and TSC-101 should have minimal toxic side effects.

Planned Phase 1 Clinical Trial

We are planning to conduct safety studies for TSC-100 and TSC-101 within a single, multi-arm Phase 1 trial. Once safety results are available for the individual therapies, we plan to open a third arm to evaluate the safety of multiplexed therapy, combining TSC-100 and TSC-101 in patients who are positive for both HA-1 and HA-2.

Our Phase 1 trial is designed to include the measurement of early surrogate markers of efficacy, such as chimerism, or the percentage of blood cells that are donor-derived, and whether patients continue to have detectable residual leukemia in their post-transplant bone marrow biopsy, both of which are predictors of relapse. As shown in the graphic below, we also plan to include a control arm, comprising patients who do not meet the HLA or miHA genetic criteria and are treated with standard RIC haplo transplantation alone. Comparisons of both safety and efficacy outcomes with this control arm will potentially enable all patients treated with TSC-100, TSC-101, or the combination to be included as part of the efficacy analysis in a future biologics license application, or BLA, filing.

Planned Multi-Arm Phase 1 Clinical Trial Design

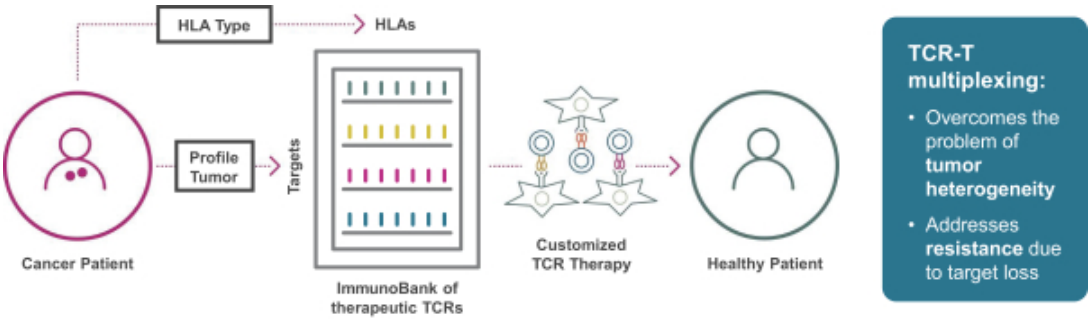


Solid Tumor Program

We are developing a portfolio of autologous TCR-T therapy candidates that are designed to be used in combination with each other to treat and eliminate solid tumors. Our TSC-200 series of product candidates are designed to elicit an anti-tumor response in patients by targeting cancer-specific antigens in their tumor cells. Our TCR-T therapy candidates include: (i) novel targets that were identified by TargetScan from the T cells of patients responding to immunotherapy and (ii) naturally occurring TCRs specific to a patient's HLA type that recognize these cancer-specific targets. Such targets are not only commonly shared among patients with the same cancer type, but also frequently expressed in multiple solid tumor types, enabling clinical development across multiple indications. We intend to file IND applications with the FDA for our first three solid tumor product candidates, TSC-200, TSC-201, and TSC-202, in .

We are building ImmunoBank, a collection of highly active TCRs, to enable multiplexed TCR-T therapy. Our vision is to expand ImmunoBank with TCRs that recognize diverse targets and are associated with multiple HLA types in order to provide a broad array of therapeutic options for patients with various types of solid tumors. For each patient with a solid tumor malignancy, we plan to analyze their tumor to determine which targets are expressed at high levels in their particular cancer. We will then access ImmunoBank and select up to three TCRs that match their HLA type and address the most highly expressed targets in their tumor. We will use this set of TCRs to genetically reprogram their T cells to recognize these targets and the resulting engineered T cells will be infused back into the patient as a multiplexed TCR-T therapy.

Our Strategy to Treat Solid Tumors with Multiplexed TCR-T Therapy



TCR-T Therapy for the Treatment of Solid Tumors

Immunotherapy has reshaped the treatment of solid tumors by demonstrating that tumor shrinkage, eradication, and long-term durable responses can be obtained by stimulating the patient's own immune system to attack their cancer cells. Immune checkpoint inhibitors, such as nivolumab or pembrolizumab, work by unleashing anti-cancer T cells that are already present in a patient's tumor, enabling those T cells to recognize and eliminate their cancer. For patients who respond to checkpoint inhibitors, these agents have been shown to be very effective. However, only a subset of patients respond to checkpoint inhibitors, highlighting the need for T cell-based therapies that can treat the majority of patients who do not respond. Despite their efficacy in only a subset of patients, checkpoint inhibitors generated 2019 sales of approximately $22 billion.

One reason why many patients do not respond to current immunotherapy treatments is that they lack T cells with highly active TCRs that recognize cancer-specific antigens in their tumors. By reprogramming the patient's own T cells to recognize these targets, we believe we can expand the dramatic responses observed with checkpoint inhibitor therapy to the many patients for whom these therapies are ineffective.

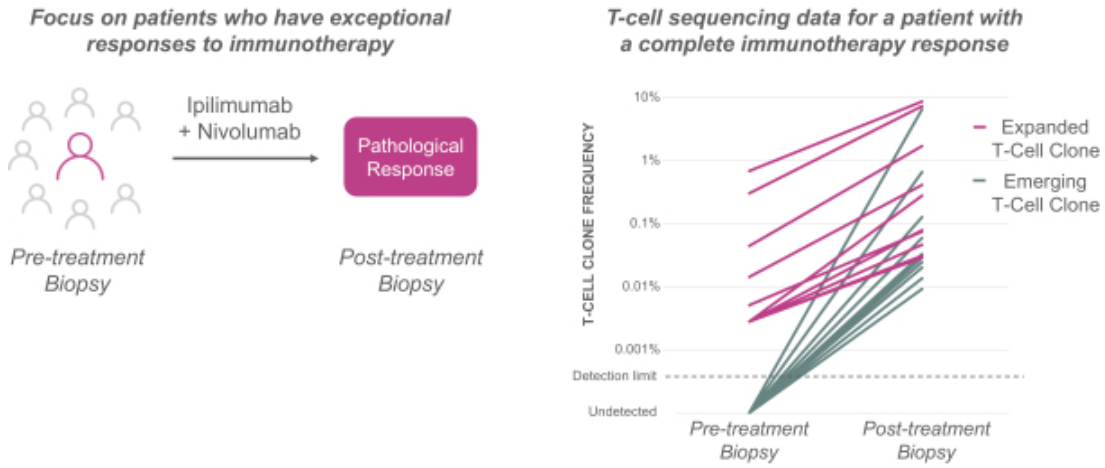
Our Solution

Our solid tumor program is based on the premise that if we can understand how T cells naturally fight cancer, we can use this information to design life-changing TCR-T therapies for virtually any patient with cancer. Our discovery process begins with the identification of patient T cells that are actively driving their clinical response to immunotherapy. We then use TargetScan to determine the precise targets of these highly active TCRs. Our discovery efforts are initially focused on patients with head & neck cancer who respond to checkpoint inhibitor therapy and patients with melanoma who respond to TIL therapy. These cancers represent tumor types with a high degree of T-cell infiltration and strong responses to immunotherapy, which provides us with clinically active T cells from which we can discover novel TCR/target pairs. We have found that targets discovered in one type of cancer are often expressed in other cancers as well, enabling broader clinical development of our TCR-T therapy candidates. The tumor types we are focused on also express several known targets that were previously discovered from patient T cells. We are using ReceptorScan to discover highly active TCRs for these previously identified targets to complement the discovery of our novel TCR/target pairs.

Novel Targets Identified from Patients with Head & Neck Cancer

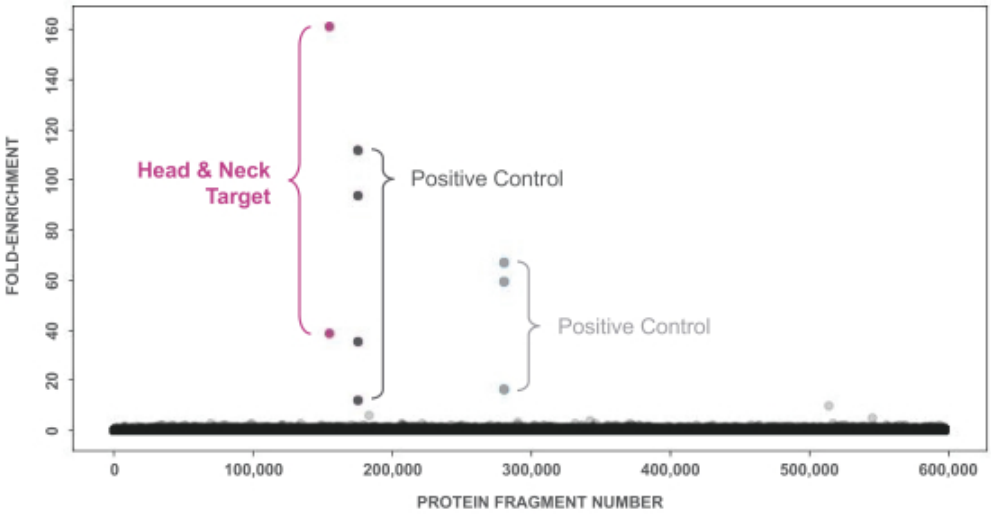
One of the ways we identify anti-cancer TCRs is by focusing on T cells that clonally expand in a tumor when the patient responds to checkpoint inhibitor therapy. This work is being performed in collaboration with investigators at the Dana-Farber Cancer Institute in Boston. Using single cell sequencing, our collaborators determined the TCR sequences of thousands of T cells in the tumors of patients with head & neck cancer before and after immunotherapy. This analysis also revealed the frequency of each T-cell clone in the tumor samples. As an example, if a particular TCR sequence is observed at 0.05% frequency in the tumor before the patient receives immunotherapy and then increases to 5% after the tumor starts to shrink, the T cell has clonally expanded 100-fold and is likely to have played a causal role in driving the patient's clinical response. Certain TCR sequences are not detectable in the pre-treatment biopsy but are observed at high frequency in the post-treatment tumor. These emerging clones are also potential candidates for driving the patient's clinical response. An illustrative example of T-cell sequencing data from one patient with head & neck cancer is summarized below.

Clinically Relevant Anti-Cancer T Cells Identified Through T-Cell Sequencing



We have performed genome-wide TargetScan screens on over 100 TCRs derived from T cells that clonally expanded in the tumors of patients with head & neck cancer who are responding to immune checkpoint inhibitors, which has resulted in our discovery of over 20 novel shared antigens. An example of one such screen is shown below. This screen was performed with our Oncology Target Discovery Library (version 2.0), which comprises over 640,000 protein fragments. Two protein fragments, shown in dark pink, were specifically recognized by the TCR. Due to the redundancy built into our library through its overlapping tiling pattern, both of the identified clones contain the same nine amino acid-long peptide antigen that we determined to be the target of this TCR. Notably, no off-targets were observed in the screen, highlighting the value of the TargetScan technology in identifying TCRs with clean specificity profiles.

Identification of a Novel Target from a Patient with Head & Neck Cancer



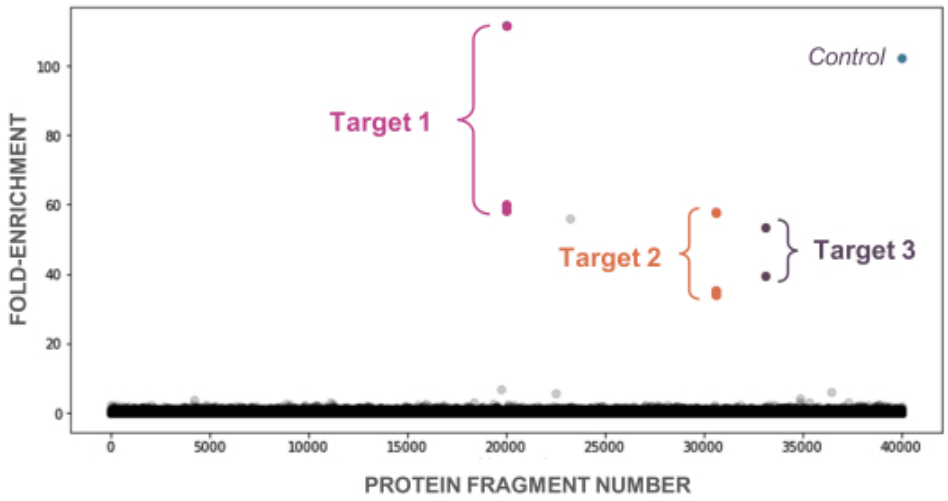
Novel Targets Identified from Patients with Melanoma

Another approach we use to identify clinically relevant anti-cancer T cells is to analyze T cells from patients with melanoma who respond to TIL therapy. Using single cell sequencing, we determine the TCR sequences of the T cells in the responding patient's TIL therapy product and focus on the most abundant T-cell clones. We have found that TIL therapy products are often dominated by as few as two or three clones, further increasing our confidence that these TCRs played a causal role in fighting the patient's cancer.

To increase the throughput of our discovery efforts, we have used TargetScan in a more directed manner to screen sub-libraries of protein fragments that focus on particular classes of tumor antigens. For example, we built a sub-library that focuses on cancer/testis antigens, or CTAs, which are genes that typically play a role in embryonic development but are not expressed in any adult tissues other than testes. T cells do not infiltrate testes and cells in the testes have very low levels of MHC proteins, making testes an immune-privileged site that will not be targeted by engineered T cells in the context of cell therapy. CTA genes are frequently found to be expressed in tumor cells and often play a role in causing cancer. Several well-recognized targets in development for TCR-T therapy are CTAs, including NY-ESO-1 and MAGE-A4.

We are focused on the discovery of novel targets within this class of antigens and have built a TargetScan library comprising 40,000 fragments that tiles across 1,600 CTA genes. Because this library is substantially less complex than our genome-wide Oncology Target Discovery Library, we can screen the library with dozens of TCRs simultaneously. For example, the screen shown below was conducted with 35 TCRs derived from 11 patients with melanoma who received TIL therapy. In a single screen, we identified three TCR/target pairs that recognize CTAs not previously identified as targets of TCRs.

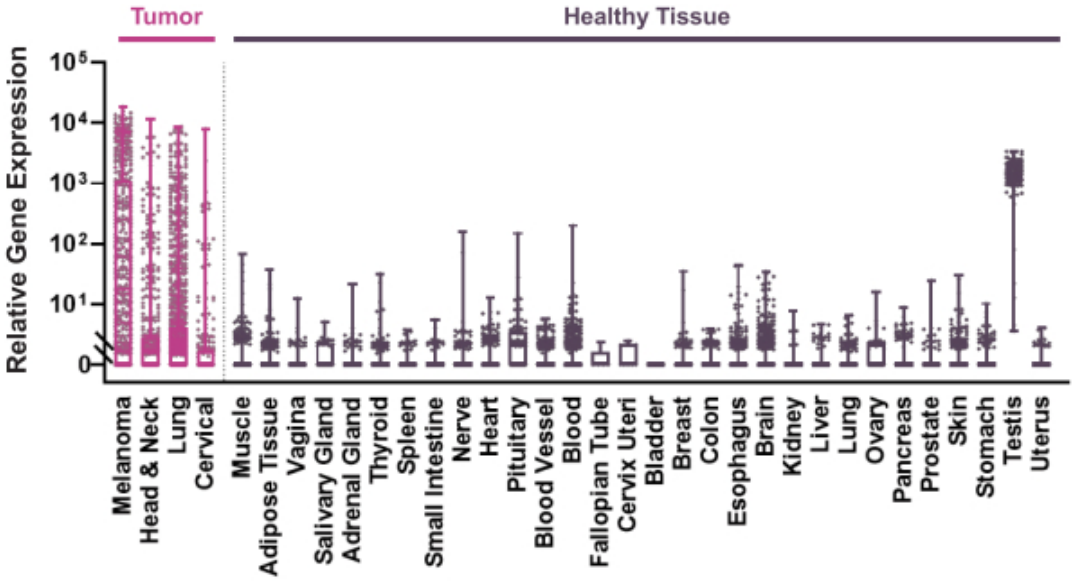
Three Novel Cancer/Testis Antigen Targets Identified from TIL-Responsive Patients



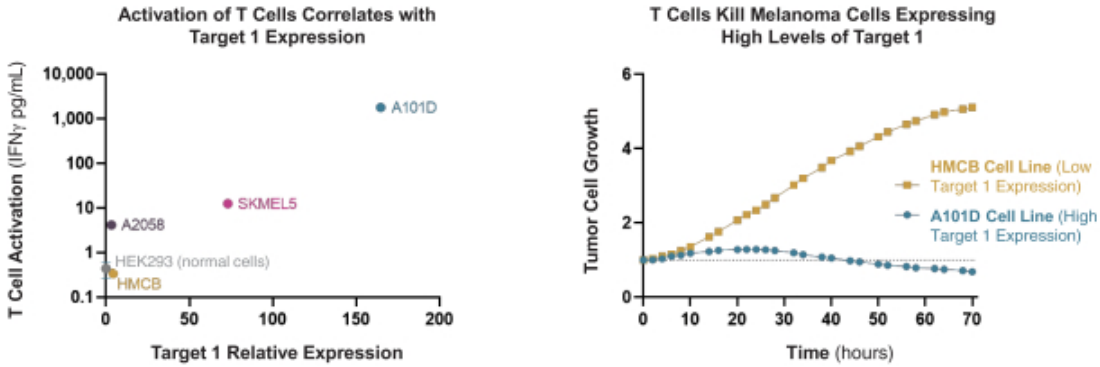
TCR and Target Validation Process

When we discover novel TCR/target pairs, we first determine if the gene that encodes the target is expressed at high levels in normal tissue. As shown below, Target 1 is exclusively expressed in testis, which is an immune privileged tissue and, as a result, should not pose a significant safety concern. We also examine how frequently the target is expressed in various solid tumors. As shown below in dark pink, Target 1 is overexpressed in a high percentage of melanoma tumor samples as well as in several other tumor types, including non-small cell lung cancer, or NSCLC, head & neck cancer, and cervical cancer.

Selective Expression of Target 1 in Multiple Tumor Types vs. Normal Tissues

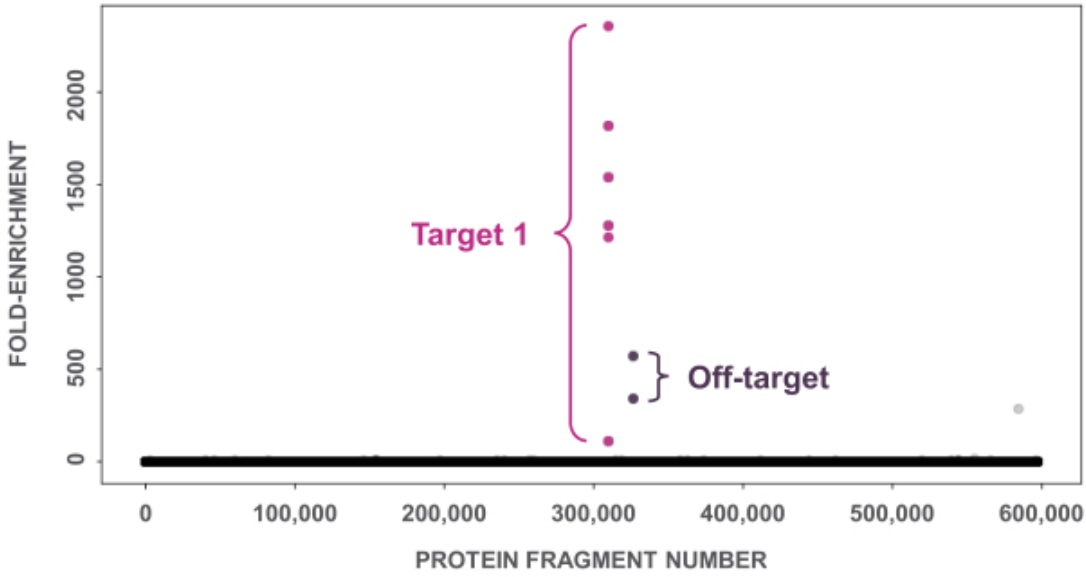


Next, as part of our discovery process, we test if the TCRs discovered with our approach are able to kill cancer cells that naturally express the relevant target and specific HLA type. As shown below on the left, when T cells expressing the TCR that recognizes Target 1 are cultured with melanoma cell lines that naturally express different levels of Target 1, such as A101D and SKMEL5, the degree to which the T cells gets activated correlates with the expression level of Target 1 in the melanoma cells. In addition, the T cells kill melanoma cells expressing high levels of Target 1, as shown below on the right but do not kill cells that express low levels of Target 1, which highlights the selectivity of the TCR for Target 1.



Finally, to reduce the risk that a TCR discovered in a targeted screen recognizes any problematic off-targets, we re-screen the TCR using TargetScan and our genome-wide library. As shown below, when the TCR that recognizes Target 1 was re-screened using our Oncology Target Discovery Library (version 2.0), which includes protein fragments spanning every normal protein encoded in the human genome, only one potential off-target was observed. We subsequently identified several cell lines that naturally express the full-length protein from which the off-target antigen was derived and found that T cells engineered with the TCR do not recognize or kill these cells. Although the TCR recognizes target cells overexpressing protein fragments containing this off-target antigen, it does not recognize cells expressing the full-length protein at normal levels. This shows that our genome-wide screen detects potential off-targets with very high sensitivity, and that not all off-targets detected in this manner are problematic. In the event, however, that a TCR exhibits problematic off-target effects, we can use ReceptorScan to discover alternative TCRs that have similar anti-cancer effects but do not cross-react with proteins expressed at high levels on normal tissue or critical organs.

Genome-Wide Safety Screen of Target 1 TCR Using TargetScan



To further expand the pool of addressable patients with our TSC-200 series of product candidates, we can also use ReceptorScan to identify TCRs recognizing antigens on the same target protein that are presented by different HLA alleles. Ultimately, we believe this strategy has the potential to enable multiplexed TCR-T therapy in which a patient is treated with more than one TCR for the same target protein, presented on two different HLA alleles. This approach could reduce the risk of resistance arising from loss, downregulation, or mutation of individual HLA genes.

TSC-200 Series

TSC-200

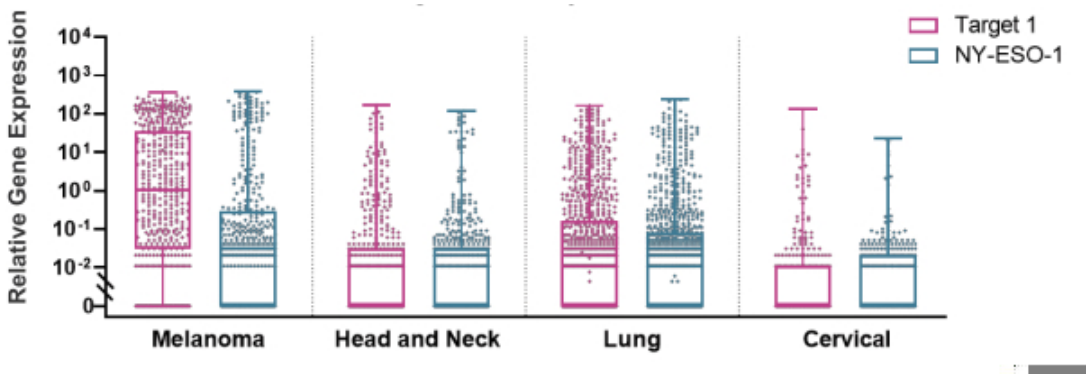
In parallel with our TargetScan discovery efforts in head & neck cancer, we are using ReceptorScan to discover highly active TCRs that target antigens in human papilloma virus, or HPV, for our TSC-200 program. Over 25% of head & neck cancers are caused by HPV infection, including up to 70% of oropharangeal cancers. HPV antigens are a particularly compelling set of targets due to the fact that HPV proteins drive tumorigenesis in these cancers, which means that these proteins are (1) present in every tumor cell in an HPV-positive tumor and (2) essential to the survival of the tumor cell. In addition to head & neck cancers, HPV is found in more than 90% of cervical and anal cancers as well as over 60% of vaginal, vulval, and penile cancers. We have already identified hundreds of TCRs that recognize an HLA-A*02:01-specific antigen of HPV, and we are currently identifying the most active TCR to advance to IND-enabling studies. We also intend to extend our discovery efforts to include additional antigens presented on other HLA types as the program advances.

TSC-201 and TSC-202

To date, we have identified more than 40 novel antigens using TargetScan, of which over 90% have not previously been publicly disclosed as targets for TCR-T therapy. Although target validation naturally results in attrition, it is clear that tumor-resident T cells recognize many more shared antigens than have been reported to date. Many of the antigens we have identified are expressed across multiple solid tumor types and some have expression levels comparable or superior to targets currently in clinical development by others such as NY-ESO-1, as

illustrated below. We are currently in the process of validating these novel TCR/target pairs using our platform technologies. Once validated, we plan to advance TSC-201 and TSC-202 into clinical development based on the frequency with which the targets are expressed in the solid tumors of interest to us, including melanoma, NSCLC, head & neck cancer, cervical cancer, and anal cancer. We are also using ReceptorScan to identify TCRs that recognize known targets in these tumor types, focusing specifically on targets that have been linked to strong clinical responses in patients.

Target 1 Cancer Expression Relative to NY-ESO-1

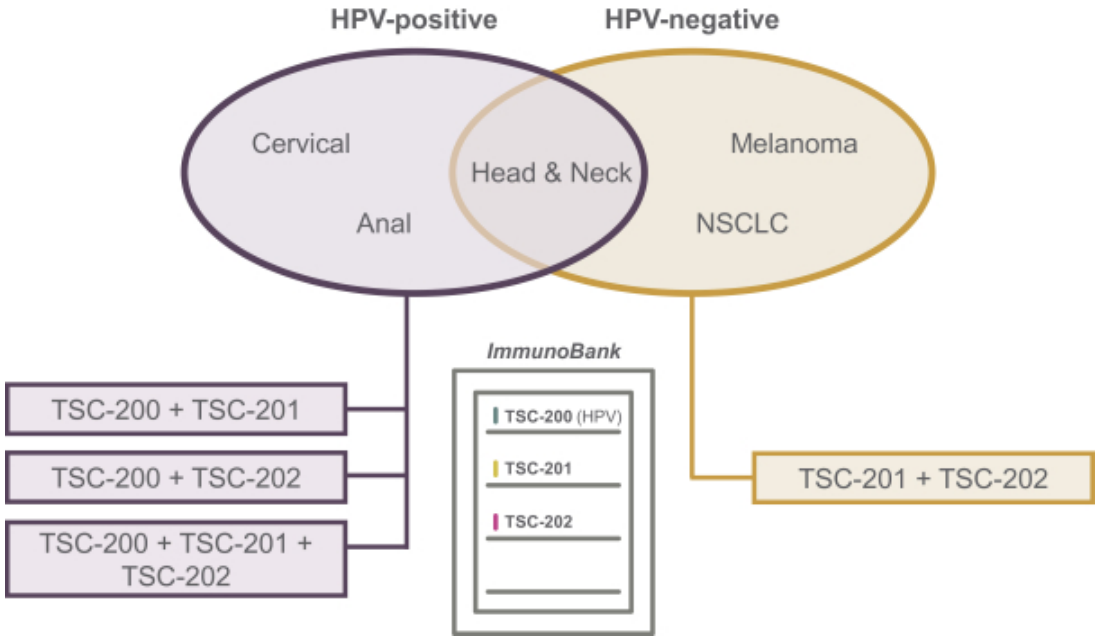


Clinical Development Plan for Our Solid Tumor Program

For the initial first-in-human studies for our TSC-200 series of product candidates, we plan to evaluate three TCRs in parallel to determine the safety and preliminary efficacy of multiplexed TCR-T therapy. We envision using TSC-200 as the backbone therapy for patients with HPV-positive malignancies, including head & neck, cervical, and anal cancers. According to the Center for Disease Control, the incidence of HPV-positive cancers in the U.S. is approximately 35,000 cases per year, with five-year survival rates ranging from approximately 50% to 70%.

After establishing single agent safety for each of the three TCR-T therapy candidates in a multi-arm Phase 1 trial, we plan to test TSC-200 in combination with TSC-201 and in combination with TSC-202 in patients who are positive for the respective targets of these therapies. We will also explore the combination of all three product candidates in patients who are positive for all three targets. Because the targets we have discovered are also frequently expressed in melanoma and NSCLC, we will also explore combining TSC-201 and TSC-202 without TSC-200 in patients with HPV-negative head & neck cancer, melanoma, and NSCLC. A summary of our planned Phase 1 clinical strategy is shown below. As we continue to discover and validate TCR/target pairs, we aim to continue to file INDs and introduce those product candidates into this multi-arm basket-style Phase 1 clinical trial. We believe this trial will serve as the first step towards our long-term goal of building and expanding ImmunoBank to provide customized multiplexed TCR-T therapy for virtually any patient with a solid tumor malignancy.

TSC-200 Series Phase 1 Clinical Strategy



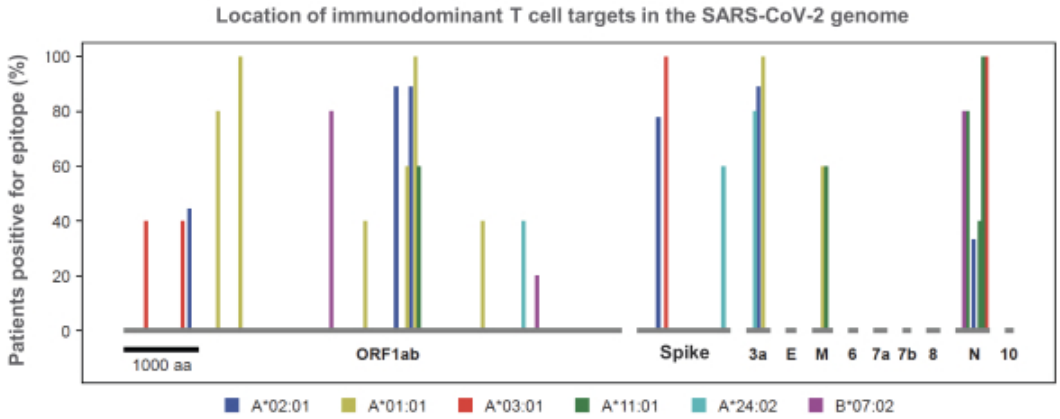
Expansion Opportunities Beyond Oncology

Our primary focus is on the development of T-cell therapies to treat cancer. However, T cells play a fundamental role in many other disease areas, such as infectious disease and autoimmune disease. We believe that our TargetScan technology is well suited to discover novel antigens for the development of therapeutics, diagnostics, and vaccines in these other areas. we intend to build additional corporate value by opportunistically pursuing collaborations with strategic partners for applications of our platform technologies outside our core focus.

COVID-19

As a proof-of-concept for TargetScan's applicability and antigen discovery capabilities in infectious disease, we applied our technology to identify the antigens most frequently recognized by the T cells of patients who had recovered from COVID-19. We screened the entire genome of SARS-CoV-2, the virus that causes COVID-19, as well as the genomes of SARS-CoV and the four seasonal coronaviruses that cause the common cold. We found that the antigens recognized by $CD8^+$ T cells were largely derived from segments of the virus that are not part of the spike protein, which is the current target of COVID-19 vaccines. Additionally, patient T cells were generally not found to be cross-reactive with seasonal coronaviruses, suggesting that prior coronavirus exposure is unlikely to confer immunity to COVID-19. We published the details of these studies in the journal *Immunity* in 2020.

T-Cell Targets in SARS-CoV-2 Are Primarily Located In Proteins Other Than the Spike Protein



We have partnered with QIAGEN Sciences, LLC to develop a highly specific diagnostic test to determine prior exposure to the virus based upon the presence of anti-viral T cells. We also have an early-stage collaboration with Poseida Therapeutics, Inc. under which we have granted Poseida a license to research and potentially develop and commercialize TCR-T therapies for COVID-19 based on the targets and TCRs we identified using TargetScan.

We believe that our findings can also be used to develop next-generation vaccines for COVID-19 that confer durable immune protection from SARS-CoV-2 infection and potentially provide protection against future variants. Most current vaccine efforts elicit a response to the SARS-CoV-2 spike protein. While these first-generation vaccines are able to elicit neutralizing antibodies and provide effective protection against infection, it is not clear how durable these responses will be given that antibody levels have been shown to rapidly decline after a few months and numerous coronavirus variants have now been discovered with mutations in the spike protein. Notably, none of the mutations observed in these variants occurs in the 29 T-cell targets that we identified, suggesting that vaccines delivering these target antigens may be less susceptible to vaccine-resistant strains emerging in the future.

Other Diseases

TargetScan can also be used for novel target discovery in additional infectious and autoimmune diseases. For example, infections such as tuberculosis, influenza, and HIV have been shown to be T cell-mediated and are associated with high mortality rates. In addition, many autoimmune diseases such as rheumatoid arthritis, psoriasis, and scleroderma are largely T cell-mediated, but with poorly defined instigating self-antigens. Our TargetScan technology, which provides an unbiased, genome-wide method to discover the natural targets of disease-relevant T cells, is well positioned to identify these self-antigens. We believe the discovery of these targets could enable the development of novel, more targeted therapeutic approaches to treat these diseases.

License and Collaboration Agreements

License Collaboration AgreementsCollaboration and License Agreement with Novartis

On March 27, 2020, we entered into a Collaboration and License Agreement with Novartis Institutes for BioMedical Research, Inc. (Novartis) (such agreement, the Novartis Agreement). Pursuant to the Novartis

Agreement, Novartis paid us a non-refundable, non-contingent and non-creditable upfront fee of $20.0 million and agreed to fund up to $10.0 million in research costs. We granted Novartis and its affiliates options to obtain exclusive, royalty-bearing, sublicensable, transferable, worldwide licenses to certain target antigens identified in performance of the Novartis Agreement and corresponding T-cell receptors for such target antigens to make, have made, import, use, sell or offer for sale, including to develop, manufacture, commercialize, register, hold or keep, have used, export, transport, distribute, promote, market or have sold or otherwise dispose of such target antigens and corresponding T-cell receptors. Novartis can exercise each option by paying us $10.0 million and can exercise up to three options (each target antigen for which Novartis exercises an option, an "Optioned Program"). In addition, we granted Novartis and its affiliates an option to obtain a non-exclusive, royalty-bearing, sublicensable, transferable, worldwide license under our intellectual property corresponding to products associated with such Optioned Program and improvements to our platform created in performance of activities under the Novartis Agreement, in each case, solely as necessary to exploit products associated with such Optioned Program.

The ownership of inventions (and resulting patent rights) created in performance of the collaboration will be determined by inventorship (i.e., inventions invented solely by us in performance of the collaboration and inventions invented solely by Novartis in performance of the collaboration will be owned by Novartis and inventions invented jointly by us and Novartis in performance of the collaboration will be jointly owned). We retain our rights to (i) our intellectual property, (ii) programs that are not selected by Novartis and (iii) our platform improvements, which will not be considered collaboration technology.

Each party has the sole right (but not the obligation) in its sole discretion and cost, to prepare, file, prosecute and maintain all patents and patent applications that are owned solely by such party. For any collaboration patents or patent applications owned by us, if we elect not to file a patent application or to cease the prosecution or maintenance of any of our collaboration patents or patent applications, we must notify Novartis immediately of such decision, at which point Novartis will become permitted to file or continue prosecution or maintenance of such patent or patent application in our name. For joint collaboration patents and patent applications, Novartis has the first right (but not the obligation) to prepare, file, prosecute and maintain any joint collaboration patent or patent applications and/or optioned program patents or patent applications.

For each Optioned Program, Novartis is required to pay us up to an aggregate of $230.0 million upon achievement of certain clinical milestones and milestones for the first commercial sale in certain countries with respect to products directed to the corresponding target antigen. Novartis is also required to pay us up to an aggregate of $260.0 million upon achievement of certain annual net sales milestones for products directed to the corresponding target antigen for each Optioned Program. In addition, for each Optioned Program, Novartis is required to pay us, on a product-by-product and country-by-country basis, tiered royalties in the low-single-digit to mid-single-digit percentage on Novartis', its affiliates' and sublicensees' net sales of certain products directed to target antigens for each Optioned Program and in the mid-single-digit to low-double-digit percentage on Novartis' net sales of products directed to such antigens and containing a T-cell receptor we identified to Novartis in our performance of the Novartis Agreement, subject to certain customary reductions. Royalties will be payable on a product-by-product and country-by-country basis during the period of time commencing on the first commercial sale of an applicable product in a country and ending upon the later of: (a) 10 years from the date of first commercial sale of such product in such country; (b) expiration of the last-to-expire valid claim of patents licensed by us to Novartis under the Novartis Agreement covering the manufacture, use or sale of such product in such country; or (c) the expiration of any regulatory or marketing exclusivity in such country with respect to such product (the "Royalty Term"). Novartis may terminate the Novartis Agreement entirely or on a program-by-program basis at any time for convenience upon 90 days' notice; provided, however, that Novartis will be required to fulfill any payment obligations that accrued prior to termination.

For a period of up to 180 days after the end of the collaboration period (which collaboration period will end no later than March 2023), we agree to notify Novartis if we intend to seek a third party partner to exclusively license or similarly grant rights to patents or know-how developed by us under the collaboration to allow for the

development or commercialization of products directed to any programs that Novartis has not exercised an option to prior to the expiration of such option (a ROFN Notice). Upon receiving such notice, Novartis will have 90 days to provide us with a term sheet to exclusively license such collaboration technology to develop or commercialize products directed to such previously declined program, which will trigger Novartis's right of first negotiation. If Novartis delivers such term sheet, then Novartis will have 270 days following the ROFN Notice to negotiate a license for such collaboration technology.

The Novartis Agreement will remain in effect until (i) all options expire unexercised or (ii) if any options are exercise, on a product-by-product and country-by-country basis for each Optioned Program, upon the expiration of the Royalty Term for all products associated with such Optioned Program in such country. Either party may terminate the Novartis Agreement upon an uncured material breach of the agreement or insolvency of the other party. We may terminate the Novartis Agreement immediately upon written notice to Novartis if Novartis challenges the validity, enforceability or scope of any of the patents we license to Novartis under the agreement. Novartis may terminate the agreement, either in its entirety or on a program-by-program basis, for convenience at any time with 90 days' prior written notice.

Option and Exclusive License Agreement with Qiagen

On November 5, 2020, we entered into an Option and Exclusive License Agreement with QIAGEN Sciences, LLC (Qiagen) (such agreement, the Qiagen Agreement). Pursuant to the Qiagen Agreement, Qiagen paid us a $150,000 option fee (Option Fee) in exchange for an option to obtain an exclusive, royalty-bearing, sublicensable, worldwide license to use, make and otherwise commercialize products containing certain SARS-CoV-2 peptides (the Option). Qiagen can exercise the Option by paying us an additional $150,000 option exercise fee. If Qiagen exercises the Option, Qiagen may freely sublicense its rights through multiple tiers so long as it binds each sublicensee to terms consistent with the Qiagen Agreement and remains responsible for any breaches of such terms by its sublicensees. Regardless of whether Qiagen exercises the Option, we expressly reserved the right to conduct research or develop or commercialize products for or related to the treatment of SARS-CoV-2.

If Qiagen exercises the Option, Qiagen is required to pay us a low six-figure milestone payment upon launch of the first in vitro diagnostic product containing the licensed peptides. Qiagen is also required to pay us, on a product-by-product and country-by-country basis, royalties in the low-single-digit to mid-single-digit percentage on Qiagen's and its affiliates' net sales of products containing the licensed peptides, subject to certain customary reductions.

We are solely responsible for managing patent maintenance, prosecution and enforcement during the term of both the Option Exercise Period (defined below) and term of the Qiagen Agreement.

The Qiagen Agreement will automatically terminate if Qiagen does not exercise the Option prior to the one-year anniversary of the effective date of the Qiagen Agreement (such period, the Option Exercise Period). If the Option is exercised during the Option Exercise Period, the Qiagen Agreement will expire upon the later to occur of (i) expiration of the last to expire valid claim of patents we license to Qiagen under the Qiagen Agreement or (ii) 15 years from the effective date of the Qiagen Agreement. Qiagen may terminate the Qiagen Agreement for any reason upon 60 days' prior written notice to us; provided, however, that Qiagen will be required to fulfill any payment obligations that accrued prior to termination.

Non-Exclusive License Agreement with Provincial Health Services Authority

On October 15, 2020, we entered into a Non-Exclusive License Agreement with the Provincial Health Services Authority of British Columbia (PHSA) (such agreement, the PHSA Agreement). Pursuant to the PHSA Agreement, we obtained a non-exclusive, perpetual, non-transferable, sublicensable, worldwide license to

practice certain of PHSA's patent rights for identifying T Cell epitopes, which epitopes are relevant to our platform for identifying potential TCR-T therapies. Any sublicenses we grant to PHSA's patent rights must also include a license of our own IP; we are not permitted to sublicense PHSA's rights on a standalone basis.

Pursuant to the PHSA Agreement, we paid PHSA a one-time, non-refundable upfront fee of $500,000 as well as a reimbursement for previously incurred patent prosecution costs of approximately $50,000. Starting on the first anniversary of the effective date of the PHSA Agreement and continuing for five years thereafter, we are required to pay PHSA a mid-five-figure annual license fee. In addition, we are obligated to pay a mid-six-figure fee for each sublicense and each further sublicense granted by one of our sublicensees or a sublicensee of our sublicensee (through multiple tiers) of the rights granted to us under the PHSA Agreement.

The PHSA Agreement will terminate upon the last to expire patent licensed under the PHSA Agreement. We also have the right to terminate the PHSA Agreement at any time, but such termination will not be effective until the later of (a) October 16, 2023, and (b) the date we have paid PHSA total aggregate fees equal to the upfront fee plus five years of annual license fees totaling $750,000. PHSA may terminate the PHSA Agreement upon giving us two separate written notices at least 30 days apart if: (i) we or any of our affiliates challenge the validity, enforceability or scope of any of the patents licensed to us under the PHSA Agreement; (ii) we owe unpaid fees due under the PHSA Agreement in excess of $100,000; or (iii) we breach material terms of the PHSA Agreement regarding sublicense restrictions (such as failing to pay the sublicense fee or sublicensing PHSA technology on a standalone basis) or our obligation to indemnify PHSA for damages resulting from our research or commercialization of PHSA's patent rights and, in each case described above, such termination will be effective only if we fail to cure such breach after receiving PHSA's two separate notices.

Royalty Agreement

In connection with our incorporation in April 2018, we entered into a royalty agreement with one of our founders. We amended and restated this royalty agreement in June 2018 and our founder assigned his rights and obligations under the royalty agreement to one of his affiliated entities in January 2021. Pursuant to the royalty agreement, we are required to pay him a royalty of 1% of net sales (as defined in the royalty agreement) of any product sold by us or by any of our direct or indirect licensees for use in the treatment of any disease or disorder covered by a pending patent application or issued patent held or controlled by us as of the last date that the founder was providing services to us as a director or consultant under a written agreement. Royalties are payable with respect to each applicable product on a country-by-country and product-by-product basis, beginning on the first commercial sale of the first royalty-bearing product and ending on the later of (i) the date on which the exploitation of such royalty-bearing product is no longer covered by such patent in such country or (ii) the 15th anniversary of the first commercial sale of the first royalty-bearing product in such country. We may not assign our rights and obligations under the royalty agreement except in the event of a change in control relating to our company. The term of the royalty agreement continues until expiration of the last applicable royalty term.

Manufacturing

We are building in-house cell therapy manufacturing capabilities as one of the key components of our platform. The manufacturing of cell therapies requires the integration of several distinct components. Primary human blood cells are the source of T cells, along with a vector that delivers the desired genetic elements into these T cells. As a more operationally flexible and cost-efficient alternative to lentivirus, we have developed a manufacturing platform to genetically engineer T cells using a transposon/transposase system, which we refer to as T-Integrate.

We are designing our programs to use a transposon vector and corresponding transposase enzyme, which is derived from sfR fall armyworm, to deliver our TCRs into the genome of T cells. Our transposon/transposase system effectively inserts our TCRs and other exogenous genes, such as CD8, at random locations in the genome.

The transposon will be delivered as a Nanoplasmid, which was developed by Nature Technology and has no antibiotic selection element, reducing the risk of inadvertent transmission of antibiotic resistance into T cells. The transposase will be delivered as mRNA. mRNA is transiently expressed in the cell, reducing exposure of cells to prolonged transposase activity, which could result in multiple transposition events where the transposon would be moved around the genome. Both the transposon and transposase will be manufactured according to cGMP by Aldevron.

We are developing our manufacturing process using industry standard instrumentation to enable direct transfer of methods from process development to manufacturing. These devices also allow for functionally closed processes in a small footprint. For product manufacturing, we use single-use bag and tubing kits, supplies, and process reagents that are available from well-established vendors who specialize in supplying clinical grade reagents for the cell and gene therapy industry. Our TCR-T therapies will be characterized and released using well-developed analytic methods. The final product will be cryopreserved, simplifying logistics and reducing risk of delivery failures. We plan to have controls and safeguards throughout the entire process to ensure product identity, integrity, and chain of custody. A clearly defined and documented manufacturing process, performed by trained operators using specialized instrumentation in an appropriately designed, commissioned, and operated manufacturing facility, are all critical for the manufacturing of safe, effective, and well-characterized cell therapies.

Our cell product manufacturing facility in Waltham, MA was designed and built to support multiple programs through Phase 1 and Phase 2 clinical development, with a projected capacity to support treating over 200 patients per year. We believe internalizing our manufacturing process enables us to better control this key aspect of clinical development and reduces the risk of program delay due to third party reliance. We expect to revisit our manufacturing process prior to commencing registrational trials and may use third-party CMOs to manufacture product candidates for our registrational trials.

Competition

We believe our novel and proprietary platform technologies, TargetScan and ReceptorScan, and our in-house cell therapy expertise constitute a meaningful competitive advantage in successfully developing novel and highly effective treatments for cancer. However, the biopharmaceutical industry in general, and the cell therapy field in particular, is characterized by rapidly advancing and changing technologies, intense competition, and a strong emphasis on intellectual property. We face substantial and increasing competition from many different sources, including large and specialty biopharmaceutical companies, academic research institutions, governmental agencies, and public and private research institutions. Competitors may compete with us in hiring scientific and management personnel, establishing clinical study sites, recruiting patients to participate in clinical trials, and acquiring technologies complementary to, or necessary for, our programs.

We face competition from segments of the pharmaceutical, biotechnology and other related markets that pursue the development of TCR-T or other cell therapies for the treatment of cancer. We expect to compete with a number of other T-cell therapy companies, including those with target discovery platforms, such as Adaptive Therapeutics, Inc., Immatics N.V., and 3T Biosciences Inc. In addition, we may face competition from other TCR companies such as Adaptimmune Therapeutics, Plc., Medigene AG, and Ziopharm Oncology, Inc., as well as TCR2 Therapeutics Inc. We may also face competition from companies focused on CAR-T, TIL and other cell therapies, such as Kite Pharma, Inc., a subsidiary of Gilead, Inc., Juno Therapeutics, Inc., a subsidiary of Bristol-Myers Squibb, Inc., Iovance Biotherapeutics, Inc., Instil Bio, Inc., Achilles Therapeutics plc, Geneos Therapeutics, Inc., and PACT Pharma, Inc. There are also companies utilizing other cell-based approaches that may be competitive to our product candidates. For example, companies such as Celyad, S.A., Fate Therapeutics, Inc., and Nkarta, Inc. are developing therapies that target and/or engineer natural killer, or NK, cells. In addition, for our lead liquid tumor programs, TSC-100 and TSC-101, we may face competition from HighPass Bio, Inc. and Kiadis Pharma U.S. Corporation, who are also developing cell therapies in the post-HCT setting.

Furthermore, we also face competition more broadly across the oncology market for cost-effective and reimbursable cancer treatments. The most common methods of treating patients with cancer are surgery, radiation, and drug therapy, including chemotherapy, hormone therapy, biologic therapy, such as monoclonal and bispecific antibodies, immunotherapy, cell-based therapy, and targeted therapy, or a combination of any such treatments. There are a variety of available drug therapies marketed for cancer. In many cases, these drugs are administered in combination to enhance efficacy. While our TCR-T therapy candidates, if any are approved, may compete with these existing drugs and other therapies, to the extent they are ultimately used in combination with or as an adjunct to these therapies, our TCR-T therapies may not be competitive with them. Some of these drugs are branded and subject to patent protection, and others are available on a generic basis. Insurers and other third party payors may also encourage the use of generic products or specific branded products. As a result, obtaining market acceptance of, and gaining significant share of the market for, any of our TCR-T therapies that we successfully introduce to the market may pose challenges. In addition, many companies are developing new oncology therapeutics, and we cannot predict what the standard of care will be as our product candidates progress through clinical development.

We could see a reduction or elimination in our commercial opportunity if our competitors develop and commercialize drugs that are safer, more effective, have fewer or less severe side effects, are more convenient to administer, are less expensive, or receive a more favorable label than our TCR-T therapy candidates. Our competitors also may obtain FDA or other regulatory approval for their drugs more rapidly than we may obtain approval for ours, which could result in our competitors establishing a strong market position before we are able to enter the market. The key competitive factors affecting the success of all of our TCR-T therapy candidates, if approved, are likely to be their efficacy, safety, convenience, price, and the availability of reimbursement from government and other third party payors.

Intellectual Property

Our success depends in part on our ability to obtain, maintain and protect our proprietary technology and intellectual property and proprietary rights and operate our business without infringing, misappropriating and otherwise violating the intellectual property and proprietary rights of third parties. We rely on a combination of patent applications, trademarks, trade secrets, and other intellectual property rights and measures to protect the intellectual property rights that we consider important to our business. We also rely on know-how and continuing technological innovation to develop and maintain our competitive position. We also seek to protect our proprietary rights by entering into confidentiality agreements and proprietary information agreements with suppliers, employees, consultants and others who may have access to our proprietary information. The steps we have taken to protect our trade secrets, trademarks, patent applications and other intellectual property and proprietary rights may not be adequate, and third parties could infringe, misappropriate or misuse our intellectual property. If this were to occur, it could harm our reputation and adversely affect our business, competitive position, financial condition or results of operations.

As of March 17, 2021, we do not own or exclusively in-license any issued patents and all of our owned patent applications are provisional patent applications. In addition, although we plan to file patent applications with respect to TSC-101, TSC-102, TSC-200, TSC-201 and TSC-202, as of March 17, 2021, we have not filed any patent applications with respect to these product candidates. As of March 17, 2021, we own thirteen U.S. provisional patent applications. Conversion of such patent applications to utility patent applications is expected to occur between June 2021 and November 2021. Our provisional patent applications are drawn to subject matter in the following main areas: certain compositions of matter directed to SARS-CoV-2 immunodominant antigens, anti-SARS-CoV-2 TCRs, anti-SARS-CoV-2 vaccines, anti-HA-1 TCRs, and a phospholipid scrambling reporter-based T cell antigen screening platform and certain uses thereof. Of our thirteen U.S. provisional patent applications, six are for compositions of matter directed to SARS-CoV-2, anti-SARS-CoV-2 TCRs, and anti-SARS-CoV-2 vaccines, which are jointly owned by us and AHS Hospital Corporation (“AHS”). AHS has exclusively licensed their interest to us in such patent applications. Our provisional patent applications may not result in issued patents and we can give no assurance that any patents that might issue in the future will protect

our future products or provide us with any competitive advantage. Moreover, U.S. provisional patent applications are not eligible to become issued patents until, among other things, we file a non-provisional patent application within 12 months of filing of one or more of our related provisional patent applications. With regard to such U.S. provisional patent applications, if we do not timely file any non-provisional patent applications, we may lose our priority date with respect to our provisional patent applications and any patent protection on the inventions disclosed in our provisional patent applications. While we intend to timely file non-provisional patent applications relating to our provisional patent applications, we cannot predict whether any such patent applications will result in the issuance of patents that provide us with any competitive advantage. For more information regarding the risks related to our intellectual property, please see "Risk Factors—Risks Related to Our Intellectual Property".

We rely on certain technology and intellectual property rights that we in-license from third parties. Other than an exclusive patent license from The Brigham and Women's Hospital, Inc. (BWH) to a patent family directed to granzyme B (GzB)-based antigen screening technology (consisting of one pending U.S. patent application and five pending foreign patent applications), as well as a non-exclusive patent license from the Provincial Health Services Authority of British Columbia (PHSA) to a patent family directed to granzyme-based antigen screening technology (consisting of one issued U.S. patent, one pending U.S. patent application, and one pending foreign patent application), we do not have any additional material licenses to any technology or intellectual property rights.

As of March 17, 2021, we own or have rights to two pending U.S. trademark applications, 14 foreign trademark registrations, and three pending foreign trademark applications.

Government Regulation

The FDA and other regulatory authorities at federal, state, and local levels, as well as in foreign countries, extensively regulate, among other things, the research, development, testing, manufacture, quality control, import, export, safety, effectiveness, labeling, packaging, storage, distribution, record keeping, approval, advertising, promotion, marketing, post-approval monitoring, and post-approval reporting of biologics such as those we are developing. We, along with third party contractors, will be required to navigate the various preclinical, clinical and commercial approval requirements of the governing regulatory agencies of the countries in which we wish to conduct studies or seek approval or licensure of our product candidates.

The process required by the FDA before biologic product candidates may be marketed in the United States generally involves the following:

- completion of preclinical laboratory tests and animal studies performed in accordance with the FDA's current Good Laboratory Practices regulation;
- submission to the FDA of an IND, which must become effective before clinical trials may begin and must be updated annually or when significant changes are made;
- approval by an independent Institutional Review Board, or IRB, or ethics committee at each treatment site before the trial is commenced;
- performance of adequate and well-controlled human clinical trials to establish the safety, purity and potency of the proposed biologic product candidate for its intended purpose;
- preparation of and submission to the FDA of a BLA after completion of all pivotal clinical trials;
- satisfactory completion of an FDA Advisory Committee review, if applicable;
- a determination by the FDA within 60 days of its receipt of a BLA to file the application for review;
- satisfactory completion of an FDA pre-approval inspection of the manufacturing facility or facilities at which the proposed product is produced to assess compliance with cGMP and to assure that the

facilities, methods and controls are adequate to preserve the biological product's continued safety, purity and potency, and of selected clinical investigation sites to assess compliance with Good Clinical Practices, or GCP; and

- FDA review and approval of the BLA to permit commercial marketing of the product for particular indications for use in the United States.

Preclinical and Clinical Development

Prior to beginning the first clinical trial with a product candidate, we must submit an IND to the FDA. An IND is a request for authorization from the FDA to administer an investigational new drug product to humans. The central focus of an IND submission is on the general investigational plan and the protocol(s) for clinical studies. The IND also includes results of animal and in vitro studies assessing the toxicology, pharmacokinetics, pharmacology, and pharmacodynamic characteristics of the product; chemistry, manufacturing, and controls information; and any available human data or literature to support the use of the investigational product. An IND must become effective before human clinical trials may begin. The IND automatically becomes effective 30 days after receipt by the FDA, unless the FDA, within the 30-day time period, raises safety concerns or questions about the proposed clinical trial. In such a case, the IND may be placed on clinical hold and the IND sponsor and the FDA must resolve any outstanding concerns or questions before the clinical trial can begin. Submission of an IND therefore may or may not result in FDA authorization to begin a clinical trial. In addition to the submission of an IND to the FDA before initiation of a clinical trial in the United States, certain human clinical trials involving recombinant or synthetic nucleic acid molecules had historically been subject to review by the Recombinant DNA Advisory Committee, or RAC, of the NIH Office of Biotechnology Activities, or OBA, pursuant to the NIH Guidelines for Research Involving Recombinant DNA Molecules, or NIH Guidelines. On August 17, 2018, the NIH issued a notice in the Federal Register and issued a public statement proposing changes to the oversight framework for gene therapy trials, including changes to the applicable NIH Guidelines to modify the roles and responsibilities of the RAC with respect to human clinical trials of gene therapy products, and requesting public comment on its proposed modifications. During the public comment period, which closed October 16, 2018, the NIH announced that it would no longer accept new human gene transfer protocols for review as part of the protocol registration process or convene the RAC to review individual clinical protocols. These trials will remain subject to the FDA's oversight and other clinical trial regulations, and oversight at the local level will continue as set forth in the NIH Guidelines. Specifically, under the NIH Guidelines, supervision of human gene transfer trials includes evaluation and assessment by an IBC, a local institutional committee that reviews and oversees research utilizing recombinant or synthetic nucleic acid molecules at that institution. The IBC assesses the safety of the research and identifies any potential risk to public health or the environment, and such review may result in some delay before initiation of a clinical trial. While the NIH Guidelines are not mandatory unless the research in question is being conducted at or sponsored by institutions receiving NIH funding of recombinant or synthetic nucleic acid molecule research, many companies and other institutions not otherwise subject to the NIH Guidelines voluntarily follow them.

Clinical trials involve the administration of the investigational product to human subjects under the supervision of qualified investigators in accordance with GCPs, which include the requirement that all research subjects provide their informed consent for their participation in any clinical study. Clinical trials are conducted under protocols detailing, among other things, the objectives of the study, the parameters to be used in monitoring safety and the effectiveness criteria to be evaluated. A separate submission to the existing IND must be made for each successive clinical trial conducted during product development and for any subsequent protocol amendments. Furthermore, an independent IRB for each site proposing to conduct the clinical trial must review and approve the plan for any clinical trial and its informed consent form before the clinical trial begins at that site and must monitor the study until completed. Regulatory authorities, the IRB or the sponsor may suspend a clinical trial at any time on various grounds, including a finding that the subjects are being exposed to an unacceptable health risk or that the trial is unlikely to meet its stated objectives. Some studies also include oversight by an independent group of qualified experts organized by the clinical study sponsor, known as a data

safety monitoring board, which provides authorization for whether or not a study may move forward at designated check points based on access to certain data from the study and may halt the clinical trial if it determines that there is an unacceptable safety risk for subjects or other grounds, such as no demonstration of efficacy. There are also requirements governing the reporting of ongoing clinical studies and clinical study results to public registries.

For purposes of BLA approval, human clinical trials are typically conducted in three sequential phases that may overlap.

- Phase 1—The investigational product is initially introduced into healthy human subjects or patients with the target disease or condition. These studies are designed to test the safety, dosage tolerance, absorption, metabolism and distribution of the investigational product in humans, the side effects associated with increasing doses, and, if possible, to gain early evidence on effectiveness.
- Phase 2—The investigational product is administered to a limited patient population with a specified disease or condition to evaluate the preliminary efficacy, optimal dosages and dosing schedule and to identify possible adverse side effects and safety risks. Multiple Phase 2 clinical trials may be conducted to obtain information prior to beginning larger and more expensive Phase 3 clinical trials.
- Phase 3—The investigational product is administered to an expanded patient population to further evaluate dosage, to provide statistically significant evidence of clinical efficacy and to further test for safety, generally at multiple geographically dispersed clinical trial sites. These clinical trials are intended to establish the overall risk/benefit ratio of the investigational product and to provide an adequate basis for product approval.

In some cases, the FDA may require, or companies may voluntarily pursue, additional clinical trials after a product is approved to gain more information about the product. These so-called Phase 4 studies may be made a condition to approval of the BLA. Concurrent with clinical trials, companies may complete additional animal studies and develop additional information about the biological characteristics of the product candidate and must finalize a process for manufacturing the product in commercial quantities in accordance with cGMP requirements. The manufacturing process must be capable of consistently producing quality batches of the product candidate and, among other things, must develop methods for testing the identity, strength, quality and purity of the final product, or for biologics, the safety, purity and potency. Additionally, appropriate packaging must be selected and tested, and stability studies must be conducted to demonstrate that the product candidate does not undergo unacceptable deterioration over its shelf life.

BLA Submission and Review

Assuming successful completion of all required testing in accordance with all applicable regulatory requirements, the results of product development, nonclinical studies and clinical trials are submitted to the FDA as part of a BLA requesting approval to market the product for one or more indications. The BLA must include all relevant data available from pertinent preclinical and clinical studies, including negative or ambiguous results as well as positive findings, together with detailed information relating to the product's chemistry, manufacturing, controls, and proposed labeling, among other things. The submission of a BLA requires payment of a substantial application user fee to FDA, unless a waiver or exemption applies, and the sponsor of an approved BLA is also subject to an annual program fee.

Once a BLA has been submitted, the FDA's goal is to review standard applications within ten months after it accepts the application for filing, or, if the application qualifies for priority review, six months after the FDA accepts the application for filing. In both standard and priority reviews, the review process is often significantly extended by FDA requests for additional information or clarification. The FDA reviews a BLA to determine, among other things, whether a product is safe, pure and potent and the facility in which it is manufactured, processed, packed, or held meets standards designed to assure the product's continued safety, purity and potency.

The FDA may convene an advisory committee to provide clinical insight on application review questions. Before approving a BLA, the FDA will typically inspect the facility or facilities where the product is manufactured. The FDA will not approve an application unless it determines that the manufacturing processes and facilities are in compliance with cGMP requirements and adequate to assure consistent production of the product within required specifications. Additionally, before approving a BLA, the FDA will typically inspect one or more treatment sites to assure compliance with GCP. If the FDA determines that the application, manufacturing process or manufacturing facilities are not acceptable, it will outline the deficiencies in the submission and often will request additional testing or information. Notwithstanding the submission of any requested additional information, the FDA ultimately may decide that the application does not satisfy the regulatory criteria for approval.

After the FDA evaluates a BLA and conducts inspections of manufacturing facilities where the investigational product and/or its drug substance will be produced, the FDA may issue an approval letter or a Complete Response letter. An approval letter authorizes commercial marketing of the product with specific prescribing information for specific indications. A Complete Response letter will describe all of the deficiencies that the FDA has identified in the BLA, except that where the FDA determines that the data supporting the application are inadequate to support approval, the FDA may issue the Complete Response letter without first conducting required inspections, testing submitted product lots, and/or reviewing proposed labeling. In issuing the Complete Response letter, the FDA may recommend actions that the applicant might take to place the BLA in condition for approval, including requests for additional information or clarification. The FDA may delay or refuse approval of a BLA if applicable regulatory criteria are not satisfied, require additional testing or information and/or require post-marketing testing and surveillance to monitor safety or efficacy of a product.

If regulatory approval of a product is granted, such approval will be granted for particular indications and may entail limitations on the indicated uses for which such product may be marketed. For example, the FDA may approve the BLA with a Risk Evaluation and Mitigation Strategy, or REMS, to ensure the benefits of the product outweigh its risks. A REMS is a safety strategy to manage a known or potential serious risk associated with a product and to enable patients to have continued access to such medicines by managing their safe use, and could include medication guides, physician communication plans, or elements to assure safe use, such as restricted distribution methods, patient registries and other risk minimization tools. The FDA also may condition approval on, among other things, changes to proposed labeling or the development of adequate controls and specifications. Once approved, the FDA may withdraw the product approval if compliance with pre- and post-marketing requirements is not maintained or if problems occur after the product reaches the marketplace. The FDA may require one or more Phase 4 post market studies and surveillance to further assess and monitor the product's safety and effectiveness after commercialization and may limit further marketing of the product based on the results of these post-marketing studies.

Expedited Development and Review Programs

The FDA offers a number of expedited development and review programs for qualifying product candidates. The fast track program is intended to expedite or facilitate the process for reviewing new products that meet certain criteria. Specifically, new products are eligible for fast track designation if they are intended to treat a serious or life-threatening disease or condition and demonstrate the potential to address unmet medical needs for the disease or condition. Fast track designation applies to the combination of the product and the specific indication for which it is being studied. The sponsor of a fast track product has opportunities for frequent interactions with the review team during product development and, once a BLA is submitted, the product may be eligible for priority review. A fast track product may also be eligible for rolling review, where the FDA may consider for review sections of the BLA on a rolling basis before the complete application is submitted, if the sponsor provides a schedule for the submission of the sections of the BLA, the FDA agrees to accept sections of the BLA and determines that the schedule is acceptable, and the sponsor pays any required user fees upon submission of the first section of the BLA.

A product intended to treat a serious or life-threatening disease or condition may also be eligible for breakthrough therapy designation to expedite its development and review. A product can receive breakthrough therapy designation if preliminary clinical evidence indicates that the product may demonstrate substantial improvement over existing therapies on one or more clinically significant endpoints, such as substantial treatment effects observed early in clinical development. The designation includes all of the fast track program features, as well as more intensive FDA interaction and guidance beginning as early as Phase 1 and an organizational commitment to expedite the development and review of the product, including involvement of senior managers.

Any marketing application for a biologic submitted to the FDA for approval, including a product with a fast track designation and/or breakthrough therapy designation, may be eligible for other types of FDA programs intended to expedite the FDA review and approval process, such as priority review and accelerated approval. A product is eligible for priority review if it has the potential to provide a significant improvement in the treatment, diagnosis or prevention of a serious disease or condition compared to marketed products. For products containing new molecular entities, priority review designation means the FDA's goal is to take action on the marketing application within six months of the 60-day filing date (compared with ten months under standard review).

Additionally, products studied for their safety and effectiveness in treating serious or life-threatening diseases or conditions may receive accelerated approval upon a determination that the product has an effect on a surrogate endpoint that is reasonably likely to predict clinical benefit, or on a clinical endpoint that can be measured earlier than irreversible morbidity or mortality, that is reasonably likely to predict an effect on irreversible morbidity or mortality or other clinical benefit, taking into account the severity, rarity, or prevalence of the condition and the availability or lack of alternative treatments. As a condition of accelerated approval, the FDA will generally require the sponsor to perform adequate and well-controlled post-marketing clinical studies to verify and describe the anticipated effect on irreversible morbidity or mortality or other clinical benefit. In addition, the FDA currently requires as a condition for accelerated approval pre-approval of promotional materials, which could adversely impact the timing of the commercial launch of the product.

In 2017, FDA established a new regenerative medicine advanced therapy, or RMAT, designation as part of its implementation of the 21st Century Cures Act. The RMAT designation is intended to fulfill the 21st Century Cures Act requirement that FDA facilitate an efficient development program for, and expedite review of, any drug that meets the following criteria: (1) it qualifies as a RMAT, which is defined as a cell therapy, therapeutic tissue engineering product, human cell and tissue product, or any combination product using such therapies or products, with limited exceptions; (2) it is intended to treat, modify, reverse, or cure a serious or life-threatening disease or condition; and (3) preliminary clinical evidence indicates that the drug has the potential to address unmet medical needs for such a disease or condition. Like breakthrough therapy designation, RMAT designation provides potential benefits that include more frequent meetings with FDA to discuss the development plan for the product candidate and eligibility for rolling review and priority review. Products granted RMAT designation may also be eligible for accelerated approval on the basis of a surrogate or intermediate endpoint reasonably likely to predict long-term clinical benefit, or reliance upon data obtained from a meaningful number of sites, including through expansion to additional sites. Once approved, when appropriate, the FDA can permit fulfillment of post-approval requirements under accelerated approval through the submission of clinical evidence, clinical studies, patient registries, or other sources of real world evidence such as electronic health records; through the collection of larger confirmatory datasets; or through post-approval monitoring of all patients treated with the therapy prior to approval.

Fast track designation, breakthrough therapy designation, priority review, accelerated approval, and RMAT designation do not change the standards for approval but may expedite the development or approval process.

Orphan Drug Designation

Under the Orphan Drug Act, the FDA may grant orphan designation to a drug or biologic intended to treat a rare disease or condition, which is a disease or condition that affects fewer than 200,000 individuals in the United

States, or more than 200,000 individuals in the United States for which there is no reasonable expectation that the cost of developing and making available in the United States a drug or biologic for this type of disease or condition will be recovered from sales in the United States for that drug or biologic. Orphan drug designation must be requested before submitting a BLA. After the FDA grants orphan drug designation, the generic identity of the therapeutic agent and its potential orphan use are disclosed publicly by the FDA. The orphan drug designation does not convey any advantage in, or shorten the duration of, the regulatory review or approval process.

If a product that has orphan drug designation subsequently receives the first FDA approval for the disease for which it has such designation, the product is entitled to orphan drug exclusive approval (or exclusivity), which means that the FDA may not approve any other applications, including a full BLA, to market the same biologic for the same indication for seven years, except in limited circumstances, such as a showing of clinical superiority to the product with orphan drug exclusivity. Orphan drug exclusivity does not prevent FDA from approving a different drug or biologic for the same disease or condition, or the same drug or biologic for a different disease or condition. Among the other benefits of orphan drug designation are tax credits for certain research and a waiver of the BLA application fee.

A designated orphan drug may not receive orphan drug exclusivity if it is approved for a use that is broader than the indication for which it received orphan designation. In addition, exclusive marketing rights in the United States may be lost if the FDA later determines that the request for designation was materially defective or if the manufacturer is unable to assure sufficient quantities of the product to meet the needs of patients with the rare disease or condition.

Post-Approval Requirements

Any products manufactured or distributed by us pursuant to FDA approvals are subject to pervasive and continuing regulation by the FDA, including, among other things, requirements relating to record-keeping, reporting of adverse experiences, periodic reporting, product sampling and distribution, and advertising and promotion of the product. After approval, most changes to the approved product, such as adding new indications or other labeling claims, are subject to prior FDA review and approval. There also are continuing user fee requirements, under which FDA assesses an annual program fee for each product identified in an approved BLA. Biologic manufacturers and their subcontractors are required to register their establishments with the FDA and certain state agencies, and are subject to periodic unannounced inspections by the FDA and certain state agencies for compliance with cGMP, which impose certain procedural and documentation requirements upon us and our third party manufacturers. Changes to the manufacturing process are strictly regulated, and, depending on the significance of the change, may require prior FDA approval before being implemented. FDA regulations also require investigation and correction of any deviations from cGMP and impose reporting requirements upon us and any third party manufacturers that we may decide to use. Accordingly, manufacturers must continue to expend time, money and effort in the area of production and quality control to maintain compliance with cGMP and other aspects of regulatory compliance.

The FDA may withdraw approval if compliance with regulatory requirements and standards is not maintained or if problems occur after the product reaches the market.

Later discovery of previously unknown problems with a product, including adverse events of unanticipated severity or frequency, or with manufacturing processes, or failure to comply with regulatory requirements, may result in revisions to the approved labeling to add new safety information; imposition of post-market studies or clinical studies to assess new safety risks; or imposition of distribution restrictions or other restrictions under a REMS program. Other potential consequences include, among other things:

- restrictions on the marketing or manufacturing of a product, complete withdrawal of the product from the market or product recalls;

- fines, warning letters or holds on post-approval clinical studies;
- refusal of the FDA to approve pending applications or supplements to approved applications, or suspension or revocation of existing product approvals;
- product seizure or detention, or refusal of the FDA to permit the import or export of products;
- consent decrees, corporate integrity agreements, debarment or exclusion from federal healthcare programs;
- mandated modification of promotional materials and labeling and the issuance of corrective information;
- the issuance of safety alerts, Dear Healthcare Provider letters, press releases and other communications containing warnings or other safety information about the product; or
- injunctions or the imposition of civil or criminal penalties.

The FDA closely regulates the marketing, labeling, advertising and promotion of biologics. A company can make only those claims relating to safety and efficacy, purity and potency that are approved by the FDA and in accordance with the provisions of the approved label. The FDA and other agencies actively enforce the laws and regulations prohibiting the promotion of off label uses. Failure to comply with these requirements can result in, among other things, adverse publicity, warning letters, corrective advertising and potential civil and criminal penalties. Physicians may prescribe legally available products for uses that are not described in the product's labeling and that differ from those tested by us and approved by the FDA. Such off-label uses are common across medical specialties. Physicians may believe that such off-label uses are the best treatment for many patients in varied circumstances. The FDA does not regulate the behavior of physicians in their choice of treatments. The FDA does, however, restrict manufacturer's communications on the subject of off-label use of their products.

Biosimilars and Reference Product Exclusivity

The Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act, or collectively, the ACA, signed into law in 2010, includes a subtitle called the Biologics Price Competition and Innovation Act of 2009, or BPCIA, which created an abbreviated approval pathway for biological products that are biosimilar to or interchangeable with an FDA-approved reference biological product. To date, a number of biosimilars have been licensed under the BPCIA, and numerous biosimilars have been approved in Europe. The FDA has issued several guidance documents outlining an approach to review and approval of biosimilars.

Biosimilarity, which requires that there be no clinically meaningful differences between the biological product and the reference product in terms of safety, purity, and potency, can be shown through analytical studies, animal studies, and a clinical study or studies. Interchangeability requires that a product is biosimilar to the reference product and the product must demonstrate that it can be expected to produce the same clinical results as the reference product in any given patient and, for products that are administered multiple times to an individual, the biologic and the reference biologic may be alternated or switched after one has been previously administered without increasing safety risks or risks of diminished efficacy relative to exclusive use of the reference biologic. Complexities associated with the larger, and often more complex, structures of biological products, as well as the processes by which such products are manufactured, pose significant hurdles to implementation of the abbreviated approval pathway that are still being worked out by the FDA.

Under the BPCIA, an application for a biosimilar product may not be submitted to the FDA until four years following the date that the reference product was first licensed by the FDA. In addition, the approval of a biosimilar product may not be made effective by the FDA until 12 years from the date on which the reference product was first licensed. During this 12-year period of exclusivity, another company may still market a competing version of the reference product if the FDA approves a full BLA for the competing product containing

that applicant's own preclinical data and data from adequate and well-controlled clinical trials to demonstrate the safety, purity and potency of its product. The BPCIA also created certain exclusivity periods for biosimilars approved as interchangeable products. At this juncture, it is unclear whether products deemed "interchangeable" by the FDA will, in fact, be readily substituted by pharmacies, which are governed by state pharmacy law.

A biological product can also obtain pediatric market exclusivity in the United States. Pediatric exclusivity, if granted, adds six months to existing exclusivity periods and patent terms. This six-month exclusivity, which runs from the end of other exclusivity protection or patent term, may be granted based on the voluntary completion of a pediatric study in accordance with an FDA-issued "Written Request" for such a study.

The BPCIA is complex and continues to be interpreted and implemented by the FDA. In addition, recent government proposals have sought to reduce the 12-year reference product exclusivity period. Other aspects of the BPCIA, some of which may impact the BPCIA exclusivity provisions, have also been the subject of recent litigation. As a result, the ultimate impact, implementation, and impact of the BPCIA is subject to significant uncertainty.

Other U.S. Healthcare Laws and Compliance Requirements

In the United States, our activities are potentially subject to regulation by various federal, state and local authorities in addition to the FDA, including but not limited to, the Centers for Medicare and Medicaid Services, or CMS, other divisions of the U.S. Department of Health and Human Services (such as the Office of Inspector General and the Health Resources and Service Administration), the Department of Justice, or the DOJ, and individual U.S. Attorney offices within the DOJ, and state and local governments. For example, sales, marketing and scientific/educational grant programs may have to comply with the anti-fraud and abuse provisions of the Social Security Act, the false claims laws, the privacy and security provisions of the Health Insurance Portability and Accountability Act, or HIPAA, and similar state laws, each as amended, as applicable.

The federal Anti-Kickback Statute prohibits, among other things, any person or entity, from knowingly and willfully offering, paying, soliciting or receiving any remuneration, directly or indirectly, overtly or covertly, in cash or in kind, to induce or in return for purchasing, leasing, ordering or arranging for the purchase, lease or order of any item or service reimbursable, in whole or in part, under Medicare, Medicaid or other federal healthcare programs. The term remuneration has been interpreted broadly to include anything of value. The federal Anti-Kickback Statute has been interpreted to apply to arrangements between therapeutic product manufacturers on one hand and prescribers and purchasers on the other. There are a number of statutory exceptions and regulatory safe harbors protecting some common activities from prosecution. The exceptions and safe harbors are drawn narrowly and practices that involve remuneration that may be alleged to be intended to induce prescribing, purchasing or recommending may be subject to scrutiny if they do not qualify for an exception or safe harbor. Failure to meet all of the requirements of a particular applicable statutory exception or regulatory safe harbor does not make the conduct per se illegal under the federal Anti-Kickback Statute. Instead, the legality of the arrangement will be evaluated on a case-by-case basis based on a cumulative review of all of its facts and circumstances. Our practices, including our arrangements with physicians, may not in all cases meet all of the criteria for protection under a statutory exception or regulatory safe harbor.

Additionally, the intent standard under the federal Anti-Kickback Statute was amended by the Patient Protection and Affordable Care Act, as amended by the Health Care and Education Reconciliation Act of 2010, or collectively, ACA, to a stricter standard such that a person or entity no longer needs to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation. In addition, the ACA codified case law that a claim including items or services resulting from a violation of the federal Anti-Kickback Statute constitutes a false or fraudulent claim for purposes of the federal False Claims Act, or FCA.

The federal false claims and civil monetary penalty laws, including the FCA, which can be enforced by private citizens through civil qui tam actions, prohibit any person or entity from, among other things, knowingly

presenting, or causing to be presented, a false or fraudulent claim for payment to, or approval by, the federal healthcare programs, including Medicare and Medicaid, or knowingly making, using, or causing to be made or used a false record or statement material to a false or fraudulent claim to the federal government. A claim includes "any request or demand" for money or property presented to the U.S. government. For instance, historically, pharmaceutical and other healthcare companies have been prosecuted under these laws for allegedly providing free product to customers with the expectation that the customers would bill federal programs for the product. Other companies have been prosecuted for causing false claims to be submitted because of the companies' marketing of the product for unapproved, off-label, and thus generally non-reimbursable, uses.

HIPAA created additional federal criminal statutes that prohibit, among other things, knowingly and willfully executing, or attempting to execute, a scheme to defraud or to obtain, by means of false or fraudulent pretenses, representations or promises, any money or property owned by, or under the control or custody of, any healthcare benefit program, including private third party payors, willfully obstructing a criminal investigation of a healthcare offense, and knowingly and willfully falsifying, concealing or covering up by trick, scheme or device, a material fact or making any materially false, fictitious or fraudulent statement in connection with the delivery of or payment for healthcare benefits, items or services. Like the federal Anti-Kickback Statute, the ACA amended the intent standard for certain healthcare fraud statutes under HIPAA such that a person or entity no longer needs to have actual knowledge of the statute or specific intent to violate it in order to have committed a violation.

Also, many states have similar, and typically more prohibitive, fraud and abuse statutes or regulations that apply to items and services reimbursed under Medicaid and other state programs, or, in several states, apply regardless of the payor. Additionally, to the extent that our product is sold in a foreign country, we may be subject to similar foreign laws.

We may be subject to data privacy and security regulations by both the federal government and the states in which we conduct our business. HIPAA, as amended by the Health Information Technology for Economic and Clinical Health Act, or HITECH, and their implementing regulations, impose requirements relating to the privacy, security and transmission of individually identifiable health information on certain healthcare providers, healthcare clearinghouses, and health plans, known as covered entities, as well as independent contractors, or agents of covered entities that receive or obtain individually identifiable health information in connection with providing a service on behalf of a covered entity, known as a business associates. Among other things, HITECH makes HIPAA's privacy and security standards directly applicable to business associates. HITECH also created four new tiers of civil monetary penalties, amended HIPAA to make civil and criminal penalties directly applicable to business associates, and gave state attorneys general new authority to file civil actions for damages or injunctions in federal courts to enforce HIPAA and seek attorneys' fees and costs associated with pursuing federal civil actions. In addition, many state laws govern the privacy and security of health information in specified circumstances, many of which differ from each other in significant ways, are often not pre-empted by HIPAA, and may have a more prohibitive effect than HIPAA, thus complicating compliance efforts.

In addition, many pharmaceutical manufacturers must calculate and report certain price reporting metrics to the government, such as average sales price and best price. Further, these prices for drugs may be reduced by mandatory discounts or rebates required by government healthcare programs or private payors and by any future relaxation of laws that presently restrict imports of drugs from countries where they may be sold at lower prices than in the United States. It is difficult to predict how Medicare coverage and reimbursement policies will be applied to our products in the future and coverage and reimbursement under different federal healthcare programs are not always consistent. Medicare reimbursement rates may also reflect budgetary constraints placed on the Medicare program.

Additionally, the federal Physician Payments Sunshine Act, or the Sunshine Act, within the ACA, and its implementing regulations, require that certain manufacturers of drugs, devices, biological and medical supplies for which payment is available under Medicare, Medicaid or the Children's Health Insurance Program (with certain exceptions) report annually to CMS information related to certain payments or other transfers of value

made or distributed to physicians and teaching hospitals, or to entities or individuals at the request of, or designated on behalf of, the physicians and teaching hospitals and to report annually certain ownership and investment interests held by physicians and their immediate family members. In addition, many states also govern the reporting of payments or other transfers of value, many of which differ from each other in significant ways, are often not pre-empted, and may have a more prohibitive effect than the Sunshine Act, thus further complicating compliance efforts.

In order to distribute products commercially, we must comply with state laws that require the registration of manufacturers and wholesale distributors of drug and biological products in a state, including, in certain states, manufacturers and distributors who ship products into the state even if such manufacturers or distributors have no place of business within the state. Some states also impose requirements on manufacturers and distributors to establish the pedigree of product in the chain of distribution, including some states that require manufacturers and others to adopt new technology capable of tracking and tracing product as it moves through the distribution chain. Several states have enacted legislation requiring pharmaceutical and biotechnology companies to establish marketing compliance programs, file periodic reports with the state, make periodic public disclosures on sales, marketing, pricing, clinical trials and other activities, and/or register their sales representatives, as well as to prohibit pharmacies and other healthcare entities from providing certain physician prescribing data to pharmaceutical and biotechnology companies for use in sales and marketing, and to prohibit certain other sales and marketing practices. All of our activities are potentially subject to federal and state consumer protection and unfair competition laws.

Ensuring business arrangements with third parties comply with applicable healthcare laws and regulations is a costly endeavor. If our operations are found to be in violation of any of the federal and state healthcare laws described above or any other current or future governmental regulations that apply to us, we may be subject to penalties, including without limitation, civil, criminal and/or administrative penalties, damages, fines, disgorgement, individual imprisonment, exclusion from participation in government programs, such as Medicare and Medicaid, injunctions, private “qui tam” actions brought by individual whistleblowers in the name of the government, or refusal to allow us to enter into government contracts, contractual damages, reputational harm, administrative burdens, diminished profits and future earnings, additional reporting obligations and oversight if we become subject to a corporate integrity agreement or other agreement to resolve allegations of non-compliance with these laws, and the curtailment or restructuring of our operations, any of which could adversely affect our ability to operate our business and our results of operations.

Coverage, Pricing and Reimbursement

Significant uncertainty exists as to the coverage and reimbursement status of any product candidates for which we may obtain regulatory approval. In the United States and in foreign markets, sales of any products for which we receive regulatory approval for commercial sale will depend, in part, on the extent to which third party payors provide coverage and establish adequate reimbursement levels for such products. In the United States, third party payors include federal and state healthcare programs, private managed care providers, health insurers and other organizations. Coverage and adequate reimbursement from governmental healthcare programs, such as Medicare and Medicaid in the United States, and commercial payors are critical to new product acceptance.

Third party payors decide which therapeutics they will pay for and establish reimbursement levels. Coverage and reimbursement by a third party payor may depend upon a number of factors, including the third party payor’s determination that use of a therapeutic is:

- a covered benefit under its health plan;
- safe, effective and medically necessary;
- appropriate for the specific patient;
- cost-effective; and

- neither experimental nor investigational.

We cannot be sure that reimbursement will be available for any product that we commercialize and, if coverage and reimbursement are available, we cannot be sure that the level of reimbursement will be adequate. Coverage may also be more limited than the purposes for which the product is approved by the FDA or comparable foreign regulatory authorities. Limited coverage and less than adequate reimbursement may reduce the demand for, or the price of, any product for which we obtain regulatory approval.

Third party payors are increasingly challenging the price, examining the medical necessity, and reviewing the cost-effectiveness of medical products, therapies and services, in addition to questioning their safety and efficacy. Obtaining reimbursement for our products may be particularly difficult because of the higher prices often associated with branded drugs and drugs administered under the supervision of a physician. We may need to conduct expensive pharmacoeconomic studies in order to demonstrate the medical necessity and cost-effectiveness of our products, in addition to the costs required to obtain FDA approvals. Our product candidates may not be considered medically necessary or cost-effective. Obtaining coverage and reimbursement approval of a product from a third party payor is a time-consuming and costly process that could require us to provide to each payor supporting scientific, clinical and cost-effectiveness data for the use of our product on a payor-by-payor basis, with no assurance that coverage and adequate reimbursement will be obtained. A third party payor's decision to provide coverage for a product does not imply that an adequate reimbursement rate will be approved. Additionally, in the United States there is no uniform policy among third party payors for coverage or reimbursement. Third party payors often rely upon Medicare coverage policy and payment limitations in setting their own coverage and reimbursement policies, but also have their own methods and approval processes. Therefore, one third party payor's determination to provide coverage for a product does not assure that other payors will also provide coverage for the product. Adequate third party payor reimbursement may not be available to enable us to maintain price levels sufficient to realize an appropriate return on our investment in product development. If reimbursement is not available or is available only at limited levels, we may not be able to successfully commercialize any product candidate that we successfully develop.

Certain of our products, once approved, may be administered by a physician. Under currently applicable U.S. law, certain products not usually self-administered (including injectable drugs) may be eligible for coverage under Medicare through Medicare Part B. Medicare Part B is part of original Medicare, the federal health care program that provides health care benefits to the aged and disabled, and covers outpatient services and supplies, including certain pharmaceutical products, that are medically necessary to treat a beneficiary's health condition. As a condition of receiving Medicare Part B reimbursement for a manufacturer's eligible drugs or biologicals, the manufacturer is required to participate in other government healthcare programs, including the Medicaid Drug Rebate Program and the 340B Drug Pricing Program. The Medicaid Drug Rebate Program requires pharmaceutical manufacturers to enter into and have in effect a national rebate agreement with the Secretary of the Department of Health and Human Services as a condition for states to receive federal matching funds for the manufacturer's outpatient drugs furnished to Medicaid patients. Under the 340B Drug Pricing Program, the manufacturer must extend discounts to entities that participate in the program.

Different pricing and reimbursement schemes exist in other countries. In the European Union, governments influence the price of pharmaceutical products through their pricing and reimbursement rules and control of national health care systems that fund a large part of the cost of those products to consumers. Some jurisdictions operate positive and negative list systems under which products may only be marketed once a reimbursement price has been agreed. To obtain reimbursement or pricing approval, some of these countries may require the completion of clinical trials that compare the cost effectiveness of a particular product candidate to currently available therapies. Other member states allow companies to fix their own prices for medicines but monitor and control company profits. The downward pressure on health care costs has become intense. As a result, increasingly high barriers are being erected to the entry of new products. In addition, in some countries, cross-border imports from low-priced markets exert a commercial pressure on pricing within a country.

The marketability of any product candidates for which we receive regulatory approval for commercial sale may suffer if the government and third party payors fail to provide coverage and adequate reimbursement. In addition, emphasis on managed care, the increasing influence of health maintenance organizations, and additional legislative changes in the United States has increased, and we expect will continue to increase, the pressure on healthcare pricing. The downward pressure on the rise in healthcare costs in general, particularly prescription medicines, medical devices and surgical procedures and other treatments, has become very intense. Coverage policies and third party reimbursement rates may change at any time. Even if favorable coverage and reimbursement status is attained for one or more products for which we receive regulatory approval, less favorable coverage policies and reimbursement rates may be implemented in the future.

Healthcare Reform

In the United States and some foreign jurisdictions, there have been, and continue to be, several legislative and regulatory changes and proposed changes regarding the healthcare system that could prevent or delay marketing approval of product candidates, restrict or regulate post-approval activities, and affect the ability to profitably sell product candidates for which marketing approval is obtained. Among policy makers and payors in the United States and elsewhere, there is significant interest in promoting changes in healthcare systems with the stated goals of containing healthcare costs, improving quality and/or expanding access. In the United States, the pharmaceutical industry has been a particular focus of these efforts and has been significantly affected by major legislative initiatives.

For example, the ACA has substantially changed healthcare financing and delivery by both governmental and private insurers. Among the ACA provisions of importance to the pharmaceutical and biotechnology industries, in addition to those otherwise described above, are the following:

- an annual, nondeductible fee on any entity that manufactures or imports certain specified branded prescription drugs and biologic agents apportioned among these entities according to their market share in some government healthcare programs that began in 2011;
- an increase in the statutory minimum rebates a manufacturer must pay under the Medicaid Drug Rebate Program, retroactive to January 1, 2010, to 23.1% and 13% of the average manufacturer price for most branded and generic drugs, respectively, and capped the total rebate amount for innovator drugs at 100% of the average manufacturer price;
- a new Medicare Part D coverage gap discount program, in which manufacturers must agree to offer 50% (and 70% starting on January 1, 2019) point-of-sale discounts off negotiated prices of applicable brand drugs to eligible beneficiaries during their coverage gap period, as a condition for the manufacturers' outpatient drugs to be covered under Medicare Part D;
- extension of manufacturers' Medicaid rebate liability to covered drugs dispensed to individuals who are enrolled in Medicaid managed care organizations;
- expansion of eligibility criteria for Medicaid programs by, among other things, allowing states to offer Medicaid coverage to additional individuals and by adding new mandatory eligibility categories for individuals with income at or below 133% of the federal poverty level, thereby potentially increasing manufacturers' Medicaid rebate liability;
- expansion of the entities eligible for discounts under the 340B Drug Discount Program;
- a new Patient-Centered Outcomes Research Institute to oversee, identify priorities in, and conduct comparative clinical effectiveness research, along with funding for such research;
- expansion of healthcare fraud and abuse laws, including the FCA and the federal Anti-Kickback Statute, new government investigative powers, and enhanced penalties for noncompliance;
- a new methodology by which rebates owed by manufacturers under the Medicaid Drug Rebate Program are calculated for drugs that are inhaled, infused, instilled, implanted, or injected;

- requirements to report certain financial arrangements with physicians and teaching hospitals;
- a requirement to annually report certain information regarding drug samples that manufacturers and distributors provide to physicians;
- establishment of a Center for Medicare Innovation at CMS to test innovative payment and service delivery models to lower Medicare and Medicaid spending, potentially including prescription drug spending; and
- a licensure framework for follow on biologic products.

Some of the provisions of the ACA have yet to be implemented, and there have been legal and political challenges to certain aspects of the ACA. Since January 2017, President Trump has signed two executive orders and other directives designed to delay, circumvent, or loosen certain requirements mandated by the ACA. Concurrently, Congress has considered legislation that would repeal or repeal and replace all or part of the ACA. While Congress has not passed comprehensive repeal legislation, two bills affecting the implementation of certain taxes under the ACA have been signed into law. In December 2017, the Tax Cuts and Jobs Act of 2017 was enacted which repeals, effective January 1, 2019, the tax penalty for an individual's failure to maintain ACA-mandated health insurance, commonly referred to as the "individual mandate." Additionally, on January 22, 2018, President Trump signed a continuing resolution on appropriations for fiscal year 2018 that delayed the implementation of certain ACA-mandated fees, including the so-called "Cadillac" tax on certain high cost employer-sponsored insurance plans, the annual fee imposed on certain health insurance providers based on market share, and the medical device excise tax on non-exempt medical devices. Further, the Bipartisan Budget Act of 2018, or the BBA, among other things, amends the ACA, effective January 1, 2019, to close the coverage gap in most Medicare drug plans, commonly referred to as the "donut hole." More recently, in July 2018, CMS published a final rule permitting further collections and payments to and from certain ACA qualified health plans and health insurance issuers under the ACA risk adjustment program in response to the outcome of federal district court litigation regarding the method CMS uses to determine this risk adjustment.

Other legislative changes have been proposed and adopted since the ACA was enacted. In August 2011, President Obama signed into law the Budget Control Act of 2011, which, among other things, included aggregate reductions to Medicare payments to providers of up to 2% per fiscal year, which went into effect beginning on April 1, 2013 and, due to subsequent legislative amendments to the statute, including the BBA, will stay in effect through 2027 unless additional Congressional action is taken. In January 2013, the American Taxpayer Relief Act of 2012 was signed into law, which, among other things, reduced Medicare payments to several providers, including hospitals, and increased the statute of limitations period for the government to recover overpayments to providers from three to five years.

Further, there has been increasing legislative and enforcement interest in the United States with respect to specialty drug pricing practices. Specifically, there have been several recent U.S. Congressional inquiries and proposed and enacted federal and state legislation designed to, among other things, bring more transparency to drug pricing, reduce the cost of prescription drugs under Medicare, review the relationship between pricing and manufacturer patient programs, and reform government program reimbursement methodologies for drugs. At the federal level, the Trump administration's budget proposal for fiscal year 2019 contains further drug price control measures that could be enacted during the 2019 budget process or in other future legislation, including, for example, measures to permit Medicare Part D plans to negotiate the price of certain drugs under Medicare Part B, to allow some states to negotiate drug prices under Medicaid, and to eliminate cost sharing for generic drugs for low-income patients. Additionally, the Trump administration released a "Blueprint" to lower drug prices and reduce out of pocket costs of drugs that contains additional proposals to increase manufacturer competition, increase the negotiating power of certain federal healthcare programs, incentivize manufacturers to lower the list price of their products and reduce the out of pocket costs of drug products paid by consumers. The U.S. Department of Health and Human Services has already started the process of soliciting feedback on some of these measures and, at the same, is immediately implementing others under its existing authority. For example, in

September 2018, CMS announced that it will allow Medicare Advantage Plans the option to use step therapy for Part B drugs beginning January 1, 2019, and in October 2018, CMS proposed a new rule that would require direct-to-consumer television advertisements of prescription drugs and biological products, for which payment is available through or under Medicare or Medicaid, to include in the advertisement the Wholesale Acquisition Cost, or list price, of that drug or biological product. Although a number of these, and other proposed measures will require authorization through additional legislation to become effective, Congress and the Trump administration have each indicated that it will continue to seek new legislative and/or administrative measures to control drug costs. At the states level, legislatures have increasingly passed legislation and implemented regulations designed to control pharmaceutical and biological product pricing, including price or patient reimbursement constraints, discounts, restrictions on certain product access and marketing cost disclosure and transparency measures.

Additionally, on May 30, 2018, the Trickett Wendler, Frank Mongiello, Jordan McLinn, and Matthew Bellina Right to Try Act of 2017, or the Right to Try Act, was signed into law. The law, among other things, provides a federal framework for certain patients to access certain investigational new drug products that have completed a Phase I clinical trial and that are undergoing investigation for FDA approval. Under certain circumstances, eligible patients can seek treatment without enrolling in clinical trials and without obtaining FDA permission under the FDA expanded access program. There is no obligation for a drug manufacturer to make its drug products available to eligible patients as a result of the Right to Try Act.

The Foreign Corrupt Practices Act

The Foreign Corrupt Practices Act, or the FCPA, prohibits any U.S. individual or business from paying, offering, or authorizing payment or offering of anything of value, directly or indirectly, to any foreign official, political party or candidate for the purpose of influencing any act or decision of the foreign entity in order to assist the individual or business in obtaining or retaining business. The FCPA also obligates companies whose securities are listed in the United States to comply with accounting provisions requiring us to maintain books and records that accurately and fairly reflect all transactions of the corporation, including international subsidiaries, and to devise and maintain an adequate system of internal accounting controls for international operations.

Additional Regulation

In addition to the foregoing, state and federal laws regarding environmental protection and hazardous substances, including the Occupational Safety and Health Act, the Resource Conservancy and Recovery Act and the Toxic Substances Control Act, affect our business. These and other laws govern our use, handling and disposal of various biological, chemical and radioactive substances used in, and wastes generated by, our operations. If our operations result in contamination of the environment or expose individuals to hazardous substances, we could be liable for damages and governmental fines. We believe that we are in material compliance with applicable environmental laws and that continued compliance therewith will not have a material adverse effect on our business. We cannot predict, however, how changes in these laws may affect our future operations.

Other Regulations

We are also subject to numerous federal, state and local laws relating to such matters as safe working conditions, manufacturing practices, environmental protection, fire hazard control, and disposal of hazardous or potentially hazardous substances. We may incur significant costs to comply with such laws and regulations now or in the future.

Employees and Human Capital

As of March 11, 2021, we had 60 full-time employees and 1 part-time employees, 25 of whom have Ph.D. or M.D. degrees. Of these full-time employees, 50 employees are engaged in research and development activities and 10 are engaged in finance, business development and other general and administrative functions. None of our employees are represented by labor unions or covered by collective bargaining agreements, and we have not experienced any work stoppages. We consider our relations with our employees to be good.

We recognize that attracting, motivating and retaining talent at all levels is vital to our continued success. Our employees are a significant asset and we aim to create an equitable, inclusive and empowering environment in which our employees can grow and advance their careers, with the overall goal of developing, expanding and retaining our workforce to support our current pipeline and future business goals. By focusing on employeeetention and engagement, we also improve our ability to support our clinical trials, our pipeline, our platform technologies, business and operations, and also protect the long-term interests of our securityholders. Our success also depends on our ability to attract, engage and retain a diverse group of employees. Our efforts to recruit and retain a diverse and passionate workforce include providing competitive compensation and benefits packages and ensuring we listen to our employees.

We value innovation, passion, data-driven decision making, persistence and honesty, and are building a diverse environment where our employees can thrive and be inspired to make exceptional contributions to bring novel and more effective therapies to cancer patients.

Our human capital resources objectives include, as applicable, identifying, recruiting, retaining, motivating and integrating our existing and future employees. The principal purposes of our equity incentive plans are to attract, retain and motivate selected employees, consultants and directors through grants of stock-based compensation awards and payments of cash-based performance bonus awards, in order to increase stockholder value and the success of our company by motivating our employees to perform to the best of their abilities and achieve our objectives. We are committed to providing a competitive and comprehensive benefits package to our employees. Our benefits package provides a balance of protection along with the flexibility to meet the individual health and wellness needs of our employees. We plan to continue to refine our efforts related to optimizing our use of human capital as we grow, including improvements in the way we hire, develop, motivate and retain employees.

Facilities

Our facilities are located at two adjacent leased sites, both located at 830 Winter Street, Waltham, Massachusetts, 02451. The first site consists of 25,472 square feet of office and laboratory space and is primarily used for research, clinical, manufacturing, and corporate activities. Our lease expires September 30, 2024, with an option to extend three years. The second site consists of 14,447 square feet of office and laboratory space and is primarily used for preclinical and clinical research. Our lease on this facility expires in March 31, 2026. We believe that our facilities are adequate to meet our needs for the immediate future, and that, should it be needed, suitable additional space will be available to accommodate any such expansion of our operations.

Legal Proceedings

We are not currently a party to any material legal proceedings. From time to time, we may become involved in legal proceedings arising in the ordinary course of our business. Regardless of outcome, litigation can have an adverse impact on us due to defense and settlement costs, diversion of management resources, negative publicity, reputational harm and other factors.

MANAGEMENT

Executive Officers, Directors and Key Employees

Executive Officers

The following table sets forth the names and positions of our executive officers, including their ages, as of March 1, 2021:

Name	Age	Position
David Southwell	60	President, Chief Executive Officer and Director
Gavin MacBeath, Ph.D.	51	Chief Scientific Officer

The following is a biographical summary of the experience of our executive officers.

David Southwell has served as our President, Chief Executive Officer and as a member of our board of directors since October 2018. Prior to joining us, Mr. Southwell was President, Chief Executive Officer and a member of the board of directors of Inotek Pharmaceuticals Corporation from June 2014 until Inotek's merger with Rocket Pharmaceuticals, Inc. in January 2018. Previously, Mr. Southwell served as Executive Vice President, Chief Financial Officer of Human Genome Sciences, Inc. from 2010 until its merger with GlaxoSmithKline plc. in 2012. Prior to Human Genome Sciences, Mr. Southwell served as Executive Vice President and Chief Financial Officer of Sepracor, Inc from 1994 to 2008. Mr. Southwell is a member of the Board of Directors of PTC Therapeutics, Inc., and Rocket Pharmaceuticals. He previously has served on the boards of Spero Therapeutics from 2017 to 2019; Inventiv Health, Inc. in 2016; THL Credit Inc. from 2007 to 2015; Human Genome Sciences Inc. from 2008 until his appointment as Chief Financial Officer in 2010; and Biosphere Medical Inc. as Chairman from 2005 to 2010. Mr. Southwell received a B.A. from Rice University and an M.B.A. from the Tuck School at Dartmouth College, where he has served as head of the M.B.A. Advisory Board from 2008 to 2011, and served on the Board of Advisors from 2011 until 2020. We believe that Mr. Southwell is qualified to serve on our board of directors because of the perspective and experience he provides as our President and Chief Executive Officer as well as his broad experience within the life sciences industry, together with his historical perspective on our operations.

Gavin MacBeath, Ph.D. has served as our Chief Scientific Officer since December 2018. He has two decades of experience in academia and industry, founding companies and driving research from early-stage discovery through drug approval. Prior to joining us, Dr. MacBeath served as the Chief Scientific Officer at Abpro Corporation from March 2017 to July 2018, where he advanced T cell-engaging bispecific antibodies through pre-clinical development. Previously, Dr. MacBeath served as Co-founder and SVP of Discovery at Merrimack Pharmaceuticals, Inc. from February 2014 to October 2016. Dr. MacBeath began his career in academia, where he served as the first fellow at Harvard's Bauer Center for Genomics Research, as an Assistant Professor and later Associate Professor in the Department of Chemistry & Chemical Biology at Harvard University, and as Lecturer and Principal Investigator at Harvard Medical School. Dr. MacBeath received his undergraduate degree from the University of Manitoba, his Ph.D. from The Scripps Research Institute, and postdoctoral training with Dr. Stuart Schreiber at Harvard University.

Non-Employee Directors

The following table sets forth the names and positions of our non-employee directors, including their ages, as of March 1, 2021:

Name	Age	Position
Timothy Barberich	73	Chairperson of the Board
Stephen Biggar, M.D., Ph.D.	50	Director
Katina Dorton	63	Director
Ittai Harel	53	Director
Andrew Hedin	35	Director
Nandita Shangari, Ph.D.	40	Director
Brian Silver(4)	52	Director
Christoph Westphal, M.D., Ph.D.	52	Director

(1) Member of the audit committee
(2) Member of the compensation committee
(3) Member of the nominating and corporate governance
(4) As of May 3, 2021, Mr. Silver plans to resign as a member of our board of directors and become our Chief Financial Officer.

The following is a biographical summary of the experience of our non-employee directors.

Timothy Barberich has served as a member of our board of directors since March 2019 and as the Chair of our board of directors since March 2021. Mr. Barberich is founder and former Chairman and Chief Executive Officer of Sepracor Inc., a publicly traded, research-based, pharmaceutical company based in Marlborough, Massachusetts, which was acquired by Dainippon Sumitomo Pharma Co., Ltd. in 2009. He founded Sepracor in 1984 and served as Chief Executive Officer from 1984 to May 2007 and as Chairman of the Board from 1990 to 2009. Mr. Barberich has been Chairman of BioNevia Pharmaceuticals since June 2008 and Chief Executive Officer since 2014. He currently serves on the board of directors of Frequency Therapeutics, Inc. and Verastem, Inc. He also previously served on the boards of directors of Neurovance Inc, Inotek Pharmaceuticals, Inc., HeartWare, International, Inc., Tokai Pharmaceuticals, BioSphere Medical, Inc. and GeminX Pharmaceuticals until each company was acquired. Mr. Barberich has also served on the board of trustees of Boston Medical Centre and the board of the Pharmaceutical Research and Manufacturers' Association (PhRMA). Prior to founding Sepracor, Mr. Barberich spent 10 years as a senior executive at Bedford, Massachusetts-based Millipore Corporation. Mr. Barberich is a graduate of Kings College and holds a Bachelor's of Science degree in Chemistry. The Board of Directors believes that Mr. Barberich's qualifications to sit on the Board include his significant experience in the development and commercialization of pharmaceutical products, his leadership experience at other pharmaceutical companies and his service on other boards of directors.

Stephen Biggar, M.D., Ph.D. has served as a member of our board of directors since March 2021. Dr. Biggar is a partner at Baker Bros. Advisors LP, a fund management company focused on long-term investments in life-sciences companies where he has served since 2006. From April 2002 to October 2006, he served as a principal with Baker Bros. Advisors LP, which he had joined as an associate in April 2000. Dr. Biggar serves on the boards of Kiniksa Pharmaceuticals, Ltd., and Vivelix Pharmaceuticals, Ltd. Dr. Biggar also served as a director for Synageva BioPharma Corp. Prior to joining Baker Brothers, Dr. Biggar received an M.D. and a Ph.D. in Immunology from Stanford University and received a B.S. in Genetics from the University of Rochester. We believe that Dr. Biggar is qualified to serve as a member of our board of directors due to his extensive experience in the life sciences industry as a venture capitalist.

Katina Dorton, J.D., M.B.A. has served on our board of directors since March 2021. She currently serves as Chief Financial Officer of Nodthera Limited, a company developing medicines to inhibit the NLRP3 inflammasome. She also serves on the board of directors for Fulcrum Therapeutics, Inc., Pandion Therapeutics, Inc., and US Ecology, Inc.. Previously Ms. Dorton has held CFO positions at several biotechnology companies, including Repare Therapeutics Inc., a synthetic lethality and DNA repair-focused oncology company from 2019 through 2020, and AVROBIO, Inc., a lentiviral gene therapy company from 2017 through 2018 and Immatics GmbH, a biotechnology company from 2015 through 2017. Earlier in her career, Ms. Dorton served as a Managing Director in investment banking for Morgan Stanley and Needham & Company and as an attorney at Sullivan & Cromwell. Ms. Dorton received her J.D. from the University of Virginia School of Law, her M.B.A. from George Washington University and her B.A. from Duke University. We believe that Ms. Dorton is qualified to serve on our board of directors due to her extensive leadership experience in multiple publicly-traded and privately-held pharmaceutical and biotechnology companies, and expertise in developing, financing and providing executive leadership in numerous biopharmaceutical companies.

Ittai Harel has served as a member of our board of directors since August 2019. Mr. Harel has served as the Managing General Partner of Pitango Venture Capital since 2006 and has extensive investment experience in the biotechnology and healthcare industry, including digital health, medical devices, diagnostics, and specialty pharma. Before joining Pitango, Mr. Harel headed up Corporate Development at Nektar Therapeutics (Nasdaq: NKTR) and served as Executive Vice President at IDGene Pharmaceuticals, Inc. He also served as head of business development at IDEXX Laboratories, Inc. Mr. Harel currently serves on the board of directors of DouxMatok, Intensix Ltd., LifeBond Ltd., EarlySense, Medisafe, Vertos Medical Inc., and Click Therapeutics, Inc. and serves as Chairman of the Board at LifeBond Ltd. and EarlySense. Mr. Harel holds a B.Sc. in Chemical Engineering and Biotechnology from Ben Gurion University, and an M.B.A. from the Sloan School of Management. We believe that Mr. Harel is qualified to serve as a member of our board of directors due to his extensive experience in the life sciences industry as a venture capitalist.

Andrew Hedin has served as a member of our board of directors since July 2020. Mr. Hedin has served as an investment professional at Bessemer Venture Partners, a venture capital firm, since 2015 and has been a partner since 2021. Mr. Hedin serves as a director or observer of the board of directors of several privately held life sciences and healthcare companies. Mr. Hedin holds an M.B.A. with Honors from The Wharton School and a B.A. from the University of Pennsylvania. We believe that Mr. Hedin is qualified to serve as a member of our board of directors due to his experience in the life sciences industry as a venture capitalist.

Nandita Shangari, Ph.D. has served as a member of our board of directors since September 2020. Dr. Shangari has served as a Principal at the Novartis Venture Fund since 2018. Prior to joining NVF, she was part of the Novartis Oncology Business Development and Licensing team from 2017 to 2018 where she managed key alliances for the Oncology Portfolio. Before that, Dr. Shangari held the Global Program Team Director position as part of the Kymriah® Global Program Team from 2015 to 2017 where she helped bring this novel cell therapy to market, for two indications, in the US and EU. Dr. Shangari has also held strategic and group head roles in the Novartis Preclinical Investigative Toxicology organization. Dr. Shangari received her B.Sc. in Biochemistry and Ph.D. in Pharmaceutical Sciences from the University of Toronto, Canada. We believe that Dr. Shangari is qualified to serve on our board of directors due to her extensive experience in the healthcare sector. Dr. Shangari has notified us that she will resign from our board of directors immediately prior to the effectiveness of the registration statement of which this prospectus forms a part. Dr. Shangari's resignation is not due to any disagreement with us or any matters relating to our operations, policies or practices.

Brian Silver has served as a member of our board of directors since December 2020. Mr. Silver has served as the Chief Financial Officer and Head of Corporate Development of Freeline Therapeutics Holdings plc (Freeline), a systemic gene therapy company focused on inherited rare disorders, since November 2018. Before joining Freeline, Mr. Silver was a partner in the healthcare group of Perella Weinberg Partners, a leading independent global advisory firm, from August 2013 to November 2018. Prior to that, Mr. Silver held a variety of positions in Morgan Stanley's investment banking division, most recently as a managing director in the healthcare group, from March 1998 to July 2013. Before that Mr. Silver was an investment banking associate at

Salomon Brothers from August 1997 to March 1998 and a corporate associate at Sullivan & Cromwell LLP from August 1994 through July 1997. Mr. Silver received an A.B. with honors from Harvard College and a J.D. with honors from the University of Chicago Law School. We believe that Mr. Silver is qualified to serve as a member of our board of directors due to his extensive experience in the pharmaceutical and biotechnology industry, combined with his deep expertise in finance, accounting, business development, and legal affairs. Freeline has announced Mr. Silver's resignation as CFO effective April 30, 2021, and as of May 3, 2021, Mr. Silver plans to step down as a member of our board of directors and become our Chief Financial Officer.

Christoph Westphal, M.D., Ph.D. has served as a member of our board of directors since our founding. Dr. Westphal is one of our co-founders and served as our Chief Executive Officer from our founding through October 2018, at which point Dr. Westphal transitioned to our Chair. Dr. Westphal has been a partner of Longwood Fund, LP, a venture capital investment fund, since 2010. Dr. Westphal co-founded Verastem, Inc. in August 2010, served as Verastem's Chairman since March 2011, and Executive Chairman since July 2013, and was Verastem's Chief Executive Officer from September 2011 to July 2013 and its President from September 2011 until January 2013. Dr. Westphal served as the President of SR One, the corporate venture capital arm of GlaxoSmithKline plc, from 2010 until 2011. Dr. Westphal co-founded Sirtris Pharmaceuticals, Inc., which was acquired by GlaxoSmithKline plc in 2008, and served as its Chief Executive Officer from 2004 to 2010. He also co-founded Alnara Pharmaceuticals, Inc., Concert Pharmaceuticals, Inc., Acceleron Pharma, Inc., serving as its Chief Executive Officer in 2003, Alnylam Pharmaceuticals, Inc., serving as its Chief Executive Officer in 2002, and Momenta Pharmaceuticals, Inc. serving as its Chief Executive Officer in 2001. Dr. Westphal is also co-founder of Longwood portfolio companies, including Immunitas Therapeutics, Inc. serving as its Chief Executive Officer and also as Chairman of the board, ImmuneID serving as executive chair and Pyxis Oncology, Inc. Dr. Westphal has served or currently serves as a member or director of the Boston Commercial Club, the Biotechnology Industry organization's (BIO) Emerging Companies Section Governing Board, the Board of Fellows of Harvard Medical School, and the Board of Trustees of the Boston Symphony Orchestra. He earned his M.D. from Harvard Medical School, his Ph.D. in Genetics from Harvard University and his B.A. from Columbia University. We believe that Dr. Westphal is qualified to serve on our board of directors because of his extensive experience in the medical industry, his service on the boards of directors of other life sciences companies and his extensive leadership experience, together with his historical perspective on our operations.

Board Composition

Our board of directors currently consists of nine members, who were elected pursuant to the amended and restated voting agreement that we entered into with certain holders of our common stock and certain holders of our preferred stock and the related provisions of our amended and restated certificate of incorporation, as currently in effect.

The provisions of this voting agreement will terminate upon the completion of this offering, after which there will be no further contractual obligations regarding the election of our directors, except as described below. Our directors hold office until their successors have been elected and qualified or appointed, or the earlier of their death, resignation or removal.

In connection with our Series C convertible preferred stock financing described in the "Certain relationships and related party transactions" section of this prospectus, we entered into a Nominating Agreement with Baker Brothers Life Sciences, L.P. and 667, L.P. (collectively, the BBA Funds), pursuant to which, among other things, we agreed to support the nomination of, and cause our board of directors (or the nominating committee thereof) to include in the slate of nominees recommended to our stockholders for election as directors at each annual or special meeting of our stockholders at which directors are to be elected, one person designated from time to time by the BBA Funds, subject to the requirements of fiduciary duties under applicable law and the terms and conditions of such Nominating Agreement. The agreement only applies during the period beginning at the closing of our initial public offering until the earliest of the occurrence of (1) such time as the BBA Funds and their affiliates, collectively, no longer beneficially own at least 75% of the Series C convertible preferred stock purchased by the BBA Funds in such Series C convertible preferred stock financing, or such number of shares of our common stock issued upon conversion of such number of shares of Series C convertible preferred stock (in either case, as adjusted

for any stock split, stock dividend, combination, or other recapitalization or reclassification or similar transaction), (2) such time as BBA and their affiliates, collectively, no longer beneficially own at least 2% of our then outstanding voting common stock, and (3) the third anniversary of the closing of our initial public offering.

In accordance with the terms of our amended and restated certificate of incorporation and amended and restated bylaws that will be in effect upon the completion of this offering, our board of directors will be divided into three classes with staggered three-year terms. At each annual meeting of stockholders, the successors to directors whose terms then expire will be elected to serve from the time of election and qualification until the third annual meeting following election. Our directors will be divided among the three classes as follows:

- the Class I directors will be , and and their terms will expire at the first annual meeting of stockholders to be held after the closing of this offering;
- the Class II directors will be , and and their terms will expire at the second annual meeting of stockholders to be held after the closing of this offering; and
- the Class III directors will be , and and their terms will expire at the third annual meeting of stockholders to be held after the closing of this offering.

Directors in a particular class will be elected for three-year terms at the annual meeting of stockholders in the year in which their terms expire. As a result, only one class of directors will be elected at each annual meeting of our stockholders, with the other classes continuing for the remainder of their respective three-year terms. Each director's term continues until the election and qualification of his or her successor, or the earlier of his or her death, resignation or removal.

Our amended and restated certificate of incorporation and amended and restated bylaws that will be in effect upon the completion of this offering provide that only our board of directors can fill vacant directorships, including newly-created seats. Any additional directorships resulting from an increase in the authorized number of directors would be distributed pro rata among the three classes so that, as nearly as possible, each class would consist of one-third of the authorized number of directors.

The classification of our board of directors may have the effect of delaying or preventing changes in our control or management. See the section titled "Description of capital stock—Anti-takeover provisions—Certificate of incorporation and bylaw provisions" elsewhere in this prospectus.

Director Independence

Upon the completion of this offering, we anticipate that our common stock will be listed on Nasdaq. Under the rules of Nasdaq, independent directors must comprise a majority of a listed company's board of directors. In addition, the rules of Nasdaq require that, subject to specified exceptions, each member of a listed company's audit, compensation and nominating and corporate governance committees be independent. Audit committee members and compensation committee members must also satisfy the independence criteria set forth in Rule 10A-3 and Rule 10C-1, respectively, under the Securities Exchange Act of 1934, as amended, or the Exchange Act. Under the rules of Nasdaq, a director will only qualify as an "independent director" if, in the opinion of that company's board of directors, that person does not have a relationship that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director.

To be considered to be independent for purposes of Rule 10A-3 under the Exchange Act and under the rules of Nasdaq, a member of an audit committee of a listed company may not, other than in his or her capacity as a member of the audit committee, the board of directors or any other board committee: (1) accept, directly or indirectly, any consulting, advisory or other compensatory fee from the listed company or any of its subsidiaries or (2) be an affiliated person of the listed company or any of its subsidiaries.

To be considered independent for purposes of Rule 10C-1 under the Exchange Act and under the rules of Nasdaq, the board of directors must affirmatively determine that each member of the compensation committee is independent, including a consideration of all factors specifically relevant to determining whether the director has

a relationship to the company which is material to that director's ability to be independent from management in connection with the duties of a compensation committee member, including, but not limited to: (i) the source of compensation of such director, including any consulting, advisory or other compensatory fee paid by the company to such director and (ii) whether such director is affiliated with the company, a subsidiary of the company or an affiliate of a subsidiary of the company.

Our board of directors undertook a review of its composition, the composition of its committees and the independence of our directors and considered whether any director has a material relationship with us that could compromise his or her ability to exercise independent judgment in carrying out his or her responsibilities. Based upon information requested from and provided by each director concerning his background, employment and affiliations, including family relationships, our board of directors has determined that , representing of our directors, do not have a relationship that would interfere with the exercise of independent judgment in carrying out the responsibilities of a director and that each of these directors is "independent" as that term is defined under the rules of Nasdaq, including in the case of all the members of our audit committee, the independence criteria set forth in Rule 10A-3 under the Exchange Act, and in the case of all the members of our compensation committee, the independence criteria set forth in Rule 10C-1 under the Exchange Act.

In making these determinations, our board of directors considered the current and prior relationships that each non-employee director has with our company and all other facts and circumstances our board of directors deemed relevant in determining his or her independence, including the beneficial ownership of our capital stock by each non-employee director, and the transactions involving them described in the section titled "Certain relationships and related party transactions" elsewhere in this prospectus. There are no family relationships among any of our directors or executive officers.

Board Leadership Structure

Our board of directors is currently chaired by Mr. Barberich. As a general policy, our board of directors believes that separation of the positions of chairperson of our board of directors and Chief Executive Officer reinforces the independence of our board of directors from management, creates an environment that encourages objective oversight of management's performance and enhances the effectiveness of our board of directors as a whole. As such, Mr. Southwell serves as our President and Chief Executive Officer while Mr. Barberich serves as the chairperson of our board of directors but is not one of our executive officers. We currently expect and intend the positions of chairperson of our board of directors and Chief Executive Officer to continue to be held by two individuals in the future.

Role of the Board in Risk Oversight

One of the key functions of our board of directors is informed oversight of our risk management process. In particular, our board of directors is responsible for monitoring and assessing strategic risk exposure. Our executive officers are responsible for the day-to-day management of the material risks we face. Our board of directors administers its oversight function directly as a whole. Our board of directors will also administer its oversight through various standing committees, which will be constituted prior to the completion of this offering, that address risks inherent in their respective areas of oversight. For example, our audit committee will be responsible for overseeing the management of risks associated with our financial reporting, accounting and auditing matters; our compensation committee will oversee the management of risks associated with our compensation policies and programs; and our nominating and corporate governance committee will oversee the management of risks associated with director independence, conflicts of interest, composition and organization of our board of directors and director succession planning.

Board Committees

Our board of directors has previously established an audit committee, a compensation committee and a nominating and corporate governance committee. Prior to the completion of this offering, our board of directors

may establish other committees to facilitate the management of our business. Our board of directors and its committees will set schedules for meeting throughout the year and can also hold special meetings and act by written consent from time to time, as appropriate. Our board of directors expects to delegate various responsibilities and authority to committees as generally described below. The committees will regularly report on their activities and actions to the full board of directors. Each member of each committee of our board of directors will qualify as an independent director in accordance with the listing standards of Nasdaq. We plan to amend and restate the existing charters for each committee of our board of directors prior to the completion of this offering. Upon the completion of this offering, copies of each charter will be posted on the investor relations portion of our website, www.tscan.com. The inclusion of our website address in this prospectus does not include or incorporate by reference the information on our website into this prospectus. Members will serve on these committees until their resignation or until otherwise determined by our board of directors.

Audit Committee

The members of our audit committee are , and . is the chair of the audit committee. Each member of our audit committee can read and understand fundamental financial statements. Each member of our audit committee is independent under the rules and regulations of the SEC and the listing standards of Nasdaq applicable to audit committee members. Our board of directors has determined that qualifies as an audit committee financial expert within the meaning of SEC regulations and meets the financial sophistication requirements of Nasdaq.

Effective at the time of the offering, our audit committee will assist our board of directors with its oversight of the integrity of our financial statements; our compliance with legal and regulatory requirements; the qualifications, independence and performance of the independent registered public accounting firm; the design and implementation of our risk assessment and risk management. Among other things, our audit committee is responsible for reviewing and discussing with our management the adequacy and effectiveness of our disclosure controls and procedures. The audit committee also will discuss with our management and independent registered public accounting firm the annual audit plan and scope of audit activities, scope and timing of the annual audit of our financial statements, and the results of the audit, quarterly reviews of our financial statements and, as appropriate, initiates inquiries into certain aspects of our financial affairs. Our audit committee is responsible for establishing and overseeing procedures for the receipt, retention and treatment of any complaints regarding accounting, internal accounting controls or auditing matters, as well as for the confidential and anonymous submissions by our employees of concerns regarding questionable accounting or auditing matters. In addition, our audit committee has direct responsibility for the appointment, compensation, retention and oversight of the work of our independent registered public accounting firm. Our audit committee has sole authority to approve the hiring and discharging of our independent registered public accounting firm, all audit engagement terms and fees and all permissible non-audit engagements with the independent auditor. Our audit committee will review and oversee all related person transactions in accordance with our policies and procedures.

Our audit committee operates under a written charter that satisfies the applicable rules of the SEC and the listing standards of Nasdaq. We believe that the composition of our audit committee will meet the requirements for independence under current Nasdaq and SEC rules and regulations.

Compensation Committee

The members of our compensation committee are , and . is the chair of the compensation committee. Each member of our compensation committee is independent under the rules and regulations of the SEC and the listing standards of Nasdaq applicable to compensation committee members. Effective at the time of the offering, our compensation committee will assist our board of directors with its oversight of the forms and amount of compensation for our executive officers (including officers reporting under Section 16 of the Exchange Act), the administration of our equity and non-equity incentive plans for employees and other service providers and certain other matters related to our compensation programs. Our compensation

committee, among other responsibilities, evaluates the performance of our chief executive officer and, in consultation with him, evaluates the performance of our other executive officers (including officers reporting under Section 16 of the Exchange Act).

Effective at the time of the offering, our compensation committee will operate under a written charter that satisfies the applicable rules of the SEC and the listing standards of Nasdaq. We believe that the composition of our compensation committee will meet the requirements for independence under current Nasdaq and SEC rules and regulations.

Nominating and Corporate Governance Committee

The members of our nominating and corporate governance committee are , and . Each member of our nominating and governance committee is independent under the rules and regulations of the SEC and the listing standards of Nasdaq applicable to nominating and governance committee members. is the chair of the nominating and corporate governance committee. Effective at the time of the offering, our nominating and corporate governance committee will assist our board of directors with its oversight of and identification of individuals qualified to become members of our board of directors, consistent with criteria approved by our board of directors, and selects, or recommends that our board of directors selects, director nominees; develops and recommends to our board of directors a set of corporate governance guidelines and oversees the evaluation of our board of directors.

Compensation Committee Interlocks and Insider Participation

No member of our compensation committee is currently or has at any time during the past year been an officer or employee of our company. None of our executive officers currently serves, or in the past fiscal year has served, as a member of the board of directors or compensation committee (or other board committee performing equivalent functions or, in the absence of any such committee, the entire board of directors) of any entity that has one or more executive officers serving on our board of directors or compensation committee.

Code of Conduct

Our board of directors will adopt a Code of Conduct prior to the completion of this offering. The Code of Conduct will apply to all of our employees, officers, directors, contractors, consultants, suppliers and agents. Upon the completion of this offering, the full text of the Code of Conduct will be posted on the investor relation portion of our website, www.tscan.com. We intend to disclose future amendments to, or waivers of, the Code of Conduct, as and to the extent required by SEC regulations, at the same location on our website identified above or in public filings. Information contained on our website is not incorporated by reference into this prospectus, and you should not consider information contained on our website to be part of this prospectus or in deciding whether to purchase shares of our common stock. We have included our website address in this prospectus solely as an inactive textual reference.

Director Compensation

Director Compensation Table for the Year Ended December 31, 2020

The following table sets forth information regarding the compensation of our non-employee directors who served as a director during our year ended December 31, 2020. Other than as set forth in the table and described more fully below, during our year ended December 31, 2020, we did not pay any fees to, make any equity awards or non-equity awards to or pay any other compensation to the non-employee members of our board of directors. David Southwell, our President and Chief Executive Officer, receives no compensation for his service as a director, and is not included in the table below. The compensation of Mr. Southwell as a named executive officer is set forth below in the subsection above entitled “—Executive compensation—Summary Compensation Table.”

Katina Dorton and Stephen Biggar, M.D., Ph.D. are not included in the table below since these directors were appointed to our board of directors in 2021.

Name	Fees earned or paid in cash ($)	Stock awards ($)	Option awards ($)(1)(2)	All other compensation ($)	Total ($)
Christoph Westphal, M.D., Ph.D.	—	—	—	—	—
Andrew Hedin	—	—	—	—	—
Nandita Shangari, Ph.D.	—	—	—	—	—
Ittai Harel	—	—	—	—	—
Timothy Barberich	—	—	—	—	—
Douglas Fambrough, Ph.D.(3)	—	—	117,810(6)	—	117,810
Brian Silver	—	—	—	—	—
Hannes Smarason(4)	—	—	—	—	—
Lea Hachigian, Ph.D.(5)	—	—	—	—	—

(1) The amounts in this column represent the aggregate grant date fair value of option awards granted to the non-employee director in the applicable fiscal year computed in accordance with FASB ASC Topic 718. See Note 7 of the notes to our audited financial statements included elsewhere in this prospectus for a discussion of our assumptions made in determining the grant date fair value of our equity awards.
(2) As of December 31, 2020, our non-employee directors held outstanding stock options as follows: Mr. Barberich (options to purchase 392,700 shares) and Dr. Fambrough (options to purchase 392,700 shares)
(3) Dr. Fambrough resigned from our board of directors on March 1, 2021.
(4) Mr. Smarason resigned from our board of directors on January 15, 2021.
(5) Dr. Hachigian resigned from our board of directors on January 21, 2021.
(6) On February 26, 2020, Dr. Fambrough was granted an option to purchase 392,700 shares of our common stock, with an exercise price of $0.30 per share. Such option vested over four years, with 25% of the shares vesting on the first anniversary of February 26, 2020, and 1/48th of the shares vesting upon the completion of each month of continuous service with us thereafter. At the time of Dr. Fambrough's resignation, he was vested in 98,175 shares subject to this stock option. The 294,525 unvested shares subject to this option were forfeited in connection with Dr. Fambrough's resignation. On March 3, 2021, Dr. Fambrough exercised the vested portion of this option for 98,175 shares of our common stock.

On January 27, 2021, Mr. Silver was granted an option to purchase 400,000 shares of our common stock, with an exercise price of $0.71 per share. Such option vests over four years, with 25% of the shares vesting on December 14, 2021, and 1/48th of the shares vesting upon the completion of each month of continuous service with us thereafter.

On March 16, 2021, in connection with her appointment to our board of directors, Ms. Dorton was granted an option to purchase 400,000 shares of our common stock, with an exercise price of $1.41 per share. Such option vests over four years, with 25% of the shares vesting on March 1, 2021, and 1/48th of the shares vesting upon the completion of each month of continuous service with us thereafter.

We entered into a services agreement with Dr. Westphal on October 9, 2018, which was amended in June 2019. Pursuant to the terms of the services agreement, as amended, Dr. Westphal received cash compensation at a monthly rate of $15,000 per month from October 2018 through October 2019. Following October 31, 2019, Dr. Westphal's service to us has been provided for no cash compensation. Dr. Westphal currently directly owns 7,500,000 shares of our common stock.

Prior to this offering, other than as discussed below, we had not implemented a formal policy or agreements with respect to compensation payable to our non-employee directors.

We reimburse our directors for expenses associated with attending meetings of our board of directors and its committees.

Non-Employee Director Compensation Program

We intend to adopt a non-employee director compensation policy, pursuant to which our non-employee directors will be eligible to receive compensation for service on our board of directors and committees of our board of directors, to be effective following the completion of this offering.

EXECUTIVE COMPENSATION

The following discussion relates to the compensation of our Chief Executive Officer, David Southwell, our Chief Scientific Officer, Gavin MacBeath, Ph.D., and our former Chief Business Officer, Henry Rath for the fiscal year ended December 31, 2020. Mr. Southwell, Dr. MacBeath and Mr. Rath are collectively referred to in this prospectus as our named executive officers.

Summary compensation table

The following table shows information regarding the compensation of our named executive officers for the fiscal year ended December 31, 2020.

Name and principal position	Year	Salary ($)	Bonus ($)	Option Awards ($)	All Other Compensation ($)	Total ($)
David Southwell *Chief Executive Officer*	2020	466,700	275,353(2)	—	8,185(3)	750,238
Gavin MacBeath, Ph.D. *Chief Scientific Officer*	2020	350,200	171,598(2)	—	11,170(3)	532,968
Henry Rath *former Chief Business Officer(1)*	2020	355,350	—	—	12,166(3)	367,516

(1) Mr. Rath's employment with us terminated as of January 31, 2021.
(2) Represents bonuses earned in 2020 and paid in 2021.
(3) This amount represents certain benefits paid to the named executive officers, including reimbursement for long term disability insurance, payment of domestic partner medical benefits, and Company matching contributions to 401(k) plan in the amounts of $10,404 and $11,400 to Dr. MacBeath and Mr. Rath, respectively.

Narrative explanation of compensation arrangements with our named executive officers

Base salaries and annual incentive opportunities.

The base salaries of all of our named executive officers are reviewed from time to time and adjusted when our board of directors or its compensation committee determines an adjustment is appropriate. For our 2020 fiscal year, the base salary for Mr. Southwell was $466,700, Dr. MacBeath was $350,200 and Mr. Rath was $355,350. For our 2021 fiscal year, Mr. Southwell's base salary is $550,000 and Dr. MacBeath's base salary is $400,000.

Each of our named executive officers is eligible to earn an incentive bonus each fiscal year, with such bonus awarded based on individual performance goals, as well as achievement of corporate goals related to our product development and advancement of pre-clinical studies established by our chief executive officer and approved by our board of directors. During our fiscal year ended December 31, 2020, our named executive officers were eligible to earn cash incentive bonuses based on a combination of corporate and individual goals. We require that participants continue to be employed through the payment date to receive a bonus. For our 2021 fiscal year, Mr. Southwell's annual bonus target is 55% of his base salary and Dr. MacBeath's annual bonus target is 40% of his base salary.

Pursuant to agreements with us, Mr. Southwell and Dr. MacBeath are each eligible to receive certain acceleration benefits in the event of our change in control, as described in the footnotes to the "Outstanding equity awards at the year ended December 31, 2020" table and under the "Agreements with Our Named Executive Officers and Potential Payments upon Termination or Change of Control" section below.

Equity compensation.

We offer stock options to our employees, including our named executive officers, as the long-term incentive component of our compensation program. Our stock options allow our employees to purchase shares of our common stock at a price equal to the fair market value of our common stock on the date of grant. In the past, our board of directors or compensation committee has determined the fair market value of our common stock based on inputs including valuation reports prepared by third party valuation firms. Generally, our stock options granted to new hires have vested as to 25% of the total number of option shares on the first anniversary of the award and in equal monthly installments over the following 36 months.

Employee benefits and perquisites.

Our named executive officers are eligible to participate in our health and welfare plans to the same extent as are full-time employees generally. We generally do not provide our named executive officers with perquisites or other personal benefits.

Retirement benefits.

We have established a 401(k) tax-deferred savings plan, which permits participants, including our named executive officers, to make contributions by salary deduction pursuant to Section 401(k) of the Internal Revenue Code. We are responsible for administrative costs of the 401(k) plan. We match 100% of every dollar contributed up to 4% of salary, subject to certain limitations under the Internal Revenue Code. In fiscal year 2020, Dr. MacBeath and Mr. Rath received a Company matching contribution of $10,404 and $11,400, respectively.

Outstanding equity awards at the year ended December 31, 2020

The following table sets forth information regarding each unexercised option and all unvested stock held by each of our named executive officers as of December 31, 2020.

The vesting schedule applicable to each outstanding award is described in the footnotes to the table below.

	Outstanding Equity Awards at Fiscal Year-End			
Name	Number of securities underlying unexercised options exercisable (#)	Number of securities underlying unexercised options unexercisable (#)	Option exercise price ($)	Option expiration date
David Southwell	331,689(1),(2),(3)	663,377	$ 0.24	10/8/2028
David Southwell	190,872(1),(2),(3)	381,744	$ 0.24	2/4/2029
David Southwell	411,686(1),(4)	1,235,058	$ 0.30	12/17/2029
Gavin MacBeath, Ph.D.	155,789(1),(2),(5)	315,790	$ 0.24	1/23/2029
Gavin MacBeath, Ph.D.	114,027(1),(4)	342,082	$ 0.30	12/17/2029
Henry Rath	228,026(1),(2),(6)	319,237(7)	$ 0.24	5/7/2029(8)
Henry Rath	60,380(1),(4)	181,142(9)	$ 0.30	12/17/2029(8)

(1) 25% of the shares vest on the first anniversary of the vesting commencement date, and 1/48th of the shares vest upon the completion of each month of continuous service thereafter.
(2) If we are subject to a change of control, then 100% of any unvested shares subject to this option shall immediately vest.
(3) The vesting commencement date is October 9, 2018.
(4) The vesting commencement date is December 5, 2019.
(5) The vesting commencement date is December 3, 2018.
(6) The vesting commencement date is April 22, 2019.
(7) Mr. Rath's employment with us terminated as of January 31, 2021. As a result of this termination, 307,836 of such unexercisable options expired as of such date.

(8) As a result of Mr. Rath's termination of employment, the exercisable portion of the options as of his termination date will expire on April 30, 2021 if unexercised prior to such date.
(9) Mr. Rath's employment with us terminated as of January 31, 2021. As a result of this termination, 176,110 of such unexercisable options expired as of such date.

On January 27, 2021, Mr. Southwell was granted an option to purchase 4,251,733 shares of our common stock, and Dr. MacBeath was granted an option to purchase 1,365,934 shares of our common stock, each with an exercise price of $0.71 per share. Each option vests over four years, with 25% of the shares vesting on the first anniversary of January 25, 2021, and 1/48th of the shares vesting upon the completion of each month of continuous service thereafter.

Employment agreements

Agreements with Our Named Executive Officers and Potential Payments upon Termination or Change of Control

We currently maintain employment agreements with each of Messrs. Southwell and Rath and Dr. MacBeath, as summarized below. The employment agreements provide for at-will employment and, other than in the context of a termination without cause or a resignation for good reason (as such terms are defined in the employment agreements), may be terminated at any time. The severance benefits that Messrs. Southwell and Rath and Dr. MacBeath are entitled to and the acceleration benefits that Mr. Southwell and Dr. MacBeath are entitled to, each pursuant to their offer letters and award agreements, are summarized below.

Agreements with David Southwell

We entered into an employment agreement with Mr. Southwell on October 9, 2018, which was amended in December 2019. Pursuant to the terms of the employment agreement, Mr. Southwell joined us as our President and Chief Executive Officer. Mr. Southwell received a base salary at an initial annual rate of $450,000 per year. He was also eligible to receive an annual performance bonus of up to 50% of his annual base salary, subject to his achievement of certain performance metrics to be approved and updated by our board of directors on an annual basis.

The offer letter also provides Mr. Southwell with severance benefits if the Company terminates his employment without cause or if Mr. Southwell resigns for good reason equal to (i) salary continuation at his then current base salary for nine months following the separation and (ii) COBRA premiums coverage for up to nine months. Such severance payments are conditioned upon Mr. Southwell executing a general release of all claims that he may have against the Company. If such separation without cause or for good reason occurs within 12 months at or following a change of control, then Mr. Southwell will be entitled to an additional six months of severance payments paid as a lump sum and COBRA continuation. The Company's obligation to make severance payments during the applicable severance period will cease immediately upon Mr. Southwell's acceptance of any paid employment or consulting engagement during any period in which the Company is obligation to make such payments, and Mr. Southwell is obligated to inform the Company in the event that he has accepted any such paid employment or consulting engagement. If the Company is subject to a change of control, then 100% of any unvested shares subject to certain of Mr. Southwell's outstanding options shall immediately vest.

"Cause" is defined in the offer letter as (a) any material breach by Mr. Southwell of any agreement to which he and the Company are both parties to and that is injurious to the Company; (b) substantial negligence in the performance of, or substantial failure to perform, his services to the Company, which breach, negligence or failure, as applicable, is not cured within 30 days following written notice by the Company; (c) commission by Mr. Southwell of a felony or other crime involving moral turpitude; or (d) willful misconduct by Mr. Southwell which has, or could reasonably be expected to have, a material adverse effect upon the business, interests or reputation of the Company,

"Resignation for Good Reason" is defined in the offer letter as a separation as a result of Mr. Southwell's resignation after one of the following conditions has come into existence without Mr. Southwell's consent: (a) a material diminution in his compensation (except for across-the-board reductions affecting the Company's similarly situated employees or consultants generally), (b) a material diminution in Mr. Southwell's title (it being understood that the removal of the President title shall not in and of itself constitute "Good Reason"), duties, authority and responsibilities within the Company, or (c) a material breach of the Company's obligations under any agreement between the Company and Mr. Southwell; provided in each case that "Good Reason" shall not exist unless Mr. Southwell has given written notice to the Company within 60 days of the initial existence of the event(s) giving rise to such Good Reason, including specific details regarding such event(s), and unless the Company has thereafter failed to cure such event(s) within 30 days after delivery of such written notice.

Mr. Southwell also entered into our standard Non-Disclosure, Non-Competition and Assignment of Intellectual Property Agreement, which contains 12-month post-termination non-solicitation and non-competition provisions, provided that such 12-month period will automatically be extended for the amount of time, if any, during which Mr. Southwell engages in any activity in violation of such provisions.

Agreements with Gavin MacBeath, Ph.D.

We entered into an offer letter with Dr. MacBeath on November 28, 2018. Pursuant to the terms of the offer letter, Dr. MacBeath joined the Company as its Chief Scientific Officer. Dr. MacBeath received a one-time signing bonus equal to $10,000, and a base salary at an initial annual rate of $340,000 per year. He was also eligible to receive an incentive performance bonus of up to 35% of his annual base salary, which bonus amount shall be determined by our board of directors and dependent on the achievement of specific company, team and individual performance objectives.

The offer letter also provides Dr. MacBeath with severance benefits if the Company terminates his employment without cause, equal to salary continuation at his then current base salary for six months following the separation, subject to Dr. MacBeath executing a general release of claims against the Company. If the Company is subject to a change of control, then 100% of any unvested shares subject to certain of Dr. MacBeath's outstanding options shall immediately vest.

"Cause" is defined in the offer letter as (a) a material breach by Dr. MacBeath of any agreement to which he and the Company are both parties to and that is injurious to the Company; (b) negligence in the performance of, or substantial failure to perform, his services to the Company, which breach, negligence or failure, as applicable, is not cured within 30 days following written notice by the Company; (c) commission by Dr. MacBeath of a felony or other crime involving moral turpitude; or (d) willful misconduct by Dr. MacBeath which has, or could reasonably be expected to have, a material adverse effect upon the business, interests or reputation of the Company.

In addition, on December 31, 2020, Dr. MacBeath entered into our standard Proprietary Information and Inventions Agreement, which contains one-year post-termination non-solicitation and non-competition provisions, provided that such one-year period will automatically be extended for an additional year following the separation date if Dr. MacBeath breaches a fiduciary duty to the Company or unlawfully takes, physically or electronically, any property belonging to the Company.

Agreements with Henry Rath

We entered into an offer letter with Mr. Rath on April 8, 2019. Pursuant to the terms of the offer letter, Mr. Rath joined the Company as its Chief Business Officer on April 23, 2019. Mr. Rath received a base salary at an initial annual rate of $345,000 per year. He was also eligible to receive an incentive performance bonus of up

to 35% of his annual base salary, which bonus amount shall be determined by our board of directors and dependent on the achievement of specific company, team and individual performance objectives.

The offer letter also provides Mr. Rath with severance benefits if the Company terminates his employment without cause, equal to salary continuation at his then current base salary for six months following the separation, subject to Mr. Rath executing a general release of claims against the Company. “Cause” is defined in the offer letter as (a) a material breach by Mr. Rath of any agreement to which he and the Company are both parties to and that is injurious to the Company; (b) negligence in the performance of, or substantial failure to perform, his services to the Company, which breach, negligence or failure, as applicable, is not cured within 30 days following written notice by the Company; (c) commission by Mr. Rath of a felony or other crime involving moral turpitude; or (d) willful misconduct by Mr. Rath which has, or could reasonably be expected to have, a material adverse effect upon the business, interests or reputation of the Company

In addition, on April 23, 2019, Mr. Rath entered into our standard Proprietary Information and Inventions Agreement, which contains one-year post-termination non-solicitation and non-competition provisions, provided that such one-year period will automatically be extended for an additional year following the separation date if Mr. Rath breaches a fiduciary duty to the Company or unlawfully takes, physically or electronically, any property belonging to the Company. As noted above, however, the non-competition restrictions were waived by the Company upon Mr. Rath’s execution and non-revocation of his separation agreement.

On January 26, 2021, we entered into a separation agreement with Mr. Rath. Such agreement was amended on February 3, 2021, and, subject to the terms and conditions thereof, provides for (i) the continuation of his base salary for six months, equal to an aggregate amount of $172,500 and (ii) a transition bonus in the amount of $32,000, to be paid in two installments, each subject to Mr. Rath’s full cooperation and support of his transition and compliance with the separation agreement. The first installment of the transition bonus in the amount of $15,000 was paid on February 28, 2021, and the second in the amount of $17,000 shall be paid on March 31, 2021. Further, the Company waived the post-termination non-compete restrictions contained in Mr. Rath’s Proprietary Information and Inventions Agreement with the Company. The separation agreement contains a one-year non-solicitation covenant. In addition, the Company agreed to use its best efforts to seek the approval of the Company’s board of directors to allow Mr. Rath to exercise the options that were vested as of his termination date to be exercised on a cashless net exercise basis at any time before the expiration date of the applicable option.

Equity plans

2021 Equity Incentive Plan

Our board of directors intends to adopt our 2021 Equity Incentive Plan, or the 2021 Plan, prior to the offering, and it will be submitted to our stockholders for approval. We expect that our 2021 Plan will become effective upon the effectiveness of the registration statement of which this prospectus is a part. Our 2021 Plan is intended to replace our 2018 Stock Plan, or the 2018 Plan. However, awards outstanding under our 2018 Plan will continue to be governed by their existing terms. Although not yet adopted, we expect that our 2021 Plan will have the features described below.

Share Reserve. The number of shares of our common stock available for issuance under our 2021 Plan will equal the sum of shares plus up to shares remaining available for issuance under, or issued pursuant to or subject to awards granted under, our 2018 Plan. The number of shares reserved for issuance under our 2021 Plan will be increased automatically on the first business day of each of our fiscal years, commencing in 2021 and ending in 2031, by a number equal to the smallest of:

- shares;
- % of the shares of common stock outstanding on the last business day of the prior fiscal year; or
- the number of shares determined by our board of directors.

In general, to the extent that any awards under our 2021 Plan or our 2018 Plan are forfeited, terminate, expire or lapse without the issuance of shares, or if we repurchase the shares subject to awards granted under our 2021 Plan, those shares will again become available for issuance under our 2021 Plan or our 2018 Plan, as will shares applied to pay the exercise or purchase price of an award or to satisfy tax withholding obligations related to any award.

Administration. The compensation committee of our board of directors will administer our 2021 Plan. The compensation committee will have complete discretion to make all decisions relating to our 2021 Plan and outstanding awards, including repricing outstanding options and modifying outstanding awards in other ways.

Eligibility. Employees, non-employee directors, consultants and advisors will be eligible to participate in our 2021 Plan.

Under our 2021 Plan, the aggregate grant date fair value of awards granted to our non-employee directors may not exceed $ in any one fiscal year, except that the grant date fair value of awards granted to newly appointed non-employee directors may not exceed $ in the fiscal year in which such non-employee director is initially appointed to our board of directors.

Types of awards. Our 2021 Plan will provide for the following types of awards:

- incentive and nonstatutory stock options;
- stock appreciation rights;
- restricted shares; and
- stock units.

Options and Stock Appreciation Rights. The exercise price for options granted under our 2021 Plan may not be less than 100% of the fair market value of our common stock on the grant date. Optionees will be permitted to pay the exercise price in cash or, with the consent of the compensation committee:

- with shares of common stock that the optionee already owns;
- by an immediate sale of shares through a broker approved by us;
- by instructing us to withhold a number of shares having an aggregate fair market value that does not exceed the exercise price; or
- by other methods permitted by applicable law.

An optionee who exercises a stock appreciation right receives the increase in value of our common stock over the base price. The base price for stock appreciation rights may not be less than 100% of the fair market value of our common stock on the grant date. The settlement value of a stock appreciation right may be paid in cash, shares of our common stock or a combination.

Options and stock appreciation rights vest as determined by the compensation committee. In general, they will vest over a four-year period following the date of grant. Options and stock appreciation rights expire at the time determined by the compensation committee but in no event more than ten years after they are granted. These awards generally expire earlier if the participant’s service terminates earlier.

Restricted Shares and Stock Units. Restricted shares and stock units may be awarded under our 2021 Plan in return for any lawful consideration, and participants who receive restricted shares or stock units generally are not required to pay cash for their awards. In general, these awards will be subject to vesting. Vesting may be based on length of service, the attainment of performance-based milestones or a combination of both, as determined by the compensation committee.

Corporate Transactions. In the event we are a party to a merger, consolidation or certain change in control transactions, outstanding awards granted under our 2021 Plan, and all shares acquired under our 2021 Plan, will be subject to the terms of the definitive transaction agreement (or, if there is no such agreement, as determined by our compensation committee). Unless an award agreement provides otherwise, such treatment may include any of the following with respect to each outstanding award:

- the continuation, assumption or substitution of an award by a surviving entity or its parent;
- the cancellation of an award without payment of any consideration;
- the cancellation of the vested portion of an award (and any portion that becomes vested as of the effective time of the transaction) in exchange for a payment equal to the excess, if any, of the value that the holder of each share of our common stock receives in the transaction over (if applicable) the exercise price otherwise payable in connection with the award; or
- the assignment of any reacquisition or repurchase rights held by us in respect of an award of restricted shares to the surviving entity or its parent (with proportionate adjustments made to the price per share to be paid upon exercise of such rights).

The compensation committee is not required to treat all awards, or portions thereof, in the same manner.

The vesting of an outstanding award may be accelerated by the administrator upon the occurrence of a change in control, whether or not the award is to be assumed or replaced in the transaction, or in connection with a termination of service following a change in control transaction.

A change in control includes:

- any person acquiring beneficial ownership of more than 50% of our total voting power;
- the sale or other disposition of all or substantially all of our assets; or
- our merger or consolidation after which our voting securities represent 50% or less of the total voting power of the surviving or acquiring entity.

Changes in Capitalization. In the event of certain changes in our capital structure without our receipt of consideration, such as a stock split, reverse stock split or dividend paid in common stock, proportionate adjustments will automatically be made to:

- the maximum number and kind of shares available for issuance under our 2021 Plan, including the maximum number and kind of shares that may be issued upon the exercise of incentive stock options;
- the maximum number and kind of shares covered by, and exercise price, base price or purchase price, if any, applicable to each outstanding stock award; and
- the maximum number and kind of shares by which the share reserve may increase automatically each year.

In the event that there is a declaration of an extraordinary dividend payable in a form other than our common stock in an amount that has a material effect on the price of our common stock, a recapitalization, a spin-off or a similar occurrence, the compensation committee may make such adjustments to any of the foregoing as it deems appropriate, in its sole discretion.

Amendments or Termination. Our board of directors may amend, suspend or terminate our 2021 Plan at any time. If our board of directors amends our 2021 Plan, it does not need stockholder approval of the amendment unless required by applicable law, regulation or rules. Our 2021 Plan will terminate automatically 10 years after the later of the date when our board of directors adopted our 2021 Plan or approved the latest share increase that was also approved by our stockholders.

2018 Stock Plan

Our board of directors adopted and our stockholder approved our 2018 Stock Plan, or the 2018 Plan, in April 2018. No further awards will be made under our 2018 Plan after this offering; however, awards outstanding under our 2018 Plan will continue to be governed by their existing terms.

Share Reserve. As of December 31, 2020, we have reserved 13,282,049 shares of our common stock for issuance under our 2018 Plan, all of which may be issued as incentive stock options. As of December 31, 2020, options to purchase 11,852,840 shares of our common stock, at exercise prices ranging from $0.24 to $0.64 per share, or a weighted-average exercise price of $0.32 per share were outstanding under our 2018 Plan, and 240,026 shares of our common stock remained available for future issuance. Unissued shares subject to awards that expire, are forfeited, or are cancelled, shares reacquired by us and shares withheld in payment of the purchase price or exercise price of an award or in satisfaction of withholding taxes will again become available for issuance under our 2018 Plan or, following consummation of this offering, under our 2021 Plan.

Administration. Our board of directors, or a committee thereof, has administered our 2018 Plan since its adoption; however, following this offering, the compensation committee of our board of directors will generally administer our 2018 Plan. The administrator has complete discretion to make all decisions relating to our 2018 Plan and outstanding awards.

Eligibility. Employees, non-employee members of our board of directors and consultants are eligible to participate in our 2018 Plan. However, only employees are eligible to receive incentive stock options.

Types of Awards. Our 2018 Plan provides for the following types of awards granted with respect to shares of our common stock:

- incentive and nonstatutory stock options to purchase shares of our common stock;
- direct award or sale of shares of our common stock, including restricted shares; and
- restricted stock units.

Options. The exercise price for options granted under our 2018 Plan is determined by our board of directors, but may not be less than 100% of the fair market value of our common stock on the grant date. Optionees may pay the exercise price in cash or cash equivalents or by one, or any combination of, the following forms of payment, as permitted by the administrator in its sole discretion:

- Surrender of shares of common stock that the optionee already owns;
- Delivery of a full-recourse promissory note, with the option shares pledged as security against the principal and accrued interest on the note;
- An immediate sale of the option shares through a company-approved broker, if the shares of our common stock are publicly traded;
- Surrendering a number of vested shares subject to the option having an aggregate fair market value no greater than the aggregate exercise price, or the sum of such exercise price plus all or a portion of the minimum amount required to be withheld under applicable law; or
- Other methods permitted by the Delaware General Corporation Law, as amended.

Options vest as determined by the administrator. In general, we have granted options that vest over a four-year period. Options expire at the time determined by the administrator, but in no event more than ten years after they are granted, and generally expire earlier if the optionee’s service terminates.

Restricted Shares. Restricted shares may be awarded or sold under our 2018 Plan in return for cash or cash equivalents or, as permitted by the administrator in its sole discretion, in exchange for services rendered to us, by delivery of a full-recourse promissory note or through any other means permitted by applicable law. Restricted shares vest as determined by the administrator.

Restricted Stock Units. Restricted stock units may be awarded or sold under our 2018 Plan. No cash consideration shall be required of the recipient in connection with the grant of restricted stock units. Settlement of vested restricted stock units may be made in the form of (i) cash, (ii) shares of our common stock, or (iii) any combination of both, as determined by the administrator. Restricted stock units vest as determined by the administrator.

Corporate Transactions. In the event that we are a party to a merger or consolidation or in the event of a sale of all or substantially all of our stock or assets, awards granted under our 2018 Plan will be subject to the agreement governing such transaction or, in the absence of such agreement, in the manner determined by the administrator. Such treatment may include, without limitation, one or more of the following with respect to outstanding awards:

- The continuation, assumption or substitution of an award by the surviving entity or its parent;
- Cancellation of the vested portion of the award in exchange for a payment equal to the excess, if any, of the value of the shares subject to the award over any exercise price per share applicable to the award;
- Cancellation of the award without payment of any consideration;
- Suspension of the optionee's right to exercise the option during a limited period of time preceding the completion of the transaction; or
- Termination of any right the optionee has to exercise the option prior to vesting in the shares subject to the option.

The administrator is not obligated to treat all awards in the same manner. The administrator has the discretion, at any time, to provide that an award under our 2018 Plan will vest on an accelerated basis in connection with a corporate transaction or to amend or modify an award so long as such amendment or modification is not inconsistent with the terms of the 2018 Plan or would not result in the impairment of a participant's rights without the participant's consent.

Changes in Capitalization. In the event of certain specified changes in the capital structure of our common stock, such as a stock split, reverse stock split, stock dividend, reclassification or any other increase or decrease in the number of issued shares of stock effective without receipt of consideration by us, proportionate adjustments will automatically be made in (i) each of the number and kind of shares available for future grants under our 2018 Plan, (ii) the number and kind of shares covered by each outstanding option and all restricted shares, (iii) the exercise price per share subject to each outstanding option and (iv) any repurchase price applicable to shares granted under our 2018 Plan. In the event of an extraordinary cash divided that has a material effect on the fair market value of our common stock, a recapitalization, spin-off or other similar occurrence, the administrator at its sole discretion may make appropriate adjustments to one or more of the items described above.

Amendments or Termination. The administrator may at any time amend, suspect or terminate our 2018 Plan, subject to stockholder approval in the case of an amendment if the amendment increases the number of shares available for issuance or materially changes the class of persons eligible to receive incentive stock options. Our 2018 Plan will terminate automatically ten years after the later of the date when our board of directors adopted the plan or the date when our board of directors most recently approved an increase in the number of shares reserved thereunder which was also approved by our stockholders, provided, however, that in any event, it will terminate upon the completion of this offering, but as noted above, awards outstanding under our 2018 Plan will remain outstanding and will continue to be governed by their existing terms.

2021 Employee Stock Purchase Plan

General. Our board of directors intends to adopt our 2021 Employee Stock Purchase Plan, or 2021 ESPP. Our 2021 ESPP will become effective as of the effective date of the registration statement of which this

prospectus is a part. Our 2021 ESPP is intended to qualify under Section 423 of the Internal Revenue Code. Our 2021 ESPP has the features described below.

Share Reserve. shares of our common stock have been reserved for issuance under our 2021 ESPP. The number of shares reserved for issuance under our 2021 ESPP will automatically be increased on the first business day of each of our fiscal years, commencing in 2022 and ending in 2041, by a number equal to the least of:

- shares;
- 1% of the shares of common stock issued and outstanding on the last business day of the prior fiscal year; or
- the number of shares determined by our board of directors.

The number of shares reserved under our 2021 ESPP will automatically be adjusted in the event of a stock split, stock dividend or a reverse stock split (including an adjustment to the per-purchase period share limit).

Administration. The compensation committee of our board of directors will administer our 2021 ESPP.

Eligibility. All of our employees will be eligible to participate in our ESPP, although the administrator may exclude certain categories of employees from an offering period, as permitted by applicable law, including employees employed for less than two years, working less than 20 hours per week, who are employed less than five months per year, or are highly compensated employees. Eligible employees may begin participating in our 2021 ESPP at the start of any offering period.

Offering Periods. Each offering period will last a number of months determined by the compensation committee, not to exceed 27 months. A new offering period will begin periodically, as determined by the compensation committee. Offering periods may overlap or may be consecutive.

Amount of Contributions. Our 2021 ESPP will permit each eligible employee to purchase common stock through payroll deductions. Each employee's payroll deductions may not exceed 50% of the employee's cash compensation. Each participant may purchase up to the number of shares determined by our board of directors on any purchase date, not to exceed shares. The value of the shares purchased in any calendar year may not exceed $25,000. Participants may withdraw their contributions at any time before stock is purchased.

Purchase Price. The price of each share of common stock purchased under our 2021 ESPP will not be less than 85% of the lower of the fair market value per share of common stock on the first day of the applicable offering period or the fair market value per share of common stock on the purchase date.

Other Provisions. Employees may end their participation in our 2021 ESPP at any time. Participation ends automatically upon termination of employment with us. If we experience a change in control, our 2020 ESPP will end and shares will be purchased with the payroll deductions accumulated to date by participating employees, unless the rights to purchase our common stock under the 2021 ESPP for an offering period then in progress are continued, assumed or substituted by the surviving entity. Our board of directors or our compensation committee may amend or terminate our 2021 ESPP at any time.

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

The following is a description of transactions since our incorporation on April 17, 2018 to which we have been a party in which the amount involved exceeded the lesser of (i) $120,000 or (ii) one percent of the average of our total assets at year end for the last two completed fiscal years; and in which any of our executive officers, directors or beneficial holders of more than 5% of our capital stock (or any immediate family member of, or person sharing the household with, any of these individuals or entities), which we collectively refer to as a related person, had or will have a direct or indirect material interest, other than compensation arrangements which are described in "Management—Director compensation" and "Executive compensation." We believe that all of these transactions were on terms as favorable as could have been obtained from unrelated third parties.

Sales of Securities

Series A Convertible Preferred Stock Financing

In June 2018 and December 2018, we issued and sold an aggregate of 26,315,790 shares of our Series A convertible preferred stock at a cash purchase price of $0.95 per share for an aggregate purchase price of approximately $25 million. Each share of Series A convertible preferred stock will convert into one share of common stock upon the completion of this offering The table below sets forth the number of shares of Series A convertible preferred stock sold to our directors, executive officers and holders of more than 5% of our capital stock:

Investor(1)	Shares of Series A convertible preferred stock	Total purchase price
Entities affiliated with 6 Dimensions Capital	5,263,158	$ 5,000,000
Entities affiliated with Bessemer Venture Partners	5,263,158	5,000,000
Entities affiliated with GV	5,263,158	5,000,000
Longwood Fund IV, L.P.	5,263,158	5,000,000
Novartis Bioventures Ltd.	5,263,158	5,000,000

(1) See "Principal stockholders" for additional information about shares held by these entities and individuals.

Series B Convertible Preferred Stock Financing

In July and August 2019, we issued and sold an aggregate of 27,272,728 shares of our Series B convertible preferred stock at a cash purchase price of $1.10 per share for an aggregate purchase price of approximately $30 million. Then, in November 2019, we issued and sold an aggregate of 4,329,004 shares of our Series B convertible preferred stock at a cash purchase price of $1.155 per share for an aggregate purchase price of approximately $5 million. Each share of Series B convertible preferred stock will convert into one share of common stock upon the completion of this offering. The table below sets forth the number of shares of Series B convertible preferred stock sold to our directors, executive officers and holders of more than 5% of our capital stock:

Investor(1)	Shares of Series B convertible preferred stock	Total purchase price
Entities affiliated with 6 Dimensions Capital	5,454,545	$ 6,000,000
Entities affiliated with Bessemer Venture Partners	2,727,273	3,000,000
Entities affiliated with GV	2,727,273	3,000,000
Longwood Fund IV, L.P.	2,727,273	3,000,000
Novartis Bioventures Ltd.	2,727,273	3,000,000
Novartis Institutes for Biomedical Research, Inc.	4,545,455	5,000,000
Astellas Venture Management LLC	4,329,004	5,000,000
Entities affiliated with Pitango Healthtech	5,931,819	6,525,001

(1) See "Principal stockholders" for additional information about shares held by these entities.

Series C Convertible Preferred Stock Financing

In January 2021, we issued and sold an aggregate of 70,136,064 shares of our Series C convertible preferred stock at a cash purchase price of $1.4258 per share for an aggregate purchase price of approximately $100 million. Each share of Series C convertible preferred stock will convert into one share of common stock upon the completion of this offering The table below sets forth the number of shares of Series C convertible preferred stock sold to our directors, executive officers and holders of more than 5% of our capital stock:

Investor(1)	Shares of Series C convertible preferred stock	Total purchase price
Entities affiliated with 6 Dimensions Capital	2,104,082	$ 3,000,000
Entities affiliated with Bessemer Venture Partners	1,402,721	2,000,000
Entities affiliated with GV	841,633	1,200,000
Longwood Fund IV, L.P.	1,402,721	2,000,000
Novartis Bioventures Ltd.	2,244,354	3,200,000
Entities affiliated with Pitango Healthtech	2,104,082	3,000,000
Entities affiliated with Baker Bros. Advisors LP	32,478,654	46,308,065
JMD III Holdings Limited	10,520,410	15,000,000

(1) See “Principal Stockholders” for additional information about shares held by these entities.

Agreements With Stockholders

Investors’ Rights Agreement

In connection with the sale of our Series C convertible preferred stock, we entered into an amended and restated investors’ rights agreement with certain investors, including entities affiliated with 6 Dimensions Capital, Bessemer Venture Partners, entities affiliated with GV, Longwood Fund IV, L.P., Novartis Bioventures Ltd., Pitango Healthtech, entities affiliated with Baker Bros. Advisors LP, and JMD III Holdings Limited and including entities with which certain of our directors are affiliated. Under our investors’ rights agreement, certain holders of our capital stock have the right to demand that we file a registration statement or request that their shares of our capital stock be covered by a registration statement that we are otherwise filing. See the section titled “Description of capital stock—Registration rights” elsewhere in this prospectus for additional information regarding these registration rights. Other customary investor rights under this agreement, including rights of information, observation and first refusal, will terminate immediately before the consummation of this offering.

Voting Agreement

In connection with the sale of our Series C convertible preferred stock, we entered into an amended and restated voting agreement with certain investors, including entities affiliated with 6 Dimensions Capital, Bessemer Venture Partners, entities affiliated with GV, Longwood Fund IV, L.P., Novartis Bioventures Ltd., Pitango Healthtech, entities affiliated with Baker Bros Advisors LP, and JMD III Holdings Limited and including entities with which certain of our directors are affiliated. Under our voting agreement, certain holders of our capital stock have agreed as to the manner in which they will vote their shares of our capital stock on certain matters, including with respect to the election of directors. The voting agreement will terminate upon the completion of this offering, at which time there will be no further contractual obligations regarding the manner in which shares are voted with respect to the election of our directors.

Right of First Refusal and Co-Sale Agreement

In connection with the sale of our Series C convertible preferred stock, we entered into an amended and restated first refusal and co-sale agreement with certain investors, including entities affiliated with 6 Dimensions Capital, Bessemer Venture Partners, entities affiliated with GV, Longwood Fund IV, L.P., Novartis Bioventures Ltd., Pitango Healthtech, entities affiliated with Baker Bros Advisors LP, and JMD III Holdings Limited and including entities with which certain of our directors are affiliated. Under our first refusal and co-sale agreement, certain holders of our capital stock have the right of first refusal and co-sale relating to the shares of our common

stock held by the parties to the agreement. Upon the consummation of this offering our first refusal and co-sale agreement will terminate.

License Agreements

Collaboration and License Agreement with Novartis

On March 27, 2020, we entered into a Collaboration and License Agreement, or the Novartis Agreement, with Novartis Institutes for BioMedical Research, Inc., or Novartis. Pursuant to the Novartis Agreement, Novartis paid us an upfront fee of $20.0 million and agreed to fund up to $10.0 million in research costs. We granted Novartis options to obtain exclusive, worldwide licenses to certain target antigens identified in performance of the Novartis Agreement and corresponding T-cell receptors for such target antigens. Novartis can exercise each option by paying us $10.0 million and can exercise up to three options (each target antigen for which Novartis exercises an option, or the Optioned Program.

For each Optioned Program, Novartis is required to pay us up to an aggregate of $230.0 million upon achievement of certain clinical milestones and milestones for the first commercial sale in certain countries with respect to products directed to the corresponding target antigen. Novartis is also required to pay us up to an aggregate of $260.0 million upon achievement of certain annual net sales milestones for products directed to the corresponding target antigen for each Optioned Program. In addition, for each Optioned Program, Novartis is required to pay us, on a product-by-product and country-by-country basis, tiered royalties in the low-single-digit to mid-single-digit percentage on Novartis', its affiliates' and sublicensees' net sales of certain products directed to target antigens for each Optioned Program and in the mid-single-digit to low-double-digit percentage on Novartis' net sales of products directed to such antigens and containing a T-cell receptor we identified to Novartis in our performance of the Novartis Agreement, subject to certain customary reductions. Royalties will be payable on a product-by-product and country-by-country basis during the period of time commencing on the first commercial sale of an applicable product in a country and ending upon the later of: (a) 10 years from the date of first commercial sale of such product in such country; (b) expiration of the last-to-expire valid claim of patents licensed by us to Novartis under the Novartis Agreement covering the manufacture, use or sale of such product in such country; or (c) the expiration of any regulatory or marketing exclusivity in such country with respect to such product. Novartis may terminate the Novartis Agreement entirely or on a program-by-program basis at any time for convenience upon 90 days' notice, but Novartis will be required to pay any payment obligations incurred prior to termination.

Royalty Agreement

In connection with our incorporation in April 2018 we entered into a royalty agreement with Christoph Westphal, M.D., Ph.D. who is one of our founders. We amended and restated this royalty agreement in June 2018 and our founder assigned his rights and obligations under the royalty agreement to one of his affiliated entities in January 2021. At the time the original royalty agreement and the amended and restated version were executed, Dr. Westphal was our chief executive officer and the chairman of our board of directors. Pursuant to the royalty agreement, we are required to pay the aforementioned affiliated entity a royalty of 1% of net sales (as defined in the royalty agreement) of any product sold by us or by any of our direct or indirect licensees for use in the treatment of any disease or disorder covered by a pending patent application or issued patent held or controlled by us as of the last date that the founder was providing services to us as a director or consultant under a written agreement. Royalties are payable with respect to each applicable product for a defined period of time set forth in the royalty agreement. We may not assign our rights and obligations under the royalty agreement except in the event of a change in control relating to our company. The term of the royalty agreement continues until expiration of the last applicable royalty term.

Nominating Rights and Registration Rights Agreements with BBA Funds

In connection with our Series C convertible preferred stock financing, we entered into a Nominating Agreement with Baker Brothers Life Sciences, L.P. and 667, L.P. (collectively, the "BBA Funds"), pursuant to which, among other things, we agreed to support the nomination of, and cause our board of directors (or the nominating committee thereof) to include in the slate of nominees recommended to our stockholders for election as directors at each annual or special meeting of our stockholders at which directors are to be elected, one person designated from time to time by the BBA Funds, subject to the requirements of fiduciary duties under applicable law and the terms and conditions of such Nominating Agreement. The agreement only applies during the period beginning at the closing of our initial public offering until the earliest of the occurrence of (1) such time as the BBA Funds and their affiliates, collectively, no longer beneficially own at least 75% of the Series C convertible preferred stock purchased by the BBA Funds in such Series C convertible preferred stock financing, or such number of shares of our common stock issued upon conversion of such number of shares of Series C convertible preferred stock (in either case, as adjusted for any stock split, stock dividend, combination, or other recapitalization or reclassification or similar transaction), (2) such time as the BBA Funds and their affiliates, collectively, no longer beneficially own at least 2% of our then outstanding voting common stock, and (3) the third anniversary of the closing of our initial public offering.

Also in connection with our Series C convertible preferred stock financing, we entered into a Registration Rights Agreement with the BBA Funds, pursuant to which, among other things, we agreed to provide the BBA Funds with certain "resale" registration rights and related "piggy-back" rights.

Additionally, we agreed to use commercially reasonable efforts to cause the underwriters of this offering to provide the BBA Funds the opportunity to participate in this offering in an amount equal to such the BBA Funds' pro rata share of an aggregate of at least 25% of the total number shares of common stock being offered by us, excluding in such calculation any shares offered for sale pursuant to the underwriters' option to purchase additional shares in connection with this offering. Despite our commercially reasonable efforts, the underwriters may, in their sole discretion, determine that the BBA Funds' participation in such proportion is not advisable and designate a reduced number of, or no, shares for purchase by the BBA Funds.

Equity Grants to Executive Officers and Directors

We have agreements with and have granted stock options to certain of our executive officers and non-employee directors, as more fully described in "Executive compensation."

Indemnification Agreements

We have entered, and intend to continue to enter, into separate indemnification agreements with each of our directors and executive officers, in addition to the indemnification provided for in our restated certificate of incorporation and amended and restated bylaws. The indemnification agreements and our restated certificate of incorporation and amended and restated bylaws that will be in effect upon the completion of this offering require us to indemnify our directors, executive officers and certain controlling persons to the fullest extent permitted by Delaware law.

Employment Agreements

We have entered into employment agreements with our executive officers. For more information regarding these agreements, see the section entitled "Executive compensation—Employment agreements."

Consulting and Other Agreements With Our Directors

We have entered into consulting and other agreements with certain of our directors. For more information regarding these agreements, see the section entitled "Management—Director compensation."

Related Party Transaction Policy

Effective upon the completion of this offering, we intend to adopt a formal written policy providing that we are not permitted to enter into any transaction that exceeds $120,000 and in which any related person has a direct or indirect material interest without the consent of our audit committee. Our audit committee will have the primary responsibility for reviewing and approving or disapproving such "related party transactions." The charter of our audit committee will provide that our audit committee shall review and approve in advance any related party transaction. In approving or rejecting any such transaction, our audit committee is to consider the relevant facts and circumstances available and deemed relevant to our audit committee, including whether the transaction is on terms no less favorable than terms generally available to an unaffiliated third party under the same or similar circumstances and the extent of the related person's interest in the transaction.

All of the transactions described in this section were entered into prior to the adoption of this policy. Although we have not had a written policy for the review and approval of transactions with related persons, our board of directors has historically reviewed and approved any transaction where a director or officer had a financial interest, including the transactions described above. Prior to approving such a transaction, the material facts as to relationship or interest of the relevant director, officer or holder of 5% or more of any class of our voting securities in the agreement or transaction was disclosed to our board of directors. Our board of directors took this information into account when evaluating the transaction and in determining whether such transaction was fair to us and in the best interest of all our stockholders.

PRINCIPAL STOCKHOLDERS

The following table sets forth information with respect to the beneficial ownership of our common stock as of , 2021 and as adjusted to reflect the sale of common stock offered by us in this offering, for:

- each of the named executive officers;
- each of our directors;
- all of current our executive officers and directors as a group; and
- each person, or group of affiliated persons, who is known by us to beneficially own more than 5% of our common stock.

We have determined beneficial ownership in accordance with the rules of the SEC. Except as indicated in the footnotes below, we believe, based on the information furnished to us, that the persons and entities named in the table below have sole voting and investment power with respect to all shares of common stock that they beneficially own, subject to applicable community property laws.

Applicable percentage ownership is based on shares of common stock outstanding as of , 2021, after giving effect to the conversion of all outstanding shares of preferred stock as of that date into an aggregate of shares of our common stock. For purposes of computing percentage ownership after this offering, we have assumed that (i) shares of common stock will be issued by us in this offering; (ii) the underwriters will not exercise their option to purchase up to additional shares and (iii) none of our executive officers, directors or stockholders who beneficially own more than five percent of our common stock will participate in this offering. In computing the number of shares of common stock beneficially owned by a person or entity and the percentage ownership of that person or entity, we deemed to be outstanding all shares of common stock subject to options held by that person or entity that are currently exercisable or that will become exercisable within 60 days of , 2021. We did not deem these shares outstanding, however, such shares were included for the purpose of computing the percentage ownership of any other person or entity.

Conversion of Preferred Stock in Connection with This Offering

Upon the closing of this offering, each outstanding share of our Series A convertible preferred stock Series B convertible preferred stock and Series C convertible preferred stock, will automatically convert into shares of common stock in accordance with the provisions of our second amended and restated certificate of incorporation, or our current charter. Our current charter provides that if a holder of our preferred stock, together with its affiliates, would beneficially own shares of our common stock in excess of 4.99% following such conversion, such holder may elect to instead convert part or all of its shares of preferred stock into shares of a new class of common stock that will be non-voting but otherwise have the same rights and preferences as our common stock. Any holder of shares of non-voting common stock may convert these shares into shares of our common stock, unless, immediately prior to or following such conversion, the holder and its affiliates beneficially own, or would beneficially own, more than 4.99% of our issued and outstanding shares of common stock. Any such holder of shares of our preferred stock has the right to increase or decrease this beneficial ownership limitation, in its sole discretion, by providing us with 61 days' prior written notice.

Unless otherwise indicated, the address of each beneficial owner listed in the table below is c/o TScan Therapeutics, Inc., 830 Winter Street, Waltham, Massachusetts 02451.

Name	Shares beneficially owned	Percentage beneficially owned	
		Prior to offering	After offering
Five percent or greater stockholders			
Entities affiliated with Baker Bros. Advisors LP(1)			
Entities affiliated with 6 Dimensions Capital(2)			
Entities affiliated with Bessemer Venture Partners(3)			
Longwood Fund IV, L.P.(4)			
Novartis Bioventures Ltd.(5)			
JMD III Holdings Limited(6)			
Entities affiliated with GV(7)			
Entities affiliated with Pitango Healthtech Fund(8)			
Directors and named executive officers:			
David Southwell(9)			
Gavin MacBeath, Ph.D.(10)			
Henry Rath(11)			
Timothy Barberich			
Andrew Hedin			
Nandita Shangari, Ph.D.			
Ittai Harel			
Christoph Westphal, M.D., Ph.D.(12)			
Brian Silver(13)			
Katina Dorton			
Stephen Biggar, M.D., Ph.D.			
All current executive officers and directors as a group (persons) (14)			

* Represents beneficial ownership of less than one percent.

(1) Consists of (i) shares of common stock held by 667, L.P. (667) and (ii) shares of common stock held by Baker Brothers Life Sciences, L.P. (Baker Life Sciences and together with 667, the BBA Funds). Baker Bros. Advisors LP, or BBA, is the management company and investment adviser to the BBA Funds and has complete and unlimited discretion and authority with respect to the BBA Funds investments and voting power over investments. Baker Bros. Advisors (GP) LLC, or BBA-GP, is the sole general partner of BBA. The managing members of BBA-GP are Julian C. Baker and Felix J. Baker. BBA-GP, Felix J. Baker, Julian C. Baker and BBA may be deemed to be beneficial owners of the securities directly held by the BBA Funds. The address for the above referenced entities is 860 Washington Street, 3rd Floor, New York, NY 10014.

(2) Consists of (i) shares of common stock held by 6 Dimensions Capital, L.P. and (ii) shares of common stock held by 6 Dimension Affiliates Fund, L.P. The general partner of each of 6 Dimensions Capital, L.P. and 6 Dimensions Affiliates Fund, L.P. is 6 Dimensions Capital GP, LLC, which is in turn ultimately controlled by Dr. Chen Lian Yong (Leon). Wei Li, Ph.D., is an affiliate of 6 Dimensions Capital GP, LLC and a member of our board of directors. The address of 6 Dimensions Capital, L.P. and 6 Dimensions Affiliates Fund, L.P., is Unit 6706, 67/F, The Center, 99 Queen's Road Central, Central, Hong Kong.

(3) Consists of (i) shares of common stock held by Bessemer Venture Partners IX L.P. (BVP IX) and (ii) shares of common stock held by Bessemer Venture Partners IX Institutional L.P., (BVP IX Institutional, and together with BVP IX, the BVP Entities). Deer IX & Co. L.P. (Deer IX LP) is the general partner of the Bessemer Entities, and Deer IX & Co. Ltd. (Deer IX Ltd) is the general partner of Deer IX L.P. Each of Deer IX LP and Deer IX Ltd has voting and dispositive power over the shares held by the BVP Entities. Robert P. Goodman, David J. Cowan, Byron B. Deeter, Jeremy S. Levine, Robert M. Stavis and Adam Fisher are the directors of Deer IX Ltd and may be deemed to have voting and dispositive power over the shares held by the BVP Entities. Investment and voting decisions with respect to the shares held by the BVP Entities are made by the directors of Deer IX Ltd. acting as an investment committee. The address of each of these entities is c/o Bessemer Venture Partners, 1865 Palmer Ave., Suite 104, Larchmont, NY 10538.

(4) These shares of common stock are held by Longwood Fund IV, L.P. (Longwood). The general partner of Longwood is Longwood Fund IV GP, LLC (Longwood GP). Longwood GP may be deemed to have sole voting and dispositive power over the shares held by Longwood. Each of Richard Aldrich and Christoph Westphal, M.D., Ph.D. are managers of Longwood GP and may be deemed to share voting and dispositive power over of the shares held by Longwood. The address of Longwood and Longwood GP is 800 Boylston St., Suite 1555, Boston, MA 02199.

(5) Consists of shares of common stock held by Novartis Bioventures Ltd. and shares of common stock held by Novartis Institutes for BioMedical Research, Inc. (referred to as "NIBR") (collectively referred to as the "Novartis Entities"). Novartis Bioventures Ltd. is a Swiss corporation and an indirect wholly owned subsidiary of Novartis AG. NIBR is an indirect wholly owned subsidiary of, and controlled by, Novartis AG. As a result, Novartis Bioventures Ltd. and Novartis AG may be deemed to have shared voting and investment power over the securities held by Novartis Bioventures Ltd. and NIBR and Novartis AG may be deemed to have shared voting and investment power over the securities held by NIBR. The address for each of Novartis Bioventures Ltd. and Novartis AG is Lichtstrasse 35, CH-4056 Basel, Switzerland. The address for NIBR is 250 Massachusetts Avenue, Cambridge, MA 02139.

(6) These shares of common stock are held by JMD III Holdings Limited. JMD III Holdings Limited is incorporated in the Cayman Islands and is wholly owned by Hillhouse Venture Fund V, L.P. Hillhouse Capital Management, Ltd. ("HCM") acts as the sole management company of Hillhouse Venture Fund V, L.P. HCM is deemed to be the beneficial owner of, and to control the voting power of, the shares held by JMD III Holdings Limited. The registered address of JMD III Holdings Limited is 89 Nexus Way, Camana Bay, P.O. Box 31106, Grand Cayman KY1-1205, Cayman Islands.

(7) Consists of (i) shares of common stock held by GV 2017, L.P. and (ii) shares of common stock held by GV 2019, L.P. GV 2017 GP, L.P. (the general partner of GV 2017, L.P.), GV 2017 GP, L.L.C. (the general partner of GV 2017 GP, L.P.), Alphabet Holdings LLC (the managing member of GV 2017 GP, L.L.C.), XXVI Holdings Inc. (the managing member of Alphabet Holdings LLC) and Alphabet Inc. (the controlling stockholder of XXVI Holdings Inc.) may each be deemed to have sole power to vote or dispose of the shares held directly by GV 2017, L.P. GV 2019 GP, L.P. (the general partner of GV 2019, L.P.), GV 2019 GP, L.L.C. (the general partner of GV 2019 GP, L.P.), Alphabet Holdings LLC (the managing member of GV 2019 GP, L.L.C.), XXVI Holdings Inc. (the managing member of Alphabet Holdings LLC) and Alphabet Inc. (the controlling stockholder of XXVI Holdings Inc.) may each be deemed to have sole power to vote or dispose of the shares held directly by GV 2019, L.P. The principal business address of GV 2017, L.P., GV 2017 GP, L.P., GV 2017 GP, L.L.C., GV 2019, L.P., GV 2019 GP, L.P., GV 2019 GP, L.L.C., Alphabet Holdings LLC, XXVI Holdings Inc. and Alphabet Inc. is 1600 Amphitheatre Parkway, Mountain View, CA 94043.

(8) Consists of (i) shares are held of record by Pitango HealthTech Fund I, L.P., and (ii) shares held of record by Pitango HealthTech Principals Fund I, L.P; and (iii) shares held of record by Pitango HealthTech Fund I – Israel, L.P (collectively, the Pitango Entities). The Pitango Principals (as defined below) possess shared voting and dispositive power with respect to all shares of common stock held by all Pitango Entities. The general partner of the Pitango Entities is Pitango HT Fund I, L.P (the GP). The general partner of the GP is Pitango GP Health Holdings Ltd. (the GP of The GP). The partners in the GP are, either directly or via holding companies and intermediary entities formed for tax purposes, the following individuals: Guy Ezekiel, Ittai Harel, Aaron Mankovski, Zeev Binman, Isaac Hillel, Eyal Nic, Nechemia (Chemi) Peres, Ayal Itzkovits and Rami Kalish (the Pitango Principals). The shareholder of the GP of the GP is the Pitango Entities' management company, Pitango HealthTech Management 2019 Ltd. (the Management Company). The Pitango Principals are the shareholders of the Management Company . The Pitango Principals therefore possess shared voting and dispositive power with respect to all shares of common stock held by all Pitango reporting persons. The address for the above listed entities is 11 HaMenofim Street, Building B, Herzeliya 4672562, Israel.

(9) Consists of (i) shares of common stock held by Mr. Southwell and (ii) shares of common stock issuable upon exercise of outstanding stock options held by Mr. Southwell, which are exercisable within 60 days of , 2021.

(10) Consists of (i) shares of common stock held by Dr. MacBeath and (ii) shares of common stock issuable upon exercise of outstanding stock options held by Dr. MacBeath, which are exercisable within 60 days of , 2021.

(11) Consists of shares of common stock issuable upon exercise of outstanding stock options held by Mr. Rath. To the extent unexercised, the stock options held by Mr. Rath will expire on May 21, 2021.

(12) Consists of (i) shares of common stock held by Dr. Westphal and (ii) shares of common stock held by Dr. Sylvia Westphal.

(13) Consists of shares of common stock issuable upon exercise of outstanding stock options held by Mr. Silver, which are exercisable within 60 days of , 2021.

(14) Consists of (i) shares held by our current directors and executive officers, and (ii) shares subject to options exercisable within 60 days of , 2021.

DESCRIPTION OF CAPITAL STOCK

The following descriptions of our capital stock and certain provisions of our amended and restated certificate of incorporation and amended and restated bylaws are summaries and are qualified by reference to the amended and restated certificate of incorporation and the amended and restated bylaws that will be in effect upon completion of this offering. A description of our capital stock and the material terms and provisions of our amended and restated certificate of incorporation and amended and restated bylaws that will be in effect upon the completion of this offering and affecting the rights of holders of our capital stock is set forth below. The forms of our amended and restated certificate of incorporation and our amended and restated bylaws to be adopted in connection with this offering will be filed as exhibits to the registration statement relating to this prospectus.

Upon the completion of this offering, our amended and restated certificate of incorporation will authorize shares of undesignated preferred stock, the rights, preferences and privileges of which may be designated from time to time by our board of directors.

Upon the completion of this offering, our authorized capital stock will consist of shares, all with a par value of $0.0001 per share, of which:

- shares are designated common stock; and
- shares are designated preferred stock.

As of December 31, 2020, after giving effect to (i) the issuance of 70,136,064 shares of Series C convertible preferred stock issued in January 2021 and (ii) the conversion of all outstanding shares of preferred stock, including the shares of Series C convertible preferred stock into an aggregate of shares of our common stock, there were outstanding:

- shares of our common stock held of record by stockholders; and
- shares of our common stock issuable upon exercise of outstanding stock options.

Common Stock

Dividend Rights

Subject to preferences that may apply to shares of preferred stock outstanding at the time, the holders of outstanding shares of our common stock are entitled to receive dividends out of funds legally available if our board of directors, in its discretion, determines to issue dividends and only then at the times and in the amounts that our board of directors may determine. See “Dividend policy” for more information.

Voting Rights

The holders of our common stock are entitled to one vote per share. Stockholders do not have the ability to cumulate votes for the election of directors. Our amended and restated certificate of incorporation and amended and restated bylaws that will be in effect upon the completion of this offering will provide for a classified board of directors consisting of three classes of approximately equal size, each serving staggered three-year terms. Only one class of directors will be elected at each annual meeting of our stockholders, with the other classes continuing for the remainder of their respective three-year terms.

No Preemptive or Similar Rights

Our common stock is not entitled to preemptive rights and is not subject to conversion, redemption or sinking fund provisions.

Right to Receive Liquidation Distributions

Upon our dissolution, liquidation or winding-up, the assets legally available for distribution to our stockholders are distributable ratably among the holders of our common stock, subject to prior satisfaction of all outstanding debt and liabilities and the preferential rights and payment of liquidation preferences, if any, on any outstanding shares of preferred stock.

Preferred Stock

Upon the completion of this offering, no shares of preferred stock will be outstanding, but we will be authorized, subject to limitations prescribed by Delaware law, to issue preferred stock in one or more series, to establish from time to time the number of shares to be included in each series and to fix the designation, powers, preferences and rights of the shares of each series and any associated qualifications, limitations or restrictions. Our board of directors also can increase or decrease the number of shares of any series, but not below the number of shares of that series then outstanding, without any further vote or action by our stockholders. Our board of directors may authorize the issuance of preferred stock with voting or conversion rights that could adversely affect the voting power or other rights of the holders of the common stock. The issuance of preferred stock, while providing flexibility in connection with possible acquisitions and other corporate purposes, could, among other things, have the effect of delaying, deferring or preventing a change in control of our company and may adversely affect the market price of our common stock and the voting and other rights of the holders of common stock. We have no current plan to issue any shares of preferred stock.

Options

As of December 31, 2020, there were options to purchase 11,852,840 shares of our common stock outstanding, at a weighted average exercise price of $0.32 per share, of which 2,973,359 were vested and exercisable as of that date. All of such options were granted under our 2018 Plan.

Registration Rights

Following the completion of this offering, the holders of shares of our common stock issued upon the conversion of our preferred stock will be entitled to contractual rights to require us to register those shares under the Securities Act. These registration rights are provided under the terms of our amended and restated investors' rights agreement between us and the holders of these shares, which we entered into on January 15, 2021.

We will pay all expenses relating to any demand or piggyback registration described below, other than underwriting discounts and commissions. The registration rights terminate upon the earliest to occur of: (i) the fifth anniversary of the completion of this offering; (ii) a liquidation event; or (iii) with respect to the registration rights of an individual holder, such time after consummation of this offering as Rule 144 or another similar exemption under the Securities Act is available for the sale of all of such holder's shares without limitation during a three-month period.

Demand Registration Rights

The holders of the registrable securities will be entitled to certain demand registration rights. At any time beginning 180 days following the effectiveness of this offering, the holders of 35% or more of the registrable securities then outstanding may make a written request that we register at least 35% of the registrable securities (or a lesser percent if the anticipated aggregate offering price, net of selling expenses, would exceed $10 million) some or all of their registrable securities, subject to certain specified conditions and exceptions. We are required to use commercially reasonable efforts to effect the registration and will pay all registration expenses, other than underwriting discounts and commissions, related to any demand registration. We are not obligated to effect more than two of these registrations.

Piggyback Registration Rights

In connection with this offering, holders of our registrable securities were entitled to, and the necessary percentage of holders waived, their rights to notice of this offering and to include their registrable securities in this offering. If we propose to register any of our securities under the Securities Act either for our own account or for the account of other stockholders in another offering, the holders of shares having registration rights will, subject to certain exceptions, be entitled to include their shares in our registration statement, provided that the underwriters of any such offering have the right to limit the number of shares included in the registration. These registration rights are subject to specified other conditions and limitations as set forth in our amended and restated investors' rights agreement.

Form S-3 Registration Rights

At any time after we are qualified to file a registration statement on Form S-3, and subject to limitations and conditions specified in the amended and restated investors' rights agreement, the holders of registrable securities then outstanding may make a written request that we prepare and file a registration statement on Form S-3 under the Securities Act covering their shares, so long as the aggregate price to the public is at least $3,000,000. We are not obligated to effect more than two of these Form S-3 registrations in any 12-month period. Such holders will pay pro rata all expenses related to filing a registration statement on Form S-3.

Anti-Takeover Provisions

Delaware Law

Upon the completion of this offering, we will be governed by the provisions of Section 203 of the Delaware General Corporation Law regulating corporate takeovers. This section prevents some Delaware corporations from engaging, under some circumstances, in a business combination, which includes a merger or sale of at least 10% of the corporation's assets with any interested stockholder, meaning a stockholder who, together with affiliates and associates, owns or, within three years prior to the determination of interested stockholder status, did own 15% or more of the corporation's outstanding voting stock, unless:

- the transaction is approved by the board of directors prior to the time that the interested stockholder became an interested stockholder;
- upon closing of the transaction that resulted in the stockholder becoming an interested stockholder, the interested stockholder owned at least 85% of the voting stock of the corporation outstanding at the time the transaction began, excluding for purposes of determining the voting stock outstanding those shares owned (i) by persons who are directors and also officers and (ii) employee stock plans in which employee participants do not have the right to determine confidentially whether shares held subject to the plan will be tendered in a tender or exchange offer; or
- subsequent to such time that the stockholder became an interested stockholder the business combination is approved by the board of directors and authorized at an annual or special meeting of stockholders by at least two-thirds of the outstanding voting stock which is not owned by the interested stockholder.

A Delaware corporation may "opt out" of these provisions with an express provision in its original certificate of incorporation or an express provision in its certificate of incorporation or amended and restated bylaws resulting from a stockholders' amendment approved by at least a majority of the outstanding voting shares. We have not opted out of these provisions. As a result, mergers or other takeover or change in control attempts of us may be discouraged or prevented.

Certificate of Incorporation and Bylaw Provisions

Upon the completion of this offering, our amended and restated certificate of incorporation and our amended and restated bylaws will include a number of provisions that may have the effect of deterring hostile takeovers or delaying or preventing changes in control of our management team, including the following:

- *Board of Directors Vacancies*. Our amended and restated certificate of incorporation and amended and restated bylaws will authorize our board of directors to fill vacant directorships, including newly-created seats. In addition, the number of directors constituting our board of directors will be set only by resolution adopted by a majority vote of our entire board of directors. These provisions will prevent a stockholder from increasing the size of our board of directors and gaining control of our board of directors by filling the resulting vacancies with its own nominees.
- *Classified Board*. Our amended and restated certificate of incorporation and amended and restated bylaws will provide that our board of directors will be classified into three classes of directors, each of which will hold office for a three-year term. In addition, directors may only be removed from the board of directors for cause and only by the approval of 66 2/3% of our then-outstanding shares of our common stock. A third party may be discouraged from making a tender offer or otherwise attempting to obtain control of us as it is more difficult and time consuming for stockholders to replace a majority of the directors on a classified board of directors.
- *Stockholder Action; Special Meeting of Stockholders*. Our amended and restated certificate of incorporation will provide that stockholders will not be able to take action by written consent, and will only be able to take action at annual or special meetings of our stockholders. Stockholders will not be permitted to cumulate their votes for the election of directors. Our amended and restated bylaws will further provide that special meetings of our stockholders may be called only by a majority vote of our entire board of directors, the chairman of our board of directors or our chief executive officer.
- *Advance Notice Requirements for Stockholder Proposals and Director Nominations.* Our amended and restated bylaws will provide advance notice procedures for stockholders seeking to bring business before our annual meeting of stockholders, or to nominate candidates for election as directors at any meeting of stockholders. Our amended and restated bylaws will also specify certain requirements regarding the form and content of a stockholder's notice. These provisions may preclude our stockholders from bringing matters before our annual meeting of stockholders or from making nominations for directors at our meetings of stockholders.
- *Issuance of Undesignated Preferred Stock*. Our board of directors will have, the authority, without further action by the holders of common stock, to issue up to 10,000,000 shares of undesignated preferred stock with rights and preferences, including voting rights, designated from time to time by the board of directors. The existence of authorized but unissued shares of preferred stock will enable our board of directors to render more difficult or discourage an attempt to obtain control of us by means of a merger, tender offer, proxy contest or otherwise.

Choice of Forum

Upon the completion of this offering, our amended and restated certificate of incorporation will provide that the Court of Chancery of the State of Delaware is the exclusive forum for any derivative action or proceeding brought on our behalf, any action asserting a breach of fiduciary duty, any action asserting a claim against us arising pursuant to the Delaware General Corporation Law, our amended and restated certificate of incorporation or our amended and restated bylaws or any action asserting a claim against us that is governed by the internal affairs doctrine. This provision would not apply to claims brought to enforce a duty or liability created by the Securities Act or Exchange Act or any other claim for which the federal courts have exclusive jurisdiction. Our amended and restated certificate of incorporation provides further that the federal district courts of the United States will be the exclusive forum for resolving any complaint asserting a cause of action arising under the Securities Act or Exchange Act. These choices of forum provisions may limit a stockholder's ability to bring a

claim in a judicial forum that it finds favorable for disputes with us or our directors, officers or other employees and may discourage these types of lawsuits. Furthermore, the enforceability of similar choice of forum provisions in other companies' certificates of incorporation has been challenged in legal proceedings, and it is possible that a court could find these types of provisions to be inapplicable or unenforceable. While the Delaware courts have determined that such choice of forum provisions are facially valid, a stockholder may nevertheless seek to bring a claim in a venue other than those designated in the exclusive-forum provisions, and there can be no assurance that such provisions will be enforced by a court in those other jurisdictions. If a court were to find the exclusive-forum provision contained in our amended and restated certificate of incorporation to be inapplicable or unenforceable in an action, we may incur additional costs associated with resolving such action in other jurisdictions, which could harm our business.

Transfer Agent and Registrar

Upon the completion of this offering, the transfer agent and registrar for our common stock will be . The transfer agent's address is , and its telephone number is .

Listing

We intend to apply to list our common stock on The Nasdaq Global Market under the symbol "TCRX."

SHARES ELIGIBLE FOR FUTURE SALE

Before this offering, there has not been a public market for shares of our common stock and a liquid trading market for our common stock may not develop or be sustained after this offering. Future sales of substantial amounts of shares of our common stock, including shares issued upon the exercise of outstanding options, in the public market following this offering or the possibility of these sales occurring, could cause the prevailing market price for our common stock to fall or impair our ability to raise equity capital through sales of equity securities in the future.

Following this offering, we will have outstanding shares of our common stock, based on the number of shares outstanding as of December 31, 2020. This includes shares of common stock that we are selling in this offering, which shares may be resold in the public market immediately unless purchased by our affiliates and assuming no additional exercise of outstanding options other than as described elsewhere in this prospectus and the conversion of all outstanding shares of our preferred stock into an aggregate of shares of our common stock upon the closing of this offering.

Of these shares, all shares sold in this offering will be freely tradable without restriction under the Securities Act, unless purchased by our "affiliates," as that term is defined in Rule 144 under the Securities Act. The remaining shares of common stock that are not sold in this offering will be "restricted securities," as that term is defined in Rule 144 under the Securities Act, and we expect that substantially all of these restricted securities will be subject to the 180-day lock-up period under the lock-up agreements as described below. These restricted securities are eligible for public sale only if they are registered under the Securities Act or if they qualify for an exemption from registration under Rule 144 or Rule 701 under the Securities Act, which are summarized below.

In addition, we, our executive officers and directors, and substantially all of our security holders have entered into market standoff agreements with us or lock-up agreements with the underwriters under which they have agreed, subject to specific exceptions, not to sell any of our capital stock until at least 180 days after the date of this prospectus, as described below. As a result of these agreements and the provisions of our investors' rights agreement disclosed in "Description of capital stock—Registration rights," subject to the provisions of Rule 144 or Rule 701, shares will be available for sale in the public market as follows:

- beginning on the date of this prospectus, the shares sold in this offering will be immediately available for sale in the public market, unless purchased by our affiliates;
- beginning 181 days after the date of this prospectus, additional shares will become eligible for sale in the public market, of which shares will be held by affiliates and subject to the volume and other restrictions of Rule 144, as described below; and
- the remainder of the shares will be eligible for sale in the public market from time to time thereafter, subject in some cases to the volume and other restrictions of Rule 144, as described below.

We cannot estimate the number of shares of our common stock that our existing stockholders will elect to sell under Rule 144.

Rule 144

In general, under Rule 144 as currently in effect, a person who has beneficially owned shares of our restricted common stock for at least six months would be entitled to sell their securities provided that such person is not deemed to have been one of our affiliates at the time of, or at any time during the 90 days preceding, a sale, and we are subject to the periodic reporting requirements of the Exchange Act, for at least 90 days before the sale. In addition, under Rule 144, any person who is not an affiliate of ours and has held their shares for at least one year, including the holding period of any prior owner other than one of our affiliates, would be entitled to sell an unlimited number of shares immediately upon the completion of this offering without regard to whether

current public information about us is available. Persons who have beneficially owned shares of our restricted common stock for at least six months but who are our affiliates at the time of, or any time during the 90 days preceding, a sale, would be subject to additional restrictions, by which such person would be entitled to sell within any three-month period only a number of securities that does not exceed the greater of either of the following:

- 1% of the number of shares of our capital stock then outstanding, which will equal shares immediately after the completion of this offering, assuming no exercise by the underwriters of their option to purchase additional shares; or
- the average weekly trading volume of our common stock on Nasdaq during the four calendar weeks preceding the filing of a notice on Form 144 with respect to such sale.

provided, in each case, that we have been subject to the Exchange Act periodic reporting requirements for at least 90 days before the sale. Such sales both by affiliates and by non-affiliates must also comply with the manner of sale, current public information and notice provisions of Rule 144.

Rule 701

Any of our employees, directors, officers, consultants, advisors or service providers, other than a person who is deemed to have been one of our affiliates during the immediately preceding 90 days, who purchased shares under a written compensatory plan or contract prior to this offering may be entitled to rely on the resale provisions of Rule 701. Rule 701, as currently in effect, permits resales of shares, in reliance upon Rule 144 but without compliance with certain restrictions, including the holding period requirement, of Rule 144. Rule 701 further provides that non-affiliates may sell such shares in reliance on Rule 144 without having to comply with the public information, volume limitation or notice provisions of Rule 144. All holders of Rule 701 shares are required to wait until 90 days after the date of this prospectus before selling such shares if such resale is pursuant to Rule 701. All Rule 701 shares are, however, subject to lock-up agreements and will only become eligible for sale upon the expiration of these lock-up agreements.

Lock-Up Agreements

In connection with this offering, we and all directors and officers and the holders of substantially all of our outstanding stock and stock options have agreed with the underwriters, subject to certain exceptions, not to offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, lend, or otherwise transfer or dispose of, directly or indirectly, shares of our common stock or any securities convertible into or exchangeable for shares of our common stock or enter into any swap or other arrangement that transfers to another any of the economic consequences of ownership of our common stock during the period from the date of this prospectus continuing through the date 180 days after the date of this prospectus, except with the prior written consent of Morgan Stanley & Co. LLC, Jefferies LLC, Cowen and Company, LLC, and Barclays Capital Inc. These agreements are subject to certain exceptions, as set forth in “Underwriters.”

Certain of our employees, including our executive officers, and directors may enter into written trading plans that are intended to comply with Rule 10b5-1 under the Exchange Act. Sales under these trading plans would not be permitted until the expiration of the lock-up agreements relating to our initial public offering described above.

Registration Rights

Under our amended and restated investors’ rights agreement, after the completion of this offering, the holders of up to shares of our common stock will, subject to the lock-up agreements referred to above, be entitled to certain rights, subject to certain conditions, to require us to file registration statements covering their shares or to include their shares in registration statements that we may file for ourselves or other

stockholders. The registration of these shares of our common stock under the Securities Act would result in these shares becoming eligible for sale in the public market without restriction under the Securities Act immediately upon the effectiveness of such registration, subject to the Rule 144 limitations applicable to affiliates. See the section titled “Description of capital stock—Registration rights” for a description of these registration rights.

Equity Plans

As of December 31, 2020, we had outstanding options to purchase an aggregate of 11,852,840 shares of our common stock under the 2018 Plan. Following this offering, we intend to file a registration statement on Form S-8 under the Securities Act to register all of the shares of our common stock subject to options outstanding or reserved for issuance under our equity plans. We expect to file this registration statement as soon as practicable after the completion of this offering. This registration statement will become effective immediately upon filing, and shares covered by this registration statement will thereupon be eligible for sale in the public markets, subject to vesting restrictions, the lock-up agreements described above and Rule 144 limitations applicable to affiliates. For a more complete discussion of our stock plans, see “Executive compensation—Equity plans.”

MATERIAL U.S. FEDERAL INCOME TAX CONSEQUENCES FOR NON-U.S. HOLDERS OF OUR COMMON STOCK

The following is a general discussion of the material U.S. federal income tax considerations applicable to non-U.S. holders (as defined below) with respect to their ownership and disposition of shares of our common stock issued pursuant to this offering. For purposes of this discussion, a non-U.S. holder means a beneficial owner of our common stock (other than an entity or arrangement that is treated as a partnership for U.S. federal income tax purposes) that is not, for U.S. federal income tax purposes, any of the following:

- an individual citizen or resident of the United States;
- a corporation (or other entity treated as a corporation for U.S. federal income tax purposes) created or organized in the United States or under the laws of the United States, any state thereof or the District of Columbia;
- an estate, the income of which is includable in gross income for U.S. federal income tax purposes regardless of its source; or
- a trust if (i) a court within the United States is able to exercise primary supervision over the administration of the trust and one or more "U.S. persons," as defined under the Code, have the authority to control all substantial decisions of the trust or (ii) such trust has made a valid election to be treated as a U.S. person for U.S. federal income tax purposes.

This discussion is based on current provisions of the Internal Revenue Code of 1986, as amended, or "Code", existing, temporary and proposed Treasury Regulations promulgated thereunder, judicial opinions, published positions of the Internal Revenue Service, or "IRS", and other applicable authorities, all of which are subject to change or to differing interpretation, possibly with retroactive effect. This discussion assumes that a non-U.S. holder holds shares of our common stock as a capital asset (generally, property held for investment) for U.S. federal income tax purposes. This discussion does not address all aspects of U.S. federal income taxation that may be important to a particular non-U.S. holder in light of that non-U.S. holder's individual circumstances, nor does it address any aspects of the unearned income Medicare contribution tax pursuant to the Health Care and Education Reconciliation Act of 2010, any U.S. gift taxes, any U.S. alternative minimum taxes or any state, local or non-U.S. taxes. This discussion may not apply, in whole or in part, to particular non-U.S. holders in light of their individual circumstances or to holders subject to special treatment under the U.S. federal income tax laws (such as insurance companies, tax-exempt organizations, financial institutions, brokers or dealers in securities, "controlled foreign corporations," "passive foreign investment companies," non-U.S. holders that hold our common stock as part of a straddle, conversion transaction or other integrated investment, holders who own, actually or constructively, more than 5% of our common stock, and certain U.S. expatriates).

If a partnership (or other entity or arrangement treated as a partnership for U.S. federal income tax purposes) holds our common stock, the tax treatment of a partner therein will generally depend on the status of the partner and the activities of the partnership. Partners of a partnership holding our common stock should consult their tax advisor as to the particular U.S. federal income tax consequences applicable to them.

INVESTORS CONSIDERING THE PURCHASE OF OUR COMMON STOCK SHOULD CONSULT THEIR OWN TAX ADVISORS REGARDING THE APPLICATION OF THE U.S. FEDERAL INCOME AND ESTATE TAX LAWS TO THEIR PARTICULAR SITUATIONS AND THE CONSEQUENCES OF NON-U.S., STATE, OR LOCAL LAWS AND TAX TREATIES.

Dividends

We do not expect to declare or make any distributions on our common stock in the foreseeable future. If we do pay dividends on shares of our common stock, however, such distributions will constitute dividends for U.S. federal income tax purposes to the extent paid from our current or accumulated earnings and profits, as

determined under U.S. federal income tax principles. Distributions in excess of our current and accumulated earnings and profits will constitute a return of capital that is applied against and reduces, but not below zero, a non-U.S. holder's adjusted tax basis in shares of our common stock. Any excess will be treated as capital gain and such gain will be subject to the treatment described below under "—Gain on sale or other disposition of common stock." Any such distributions will also be subject to the discussion below under "—Backup withholding and information reporting" and "—Foreign account tax compliance act."

Any dividend paid to a non-U.S. holder on our common stock that is not effectively connected with a non-U.S. holder's conduct of a trade or business in the United States will generally be subject to U.S. withholding tax at a 30% rate. The withholding tax might apply at a reduced rate, however, under the terms of an applicable income tax treaty between the United States and the non-U.S. holder's country of residence. You should consult your own tax advisors regarding your entitlement to benefits under a relevant income tax treaty. Generally, in order for the applicable withholding agent to withhold tax at a lower treaty rate, a non-U.S. holder must certify its entitlement to treaty benefits. A non-U.S. holder generally can meet this certification requirement by providing an IRS Form W-8BEN, W-8BEN-E or other appropriate form (or any successor or substitute form thereof) to the applicable withholding agent. If the non-U.S. holder holds the stock through a financial institution or other agent acting on the holder's behalf, the holder will be required to provide appropriate documentation to the holder's agent. The holder's agent will then be required to provide certification to the applicable withholding agent, either directly or through other intermediaries. If you are eligible for a reduced rate of U.S. federal withholding tax under an income tax treaty, you may generally obtain a refund or credit of any excess amounts withheld by filing an appropriate claim for a refund with the IRS in a timely manner.

Dividends received by a non-U.S. holder that are effectively connected with a U.S. trade or business conducted by the non-U.S. holder, and if required by an applicable income tax treaty between the United States and the non-U.S. holder's country of residence, are attributable to a permanent establishment maintained by the non-U.S. holder in the United States, are not subject to U.S. withholding tax. To obtain this exemption, a non-U.S. holder must provide the applicable withholding agent with an IRS Form W-8ECI properly certifying such exemption. Such effectively connected dividends, although not subject to withholding tax, are taxed at the same U.S. federal income tax rates applicable to U.S. persons, net of certain deductions and credits. In addition to being taxed at U.S. federal income tax rates, dividends received by a corporate non-U.S. holder that are effectively connected with a U.S. trade or business of the corporate non-U.S. holder may also be subject to a branch profits tax at a rate of 30% or such lower rate as may be specified by an applicable tax treaty.

Gain on Sale or Other Disposition of Common Stock

Subject to the discussion below under "—Backup withholding and information reporting" and "—Foreign account tax compliance act," non-U.S. holders will generally not be subject to U.S. federal income tax on any gains realized on the sale, exchange or other disposition of our common stock unless:

- the gain (i) is effectively connected with the conduct by the non-U.S. holder of a U.S. trade or business and (ii) if required by an applicable income tax treaty between the United States and the non-U.S. holder's country of residence, is attributable to a permanent establishment maintained by the non-U.S. holder in the United States (in which case the special rules described below apply);
- the non-U.S. holder is an individual who is present in the United States for 183 days or more in the taxable year of the sale, exchange or other disposition of our common stock, and certain other requirements are met (in which case the gain would be subject to a flat 30% tax, or such reduced rate as may be specified by an applicable income tax treaty, which may be offset by U.S. source capital losses, even though the individual is not considered a resident of the United States); or
- the rules of the Foreign Investment in Real Property Tax Act, or FIRPTA, treat the gain as effectively connected with a U.S. trade or business.

The FIRPTA rules may apply to a sale, exchange or other disposition of our common stock if we are, or were within the shorter of the five-year period preceding the disposition and the non-U.S. holder's holding period, a U.S. real property holding corporation, or USRPHC. In general, we would be a USRPHC if interests in U.S. real property comprised at least half of the value of our worldwide real property and our other assets held for use in a trade or business. We do not believe that we are a USRPHC and we do not anticipate becoming one in the future. Even if we are or were to become a USRPHC, gain arising from the sale or other taxable disposition by a non-U.S. holder will not be subject to U.S. federal income tax if our common stock is "regularly traded," as defined by applicable Treasury Regulations, on an established securities market, and such non-U.S. holder owned, actually and constructively, 5% or less of our common stock throughout the shorter of the five-year period ending on the date of the sale or other taxable disposition or the non-U.S. holder's holding period. If any gain from the sale, exchange or other disposition of our common stock, (i) is effectively connected with a U.S. trade or business conducted by a non-U.S. holder and (ii) if required by an applicable income tax treaty between the United States and the non-U.S. holder's country of residence, is attributable to a permanent establishment maintained by such non-U.S. holder in the United States, then the gain generally will be subject to U.S. federal income tax at the same rates applicable to U.S. persons, net of certain deductions and credits. If the non-U.S. holder is a corporation, under certain circumstances, that portion of its earnings and profits that is effectively connected with its U.S. trade or business, subject to certain adjustments, generally would be subject also to a "branch profits tax" at a rate of 30% or such lower rate as may be specified by an applicable income tax treaty.

Backup Withholding and Information Reporting

The applicable withholding agent must report annually to the IRS and to each non-U.S. holder the amount of dividends paid to, and the tax withheld with respect to, each non-U.S. holder. These reporting requirements apply regardless of whether withholding was reduced or eliminated by an applicable tax treaty. Copies of this information reporting may also be made available under the provisions of a specific tax treaty or agreement with the tax authorities in the country in which the non-U.S. holder resides or is established.

A non-U.S. holder will generally be subject to backup withholding for dividends on our common stock paid to such holder unless such holder certifies under penalties of perjury that, among other things, it is a non-U.S. holder (and the payer does not have actual knowledge or reason to know that such holder is a U.S. person) or otherwise establishes an exemption.

Information reporting and backup withholding generally are not required with respect to the amount of any proceeds from the sale or other disposition of our common stock by a non-U.S. holder outside the United States through a foreign office of a foreign broker that does not have certain specified connections to the United States. However, if a non-U.S. holder sells or otherwise disposes of its shares of common stock through a U.S. broker or the U.S. offices of a foreign broker, the broker will generally be required to report the amount of proceeds paid to the non-U.S. holder to the IRS and impose backup withholding on that amount unless such non-U.S. holder provides appropriate certification to the broker of its status as a non-U.S. holder (and the payer does not have actual knowledge or reason to know that such holder is a U.S. person) or otherwise establishes an exemption.

Backup withholding is not an additional income tax. Any amounts withheld under the backup withholding rules from a payment to a non-U.S. holder generally can be credited against the non-U.S. holder's U.S. federal income tax liability, if any, or refunded, provided that the required information is furnished to the IRS in a timely manner. Non-U.S. holders should consult their tax advisors regarding the application of the information reporting and backup withholding rules to them.

Foreign Account Tax Compliance Act

Under the Foreign Account Tax Compliance Act, or FATCA, withholding tax of 30% applies to certain payments to foreign financial institutions, investment funds and certain other non-U.S. persons that fail to comply with certain information reporting and certification requirements pertaining to their direct and indirect

U.S. securityholders and/or U.S. accountholders and do not otherwise qualify for an exemption. Under applicable Treasury Regulations and IRS guidance, this withholding currently applies to payments of dividends, if any, on, and, subject to the proposed Treasury Regulations discussed below, gross proceeds from the sale or other disposition of, our common stock. An intergovernmental agreement between the United States and a foreign country may modify the requirements described in this paragraph.

While, beginning on January 1, 2019, withholding under FATCA would have applied also to payments of gross proceeds from the sale or other disposition of our common stock, proposed Treasury Regulations eliminate FATCA withholding on payments of gross proceeds entirely. Taxpayers generally may rely on these proposed Treasury Regulations until final Treasury Regulations are issued.

Prospective investors are encouraged to consult with their own tax advisors regarding the possible implications of FATCA on their investment in our common stock.

Federal Estate Tax

Common stock we have issued that is owned (or treated as owned) by an individual who is not a citizen or a resident of the United States (as defined for U.S. federal estate tax purposes) at the time of death will be included in the individual's gross estate for U.S. federal estate tax purposes unless an applicable estate or other tax treaty provides otherwise, and therefore may be subject to U.S. federal estate tax.

PROSPECTIVE INVESTORS SHOULD CONSULT THEIR OWN TAX ADVISORS REGARDING THE POTENTIAL APPLICATION OF WITHHOLDING UNDER FATCA TO THEIR INVESTMENT IN OUR COMMON STOCK. THE PRECEDING DISCUSSION OF U.S. FEDERAL TAX CONSIDERATIONS IS FOR GENERAL INFORMATION PURPOSES ONLY. EACH PROSPECTIVE INVESTOR SHOULD CONSULT ITS OWN TAX ADVISOR REGARDING THE PARTICULAR U.S. FEDERAL, GIFT, ESTATE, STATE, LOCAL, AND NON-U.S. TAX CONSEQUENCES OF PURCHASING, HOLDING, AND DISPOSING OF OUR COMMON STOCK, INCLUDING THE CONSEQUENCES OF ANY PROPOSED CHANGE IN APPLICABLE LAWS.

UNDERWRITERS

Under the terms and subject to the conditions in an underwriting agreement dated the date of this prospectus, the underwriters named below, for whom Morgan Stanley & Co. LLC, Jefferies LLC, Cowen and Company, LLC and Barclays Capital Inc. are acting as representatives, have severally agreed to purchase, and we have agreed to sell to them the number of shares indicated below:

Name	Number of Shares
Morgan Stanley & Co. LLC	
Jefferies LLC	
Cowen and Company, LLC	
Barclays Capital Inc.	
Total:	

The underwriters and the representatives are collectively referred to as the "underwriters" and the "representatives," respectively. The underwriters are offering the shares of common stock subject to their acceptance of the shares from us and subject to prior sale. The underwriting agreement provides that the obligations of the several underwriters to pay for and accept delivery of the shares of common stock offered by this prospectus are subject to the approval of certain legal matters by their counsel and to certain other conditions. The underwriters are obligated to take and pay for all of the shares of common stock offered by this prospectus if any such shares are taken. However, the underwriters are not required to take or pay for the shares covered by the underwriters' over-allotment option described below.

The underwriters initially propose to offer part of the shares of common stock directly to the public at the offering price listed on the cover page of this prospectus and part to certain dealers at a price that represents a concession not in excess of $ per share under the public offering price. After the initial offering of the shares of common stock, the offering price and other selling terms may from time to time be varied by the representatives.

We have granted to the underwriters an option, exercisable for 30 days from the date of this prospectus, to purchase up to additional shares of common stock at the public offering price listed on the cover page of this prospectus, less underwriting discounts and commissions. The underwriters may exercise this option solely for the purpose of covering over-allotments, if any, made in connection with the offering of the shares of common stock offered by this prospectus. To the extent the option is exercised, each underwriter will become obligated, subject to certain conditions, to purchase about the same percentage of the additional shares of common stock as the number listed next to the underwriter's name in the preceding table bears to the total number of shares of common stock listed next to the names of all underwriters in the preceding table.

The following table shows the per share and total public offering price, underwriting discounts and commissions, and proceeds before expenses to us. These amounts are shown assuming both no exercise and full exercise of the underwriters' option to purchase up to an additional shares of common stock.

	Per Share	Total	
		No Exercise	Full Exercise
Public offering price	$	$	$
Underwriting discounts and commissions to be paid by us	$	$	$
Proceeds, before expenses, to us	$	$	$

The estimated offering expenses payable by us, exclusive of the underwriting discounts and commissions, are approximately $. We have agreed to reimburse the underwriters for expense relating to clearance of this offering with the Financial Industry Regulatory Authority up to $.

The underwriters have informed us that they do not intend sales to discretionary accounts to exceed 5% of the total number of shares of common stock offered by them.

Our common stock has been approved for quotation on The Nasdaq Global Market under the trading symbol “TCRX”.

We, our directors and our executive officers and the holders of all of our outstanding stock and stock options have agreed that, without the prior written consent of the representatives on behalf of the underwriters, we and they will not, and will not publicly disclose an intention to, during the period ending 180 days after the date of this prospectus (the restricted period):

- offer, pledge, sell, contract to sell, sell any option or contract to purchase, purchase any option or contract to sell, grant any option, right or warrant to purchase, lend or otherwise transfer or dispose of, directly or indirectly, any shares of common stock or any securities convertible into or exercisable or exchangeable for shares of common stock; or
- enter into any swap or other arrangement that transfers to another, in whole or in part, any of the economic consequences of ownership of the common stock,

whether any such transaction described above is to be settled by delivery of common stock or such other securities, in cash or otherwise. In addition, we and each such person agrees that, without the prior written consent of the representatives on behalf of the underwriters, we or such other person will not, during the restricted period, make any demand for, or exercise any right with respect to, the registration of any shares of common stock or any security convertible into or exercisable or exchangeable for common stock.

The restrictions described in the immediately preceding paragraph are subject to certain customary exceptions.

The representatives, in their sole discretion, may release the common stock and other securities subject to the lock-up agreements described above in whole or in part at any time.

In order to facilitate the offering of the common stock, the underwriters may engage in transactions that stabilize, maintain or otherwise affect the price of the common stock. Specifically, the underwriters may sell more shares than they are obligated to purchase under the underwriting agreement, creating a short position. A short sale is covered if the short position is no greater than the number of shares available for purchase by the underwriters under the over-allotment option. The underwriters can close out a covered short sale by exercising the over-allotment option or purchasing shares in the open market. In determining the source of shares to close out a covered short sale, the underwriters will consider, among other things, the open market price of shares compared to the price available under the over-allotment option. The underwriters may also sell shares in excess of the over-allotment option, creating a naked short position. The underwriters must close out any naked short position by purchasing shares in the open market. A naked short position is more likely to be created if the underwriters are concerned that there may be downward pressure on the price of the common stock in the open market after pricing that could adversely affect investors who purchase in this offering. As an additional means of facilitating this offering, the underwriters may bid for, and purchase, shares of common stock in the open market to stabilize the price of the common stock. These activities may raise or maintain the market price of the common stock above independent market levels or prevent or retard a decline in the market price of the common stock. The underwriters are not required to engage in these activities and may end any of these activities at any time.

We and the underwriters have agreed to indemnify each other against certain liabilities, including liabilities under the Securities Act.

A prospectus in electronic format may be made available on websites maintained by one or more underwriters, or selling group members, if any, participating in this offering. The representatives may agree to allocate a number of shares of common stock to underwriters for sale to their online brokerage account holders. Internet distributions will be allocated by the representatives to underwriters that may make Internet distributions on the same basis as other allocations.

The underwriters and their respective affiliates are full service financial institutions engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory, investment management, investment research, principal investment, hedging, financing and brokerage activities. Certain of the underwriters and their respective affiliates have, from time to time, performed, and may in the future perform, various financial advisory and investment banking services for us, for which they received or will receive customary fees and expenses.

In addition, in the ordinary course of their various business activities, the underwriters and their respective affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities) and financial instruments (including bank loans) for their own account and for the accounts of their customers and may at any time hold long and short positions in such securities and instruments. Such investment and securities activities may involve our securities and instruments. The underwriters and their respective affiliates may also make investment recommendations or publish or express independent research views in respect of such securities or instruments and may at any time hold, or recommend to clients that they acquire, long or short positions in such securities and instruments.

Pricing of the Offering

Prior to this offering, there has been no public market for our common stock. The initial public offering price will be determined by negotiations between us and the representatives. Among the factors to be considered in determining the initial public offering price will be our future prospects and those of our industry in general,

our sales, earnings and certain other financial and operating information in recent periods, and the price-earnings ratios, price-sales ratios, market prices of securities, and certain financial and operating information of companies engaged in activities similar to ours.

Selling Restrictions

Canada

The shares of our common stock may be sold only to purchasers purchasing, or deemed to be purchasing, as principal that are accredited investors, as defined in National Instrument 45-106 Prospectus Exemptions or subsection 73.3(1) of the Securities Act (Ontario), and are permitted clients, as defined in National Instrument 31-103 Registration Requirements, Exemptions and Ongoing Registrant Obligations. Any resale of the shares of our common stock must be made in accordance with an exemption from, or in a transaction not subject to, the prospectus requirements of applicable securities laws.

Securities legislation in certain provinces or territories of Canada may provide a purchaser with remedies for rescission or damages if this prospectus (including any amendment thereto) contains a misrepresentation, provided that the remedies for rescission or damages are exercised by the purchaser within the time limit prescribed by the securities legislation of the purchaser's province or territory. The purchaser should refer to any applicable restrictions of the securities legislation of the purchaser's province or territory for particulars of these rights or consult with a legal advisor.

Pursuant to section 3A.3 (or, in the case of securities issued or guaranteed by the government of a non-Canadian jurisdiction, section 3A.4) of National Instrument 33-105 Underwriting Conflicts (NI 33-105), the underwriters are not required to comply with the disclosure requirements of NI 33-105 regarding underwriter conflicts of interest in connection with this offering.

European Economic Area

In relation to each Member State of the European Economic Area, each a Member State, no shares have been offered or will be offered pursuant to the offering to the public in that Member State prior to the publication of a prospectus in relation to the shares which has been approved by the competent authority in that Member State or, where appropriate, approved in another Member State and notified to the competent authority in that Member State, all in accordance with the Prospectus Regulation, except that offers of shares may be made to the public in that Member State at any time under the following exemptions under the Prospectus Regulation:

a. to any legal entity which is a qualified investor as defined under the Prospectus Regulation;

b. to fewer than 150 natural or legal persons (other than qualified investors as defined under the Prospectus Regulation), subject to obtaining the prior consent of the representatives; or

c. in any other circumstances falling within Article 1(4) of the Prospectus Regulation,

provided that no such offer of shares shall require us or any underwriter to publish a prospectus pursuant to Article 3 of the Prospectus Regulation or supplement a prospectus pursuant to Article 23 of the Prospectus Regulation and each person who initially acquires any shares or to whom any offer is made will be deemed to have represented, acknowledged and agreed to and with each of the underwriters and us that it is a "qualified investor" within the meaning of Article 2(e) of the Prospectus Regulation.

In the case of any shares being offered to a financial intermediary as that term is used in the Prospectus Regulation, each such financial intermediary will be deemed to have represented, acknowledged and agreed that the shares acquired by it in the offer have not been acquired on a non-discretionary basis on behalf of, nor have they been acquired with a view to their offer or resale to, persons in circumstances which may give rise to an

offer of any shares to the public other than their offer or resale in a Member State to qualified investors as so defined or in circumstances in which the prior consent of the representatives has been obtained to each such proposed offer or resale.

For the purposes of this provision, the expression an "offer to the public" in relation to shares in any Member State means the communication in any form and by any means of sufficient information on the terms of the offer and any shares to be offered so as to enable an investor to decide to purchase or subscribe for any shares, and the expression "Prospectus Regulation" means Regulation (EU) 2017/1129 (as amended).

United Kingdom

In relation to the United Kingdom, no shares of common stock have been offered or will be offered pursuant to this offering to the public in the United Kingdom prior to the publication of a prospectus in relation to the shares that has been approved by the Financial Conduct Authority in the UK in accordance with the UK Prospectus Regulation and the Financial Services and Markets Act 2000 (FSMA), except that offers of shares may be made to the public in the United Kingdom at any time under the following exemptions under the UK Prospectus Regulation and the FSMA:

a. to any legal entity which is a qualified investor as defined in Article 2 of the UK Prospectus Regulation;

b. to fewer than 150 natural or legal persons (other than qualified investors as defined in Article 2 of the UK Prospectus Regulation), subject to obtaining the prior consent of the representatives; or

c. in any other circumstances falling within Section 86 of the FSMA,

provided that no such offer of shares shall require us or any of the underwriters to publish a prospectus pursuant to Section 85 of the FSMA or supplement a prospectus pursuant to Article 23 of the UK Prospectus Regulation. Each person in the United Kingdom who acquires any shares in the offering or to whom any offer is made will be deemed to have represented, acknowledged and agreed to and with us and the underwriters that it is a qualified investor within the meaning of the UK Prospectus Regulation.

For the purposes of this provision, the expression an "offer to the public" in relation to any shares in any relevant state means the communication in any form and by any means of sufficient information on the terms of the offer and any shares to be offered so as to enable an investor to decide to purchase or subscribe for any shares, and the expression "UK Prospectus Regulation" means Regulation (EU) 2017/1129 as it forms part of domestic law by virtue of the European Union (Withdrawal) Act 2018.

We have not authorized and do not authorize the making of any offer of shares through any financial intermediary on their behalf, other than offers made by the underwriters with a view to the final placement of the shares as contemplated in this prospectus. Accordingly, no purchaser of the shares, other than the underwriters, is authorized to make any further offer of the shares on behalf of us or the underwriters.

Any person in the United Kingdom that is not a relevant person should not act or rely on the information included in this document or use it as basis for taking any action. In the United Kingdom, any investment or investment activity that this document relates to may be made or taken exclusively by relevant persons.

Japan

No registration pursuant to Article 4, paragraph 1 of the Financial Instruments and Exchange Law of Japan (Law No. 25 of 1948, as amended) (the FIEL) has been made or will be made with respect to the solicitation of the application for the acquisition of the shares of common stock.

Accordingly, the shares of common stock have not been, directly or indirectly, offered or sold and will not be, directly or indirectly, offered or sold in Japan or to, or for the benefit of, any resident of Japan (which term as used herein means any person resident in Japan, including any corporation or other entity organized under the laws of Japan) or to others for re-offering or re-sale, directly or indirectly, in Japan or to, or for the benefit of, any resident of Japan except pursuant to an exemption from the registration requirements, and otherwise in compliance with, the FIEL and the other applicable laws and regulations of Japan.

For Qualified Institutional Investors (QII)

Please note that the solicitation for newly-issued or secondary securities (each as described in Paragraph 2, Article 4 of the FIEL) in relation to the shares of common stock constitutes either a "QII only private placement" or a "QII only secondary distribution" (each as described in Paragraph 1, Article 23-13 of the FIEL). Disclosure regarding any such solicitation, as is otherwise prescribed in Paragraph 1, Article 4 of the FIEL, has not been made in relation to the shares of common stock. The shares of common stock may only be transferred to QIIs.

For Non-QII Investors

Please note that the solicitation for newly-issued or secondary securities (each as described in Paragraph 2, Article 4 of the FIEL) in relation to the shares of common stock constitutes either a "small number private placement" or a "small number private secondary distribution" (each as is described in Paragraph 4, Article 23-13 of the FIEL). Disclosure regarding any such solicitation, as is otherwise prescribed in Paragraph 1, Article 4 of the FIEL, has not been made in relation to the shares of common stock. The shares of common stock may only be transferred en bloc without subdivision to a single investor.

Singapore

This prospectus has not been registered as a prospectus with the Monetary Authority of Singapore. Accordingly, this prospectus and any other document or material in connection with the offer or sale, or invitation for subscription or purchase, of the shares of common stock may not be circulated or distributed, nor may the shares of common stock be offered or sold, or be made the subject of an invitation for subscription or purchase, whether directly or indirectly, to persons in Singapore other than (i) to an institutional investor under Section 274 of the Securities and Futures Act, Chapter 289 of Singapore (the SFA), (ii) to a relevant person pursuant to Section 275(1), or any person pursuant to Section 275(1A), and in accordance with the conditions specified in Section 275, of the SFA, or (iii) otherwise pursuant to, and in accordance with the conditions of, any other applicable provision of the SFA.

Where the shares of common stock are subscribed or purchased under Section 275 of the SFA by a relevant person which is:

(a) a corporation (which is not an accredited investor (as defined in Section 4A of the SFA)) the sole business of which is to hold investments and the entire share capital of which is owned by one or more individuals, each of whom is an accredited investor; or

(b) a trust (where the trustee is not an accredited investor) the sole purpose of which is to hold investments and each beneficiary of the trust is an individual who is an accredited investor, securities (as defined in Section 239(1) of the SFA) of that corporation or the beneficiaries' rights and interest (howsoever described) in that trust shall not be transferred within six months after that corporation or that trust has acquired the shares of common stock pursuant to an offer made under Section 275 of the SFA except:

i. to an institutional investor or to a relevant person defined in Section 275(2) of the SFA, or to any person arising from an offer referred to in Section 275(1A) or Section 276(4)(i)(B) of the SFA;

ii. where no consideration is or will be given for the transfer;

iii. where the transfer is by operation of law;

iv. as specified in Section 276(7) of the SFA; or

v. as specified in Regulation 32 of the Securities and Futures (Offers of Investments) (Shares and Debentures) Regulations 2005 of Singapore.

Kuwait

Unless all necessary approvals from the Kuwait Ministry of Commerce and Industry required by Law No. 31/1990 "Regulating the Negotiation of Securities and Establishment of Investment Funds," its Executive Regulations and the various Ministerial Orders issued pursuant thereto or in connection therewith, have been given in relation to the marketing and sale of the shares, these may not be marketed, offered for sale, nor sold in the State of Kuwait. Neither this prospectus (including any related document), nor any of the information contained therein is intended to lead to the conclusion of any contract of whatsoever nature within Kuwait.

Dubai International Financial Center

This prospectus relates to an Exempt Offer in accordance with the Offered Securities Rules of the Dubai Financial Services Authority (DFSA). This prospectus is intended for distribution only to persons of a type specified in the Offered Securities Rules of the DFSA. It must not be delivered to, or relied on by, any other person. The DFSA has no responsibility for reviewing or verifying any documents in connection with Exempt Offers. The DFSA has not approved this prospectus nor taken steps to verify the information set forth herein and has no responsibility for the prospectus. The shares to which this prospectus relates may be illiquid and/or subject to restrictions on their resale. Prospective purchasers of the shares offered should conduct their own due diligence on the shares. If you do not understand the contents of this prospectus you should consult an authorized financial advisor.

China

This prospectus may not be circulated or distributed in the People's Republic of China (PRC) and the ADSs may not be offered or sold, and will not offer or sell to any person for re-offering or resale directly or indirectly to any resident of the PRC except pursuant to applicable laws and regulations of the PRC.

Saudi Arabia

This prospectus may not be distributed in the Kingdom of Saudi Arabia except to such persons as are permitted under the Offers of Securities Regulations issued by the Capital Market Authority. The Capital Market Authority does not make any representation as to the accuracy or completeness of this prospectus, and expressly disclaims any liability whatsoever for any loss arising from, or incurred in reliance upon, any part of this prospectus. Prospective purchasers of the securities offered hereby should conduct their own due diligence on the accuracy of the information relating to the securities. If you do not understand the contents of this prospectus you should consult an authorized financial adviser.

Qatar

In the State of Qatar, the offer contained herein is made on an exclusive basis to the specifically intended recipient thereof, upon that person's request and initiative, for personal use only and shall in no way be construed as a general offer for the sale of securities to the public or an attempt to do business as a bank, an investment company or otherwise in the State of Qatar. This prospectus and the underlying securities have not been approved or licensed by the Qatar Central Bank or the Qatar Financial Center Regulatory Authority or any other regulator in the State of Qatar. The information contained in this prospectus shall only be shared with any third parties in Qatar on a need to know basis for the purpose of evaluating the contained offer. Any distribution of this prospectus by the recipient to third parties in Qatar beyond the terms hereof is not permitted and shall be at the liability of such recipient.

Israel

The shares of our common stock have not been approved or disapproved by the Israel Securities Authority (the ISA), nor have such shares been registered for sale in Israel. The shares of our common stock may not be offered or sold, directly or indirectly, to the public in Israel, absent the publication of a prospectus that has been approved by the ISA. The ISA has not issued permits, approvals or licenses in connection with this offering or publishing this prospectus, nor has it authenticated the details included herein, confirmed their reliability or completeness, or rendered an opinion as to the quality of the shares of common stock being offered. This document does not constitute a prospectus under the Israeli Securities Law and has not been filed with or approved by the ISA. In the State of Israel, this document may be distributed only to, and may be directed only at, and any offer of the shares common stock may be directed only at, (i) to the extent applicable, a limited number of persons in accordance with the Israeli Securities Law and (ii) investors listed in the first addendum to the Israeli Securities Law, or the Addendum, consisting primarily of joint investment in trust funds, provident funds, insurance companies, banks, portfolio managers, investment advisors, members of the Tel Aviv Stock Exchange Ltd., underwriters, venture capital funds, entities with equity in excess of NIS 50 million and "qualified individuals," each as defined in the Addendum (as it may be amended from time to time), collectively referred to as qualified investors (in each case purchasing for their own account or, where permitted under the Addendum, for the accounts of their clients who are investors listed in the Addendum). Qualified investors will be required to submit written confirmation that they fall within the scope of the Addendum, are aware of the meaning of same and agree to it.

Hong Kong

No securities have been offered or sold, and no securities may be offered or sold, in Hong Kong, by means of any document, other than to persons whose ordinary business is to buy or sell shares or debentures, whether as principal or agent; or to "professional investors" as defined in the Securities and Futures Ordinance (Cap. 571) of Hong Kong (SFO) and any rules made under that Ordinance; or in other circumstances which do not result in the document being a "prospectus" as defined in the Companies Ordinance (Cap. 32) of Hong Kong (CO) or which do not constitute an offer or invitation to the public for the purpose of the CO or the SFO. No document, invitation or advertisement relating to the securities has been issued or may be issued or may be in the possession of any person for the purpose of issue (in each case whether in Hong Kong or elsewhere), which is directed at, or the contents of which are likely to be accessed or read by, the public of Hong Kong (except if permitted under the securities laws of Hong Kong) other than with respect to securities which are or are intended to be disposed of only to persons outside Hong Kong or only to "professional investors" as defined in the SFO and any rules made under that Ordinance.

This prospectus has not been registered with the Registrar of Companies in Hong Kong. Accordingly, this prospectus may not be issued, circulated or distributed in Hong Kong, and the securities may not be offered for subscription to members of the public in Hong Kong. Each person acquiring the securities will be required, and is deemed by the acquisition of the securities, to confirm that he is aware of the restriction on offers of the securities described in this prospectus and the relevant offering documents and that he is not acquiring, and has not been offered any securities in circumstances that contravene any such restrictions.

Switzerland

The shares may not be publicly offered in Switzerland and will not be listed on the SIX Swiss Exchange (SIX) or on any other stock exchange or regulated trading facility in Switzerland. This prospectus has been prepared without regard to the disclosure standards for issuance prospectuses under art. 652a or art. 1156 of the Swiss Code of Obligations or the disclosure standards for listing prospectuses under art. 27 ff. of the SIX Listing Rules or the listing rules of any other stock exchange or regulated trading facility in Switzerland. Neither this prospectus nor any other offering or marketing material relating to the securities or the offering may be publicly distributed or otherwise made publicly available in Switzerland.

Neither this prospectus nor any other offering or marketing material relating to the offering, the Company or the securities have been or will be filed with or approved by any Swiss regulatory authority. In particular, this prospectus will not be filed with, and the offer of securities will not be supervised by, the Swiss Financial Market Supervisory Authority FINMA, and the offer of securities has not been and will not be authorized under the Swiss Federal Act on Collective Investment Schemes (CISA). The investor protection afforded to acquirers of interests in collective investment schemes under the CISA does not extend to acquirers of securities.

LEGAL MATTERS

The validity of the shares of our common stock offered in this prospectus will be passed upon for us by Gunderson Dettmer Stough Villeneuve Franklin & Hachigian, LLP, Boston, Massachusetts. Certain investment partnerships comprised of partners of Gunderson Dettmer Stough Villeneuve Franklin & Hachigian, LLP, own an interest representing less than one percent of the shares of our common stock. Davis Polk & Wardwell LLP, New York, New York, has acted as counsel for the underwriters in connection with this offering.

EXPERTS

The financial statements as of December 31, 2020 and 2019 and for the years then ended included in this prospectus have been audited by Deloitte & Touche LLP, an independent registered public accounting firm, as stated in their report appearing herein. Such financial statements have been so included in reliance upon the report of such firm given upon their authority as experts in accounting and auditing.

WHERE YOU CAN FIND ADDITIONAL INFORMATION

We have filed with the SEC a registration statement on Form S-1 under the Securities Act, with respect to the shares of common stock offered by this prospectus. This prospectus, which constitutes a part of the registration statement, does not contain all of the information set forth in the registration statement or the exhibits, schedules and amendments to the registration statement. Please refer to the registration statement and to the exhibits and schedules for further information with respect to the common stock offered by this prospectus. Statements contained in this prospectus regarding the contents of any contract, agreement or other document are only summaries. With respect to any contract, agreement or document that is filed as an exhibit to the registration statement, you should refer to the exhibit for a copy of the contract, agreement or document, and each statement in this prospectus regarding that contract, agreement or document is qualified by reference to the exhibit. The SEC maintains an Internet website that contains the registration statement of which this prospectus forms a part, as well as the exhibits thereto. These documents, along with future reports, proxy statements and other information about us, are available at the SEC's website, www.sec.gov. The information on the SEC's web site is not part of this prospectus, and any references to this web site or any other web site are inactive textual references only.

Upon completion of this offering, we will become subject to the information and reporting requirements of the Exchange Act, and, in accordance with this law, will be required to file periodic reports, proxy statements and other information with the SEC. These periodic reports, proxy statements and other information will be available on the SEC's website referred to above. We also maintain a website at www.tscan.com, at which you may access these materials free of charge as soon as reasonably practicable after they are electronically filed with, or furnished to, the SEC. The information contained on, or that can be accessed through, our website is not a part of this prospectus. Investors should not rely on any such information in deciding whether to purchase our common stock. We have included our website address in this prospectus solely as an inactive textual reference.

TSCAN THERAPEUTICS, INC.

INDEX TO THE CONSOLIDATED FINANCIAL STATEMENTS

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the stockholders and Board of Directors of TScan Therapeutics, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of TScan Therapeutics, Inc. and its subsidiary (the Company) as of December 31, 2019 and 2020, the related consolidated statements of operations, convertible preferred stock and stockholders' deficit, and cash flows, for the years then ended, and the related notes (collectively referred to as the financial statements). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2019 and 2020, and the results of its operations and its cash flows for the years then ended, in conformity with accounting principles generally accepted in the United States of America.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulation of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB and in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audits, we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audits included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Deloitte & Touche LLP

Boston, Massachusetts
March 19, 2021

We have served as the Company's auditor since 2020.

TScan Therapeutics, Inc.

Consolidated Balance Sheets

(in thousands, except share and per share data)

	December 31, 2019	December 31, 2020
Assets		
Current assets:		
Cash and cash equivalents	$ 41,764	$ 34,791
Prepaid expenses and other current assets	615	1,654
Total current assets	42,379	36,445
Property and equipment, net	1,640	5,659
Right-of-use assets	4,769	6,873
Restricted cash	595	595
Long-term deposit	—	166
Total assets	$ 49,383	$ 49,738
Liabilities, Convertible Preferred Stock and Stockholders' Deficit		
Current liabilities:		
Accounts payable	$ 1,010	$ 2,910
Accrued expenses and other current liabilities	943	2,494
Operating lease liability, current portion	443	1,415
Deferred revenue, current portion	—	10,627
Total current liabilities	2,396	17,446
Deferred revenue, net of current portion	—	8,816
Operating lease liability, net of current portion	4,444	6,019
Other long-term liabilities	—	238
Total liabilities	6,840	32,519
Commitments and contingencies (Note 10)		
Convertible preferred stock (Note 6)	59,681	59,681
Stockholders' deficit:		
Common stock, $0.0001 par value; 86,000,000 shares authorized; 12,021,875 and 12,907,933 shares issued; and 5,271,875 and 9,314,183 shares outstanding as of December 31, 2019 and 2020, respectively	—	1
Additional paid-in-capital	268	1,070
Accumulated deficit	(17,406)	(43,533)
Total stockholders' deficit	(17,138)	(42,462)
Total liabilities, convertible preferred stock and stockholders' deficit	$ 49,383	$ 49,738

The accompanying notes are an integral part of these consolidated financial statements

TScan Therapeutics, Inc.

Consolidated Statements of Operations

(in thousands, except share and per share data)

	Year Ended December 31,	
	2019	2020
Revenue:		
Collaboration and license revenue	$ —	$ 1,085
Operating expenses:		
Research and development	9,442	20,577
General and administrative	4,768	6,741
Total operating expenses	14,210	27,318
Loss from operations	(14,210)	(26,233)
Other income:		
Interest income	552	106
Net loss	$ (13,658)	$ (26,127)
Net loss per share, basic and diluted	$ (4.33)	$ (3.48)
Weighted average common shares outstanding, basic and diluted	3,157,800	7,511,378

The accompanying notes are an integral part of these consolidated financial statements

TScan Therapeutics, Inc.

Consolidated Statements of Convertible Preferred Stock and Stockholders' Deficit

(in thousands, except share and per share data)

	Convertible Preferred Stock		Common Stock		Additional Paid-In Capital	Accumulated Deficit	Total Stockholders' Deficit
	Shares	Amount	Shares	Amount			
Balance at January 1, 2019	26,315,790	$24,874	562,500	$ —	$ 23	$ (3,748)	$ (3,725)
Issuance of Series B Preferred Stock (net of issuance costs of $193)	31,601,732	34,807	—	—	—	—	—
Issuance of common stock upon exercise of stock options	—	—	21,875	—	5	—	5
Vesting of restricted common stock	—	—	4,687,500	—	—	—	—
Stock-based compensation expense	—	—	—	—	240	—	240
Net loss	—	—	—	—	—	(13,658)	(13,658)
Balances at December 31, 2019	57,917,522	59,681	5,271,875	—	268	(17,406)	(17,138)
Issuance of common stock upon exercise of stock options	—	—	1,167,308	1	287	—	288
Vesting of restricted common stock			2,875,000	—	—	—	—
Stock-based compensation expense	—	—	—	—	515	—	515
Net loss	—	—	—	—	—	(26,127)	(26,127)
Balances at December 31, 2020	57,917,522	$59,681	9,314,183	$ 1	$ 1,070	$ (43,533)	$ (42,462)

The accompanying notes are an integral part of these consolidated financial statements

TScan Therapeutics, Inc.

Consolidated Statements of Cash Flows

(in thousands)

	Year Ended December 31,	
	2019	2020
Cash flows from operating activities:		
Net loss	(13,658)	(26,127)
Adjustment to reconcile net loss to net cash used in operating activities:		
Depreciation expense	519	1,230
Stock-based compensation expense	240	515
Loss on sale of property and equipment	78	2
Changes in current assets and liabilities:		
Prepaid expenses and other assets	(459)	(1,205)
Right-of-use assets and lease liabilities, net	115	442
Accounts payable	161	1,127
Accrued expense and other liabilities	482	1,550
Deferred revenue	—	19,443
Net cash used in operating activities	(12,522)	(3,023)
Cash flows from investing activities:		
Purchases of property and equipment	(1,247)	(4,238)
Net cash used in investing activities	(1,247)	(4,238)
Cash flows from financing activities:		
Proceeds from issuance of convertible preferred stock, net of issuance costs	34,807	—
Proceeds from exercise of stock options	5	288
Net cash provided by financing activities	34,812	288
Net increase (decrease) in cash, cash equivalents and restricted cash	21,043	(6,973)
Cash, cash equivalents, and restricted cash—beginning of year	21,316	42,359
Cash, cash equivalents, and restricted cash—end of year	$ 42,359	$ 35,386
Supplemental cash flow information:		
Purchase of property and equipment in accounts payable and accrued liabilities	$ 323	$ 1,335
Right-of-use-assets obtained in exchange for operating lease liabilities	$ 4,981	$ 3,199

The accompanying notes are an integral part of these consolidated financial statements

TSCAN THERAPEUTICS, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. Nature of Business and Basis of Presentation

Nature of Business

TScan Therapeutics, Inc. and subsidiary (the Company) is a biotechnology company that was incorporated in Delaware on April 17, 2018 and has a principal place of business in Waltham, Massachusetts. The Company is a biopharmaceutical company focused on developing a pipeline of T cell receptor-engineered T cell (TCR-T), therapies for the treatment of patients with cancer.

Risks, Uncertainties and Going Concern

The Company is subject to risks common to companies in the biotechnology industry, including, but not limited to, successful development of technology, obtaining additional funding, protection of proprietary technology, compliance with government regulations, risks of failure of preclinical studies, clinical studies and clinical trials, the need to obtain marketing approval for its product candidates and the ability to successfully market its therapies any products that receive approval, fluctuations in operating results, economic pressure impacting therapeutic pricing, dependence on key personnel, risks associated with changes in technologies, development by competitors of technological innovations and the ability to scale manufacturing to large scale production. Product candidates currently under development will require significant additional research and development efforts, including preclinical and clinical testing and regulatory approval prior to commercialization. These efforts require significant amounts of additional capital, adequate personnel and infrastructure and extensive compliance-reporting capabilities. Even if the Company's development efforts are successful, it is uncertain when, if ever, the Company will realize significant revenue from therapy sales.

The accompanying consolidated financial statements have been prepared on a going concern basis, which contemplates the realization of assets and the satisfaction of liabilities and commitments in the ordinary course of business. The Company has primarily funded its operations with proceeds from sales of convertible preferred stock and with payments received under its license and collaboration agreements. Since its inception, the Company has incurred recurring losses, including net losses of $13.7 million and $26.1 million for the years ended December 31, 2019 and 2020, respectively. As of December 31, 2020, the Company had an accumulated deficit of $43.5 million. The Company expects to continue to incur additional losses and negative operating cash flows in the foreseeable future. The Company expects that its cash and cash equivalents as of December 31, 2020, along with the net cash proceeds from the sale of shares of its convertible preferred stock in January 2021 (see Note 14) will be sufficient to fund the Company's operations for at least the next twelve months from the date of the issuance of the accompanying financial statements.

The Company is seeking to complete an initial public offering (IPO) of its common stock. Upon completion of a qualified public offering on specified terms, the Company's outstanding convertible preferred stock will automatically convert into shares of common stock (see Note 7). In the event the Company does not complete an IPO, the Company expects to seek additional funding through private equity financings, debt financings, strategic alliances and marketing, distribution, or licensing arrangements. The Company may not be able to obtain financing on acceptable terms, or at all, and may not be able to enter into collaborations or other arrangements. The terms of any financing may adversely affect the holdings or the rights of the Company's stockholders. If the Company is unable to secure funding, it could be forced to delay, reduce, or eliminate some or all of its research development programs, therapy portfolio expansion or commercialization efforts, which could adversely affect its business prospects. Although management continues to pursue these plans, there is no assurance that the Company will be successful in obtaining sufficient funding on terms acceptable to the Company to fund continuing operations, if at all.

Impact of COVID-19

In December 2019, a novel strain of coronavirus, which causes the disease known as COVID-19, was reported to have surfaced in Wuhan, China. Since then, COVID-19 coronavirus has spread globally. In March 2020, the World Health Organization declared the COVID-19 outbreak a pandemic. The ongoing COVID-19 global and national health emergency has caused significant disruption in the international and United States economies and financial markets. The spread of COVID-19 has caused illness, quarantines, cancellation of events and travel, business and school shutdowns, reduction in business activity and financial transactions, labor shortages, supply chain interruptions and overall economic and financial market instability and business disruptions for the Company and many of the Company's vendors.

In response to public health directives and orders and to help minimize the risk of the virus to employees, the Company has taken a series of actions aimed at safeguarding the Company's employees and business associates, including implementing a flexible work-at-home policy. These disruptions could result in increased costs of execution of development plans or may negatively impact the quality, quantity, timing and regulatory usability of data that the Company would otherwise be able to collect. While these disruptions are currently expected to be temporary, there is considerable uncertainty around the duration of these disruptions. Therefore, the related financial impact and duration cannot be reasonably estimated at this time.

2. Summary of Significant Accounting Policies

Basis of Presentation

The Company's consolidated financial statements have been prepared in conformity with accounting principles generally accepted in the United States of America (US GAAP). Any reference in these notes to applicable guidance is meant to refer to the authoritative U.S. GAAP as found in the Accounting Standards Codification (ASC) and Accounting Standards Updates (ASUs) issued by the Financial Accounting Standards Board (FASB).

Principles of Consolidation

The accompanying consolidated financial statements include the accounts of the Company and its wholly owned subsidiary. All intercompany accounts and transactions have been eliminated in consolidation.

Use of Estimates

The preparation of the consolidated financial statements in accordance with US GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of expenses during the reporting period. The Company bases its estimates on historical experience, known trends and other market-specific or relevant factors that it believes to be reasonable under the circumstances. On an ongoing basis, management evaluates its estimates as there are changes in circumstances, facts and experience. Actual results may differ from those estimates or assumptions.

Cash and Cash Equivalents

Cash includes cash in readily available checking and money market accounts. Cash equivalents include all highly liquid investments maturing within 90 days from the date of purchase. The cash equivalents consisted of money market funds.

Restricted Cash

In connection with the Company's facility lease agreement, the Company is required to provide a letter of credit of $0.6 million for the benefit of the landlord to serve as a security deposit. As of December 31, 2019 and

2020, the cash securing the letter of credit was classified as restricted cash (non-current) on the consolidated balance sheets.

Concentrations of Credit Risk

Financial instruments that subject the Company to significant concentrations of credit risk consist primarily of cash and cash equivalents. The Company's cash deposits on hand at one financial institution often exceed federally insured limits. The Company places its cash in a financial institution that management believes to be of high credit quality. The Company does not believe that it is subject to unusual credit risk beyond the normal credit risk associated with commercial banking relationships.

Deferred offering costs

The Company capitalizes certain legal, professional accounting and other third party fees that are directly associated with the proposed IPO as deferred offering costs. The deferred offering costs will be offset against the IPO proceeds upon the consummation of the IPO. In the event the IPO is abandoned, the deferred offering costs will be expensed immediately as a charge to operating expenses in the consolidated statements of operations. The Company had no deferred costs capitalized for the year ended on December 31, 2019 and an immaterial amount of deferred offering costs as of December 31, 2020.

Property and Equipment

Property and equipment are stated at cost and depreciated using the straight-line method over the estimated useful lives of the respective assets as follows:

	Estimated useful life
Laboratory equipment	3 — 5 years
Furniture and fixtures	3 — 5 years
Office and computer equipment	3 — 5 years
Leasehold improvements	Shorter of the asset's estimated useful life or the remaining lease term

Major additions and betterments are capitalized; expenditures for repairs and maintenance, which do not improve or extend the life of the respective assets, are charged to operating expense as incurred. Upon retirement or sale, the cost of assets disposed of and the related accumulated depreciation and amortization are removed from the accounts and any resulting gain or loss is included in loss from operations.

Impairment of Long-Lived Assets

Long-lived assets to be held and used, including property and equipment, are tested for impairment whenever events or changes in circumstances indicate that the carrying amount of the asset may not be fully recoverable. Evaluation of the recoverability of the asset or asset group is based on an estimate of undiscounted future cash flows resulting from the use of the asset or asset group and its eventual disposition. In the event that such cash flows are not expected to be sufficient to recover the carrying amount of the asset or asset group, an impairment loss would be based on the excess of the carrying value of the impaired asset over its fair value. The Company did not record any impairment losses on long-lived assets during the periods presented.

Fair Value Measurements

Certain assets and liabilities are carried at fair value under US GAAP. Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the

measurement date. Valuation techniques used to measure fair value must maximize the user of observable inputs and minimize the use of unobservable inputs. Financial assets and liabilities carried at fair value are to be classified and disclosed in one of the following three levels of the fair value hierarchy, of which the first two are considered observable and the last is considered unobservable:

- **Level 1**—Unadjusted quoted prices in active markets that are accessible to the reporting entity at the measurement date for identical assets and liabilities.
- **Level 2**—Inputs other than quoted prices in active markets for identical assets and liabilities that are observable either directly or indirectly for substantially the full term of the asset or liability. Level 2 inputs include the following:
  - quoted prices for similar assets and liabilities in active markets
  - quoted prices for identical or similar assets or liabilities in markets that are not active
  - observable inputs other than quoted prices that are used in the valuation of the asset or liabilities (e.g., interest rate and yield curve quotes at commonly quoted intervals)
  - inputs that are derived principally from or corroborated by observable market data by correlation or other means
- **Level 3**—Unobservable inputs for the assets or liability (i.e., supported by little or no market activity). Level 3 inputs include management's own assumptions about the assumptions that market participants would use in pricing the asset or liability (including assumptions about risk).

Lease Agreements

The Company records leases under ASU No. 2016-02 Leases (Topic 842) whereby the Company determines if an arrangement is or contains a lease at inception. For leases with a term of 12 months or less, the Company has elected to not recognize a right-of-use asset or lease liability. The Company's operating leases are recognized on the consolidated balance sheets as other noncurrent assets, other current liabilities, and other noncurrent liabilities. The Company does not have any finance leases.

Right-of-use assets represent the Company's right to use an underlying asset for the lease term and lease liabilities represent the Company's obligation to make lease payments arising from the lease. Operating lease right-of-use assets and lease liabilities are recognized at the lease commencement date based on the present value of lease payments over the lease term. As the rate implicit on the Company's leases are not readily determination, the Company uses an estimate of its incremental borrowing rate for secured borrowings with terms similar to the lease term based on the information available at the lease commencement date in determining the present value of lease payments. Operating lease right-of-use assets also include the effect of any lease payments made and excludes lease incentives. The lease terms may include options to extend or terminate the lease when it is reasonably certain that the Company will exercise that option. Lease expense is recognized on a straight-line basis over the lease term.

Research and Development Costs

Research and development costs are expensed as incurred. Research and development costs that are paid in advance of performance (if any) are capitalized as a prepaid expense and amortized over the service period as the services are provided.

Accrued Research and Manufacturing Contract Costs

The Company has entered into various research and development and manufacturing contracts. These agreements are generally cancelable, and related payments are recorded as the corresponding expenses are incurred. When evaluating the adequacy of the accrued liabilities, the Company analyzes progress of the research

studies or clinical trials and manufacturing activities, including the phase or completion of events, invoices received and contracted costs. Significant judgments and estimates are made in determining the accrued balances at the end of any reporting period. Actual results could differ from the Company's estimates. The Company's historical accrual estimates have not been materially different from the actual costs.

Patent Costs

All patent-related costs incurred in connection with filing and prosecuting patent applications are expensed as incurred due to the uncertainty about the recovery of the expenditure. Amounts incurred are classified as general and administrative expenses.

Revenue Recognition

The Company accounts for revenue under ASU No. 2014-19, *Revenue from Contracts with Customers* (ASC 606). ASC 606 applies to all contracts with customers, except for contracts that are within the scope of other standards, such as leases, insurance, certain collaboration arrangements and financial instruments. ASC 606 provides a five-step framework whereby revenue is recognized when control of promised goods or services is transferred to a customer at an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. To determine revenue recognition for arrangements that the Company determines are within the scope of ASC 606, the Company performs the following five steps:

(i) identify the contract(s) with a customer;

(ii) identify the performance obligations in the contract;

(iii) determine the transaction price;

(iv) allocate the transaction price to the performance obligations in the contract; and

(v) recognize revenue when (or as) the performance obligations are satisfied.

The Company only applies the five-step model to contracts when it is probable that the Company will collect the consideration that it is entitled to in exchange for the goods or services the Company transfers to the customer. At contract inception, once the contract is determined to be within the scope of ASC 606, the Company assesses whether the goods or services promised within each contract are distinct and, therefore, represent a separate performance obligation. Goods and services that are determined not to be distinct are combined with other promised goods and services until a distinct combined performance obligation is identified.

The Company then allocates the transaction price (that is, the amount of consideration the Company expects to be entitled to from a customer in exchange for the promised goods or services) to each performance obligation and recognizes the associated revenue when (or as) each performance obligation is satisfied. The allocation is based upon standalone selling price. The standalone selling price is the price at which an entity would sell a promised good or service separately to a customer. Because the Company have not sold the same goods or services in our contracts separately to any customers on a standalone basis, the Company estimated the standalone selling price of each combined performance obligation by taking into consideration internal estimates of research and development personnel needed to perform the research and development services, estimates of expected cash outflows to third parties for services and supplies and typical gross profit margins.

The Company enters into collaboration and licensing arrangements that are within the scope of ASC 606, under which the Company may exclusively license to third parties' rights to develop, manufacture and commercialize its product candidates as well as options to acquire additional rights. The terms of these arrangements typically include payment to the Company of one or more of the following: nonrefundable, upfront license fees; development, regulatory and sales milestone payments; and royalties on net sales of licensed products.

Revenue is typically recognized using a cost-to-cost input model as the measure of progress. Significant management judgment is required in determining the level of effort required under an arrangement and the period over which the Company is expected to complete the Company's performance obligations under an arrangement. The Company evaluates the measure of progress each reporting period and, if necessary, adjusts the measure of performance and related revenue recognition. The measure of progress, and thereby periods over which revenue should be recognized, are subject to estimates by management and may change over the course of the research and development and licensing agreement. Such a change could have a material impact on the amount of revenue the Company records in future periods.

Amounts received prior to revenue recognition are recorded as deferred revenue in the balance sheets. Amounts expected to be recognized as revenue within the 12 months following the balance sheet date are classified as the current portion of deferred revenue in the balance sheets. Amounts not expected to be recognized as revenue within the 12 months following the balance sheet date are classified as deferred revenue, net of current portion in the balance sheets.

Customer Options

If an arrangement is determined to contain customer options that allow the customer to acquire additional goods or services, the goods and services underlying the customer options that are not determined to be material rights are not considered to be performance obligations at the outset of the arrangement, as they are contingent upon option exercise. The Company evaluates the customer options for material rights, or options to acquire additional goods or services for free or at a discount. If the customer options are determined to represent a material right, the material right is recognized as a separate performance obligation at the outset of the arrangement. To date, none of our arrangements have included any material rights. The transaction price is allocated to each performance obligation on a relative standalone selling price basis. The observable price of a good or service sold separately provides the best evidence of standalone selling price. However, when standalone selling prices are not readily available, the Company is required to estimate the standalone selling price of each performance obligation. Key assumptions to determine the standalone selling price. Amounts allocated to a material right are not recognized as revenue until the option is exercised or terminates.

Milestone Payments

For each arrangement that includes milestone payments upon the achievement of performance-based milestones, such as development and regulatory milestones, the Company evaluates whether the milestones are considered probable of being reached and estimates the amount to be included in the transaction price using the most likely amount method. If it is probable that a significant reversal of revenue would not occur, the associated milestone value is included in the transaction price. Milestone payments that are not within the Company's control, such as regulatory approvals, are not considered probable of being achieved until those approvals are received. Upfront and ongoing development milestones per the Company's collaboration and license agreement are not subject to refund if the development activities are not successful. The Company reevaluates the probability of achievement of such milestones and any related constraint at each reporting period, and any adjustments are recorded on a cumulative catch-up basis, which would affect revenues and earnings in the period of adjustment. To date, the Company has not recognized any milestone revenues.

Royalties

For arrangements that include sales-based royalties, including milestone payments based on the level of sales, and the license to the Company's intellectual property is deemed to be the predominant item to which the royalties relate as it is the primary driver of value, the Company recognizes revenue when the related sales occur in accordance with the sales-based royalty exception under ASC 606-10- 55-65. To date, the Company has not recognized any royalty revenue resulting from the Company's collaboration and licensing agreements.

The estimate of deferred revenue also reflects management's estimate of the periods of the Company's involvement in its collaboration and license agreements. The Company's performance obligations generally consist of the performance of research and development services and sharing know-how through participation on steering committees. If these estimates and judgments change over the course of these agreements, it may affect the timing and amount of revenue that the Company recognizes and records in future periods.

Income Taxes

Deferred tax assets and liabilities are recognized for the expected future tax consequences of events that have been included in the consolidated financial statements or tax returns. Under this method, deferred tax assets and liabilities are determined based on the difference between the consolidated financial statement and tax basis of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse. A valuation allowance is provided to reduce the deferred tax asset to an amount, which, more likely than not, will be realized.

The Company recognizes the tax benefit from any uncertain tax positions only if it is more likely than not that the tax position will be sustained on examination by the taxing authorities, based on the technical merits of the position. The tax benefits recognized in the consolidated financial statements from such a position are measured based on the largest benefit that has a greater than fifty percent likelihood of being realized upon ultimate settlement. Interest and penalties associated with uncertain tax positions are recorded as a component of income tax expense. As of December 31, 2019 and 2020, the Company has not identified any uncertain tax positions for which reserves would be required.

Segment Information

Operating segments are defined as components of an entity for which discrete information is available for evaluation by the chief operating decision maker, who is the CEO, in deciding how to allocate resources and in assessing performance. The Company manages its operations as a single segment for the purposes of assessing performance and making operating decisions. All of the Company's assets are held in the United States.

Convertible Preferred Stock

As the preferred stock contains redemption features in a deemed liquidation event that are not solely within the control of the Company, the outstanding preferred stock has been classified outside of stockholders' deficit. The Company's convertible preferred stock is subject to a dividend when and if declared by the Board. From inception through December 31, 2020, no dividend has been declared.

Stock-Based Compensation

The Company accounts for stock option awards at fair value, which is measured using the Black-Scholes option-pricing model. The measurement date is generally the date of grant.

The Company recognizes stock-based compensation expense over the requisite service period, which is generally the vesting period of the respective award. For awards that include performance-based vesting conditions, stock-based compensation expense is recognized using the accelerated attribution method when the performance condition is deemed to be probable. The Company accounts for forfeitures as they occur. The Company determines the fair value of restricted stock awards in reference to the fair value of its common stock less any applicable purchase price

The Company classifies stock-based compensation expense in its consolidated statements of operations in the same manner in which the award recipient's salary and related costs are classified or in which the award recipient's service payments are classified.

Comprehensive Loss

Comprehensive loss includes net loss as well as other changes in stockholders' deficit that result from transactions and economic events other than those with stockholders. For the years ended December 31, 2019 and 2020, there was no difference between net loss and comprehensive loss in the accompanying consolidated financial statements.

Net Loss Per Share

Basic net loss per share is calculated by dividing net loss by the weighted average common shares outstanding during the period. During periods of income, the Company allocates to participating securities a proportional share of income (the two class method). The Company's convertible preferred stock participates in any dividends declared by the Company and are therefore considered to be participating securities. Participating securities have the effect of diluting both basic and diluted earnings per share during periods of income. During periods of loss, the Company allocates no loss to participating securities because they have no contractual obligation to share in the losses of the Company.

Diluted net loss per share is calculated by adjusting weighted average common shares outstanding for the dilutive effect of common stock equivalents outstanding for the period, determined using the treasury-stock and if-converted methods. For purposes of the diluted net income (loss) per share calculation, convertible preferred stock and stock options are considered to be common stock equivalents. All common stock equivalents have been excluded from the calculation of diluted net loss per share as their effect would be anti-dilutive for all periods presented. Therefore, basic and diluted net loss per share were the same for all periods presented.

3. Property and Equipment

Property and equipment consist of the following (in thousands):

	December 31,	
	2019	2020
Laboratory equipment	$1,836	$ 5,615
Leasehold improvements	19	493
Office and computer equipment	87	202
Furniture and fixtures	224	326
Construction-in-progress	—	778
Property and equipment	2,166	7,414
Less: accumulated depreciation and amortization	(526)	(1,755)
Property and equipment, net	$1,640	$ 5,659

Depreciation and amortization expense for the years ended December 31, 2019 and 2020 was $0.5 million and $1.2 million, respectively.

4. Fair Value Measurements

The following table sets forth by level, within the fair value hierarchy, the assets (liabilities) carried at fair value (in thousands):

	Fair value measurements at December 31, 2019 using:			
	Level 1	Level 2	Level 3	Total
Assets:				
Cash equivalents—money market funds	$3,772	$ —	$ —	$3,772
Total financial assets	$3,772	$ —	$ —	$3,772

The following table sets forth by level, within the fair value hierarchy, the assets (liabilities) carried at fair value (in thousands):

	Fair value measurements at December 31, 2020 using:			
	Level 1	Level 2	Level 3	Total
Cash equivalents—money market funds	$33,748	$ —	$ —	$33,748
Total of financial assets	$33,748	$ —	$ —	$33,748

The cash equivalents are comprised of funds held in an exchange traded money market fund and the fair value of the cash equivalents is determined based upon quoted market price for that fund. There were no transfers among Level 1, Level 2, or Level 3 categories in the periods presented.

The carrying value of accounts payable and accrued expenses that are reported on the consolidated balance sheets approximate their fair value due to the short-term nature of these assets and liabilities.

5. Accrued Expenses and Other Current Liabilities

Accrued expenses and other liabilities consisted of the following (in thousands):

	December 31,	
	2019	2020
Accrued employee compensation and benefits	$840	$1,535
Accrued consulting and professional services	8	189
Accrued legal services and license fee	64	578
Other	31	192
Total accrued expenses and other current liabilities	$943	$2,494

6. Convertible Preferred Stock

Series A Preferred Stock

In 2018, the Company entered into the Series A Preferred Stock Purchase Agreement with its founding investors providing $25 million in Series A Preferred Stock equity financing and issued 26,315,790 shares of Series A Preferred Stock. Issuance costs associated with the transaction were $0.1 million.

Series B Preferred Stock

In 2019, the Company entered into the Series B Preferred Stock Purchase Agreements providing $35 million in Series B Preferred Stock equity financing and issued 31,601,732 shares of Series B Preferred Stock. Issuance costs associated with the transaction were $0.2 million.

As of each balance sheet date, the preferred stock consisted of the following (in thousands, except for share data):

	December 31, 2019				
	Preferred Stock Authorized	Preferred Stock Issued and Outstanding	Carrying Value	Liquidation Preference	Common stock issuable upon conversion
Series A Preferred Stock	26,315,790	26,315,790	$ 24,874	$ 27,622	26,315,790
Series B Preferred Stock	31,601,732	31,601,732	34,807	36,138	31,601,732
	57,917,522	57,917,522	$ 59,681	$ 63,760	57,917,522

	December 31, 2020				
	Preferred Stock Authorized	Preferred Stock Issued and Outstanding	Carrying Value	Liquidation Preference	Common stock issuable upon conversion
Series A Preferred Stock	26,315,790	26,315,790	$ 24,874	$ 29,838	26,315,790
Series B Preferred Stock	31,601,732	31,601,732	34,807	39,037	31,601,732
	57,917,522	57,917,522	$ 59,681	$ 68,875	57,917,522

The terms and conditions of the Series A Preferred Stock and Series B Preferred Stock (collectively the Preferred Stock) are as follows:

Dividends

Dividends shall accrue at the rate of 8% compounded annually and are cumulative in nature (Accruing Dividends). Dividends are payable only when and if declared by the Board. The Company shall not declare, pay, or set aside any dividends on shares of any class of common stock, unless the holders of the Preferred Stock shall first receive dividends on each outstanding share of Preferred Stock in the amount of the accrued dividends unpaid as of such date. No dividends have been declared or paid as of December 31, 2019 and 2020. The cumulative dividends at December 31, 2020 totaled $8.9 million.

Liquidation

In the event of any liquidation, dissolution, or winding-up of the Company, which would include the sale of the Company, the holders of the Preferred Stock are entitled to a liquidation preference. The amount to be paid to the holders of Preferred Stock is an amount equal to the greater of (i) the original purchase price per share, plus all Accruing Dividends accrued but unpaid thereon applicable to the series of Preferred Stock (which Accruing Dividends shall be paid out in cash), whether or not declared, together with any other dividends declared but unpaid thereon or (ii) such amount per share as would have been payable had all shares of Preferred Stock been converted to common stock prior to such liquidation, dissolution, or winding up of the Company. The original issue purchase price per share of the Series A Preferred Stock was $0.95 per share, and the original issue price of the Series B Preferred Stock was $1.10 per share. The holders of the Series B Preferred Stock are entitled to receive their respective liquidation preference with respect to the Series B Preferred Stock in full before any liquidation preference is paid upon the shares of Series A Preferred Stock. Any assets remaining following the preferential distribution to the holders of Series A Preferred Stock and Series B Preferred Stock would be available for distribution ratably among the holders of common stock.

Voting

The holders of the Preferred Stock are entitled to the number of votes equal to the number of shares of common stock into which the shares of the Preferred Stock held by each holder are then convertible. The holders of Preferred Stock are entitled to vote together with the holders of the Company's common stock, as a single class, on all matters submitted to a vote of stockholders. In addition, the holders of Series A Preferred Stock are entitled to elect four (4) directors and holders of Series B Preferred Stock are entitled to elect two (2) directors.

Conversion

The holders of Preferred Stock shall have the right to convert, at the option of the holder, at any time, into shares of common stock by dividing the preferred stock original issuance price by the conversion price in effect at the time. The initial Series A Preferred Stock conversion price is $0.95 and the initial Series B Preferred Stock conversion price is $1.10, subject in each case to certain adjustments to reflect the issuance of common stock, options, warrants, or other rights to subscribe for or to purchase shares of the Company's common stock for a consideration per share less than the conversion price then in effect. In addition, each share of Series A Preferred Stock and Series B Preferred Stock will automatically convert into shares of common stock at the applicable conversion ratio in effect upon the earlier of (a) the closing of a Qualified IPO (as defined in the Company's certificate of incorporation) or (b) the date and time, or the occurrence of an event, specified by vote or written consent of the holders of at least fifty-nine percent (59%) of the then outstanding shares of Preferred Stock (voting together as a single class, and not as separate series, and on an as converted to common stock basis).

Redemption

The Preferred Stock is not redeemable at the option of the holder. However, upon certain change in control events that are outside of the Company's control, including liquidation, sale or transfer of control of the Company, holders of the Preferred Stock can cause redemption of the Preferred Stock. Shares of Preferred Stock must be redeemed by the Company in an amount equal to the liquidation preference for each series of Preferred Stock. The Company classifies its Preferred Stock outside of stockholders' deficit as certain change in control events are outside the Company's control. As there is no certain redemption date and the redemption feature can only be triggered in the event of a liquidation, sale, or transfer of control of the Company or similar event, the Company has concluded that it is not probable that the Preferred Stock will become redeemable and as such does not accrete the Preferred Stock to the redemption value.

7. Stock Based Compensation

On April 20, 2018, the Company adopted the 2018 Stock Plan (the 2018 Plan). The 2018 Plan, as amended, provides for the issuance of up to 12,089,548 shares of common stock to employees, officers, directors, consultants, and advisors in the form of nonqualified and incentive stock options, unvested stock awards, and other stock-based awards. At December 31, 2020, there were 236,708 shares of common stock available for issuance under the 2018 Plan.

Stock Options

In general, stock options typically vest over four years and have a maximum term is 10 years. Also, the Company typically grants stock options to employees and non-employees at exercise prices deemed by the Board to be equal to the fair value of the common stock at the time of grant. The fair value of the common stock has been determined by the Board at each measurement date based on a variety of different factors, including the results obtained from third party appraisals, the Company's financial position and historical financial performance, the status of development of the Company's services, the current climate in the marketplace, the illiquid nature of the common stock, the effect of the rights and preferences of the preferred stockholders, and the prospects of a liquidity event, among others.

The Company utilized the Black-Scholes option-pricing model to estimate the fair value of stock options awarded to employees. The Black-Scholes option-pricing model requires several key assumptions. The key

assumptions used to apply this pricing model during the years ended December 31, 2019 and 2020, were as follows:

	2019	2020
Risk-free interest rate	2.07%	0.85%
Expected term (in years)	6.00	6.05
Expected dividend yield	0%	0%
Expected volatility of underlying common stock	62%	73%

The risk-free interest rate was based on rates associated with U.S. Treasury issues approximating the expected life of the stock options. The expected term of stock options granted to employees was determined using the simplified method, which represents the midpoint of the contractual term of the stock option and the weighted-average vesting period of the option. The Company uses the simplified method because it does not have sufficient historical stock option exercise data to provide a reasonable basis upon which to estimate the expected term. The expected dividend-yield assumption was based on the Company's expectation of no future dividend payments. The expected volatility of the underlying stock was based on the average historical volatility of comparable publicly traded companies based on weekly price returns as reported by a pricing service, as the Company does not have a trading history for its common stock.

The following table summarizes the stock option activity under the 2018 Plan:

	Stock Options	Weighted Average Exercise Price	Weighted Average Remaining Life (in Years)	Intrinsic Value (in thousands)
Outstanding January 1, 2020	10,585,801	$ 0.27	9.45	$ 301
Granted	2,979,200	0.46		
Exercised	(1,167,308)	0.25		
Canceled	(544,853)	0.29		
Outstanding December 31, 2020	11,852,840	$ 0.32	8.74	$ 3,799
Options vested or expected to vest as of December 31, 2020	11,852,840	$ 0.32	8.74	$ 3,799
Stock options exercisable as of December 31, 2019	1,341,863	$ 0.25	8.87	$ 71
Stock options exercisable as of December 31, 2020	2,973,359	$ 0.27	8.42	$ 1,103

The weighted average grant date calculated value of stock options granted for the years ended on December 31, 2019 and 2020 were $0.16 and $0.29 per share, respectively.

Restricted Common Stock

The Company has granted restricted common stock with service based vesting conditions. Unvested shares of restricted common stock may not be sold or transferred by the holder, except for transfers for estate planning purposes in which the transferee agrees to remain bound by all restrictions set forth in the original common stock purchase agreement. They are legally issued and outstanding but only accounted for as outstanding when vested.

These restrictions lapse over the four year vesting term of each award. The purchase price of each share of restricted common stock was $0.0001 per share. A summary of the activity for the year ended December 31, 2020 is as follows:

	Number of Shares	Weighted Average Grant Date Fair Value
Unvested restricted stock as of January 1, 2020	6,750,000	$ 0.00
Granted	—	—
Vested	(2,875,000)	0.00
Forfeitured	(281,250)	0.00
Unvested restricted stock as of December 31, 2020	3,593,750	$ 0.00

The aggregate fair value of restricted stock awards that vested during the years ended December 31, 2019 and 2020 was nominal.

Stock-Based Compensation Expense

Stock-based compensation expense was as follows (in thousands):

	Year Ended December 31,	
	2019	2020
Research and development	$110	$248
General and administrative	130	267
	$240	$515

As of December 31, 2020, there was $1.7 million of unrecognized stock-based compensation expense related to unvested stock options and restricted common stock, which is estimated to be recognized over a period of 2.76 years.

8. Income Taxes

During the years ended December 31, 2019 and 2020, the Company did not record an income tax provision due to the losses incurred and a full valuation allowance provided on the net deferred tax assets.

A reconciliation of the federal statutory income tax rate to the effective tax rate is as follows:

	December 31,	
	2019	2020
Tax at U.S. statutory rate	21.0%	21.0%
Changes from statutory rate:		
State taxes, net of federal benefit	6.3%	7.8%
Tax credits	5.7%	3.8%
Stock-based compensation	(0.3)%	(0.3)%
Change in valuation allowance	(32.5)%	(32.3)%
Other	(0.2)%	0.0%
Effective income tax rate	0.0%	0.0%

Deferred tax assets and liabilities reflect the net tax effects of net operating loss carryovers and temporary differences between the carrying amount of assets and liabilities for financial reporting and the amounts used for income tax purposes. Significant components of the Company's deferred tax assets and liabilities were as follows (in thousands):

	December 31,	
	2019	2020
Deferred tax assets:		
Net operating loss carryforwards	$ 3,760	$ 4,755
Tax credits	715	2,087
Deferred revenue	—	5,312
Depreciation and amortization	20	105
Start up costs	520	617
Stock-based compensation	17	40
Lease liability	1,353	2,031
Other deferred tax assets	230	664
Total deferred tax assets	6,615	15,611
Deferred tax liabilities:		
Right-of-use assets	(1,320)	(1,878)
Valuation allowance	(5,295)	(13,733)
Net deferred tax asset & liabilities	$ —	$ —

In determining the need for a valuation allowance, the Company has given consideration to its cumulative losses. The Company has assessed the available means of recovering deferred tax assets, including the ability to carryback net operating losses, the existence of reversing taxable temporary differences, the availability of tax planning strategies and forecasted future taxable income. The Company maintains a full valuation allowance against its net deferred tax assets. The valuation allowance increased by $4.3 and $8.4 million during the years ended December 31, 2019 and 2020, respectively.

As of December 31, 2020, the Company had U.S. federal net operating loss carryforwards of approximately $17.6 million. The U.S. federal net operating losses have an indefinite life carryforward. As of December 31, 2020, the Company had Massachusetts net operating loss carryforwards of approximately $16.7 million that expire at various dates through 2040. As of December 31, 2020, the Company had U.S. R&D federal credit carryforwards of approximately $1.5 million that expire at various dates through 2040. As of December 31, 2020, the Company had U.S. state R&D tax credit carryforwards of approximately $0.8 million that expire at various dates through 2035.

Under Sections 382 and 383 of the U.S. Internal Revenue Code, if a corporation undergoes an ownership change, the corporation's ability to use its pre-change net operating loss carryforwards and other pre-change attributes, such as net operating losses and research tax credits, to offset its post-change income and taxes may be limited. In general, an ownership change generally occurs if there is a cumulative change in ownership by 5% stockholders that exceeds 50 percentage points over a rolling three-year period. Similar rules may apply under U.S. state tax laws. The Company may have experienced an ownership change in the past and may experience ownership changes in the future as a result of future transactions in its share capital, some of which may be outside the control of the Company. As a result, if the Company earns net taxable income, its ability to use its

pre-change net operating loss carryforwards, or other pre-change tax attributes, to offset U.S. federal and state taxable income and taxes may be subject to significant limitations.

The Company accounted for uncertain tax positions using a more likely than not threshold for recognizing and resolving uncertain tax positions. The evaluation of uncertain tax positions is based on factors that include, but are not limited to, changes in tax law, the measurement of tax positions taken or expected to be taken in tax returns, the effective settlement of matters subject to audit, new audit activity and changes in facts or circumstances related to a tax position. The Company evaluates uncertain tax positions on an annual basis and adjusts the level of the liability to reflect any subsequent changes in the relevant facts surrounding the uncertain positions. The Company accounts for interest and penalties related to uncertain tax positions as part of its provision for income taxes. For the years ended December 31, 2019 and 2020, there were no accrued interest or penalties in the consolidated statements of operations.

The Company is subject to taxation for federal and Massachusetts purposes. At December 31, 2020, the Company is subject to examination by these taxing authorities for all years since inception.

9. Collaboration and License Agreements

Novartis

In March 2020, the Company entered into a Collaboration and License Agreement (the Novartis Agreement) with Novartis Institutes For Biomedical Research, Inc. (Novartis) to collaborate on their research efforts to discover and develop novel TCR-T. Under the Novartis Agreement, the Company will identify and characterize TCRs in accordance with a research plan, transfer data arising from the research plan. and Novartis will have the option to license and develop TCRs for up to three novel targets identified in performance of the collaboration during the collaboration period of the Novartis Agreement. Novartis will also have rights of first negotiation for certain additional targets and TCRs identified in performance of the collaboration during a defined collaboration period of the Novartis Agreement and for 180 days after such collaboration period ends (which collaboration period will end no later than March 2023). If during such 180-day right of first negotiation period, the Company notifies Novartis of the Company's intent to grant a third party a license to a target or TCR identified in the collaboration, then Novartis may obtain the exclusive right to negotiate a license to such target or TCR for an additional 270 days by providing the Company with a term sheet to license such target or TCR within 90 days of the Company's notice of such intent. The Novartis Agreement provides for payments of an upfront fee of $20 million, research funding totaling $10.0 million and potential milestone payments contingent on clinical, regulatory and sales success. In addition to payments upon achievement of certain clinical and regulatory milestones, Novartis will pay the Company mid-single to low double-digit royalties on net sales for each product directed to a target licensed by Novartis. After the end of the collaboration period and the expiration of Novartis' first right of negotiation, the Company is free to develop TCRs against targets not licensed by Novartis.

The Company concluded that Novartis meets the definition of a customer, as the Company is delivering research and development activities and know-how rights. The Company identified performance obligations for research and development activities, data reporting and participation in joint steering and research committees. The Company determined there is a single performance obligation due to the services being highly interrelated and are therefore not distinct in the context of the contract. The Company combined the pre-option research services and data reporting into a single performance obligation Novartis has an exclusive option to obtain a commercial license for up to three Targets (as defined in the Novartis Agreement) to pursue further development and commercialization of the respective Target. Pursuant to the Novartis Agreement, the option for Novartis to license, develop, and commercialize Targets is not a performance obligation at the outset of the Novartis Agreement as it is a customer option that does not represent a material right.

The Company looked to the promises in the arrangement to determine the method of recognition that best coincides with the pattern of delivery. The Company concluded that the performance of the research services over the expected research term was the predominant promise within the performance obligation. The Company

is recognizing the revenue associated with the performance obligation using the input method, according to the actual costs incurred as a percentage of total expected costs to complete the research services. As costs are incurred, the Company will recognize revenue over time. Any change in the estimated percentage complete due to a revised cost forecast will be adjusted in the period in which the change in estimate occurs and the revenue recognition will be updated accordingly. The Company expects the research term to last approximately three years, which is inclusive of the option to extend the arrangement.

As of December 31, 2020, the Company determined that the $20.0 million upfront payment, together with the $10.0 million of estimated research costs to be reimbursed by Novartis to be the entirety of the consideration to be included in the transaction price as of the outset of the arrangement. The potential milestone payments that the Company is eligible to receive were excluded from the transaction price, as all milestone amounts were fully constrained based on the assessed probability of achievement. The Company will re-evaluate the transaction price at the end of each reporting period and as uncertain events are resolved or other changes in circumstances occur, and, if necessary, adjust the estimate of the transaction price. During the year ended December 31, 2020, the Company recognized $0.8 million of revenue associated with the Novartis Agreement based on performance completed during that period. Additionally, during the year ended December 31, 2020, the Company incurred $0.2 million of costs associated with the Novartis Agreement that were recorded within research and development expenses in the statements of operations. Additionally, as of December 31, 2020, the Company had current and long-term deferred revenue of $10.6 million and $8.8 million, respectively due to Novartis Agreement.

Qiagen

On November 5, 2020, the Company entered into an Option and Exclusive License Agreement with QIAGEN Sciences, LLC (Qiagen), pursuant to which Company licensed to Qiagen intellectual property relating to specific, identified peptides to enable Qiagen to develop and commercialize diagnostics related to COVID-19. The Company has not identified any performance obligations under this agreement other than the delivery of certain intellectual property that was delivered at the inception of the agreement. Qiagen paid the Company a nominal upfront non-refundable payment of $0.2 million with the potential for additional payments that become payable upon successful achievement of certain clinical and commercial milestones achieved by Qiagen. The initial payment is included in revenue for the period and the additional payments will not be recognized until the milestones are probable of being achieved.

Poseida Therapeutics

On October 19, 2020, the Company entered into an arrangement with Poseida Therapeutics, Inc. (Poseida), pursuant to which Poseida paid the Company a nominal fee in exchange for certain data. The Company does not have any remaining performance obligations under this arrangement and does not expect future revenues to be significant.

10. Commitments and Contingencies

Leases

The Company leases for laboratory and office space with a term that expires in September 30, 2024, subject to certain renewal options, which are not deemed highly probable of renewal. The Company provided a letter of credit in the amount of $0.6 million as security for the lease which expires January 31, 2025.

Additional, laboratory and office space was secured through a sublease that commenced in June 2020 and will continue through March 2026. The Company provided a cash deposit of $0.2 million in conjunction with the execution of the lease which is recorded as a long-term asset.

Summary of lease cost

The Company lease costs is $0.6 million and $1.3 million for the years ended December 31, 2019 and 2020, respectively. These amounts include short-term and variable lease costs, which were not significant in any period presented.

Supplemental disclosure of cash flow information related to leases was as follows (in thousands):

	Year ended December 31,	
	2019	2020
Cash paid for amounts included in the measurement of lease liabilities:		
Operating cash flows for operating leases	$679	$1,478

The weighted-average remaining lease term and discount rate were as follows:

	Year ended December 31,	
	2019	2020
Weighted-average remaining lease term (in years)	4.5 years	4.4 years
Weighted-average discount rate	8.0%	8.0%

The following table represents the maturity of the Company's operating lease liabilities as of December 31, 2020 (in thousands):

Year Ending December 31,	Operating
2021	$ 1,948
2022	2,075
2023	2,131
2024	1,812
2025	729
Thereafter	184
Total future minimum lease payments	8,879
Less: imputed interest	(1,445)
Present value of operating lease liability	$ 7,434

Brigham and Women's License Agreement

The Company obtained the worldwide exclusive license to its foundational technology from The Brigham and Women's Hospital, Inc. (or "BWH"). The license grants worldwide exclusive use to the patent underlying the TargetScan technology in exchange for fees including development milestones and various royalties on product sales should they occur in the future. The Company is negotiating an amendment of the license agreement with BWH. The potential amendment would include an exclusive license to new technology and certain changes to the fee and royalty structure that the Company does not expect to have a material impact on the financial statements.

Royalty Agreement

In June 2018, the Company amended and restated an existing royalty agreement with one of its founders. Under the amended and restated royalty agreement, the Company agreed to pay the founder an aggregate royalty of 1% of net sales of any product sold by the Company or by any of its direct or indirect licensees for use in the treatment of any disease or disorder covered by a pending patent application or issued patent held or controlled by the Company as of the last date that the founder was providing services to the Company as a director or consultant under a written agreement in perpetuity. Royalties are payable with respect to each applicable product for a defined period of time set forth in the royalty agreement. The founder assigned his rights and obligations under the royalty agreement to one of his affiliatedentities in January 2021.

11. Retirement Plan

The Company initiated a defined contribution plan under Section 401(k) of the IRC (the Plan) covering all qualified employees effective January 1, 2019. Employee contributions are voluntary and are determined on an individual basis subject to the maximum allowable under federal tax regulations. The Company made contributions to the Plan of $0.1 million and $0.2 million were recorded for the years ended December 31, 2019 and 2020, respectively.

12. Net Loss Per Share

Net Loss Per Share

Basic and diluted net loss per share was calculated as follows (in thousands, except share and per share amounts):

	Year ended December 31,	
	2019	2020
Numerator:		
Net loss	$ (13,658)	$ (26,127)
Denominator:		
Weighted-average common shares outstanding, basic and diluted	3,157,800	7,511,378
Net loss per share, basic and diluted	$ (4.33)	$ (3.48)

The Company excluded the following potential common shares from the computation of diluted net loss per share for the periods indicated because including them would have had an anti-dilutive effect:

	Year ended December 31,	
	2019	2020
Series A Preferred Stock (as converted to common stock)	26,315,790	26,315,790
Series B Preferred Stock (as converted to common stock)	31,601,732	31,601,732
Unvested restricted common stock	6,750,000	3,593,750
Options to purchase common stock	10,585,801	11,852,840
	75,253,323	73,364,112

13. Related-Party Transactions

Certain employees of Longwood Fund, a stockholder of the Company, including board of directors member Christoph Westphal, provided management services to the Company. Personnel and consulting expenses of $0.6 million were recognized in general and administrative expenses for year ended on December 31, 2019. No such expenses were incurred for year ended on December 31, 2020.

The Company has received professional services from founders of the Company. Consulting expenses of $0.3 million and $0.2 million were recognized in general and administrative expenses for the years ended December 31, 2019 and 2020, respectively.

Novartis and its affiliates held shares of the Preferred Stock and entered into the Novartis Agreement discussed in Note 9.

14. Subsequent Events

For the year ended December 31, 2020, the Company evaluated subsequent events as of March 19, 2021, the date the audited consolidated financial statements were issued.

Series C Preferred Stock financing

On January 15, 2021, the Company entered into the Series C Preferred Stock Purchase Agreement and completed the sale of $100 million in Series C Preferred Stock. The Company authorized and sold 70,136,064 shares of Series C Preferred Stock with an issue price of $1.43 per share. In connection with the issuance of Series C Preferred Stock, the Company increased the authorized number of shares of common stock, resulting in 165,210,543 authorized common shares as of January 15, 2021.

Increase in shares available for issuance under the 2018 Plan

On January 27, 2021, the number of shares of common stock authorized for issuance under the 2018 Plan was increased from 12,089,548 shares to 22,609,958 shares.

Grant of stock options under the 2018 Plan

On January 27, 2021, the Company granted options with service-based vesting criteria for the purchase of an aggregate of 8,410,509 shares of common stock, at an exercise price of $0.71 per share.

On March 16, 2021, the Company granted options with service-based vesting criteria for the purchase of an aggregate of 635,000 shares of common stock, at an exercise price of $1.41 per share.

* * * * * *

PART II

Information not Required in Prospectus

Item 13. Other Expenses of Issuance and Distribution

The following table presents the costs and expenses, other than underwriting discounts and commissions, payable in connection with this offering. All amounts are estimates except the SEC registration fee, the FINRA filing fee and listing fee.

SEC registration fee	$ *
FINRA filing fee	
Exchange listing fee	*
Printing and engraving expenses	*
Legal fees and expenses	*
Accounting fees and expenses	*
Transfer agent and registrar fees	*
Miscellaneous fees and expenses	*
Total	$ *

* To be completed by amendment.

Item 14. Indemnification of Directors and Officers

Section 145 of the Delaware General Corporation Law authorizes a court to award, or a corporation's board of directors to grant, indemnity to directors and officers under certain circumstances and subject to certain limitations. The terms of Section 145 of the Delaware General Corporation Law are sufficiently broad to permit indemnification under certain circumstances for liabilities, including reimbursement of expenses incurred, arising under the Securities Act of 1933, as amended, or the Securities Act.

As permitted by the Delaware General Corporation Law, the Registrant's amended and restated certificate of incorporation and amended and restated bylaws contain provisions relating to the limitation of liability and indemnification of directors and officers. The amended and restated certificate of incorporation provides that the Registrant's directors will not be personally liable to the Registrant or the Registrant's stockholders for monetary damages for any breach of fiduciary duty as a director, except for liability:

- for any breach of the director's duty of loyalty to the Registrant or the Registrant's stockholders;
- for acts or omissions not in good faith or that involve intentional misconduct or a knowing violation of law;
- in respect of unlawful payments of dividends or unlawful stock repurchases or redemptions as provided in Section 174 of the Delaware General Corporation Law; or
- for any transaction from which the director derives any improper personal benefit.

The Registrant's amended and restated certificate of incorporation also provides that if Delaware law is amended after the approval by the Registrant's stockholders of the certificate of incorporation to authorize corporate action further eliminating or limiting the personal liability of directors, then the liability of the Registrant's directors will be eliminated or limited to the fullest extent permitted by Delaware law.

The Registrant's amended and restated bylaws provide that the Registrant will indemnify its directors and officers to the fullest extent permitted by Delaware law, as it now exists or may in the future be amended, against all expenses and liabilities reasonably incurred in connection with their service for or on the Registrant's behalf. The Registrant's amended and restated bylaws provide that the Registrant shall advance the expenses incurred by

a director or officer in advance of the final disposition of an action or proceeding, and permit the Registrant to secure insurance on behalf of any director, officer, employee, or other enterprise agent for any liability arising out of his or her action in that capacity, whether or not Delaware law would otherwise permit indemnification.

The Registrant intends to enter into indemnification agreements with each of its directors and executive officers and certain other key employees, a form of which is attached as Exhibit 10.1. The form of agreement provides that the Registrant will indemnify each of its directors, executive officers and such other key employees against any and all expenses incurred by that director, executive officer, or other key employee because of his or her status as one of the Registrant's directors, executive officers, or other key employees, to the fullest extent permitted by Delaware law, the Registrant's restated certificate of incorporation and the Registrant's amended and restated bylaws. In addition, the form agreement provides that, to the fullest extent permitted by Delaware law, the Registrant will advance all expenses incurred by its directors, executive officers and other key employees in connection with a legal proceeding.

Reference is made to the underwriting agreement contained in Exhibit 1.1 to this registration statement, indemnifying the Registrant's directors and officers against limited liabilities. In addition, Section 2.8 of the Registrant's fourth amended and restated investors' rights agreement, or the IRA, contained in Exhibit 4.2 to this registration statement provides for indemnification of certain of the Registrant's stockholders against liabilities described in the Registrant's IRA.

The Registrant currently carries and intends to continue to carry liability insurance for its directors and officers.

Item 15. Recent sales of Unregistered Securities

The following list sets forth information regarding all unregistered securities sold by the Registrant since its incorporation on April 17, 2018. No underwriters were involved in the sales and the certificates representing the securities sold and issued contain legends restricting transfer of the securities without registration under the Securities Act or an applicable exemption from registration.

Stock Plan Related Issuances

(a) From April 17, 2018 through March 19, 2021, the Registrant granted to its directors, officers, employees, consultants and other service providers stock options to purchase an aggregate of 19,629,867 shares of common stock upon the exercise of options under the Registrant's 2018 Stock Plan at exercise prices per share ranging from $0.24 to $1.41, for an aggregate exercise price of approximately $10.3 million.

(b) From April 17, 2018 through March 19, 2021, the Registrant issued an aggregate of 1,589,194 shares of our common stock upon the exercise of options, at exercise prices ranging from $0.24 to $.30 per share, for an aggregate exercise price of approximately $0.4 million.

Sales of Convertible Preferred Stock and Common Stock

(c) In June 2018 and December 2018, the Registrant issued and sold an aggregate of 26,315,790 shares of its Series A convertible preferred stock at a purchase price of $0.95 per share for an aggregate purchase price of approximately $25.0 million.

(d) In July 2019, August 2019 and November 2019, the Registrant issued and sold an aggregate of 31,601,732 shares of its Series B convertible preferred stock at a purchase price of $1.10 per share for an aggregate purchase price of approximately $35.0 million.

(e) In January 2021, the Registrant issued and sold an aggregate of 70,136,064 shares of its Series C convertible preferred stock at a purchase price of $1.4258 per share for an aggregate purchase price of approximately $100.0 million.

No underwriters were involved in the foregoing issuances of securities. The offers, sales and issuances of the securities described in Items (a) and (b) above were exempt from registration under the Securities Act under either (1) Rule 701 in that the transactions were under compensatory benefit plans and contracts relating to compensation as provided under Rule 701 or (2) Section 4(a)(2) of the Securities Act or Regulation D promulgated thereunder as transactions by an issuer not involving any public offering. The recipients of such securities were the Registrant's directors, officers, employees, consultants or other service providers and received the securities under the Registrant's 2018 Stock Plan. The recipients of securities in each of these transactions represented their intention to acquire the securities for investment only and not with view to or for sale in connection with any distribution thereof and appropriate legends were affixed to the securities issued in these transactions.

The offers, sales and issuances of the securities described in Items (c), (d) and (e) above were exempt from registration under the Securities Act under Section 4(a)(2) of the Securities Act or Regulation D promulgated thereunder as transactions by an issuer not involving a public offering. The recipients of securities in each of these transactions acquired the securities for investment only and not with a view to or for sale in connection with any distribution thereof and appropriate legends were affixed to the securities issued in these transactions. Each of the recipients of securities in these transactions was an accredited person and had adequate access, through employment, business or other relationships, to information about the registrant.

Item 16. Exhibits and Financial Statement Schedules

(a) Exhibits. The following exhibits are included herein or incorporated herein by reference:

Exhibit Number	Description
1.1*	Form of Underwriting Agreement.
3.1*	Fourth Amended and Restated Certificate of Incorporation of Registrant, as currently in effect.
3.2*	Form of Amended and Restated Certificate of Incorporation of Registrant, to be effective upon completion of this offering.
3.3*	Bylaws of Registrant, as currently in effect.
3.4*	Form of Amended and Restated Bylaws of Registrant, to be effective upon completion of this offering.
4.1*	Form of Registrant's common stock certificate.
4.2*	Fourth Amended and Restated Investors' Rights Agreement, dated January 15, 2021, by and among the Registrant and the other parties thereto.
4.3*	Registration Rights Agreement made as of January 15, 2021 by and between the Registrant and the other parties thereto.
4.4*	Nominating Agreement, dated January 15, 2021, by and among the Registrant, Baker Brothers Life Sciences, L.P. and 667, L.P.
5.1*	Opinion of Gunderson Dettmer Stough Villeneuve Franklin & Hachigian, LLP.
10.1+*	Form of Indemnification Agreement between the Registrant and each of its directors and executive officers.
10.2+*	2018 Stock Plan, as amended, and forms of agreements thereunder.
10.3+*	2021 Equity Incentive Plan and form of agreements thereunder.
10.4+*	2021 Employee Stock Purchase Plan.

Exhibit Number	Description
10.6*	Lease by and between PPF OFF 828-830 Winter Street LLC and the Company, dated August 13, 2019.
10.7#	Option & Exclusive License Agreement by and between the Registrant and QIAGEN Sciences LLC, dated as of November 5, 2020.
10.8#	Collaboration and License Agreement by and between the Registrant and Novartis Institutes for Biomedical Research, dated as of March 27, 2020.
10.9#	Non-Exclusive License Agreement by and between the Registrant and Provincial Health Services Authority, dated as of October 15, 2020
10.10*	Amended and Restated Royalty Agreement, dated as of June 12, 2018.
10.11*	Services Agreement by and between Christoph Westphal and the Registrant, dated October 9, 2018.
10.12*	Amendment No. 1 to Services Agreement Services Agreement by and between Christoph Westphal and the Registrant, dated June 24, 2019.
10.13*	Employment Agreement, dated October 9, 2018, by and between the Registrant and David Southwell.
10.14*	Amendment No. 1 to Employment Agreement, dated December 19, 2019, by and between the Registrant and David Southwell
10.15*	Employment Letter Agreement, dated November 28, 2018, by and between the Registrant and Gavin MacBeath, Ph.D.
10.16*	Employment Letter Agreement, dated April 8, 2019, by and between the Registrant and Henry Rath.
10.17*	Separation Agreement, dated January 26, 2021, by and between the Registrant and Henry Rath.
23.1*	Consent of Deloitte & Touche LLP, Independent Registered Public Accounting Firm.
23.2*	Opinion of Gunderson Dettmer Stough Villeneuve Franklin & Hachigian, LLP (contained in Exhibit 5.1).
24.1	Power of Attorney (included on signature page).

* To be filed by amendment.

\# Certain portions of this agreement have been omitted because the omitted portions are both not material and consists of the type of information that the Registrant both customarily and actually treats as private and confidential.

(b) Financial Statement Schedules. All schedules have been omitted because the information required to be presented in them is not applicable or is shown in the financial statements or related notes.

Item 17. Undertakings

The undersigned registrant hereby undertakes to provide to the underwriter at the closing specified in the underwriting agreements certificates in such denominations and registered in such names as required by the underwriter to permit prompt delivery to each purchaser.

Insofar as indemnification for liabilities arising under the Securities Act of 1933, as amended, may be permitted to directors, officers and controlling persons of the Registrant pursuant to the foregoing provisions, or otherwise, the Registrant has been advised that in the opinion of the SEC such indemnification is against public

policy as expressed in the Act and is, therefore, unenforceable. In the event that a claim for indemnification against such liabilities (other than the payment by the Registrant of expenses incurred or paid by a director, officer or controlling person of the registrant in the successful defense of any action, suit or proceeding) is asserted by such director, officer or controlling person in connection with the securities being registered, the registrant will, unless in the opinion of its counsel the matter has been settled by controlling precedent, submit to a court of appropriate jurisdiction the question whether such indemnification by it is against public policy as expressed in the Act and will be governed by the final adjudication of such issue.

The undersigned registrant hereby undertakes that:

(1) For purposes of determining any liability under the Securities Act of 1933, as amended, the information omitted from the form of prospectus filed as part of this registration statement in reliance upon Rule 430A and contained in a form of prospectus filed by the Registrant pursuant to Rule 424(b)(1) or (4) or 497(h) under the Securities Act of 1933, as amended, shall be deemed to be part of this registration statement as of the time it was declared effective.

(2) For the purpose of determining any liability under the Securities Act of 1933, as amended, each post-effective amendment that contains a form of prospectus shall be deemed to be a new registration statement relating to the securities offered therein, and the offering of such securities at that time shall be deemed to be the initial bona fide offering thereof.

SIGNATURES

Pursuant to the requirements of the Securities Act of 1933, as amended, the registrant has duly caused this Registration Statement to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Waltham, Commonwealth of Massachusetts, on this day of , 2021.

TScan Therapeutics, Inc.

David Southwell
Chief Executive Officer

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below hereby constitutes and appoints David Southwell and , and each of them, as his or her true and lawful attorney-in-fact and agent with full power of substitution, for him or her in any and all capacities, to sign any and all amendments to this registration statement (including post-effective amendments) and any registration statement related thereto filed pursuant to Rule 462(b) increasing the number of securities for which registration is sought, and to file the same, with all exhibits thereto and other documents in connection therewith, with the SEC, granting unto said attorney-in-fact and agent full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully for all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agent, or his or her substitute, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Act of 1933, as amended, this Registration Statement has been signed by the following persons in the capacities and on the dates indicated.

Signature	Title	Date
David Southwell	Chief Executive Officer and Director *(Principal Executive Officer)*	
	(Principal Financial and Principal Accounting Officer)	
Timothy Barberich	Chairman	
Stephen Biggar, M.D., Ph.D.	Director	
Katina Dorton	Director	
Ittai Harel	Director	
Andrew Hedin	Director	

Signature	Title	Date
Brian Silver	Director	
Nandita Shangari, Ph.D.	Director	
Christoph Westphal, M.D., Ph.D.	Director	

CERTAIN IDENTIFIED INFORMATION HAS BEEN OMITTED FROM THIS DOCUMENT BECAUSE IT IS BOTH NOT MATERIAL AND WOULD LIKELY CAUSE COMPETITIVE HARM TO THE REGISTRANT IF PUBLICLY DISCLOSED, AND HAS BEEN MARKED WITH "[***]" TO INDICATE WHERE OMISSIONS HAVE BEEN MADE.

OPTION & EXCLUSIVE LICENSE AGREEMENT

This Option and Exclusive License Agreement (this "Agreement") is dated November 5, 2020 (the "Effective Date"), between TScan Therapeutics, Inc., a Delaware corporation (hereinafter referred to as "Licensor"), and QIAGEN Sciences, LLC, a limited liability company under Delaware law with an address of 19300 Germantown Road, Germantown, MD 20874 (hereinafter referred to as "Licensee"). Each of Licensee and Licensor may be referred to herein as a "Party" or collectively as the "Parties".

BACKGROUND

A. Licensor is the owner of right, title and interest in and to the inventions described in the Licensed Patents.

B. Licensee desires to evaluate Licensed Patents, and if it exercises the option as provided herein, to commercially develop, manufacture, use and distribute products and processes based upon or embodying the Licensed Patents throughout the world; and

C. Licensor is willing to grant Licensee the exclusive right to evaluate the Licensed Patents, subject to the terms and conditions set forth in this Agreement;

NOW THEREFORE, the Parties agree as follows:

1. Definitions. For the purpose of the Agreement, the terms set forth hereinafter shall have the following meaning:

1.1 "**Affiliate**" means any entity Controlling, Controlled by, or under common Control with a Party.

1.2 "**Control**" means the holding of more than fifty percent (50%) of the voting stock or other voting ownership interests of the corporation or business entity involved.

1.3 "**Field**" means only research and in vitro diagnostics uses for SARS-CoV-2 (or the detection of SARS-CoV-2), which may include, Research Use Only (RUO), Investigational Use Only (IUO), Analyte Specific Reagents (ASR), Laboratory Developed Tests (LDT) and In Vitro Diagnostic (IVD) products and services.

1.4 "**Improvements**" means any improvement of any Licensed Patents, provided that the manufacture, use, offer for sale, or sale by Licensee of Licensed Products would, but for this Agreement, infringe a Valid Claim in a jurisdiction where such a Valid Claim exists.

1.5 "**License**" shall have the meaning as attributed in Section 2.2.1.

1.6 "**Licensed Know-How**" means know-how or data relating specifically to the Material and/or use thereof in the Field. Licensed Know-How does not contain any patent or patent applications.

1.7 "**Licensed Patents**" shall mean the patent applications listed on Schedule A and, subject to Licensees' notification obligation in Section 6.2, any patent application relating to, or any patent applications of Licensor based on the Material and any patents issued therefrom, as well as all patent applications and patents which claim priority to the foregoing and any patents issued therefrom, including all divisionals, continuations, and foreign equivalents of each of the foregoing.

1.8 "**Licensed Products**" means a product containing the Material.

1.9 "**Licensed Technology**" means Licensed Patents and Licensed Know-How

1.10 "**Material"** means the peptides listed in the Appendix A of the MTA.

1.11 "**MTA**" means the Material Transfer Agreement between the Parties, dated July 28, 2020, of which a copy is attached as Schedule B.

1.12 "**Net Sales"** means the total of the amounts invoiced by Licensee and its Affiliates, for Licensed Products sold less deductions for **[***]**.

1.13 "**Scientific Research Field"** means the internal use by an end-user solely in SARS-CoV-2 scientific research applications of the end-user.

1.14 "Sell" (and "Sale" and "Sold" as the case may be) shall mean to sell or have sold, to lease or have leased, or otherwise to transfer or have transferred a Licensed Product for valuable consideration (in the form of cash or otherwise).

1.15 "**Term**" shall have the meaning set forth in Section 11.1.

1.16 "**Territory**" means worldwide.

1.17 "**Multimers**" shall mean [***].

1.18 "**Third Party**" means any party other than the Parties and their respective Affiliates.

1.19 "**Valid Claim**" means (a) for the first **[***]**years after Effective Date, a claim of an unexpired patent or pending application for a patent, wherein the claim (i) has not lapsed, (ii) has not expired, or (iii) has not been held to be invalid by a final judgment of a court of competent jurisdiction from which no appeal can or is taken, and (b) after the **[***]** anniversary of the Effective Date, a claim of an unexpired patent or pending application, wherein the claim (i) has not lapsed, (ii) has not expired, (iii) has not been held to be invalid, unpatentable or otherwise unenforceable by a final judgment of a court of competent jurisdiction from which no appeal can or is taken.

2. Grant.

2.1 Option.

2.1.1 Grant of Option. Licensor grants to Licensee an option for the License (as defined below) pursuant to Section 2.2 (the "Option").

2.1.2 Option Exercise Period. "The Option Exercise Period" shall begin on Licensor's receipt of the Option Fee in immediately available funds and shall terminate on the date that is one (1) year from the Effective Date. During the Option Exercise Period, Licensee shall use, on a non-transferable, non-exclusive basis, the Licensed Patents and Material for evaluation purposes only and shall not commercialize, market, distribute, sell or have sold any product or service involving a Licensed Patent or the Material. All intellectual property rights arising, created, or derived from, or relating to, the Material shall be owned by Licensor, Licensee will promptly disclose any such intellectual property rights to Licensor. Licensee hereby assigns all such intellectual property rights to Licensor, and Licensee shall not file or seek any intellectual property protection anywhere in the Territory with respect to the Material or claim any rights of ownership with respect to the Material. During the Option Exercise Period, Licensee will notify Licensor in writing if Licensee believes as a result of its evaluation that it would be in the best interests of the parties for Licensor to file a patent application in a particular jurisdiction in the Territory with respect to an intellectual property right arising from the Material. Licensor shall promptly file a patent application in such jurisdiction, and Exhibit A shall be automatically amended to include such patent application without further action by the parties.

2.1.3 Option Exercise. Licensee in its sole discretion may decide at any time during the Option Exercise Period to exercise its Option by notifying Licensor of its intention in writing, pay the Option Exercise Fee, and an exclusive license to the Licensed Patents, pursuant to the terms of this Agreement.

2.2 License.

2.2.1 Grant of License Rights. Subject to and only upon the timely exercise of the Option in accordance with this Agreement, to Licensee's full compliance with the terms and conditions of this Agreement, and on Licensor's receipt of the Option Exercise Fee, Licensor hereby grants to Licensee and Licensee hereby accepts from Licensor, a royalty-bearing, worldwide, sublicensable (in accordance with Section 2.2.3), exclusive license, under the Licensed Technology, to use, have used, make, have made, market, sell and have sold Licensed Products but, in each case in (and only in) the Field (the "License"). Notwithstanding the foregoing, Licensor shall not be restricted from conducting research or developing or commercializing products for or related to the treatment of SARS-CoV-2. Notwithstanding the foregoing Licensor has the right to grant to one (1) Third Party at a time, a worldwide, non-sublicensable, co-exclusive license, under the Licensed Technology, to use, have used, make, have made, market, sell and have sold and otherwise fully exploit Multimers solely under the Third Parties own trademarks, and in each case, in (and only in) the Scientific Research Field.

2.2.2 Extension to Licensee Affiliates. The rights granted to Licensee under this Article 2 and Licensee's obligations under this Agreement shall extend to Licensee's Affiliates and Licensee may subcontract any part of its obligations under this Agreement to its Affiliates; provided, that (a) each such Affiliate shall be bound by the terms of this Agreement, (b) Licensee shall remain responsible for the fulfillment and performance of all obligations under this Agreement by each such Affiliate, and (c) the extension of the rights granted herein to an Affiliate will cease at such time as such Affiliates ceases to be an Affiliate of Licensee.

2.2.3 Sublicenses. During the Term, Licensee shall have the right to grant sublicenses of its rights granted under the License, provided that (i) no sublicense exceeds the scope of the license granted in this Section, , (ii) each sublicense includes obligations of the sublicensee that require at least the level of indemnification, reporting, confidentiality and audit and inspection rights in favor of Licensor as those set forth herein, (iii) Licensee diligently enforces such obligations against each sublicensee, and (iv) Licensee is liable to Licensor for any failure by any sublicensee to comply with obligations relating to payment, reporting, confidentiality and audit and inspection rights. Licensee shall promptly (but in any event, within [***]days) furnish Licensor with a fully signed photocopy of any sublicense agreement.

3. Fees.

3.1 Option Fee. At the receipt of a one-time non-refundable, non-creditable payment of USD $**[***]** (the "Option Fee"), Licensor grants to Licensee the Option to the License. Licensor will send an Option Fee invoice to Licensee immediately after the Effective Date.

3.2 Option Exercise Fee. On exercise of the Option, Licensee shall pay Licensor a non-refundable, non-creditable one-time payment of USD $**[***]** (the "Option Exercise Fee") within **[***]** days of the confirmation of the Licensor of receipt of the exercise notification and the receipt of a respective invoice. Licensee in its sole discretion may decide at any time during the Option Exercise Period to exercise its Option.

3.3 Milestone Fee. Licensee shall pay Licensor a one-time non-refundable, non-creditable payment of USD $**[***]** upon launch of the first IVD product (i.e., cleared or approved by the United States Food and Drug Administration or certified as CE-IVD in the European Union).

4. Royalties, Records and Reports, Payment.

4.1 Royalties.

(a) During the Term, Licensee will pay Licensor royalties of **[***]** of Net Sales of Licensed Products made, used, imported, exported, distributed, offered for sale or sold in a country where, absent the rights granted hereunder, the manufacturing, sale or use would infringe at least one Valid Claim of the Licensed Patents.

(b) During the Term, Licensee will pay Licensor royalties of **[***]** of Net Sales of Licensed Products made, used, imported, exported, distributed, offered for sale or sold in a country where, absent the rights granted hereunder, the manufacturing, sale or use would not infringe at least one Valid Claim of the Licensed Patents.

(c) Sales among Licensee and its Affiliates shall be disregarded for purposes of computing royalties unless the Affiliate is the end consumer of the Licensed Product, in which case, such royalties shall be calculated in accordance with Section 4.1(a) or (b), as applicable. For clarification the foregoing shall not include the use of a Licensed Product by an Affiliate in internal research or development, marketing, quality assurance, quality control, clinical trials, registration and validation and no royalty shall be due on Licensed Products used for such purposes.

4.2 Royalty Stacking. In the event Licensee cannot use or dispose of a Licensed Product without infringing a third party patent, and Licensee is legally or contractually obligated to pay a royalty to such third party for such right, Licensee may reduce the royalties payable hereunder for such Licensed Product by **[***]**% of the amounts payable to such Third Party(ies), but in no event below **[***]**% of the royalties that would otherwise be paid to Licensor for such Licensed Product.

4.3 Sublicensing Receipts. Licensee shall pay to Licensor a royalty equal to **[***]** of all consideration, including without limitation all fees, receipts, revenue, royalties (which in no case shall fall below **[***]**% of Net Sales) collections, equity, and other amounts or property, payable to or received by Licensee in connection with the grant or maintenance of sublicenses of any rights to Licensed Products or Licensed Patents to non-Affiliated third parties.

4.4 Records. Licensee shall keep full, true and accurate books of account containing all particulars which may be necessary for the purpose of showing the amount payable by way of royalty or by way of any other provision under this Agreement for itself and shall require each of its sublicensed Affiliates to perform likewise. Such books and the supporting data shall be open at all reasonable times during normal business hours and upon reasonable advance notice, for **[***]** years following the end of the calendar quarter to which they pertain, to the inspection of an independent certified public accountant retained by Licensor and reasonably acceptable to Licensee for the purpose of verifying Licensee's royalty statements in respect of sales by Licensee and/or its Affiliates for the sole purpose of determining compliance with this Agreement. If in dispute, any such records shall be kept until the dispute is settled. The inspection of records shall be limited to once per calendar year and shall be at Licensor's sole cost unless the inspector concludes that royalties reported by Licensee for the period being audited are understated by **[***]** or more from actual royalties, in which case the underpayment, together with interest thereon, will be due within **[***]** days and the reasonable costs and expenses of such inspection shall be split and reasonable costs and expenses incurred to collect such amounts shall be paid by Licensee. In case that the audit reveals an overpayment by Licensee, such overpaid royalties shall be refunded within **[***]** days

4.5 **Royalty Reports and Payment**.

4.5.1 Earned Royalty Report. Licensee shall, within [***] days after the first day of January, April, July, and October of each year, deliver to Licensor a true and accurate royalty report in the form of Schedule C attached herein for Net in the Territory. Such reports shall give such particulars of the business conducted by Licensee and its Affiliates during the preceding three (3) calendar months as are pertinent to an accounting for royalty under this Agreement and shall include at least the following:

(a) Itemized quantities Licensed Products that are sold by Licensee and its Affiliates during those three (3) months;

(b) Net Sales of each Licensed Product;

(c) The calculation of royalties;

The royalties due, and if no royalties are due, it shall be so reported; and simultaneously with the delivery of each royalty report, Licensee shall pay to Licensor the royalty due under this Agreement for the period covered by such report.

4.5.2 Payments. All amounts payable hereunder by Licensee shall be payable in immediately available USD and shall be wire transferred, in accordance with the wire instructions listed below. Licensee shall be responsible for all bank transfer charges. The payment by wire will include a specific reference to this Agreement and the applicable provision in the "comments" field.

Wire Instructions

[***]

4.6 Currency Conversion. For the purpose of computing payments made in a currency other than USD, such currency shall be converted into USD at the conversion rates used by Licensee in the rest of its business to consolidate foreign currencies, provided only that such rates are obtained from a credible source and are applied in a manner consistent with generally accepted accounting principles used in the United States.

4.7 Withholding Tax. Any payments made by Licensee to Licensor under this Agreement shall be free and clear of any taxes, duties, levies, fees or charges, and such amounts shall be reduced by the amount required to be paid or withheld pursuant to any applicable law ("Withholding Taxes"). Any such Withholding Taxes required by law to be paid or withheld shall be an expense of, and borne solely by, Licensor. Licensee, as applicable, shall submit to Licensor reasonable proof of payment of the Withholding Taxes, together with an accounting of the calculations of such taxes, within days after such Withholding Taxes are remitted to the proper authority. The Parties will cooperate reasonably in completing and filing documents required under the provisions of any applicable tax laws or under any other applicable law in connection with the making of any required tax payment or withholding payment, or in connection with any claim to a refund of or credit for any such payment.

5. Patent Maintenance and Prosecution.

5.1 Authority.

(a) During the term of the Option Exercise Period and the Term, Licensor shall be solely responsible for managing files and covering costs related to applications for the grant, examination, extension, renewal and defense of the Licensed Patents. Licensor will inform Licensee on receipt of written request, but no more than semi-annually, in writing of the state of progress of all procedures relating to the Licensed Patents.

(b) Licensor will provide Licensee with copies of all written communications to and from any patent office with respect to the patent applications and patents contained in the Patents. Licensor will not abandon the prosecution of any patent application or abandon or discontinue the maintenance of any patent or patent application included in the Licensed Patent rights, without the prior written notice to Licensee. Licensee shall immediately notify Licensor of all matters of which Licensee become aware that affects, or reasonably could affect, the preparation, filing, prosecution, defense, or maintenance of the Licensed Patents. Licensee shall assist Licensor in seeking a term extension/supplementary protection certificate if requested by Licensor.

(c) Title to all such patents and patent applications in the Licensed Patents shall reside in Licensor.

5.2 Enforcement of Third Party Infringement.

(a) Upon receiving notice of alleged infringement of any Licensed Patent in the Territory, or having a declaratory judgment action alleging invalidity or noninfringement of any Licensed Patent in the Territory brought against it, Licensee shall promptly provide written notice to Licensor of the alleged infringement or declaratory judgment action, as applicable, and a copy of all pleadings and correspondence relating thereto.

(b) Regarding infringements or declaratory judgment action brought by third parties of the Licensed Patents, Licensor and Licensee hereby agree that Licensor shall, at its sole cost and expense and in its sole discretion, may but without obligation take commercially reasonable steps to enforce or defend any Licensed Patent and to terminate such infringement or declaratory judgment action. If Licensor determines that the Licensed Patents are being infringed in a country where it is commercially feasible to enforce such Licensed Patent and declines to take actions to enforce or defend such Licensed Patent at its own

cost and expense within [***]of such determination, royalty payments from Net Sales of Licensed Products in that country will be reduced to **[***]** for the period that Licensor fails to enforce or defend such Licensed Patent. Licensor shall control, settle, and prosecute any litigation arising from such third party infringement or declaratory judgment action. Licensee shall assist Licensor and reasonably cooperate in any such actions set forth above at Licensor's request and expense, including without limitation executing any documents reasonably necessary to permit Licensor to prosecute any suit, join Licensor as a plaintiff as necessary or advisable to maintain standing, and make available Licensee's employees and Affiliates and relevant records to assist in and to provide evidence for such suit. Any damages, awards or settlements resulting from an infringement claim shall be retained, for its own account, by Licensor and used to reimburse Licensor for any reasonable cost or expense incurred during litigation. The remainder of the recovered damages, awards or settlements, if any, from an infringement claim shall first be paid to Licensor to make it whole for the amount it would have received but for the reduction in the royalty percentage and the balance will be treated as Sublicensing Income for the purpose of royalty payments. Licensee will not settle or compromise any litigation, proceeding, or claim without Licensor's prior written consent if the settlement or compromise imposes any liability or obligation on Licensor or does not contain an unconditional release of Licensor.

(c) If Licensor elects not to terminate infringement as described in the foregoing paragraph, then it shall so notify Licensee in writing, and Licensee may, in its sole judgment and at its own expense, take steps to enforce Licensed Patents in a manner consistent with the terms and provisions hereof. Any damages, awards or settlements resulting from such an infringement claim shall be retained, for its own account, by Licensee and be used to reimburse Licensee for any cost or expense incurred during this litigation. The remainder of the recovered damages, awards or settlements attributed to the Licensed Patents, if any, shall be shared between Licensor and Licensee **[***]**, respectively.

(d) Licensee will not settle any litigation or compromise any claim arising from or relating to a Licensed Product that includes an obligation of Licensor without the prior written consent of Licensor, which consent will not be unreasonably withheld.

6. Improvements.

6.1 Summary of Improvements. If Licensor files a patent application anywhere in the Territory for any Improvement, Licensee may request a summary of the Improvement and a copy of the patent application with respect to the Improvement from Licensor.

6.2 License to Improvements. Licensee may include any patent application claims covering Improvements as a Licensed Patent under this Agreement at no additional cost other than the costs set forth in this Agreement by providing written notice to Licensor within **[***]** days after publication of such patent application identifying the Improvement patent applications Licensee chooses to include as a Licensed Patent. If Licensor concurs with such determination, such patent applications will be deemed to be a Licensed Patent effective on Licensee's notice to Licensor in accordance with Section 14.5 of this Agreement.

7. Confidentiality, No Publicity.

(a) Each Party shall (i) maintain the terms of this Agreement and any confidential or proprietary information, including without limitation know-how, trade secrets, technology, and financial information, exchanged, disclosed, observed, acquired, or learned in connection with this Agreement ("Confidential Information") in confidence during and for a period of **[***]** years after the termination of this Agreement; (ii) limit dissemination to those of its and its Affiliates' employees who require such Confidential Information in order to perform this Agreement; (iii) not disclose such Confidential Information to any other person or entity; and (iv) use such Confidential Information only and exclusively to the extent necessary to perform its obligations and enforce its rights under this Agreement. Notwithstanding the foregoing, either Party may disclose the terms of this Agreement (without the consent of the other Party) to its potential investors or acquirers in confidence in connection with bona fide due diligence activities. Further, Licensor may disclose Confidential Information to Brigham and Women's Hospital, Inc. ("BWH") but only if and to the extent TScan is required to do so to comply with its obligations under the Exclusive Patent License Agreement between TScan and BWH (e.g., royalty reports).

(b) Notwithstanding any other provision of this Agreement, Confidential Information shall not include any item of information which: (i) is within the public domain prior to the time of the disclosure by the disclosing Party, or thereafter becomes within the public domain, other than as a result of disclosure by the receiving Party or any of its representatives in violation of this Agreement; (ii) was, on or before the date of disclosure in the possession of the receiving Party, as evidenced by records, however maintained without use or reference to Confidential Information (ii) is acquired by the receiving Party from a third party having the right to disclose without burden of confidentiality; (iv) is hereafter independently developed by the receiving Party without use of or reference to Confidential Information, as evidenced by written records, however maintained.

(c) The receiving Party may make disclosures compelled by law (including regulations promulgated by applicable security exchanges), laws to which Licensor is subject, regulation, subpoena or court order to disclose any of the Confidential Information, provided the receiving Party must: (i) promptly notify the disclosing Party before disclosing Confidential Information to allow the other Party to participate in the proceeding; (ii) reasonably assist the disclosing Party to obtain a protective order or other remedy of disclosing Party's disclosure; (iii) provide disclosing Party prior review of any disclosure; (iv) only provide that portion of the Confidential Information that is legally required; and (v) make reasonable efforts to obtain reliable assurance that the Confidential Information will be maintained in confidence.

(d) Given the nature of the Confidential Information and the damage that would result to the disclosing Party upon unauthorized disclosure, use or transfer of their Confidential Information to any third party, the Parties agree that monetary damages would not be a sufficient remedy for any breach or threatened breach of this Section 7. In addition to all other remedies, disclosing Party will be entitled to seek specific performance and injunctive and other equitable relief as a remedy for any breach or threatened breach of this Section 7 by the receiving Party. The allegedly breaching Party agrees to waive any requirement for the securing or posting of any bond or the showing of actual monetary damages in connection with such remedy hereunder.

8. Assignment/Transferability.

8.1 Assignment by Licensee. The rights to be granted hereunder are specific to Licensee and shall not be assigned, or otherwise transferred by Licensee to any other party, without the prior written consent by Licensor given in its sole discretion. Licensee may assign or otherwise transfer this Agreement and the license granted hereby and the rights acquired by it hereunder in connection with the merger of such company or a sale or other transfer of Licensee's entire business or all or substantially all of that part of Licensee's business to which the license granted hereby relates, provided, in all such cases, that Licensee provides Licensor with prior written notice of any such assignment or transfer and any such assignee or transferee has agreed in writing to be bound by the terms and provisions of this Agreement or is so bound by operation of law. In addition, without limiting any other rights of Licensee under this Agreement, Licensee may assign or otherwise transfer this Agreement and its rights and licenses hereunder to any Affiliate without the consent of Licensor, provided that Licensee provides Licensor with prior written notice of any such assignment or transfer and the Assignee has agreed in writing to be bound by the terms and provisions of this Agreement or is so bound by operation of law.

8.2 Assignment by Licensor. Licensor may freely assign all or any part of its rights and obligations under this Agreement at any time with written notice of Licensee. Licensee agrees to execute such further acknowledgments or other instruments as Licensor may reasonably request in connection with such assignment.

9. Representations; Warranties; Negation of Warranties.

9.1 Mutual. Each Party represents and warrants to the other Party that (i) it is a valid legal entity existing under the laws of the state or country of its incorporation or organization with the power to own all of its properties and assets and to carry on its business as it is currently being conducted; (ii) the execution and delivery of this Agreement by such Party has been duly authorized by all necessary corporate or organizational action; (iii) it has, and will retain throughout the Term, the full right, power, and authority to enter into this Agreement; and (iv) this Agreement is the legal, valid, and binding obligation of such Party enforceable against it in accordance with its terms.

9.2 Licensor. Licensor represents and warrants as of the Effective Date that:

(a) To Licensor's knowledge, no third party is misappropriating, infringing, diluting, or violating the Licensed Patents and no such claims have been brought against any third party by the Licensor.

(b) To Licensor's knowledge, Licensor is the owner of all right, title and interest in and to each of the Licensed Patents.

(c) To Licensor's knowledge, none of the Licensed Patents are involved in any interference, reissue, re-examination or opposition proceeding and no such action has been threatened in writing with respect to any such patent or patent application.

9.3 Disclaimer. NEITHER LICENSOR NOR ITS SUPPLIERS MAKE ANY REPRESENTATION OR WARRANTY EXCEPT AS EXPRESSLY SET FORTH IN SECTION 9 OF THIS AGREEMENT, AND EXPRESSLY DISCLAIMS ALL OTHER REPRESENTATIONS AND WARRANTIES, EXPRESS, IMPLIED, STATUTORY, OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, COURSE OF DEALING, USAGE, AND TRADE PRACTICE, WITH RESPECT TO THE SCOPE, VALIDITY OR ENFORCEABILITY OF THE PATENTS; THAT ANY PATENT WILL ISSUE BASED UPON ANY OF THE PENDING PATENT RIGHTS; OR THAT THE MANUFACTURE, USE, SALE, OFFER FOR SALE OR IMPORTATION OF THE LICENSED PRODUCTS WILL NOT INFRINGE INTELLECTUAL PROPERTY RIGHTS. IN NO EVENT WILL LICENSOR BE LIABLE TO LICENSEE FOR LOSS OF PROFITS, LOSS OF BUSINESS, LOSS OF USE, OR ANY OTHER CONSEQUENTIAL, INDIRECT, INCIDENTAL, EXEMPLARY, SPECIAL, OR PUNITIVE DAMAGES.

10. Indemnification.

10.1 Indemnity**.** Licensee will indemnify, defend, reimburse, and hold harmless Licensor, and their respective directors, officers, affiliates, employees, agents, consultants, and advisors ("Licensor Indemnitees") from and against all claims, liabilities, obligations, demands, damages, fines, fees, costs, expenses (including reasonable attorney fees and costs) and losses arising from or relating to (a) death, personal injury, illness, and property damage arising from or relating in any way to this Agreement, including the Licensed Products in countries with or without a Valid Claim; (b) the use or misuse by or on behalf of the Licensee, its Affiliates, sublicensees, and their respective customers, suppliers, independent contractors and other third party persons, of any of the Licensed Patents, or the Licensed Products in countries with or without a Valid Claim; (c) Licensee's or its Affiliates' or sublicensees' design, manufacture, distribution, storage, sale, import, and/or use of Licensed Products; (d) performance by or on behalf of the Licensee, its Affiliates, sublicensees, and their respective customers, suppliers, independent contractors and other third party persons of Licensed Products in countries with or without a Valid Claim; (e) Licensee's and/or its Affiliates' or its sublicensees' negligence or willful misconduct; (f) any and all payments imposed on Licensor which are payable by Licensee or its Affiliates or any of its sublicensees; or (g) Licensee's or its Affiliates' or sublicensees' breach of its representations or obligations under this Agreement. Licensor will reasonably cooperate with Licensee, at Licensee's request and expense, in the defense of any third party claim indemnified by Licensee; provided that under no circumstances will Licensee or any party acting on its behalf make any admissions of fault or create any obligation (including any settlement) which is binding on any Licensor Indemnitees without the express prior written consent of the Licensor Indemnitees.

10.2 Indemnification Procedure. A party seeking indemnification or reimbursement hereunder shall give the other party prompt written notice of any such claim or law suit (including a copy thereof) served upon it and shall fully cooperate with the indemnifying party and its legal representatives in the investigation of any matter the subject of indemnification. The indemnifying party shall have full control over the proceedings, including but not limited to, selection of counsel to tender appearance for the indemnifying party and for the indemnified party, provided, however, that the indemnified party shall have the right to retain its own counsel, at its sole expense, if representation of such indemnified party by the counsel retained by the indemnifying party would be inappropriate because of potential differences in the interests of such indemnified party and any other party represented by such counsel. The indemnified party shall promptly sign any and all reasonably necessary documents for the selection of counsel, such as a joint defense agreement, and shall not unreasonably withhold its consent to conflict waivers. However, if the indemnifying party fails or chooses not to assume full control of the proceedings, the indemnified may do so. The indemnified party's attorney's fees shall be limited to those necessary for complying with the indemnifying party's requests for support that necessarily call for the use of the indemnified party's counsel (e.g., preparing a witness for deposition), unless the indemnified party assumes full control of the proceedings. The party seeking indemnification shall not unreasonably withhold its approval of the settlement of any claim, liability, or action covered by Section 9.1, as applicable, will cooperate with counsel of the indemnifying or reimbursing party, and reserves the right to engage its own counsel to assist in the defense at the expense of the indemnifying party.

11. Term and Termination.

11.1 Term. The Option is granted to Licensee for the Option Exercise Period as of the Effective Date and this Agreement will expire automatically thereafter if the Option is not exercised within the Option Exercise Period in accordance with the terms of this Agreement. If the Option is exercised during the Option Exercise Period in accordance with the terms of this Agreement, the License is granted to Licensee as of the date of exercising the Option and will – together with the entire Agreement – expire upon the later of (i) expiration of the last to expire Valid Claim of the Licensed Patents or (ii) 15 years from the Effective Date, unless terminated earlier in accordance with this Agreement, in which case the period of the term shall end at the date of termination (the "Term"). After the expiration (but not termination) of such Term in such country the License shall become non-exclusive and royalty free.

11.2 Termination by Licensee. Licensee may terminate this Agreement for any reason on 60 days' written notice to Licensor.

11.3 Termination by Licensor. Licensor may terminate this Agreement:

11.3.1 Insolvency. Immediately if at any time and in any jurisdiction, Licensee shall file a petition for bankruptcy or insolvency or similar procedure, or if Licensee shall be served with an involuntary petition for bankruptcy, insolvency, or similar proceeding against it and such petition is not dismissed within [***] days after its filing, or if Licensee shall propose or be a party of any dissolution, receivership, assignment to creditors, or liquidation procedure.

11.3.2 Material Breach. Upon any material breach or default under this Agreement by Licensee or an Affiliate, including the failure to pay any money owed under this Agreement, this Agreement may be terminated by Licensor upon [***] days written notice to Licensee, unless during said period and to Licensor's satisfaction Licensee fully cures such breach or default and notifies Licensor of such cure.

11.3.3 Challenges to Validity or Enforceability. Immediately if Licensee or its Affiliates or sublicensees challenges, or institutes any action or proceeding that challenges, the validity or enforceability of any of the Licensed Patents and upon [***] days written notice to Licensee if any sublicensee challenges, or institutes any action or proceeding that challenges, the validity or enforceability of any of the Licensed Patents (unless during such [***] day period Licensee terminates the applicable sublicense agreement with such sublicensee).

11.4 Consequences of Termination.

(a) Upon termination of this Agreement as provided herein, Licensee shall stop, and shall cause its Affiliates and each sublicensee to stop, selling and offering for sale, and/or providing Licensed Products, and all rights and licenses granted to Licensee by Licensor hereunder and all sublicenses shall immediately terminate. Notwithstanding the foregoing, except for termination by Licensee pursuant to Section 11.2 or Licensor pursuant to Section 11.3, Licensee and its Affiliates and sublicensees shall have the right to continue selling, for a period of time not to exceed **[***]** months following the effective date of termination of this Agreement, those Licensed Products manufactured and possessed by it prior to the effective date of termination of this Agreement. Licensee will continue to comply with its obligations to report to Licensor and to pay royalties as to the sale of such Licensed Products.

(b) Licensee's obligations to report to Licensor and to pay royalties as to the sale of Licensed Products or performance hereunder pursuant to the Agreement prior to termination or expiration of the Agreement or as contemplated by Section 11.4 shall survive such termination or expiration of this Agreement.

(c) Each Party will promptly return to the other Party or delete or destroy the Confidential Information of the other Party (except that each Party may retain one copy of the other Party's Confidential Information solely for archival purposes or as required by applicable law), and will deliver a certificate signed by one of its authorized officers that is has done so. Licensor may also retain and use Licensee's Confidential Information to enforce its rights under this Agreement.

(d) The following Sections will survive termination or expiration of this Agreement: Section 1 (Definitions), Section 4 (Royalties; Records and Reports; Payment), Section 7 (Confidentiality; No Publicity), Section 10 (Representations; Warranties; and Negation of Warranties), Section 10 (Indemnification); Section 11.4 (Consequences of Termination), Section 13 (Insurance), and Section 14 (General).

12. Compliance with Law.

(a) Licensee shall, and shall cause its Affiliates and sublicensees, to comply with all foreign, federal, state, and local laws, rules, ordinances, and regulations with respect to this Agreement, whether or not a Valid Claim exists in a country.

(b) Licensee shall comply, and shall cause its Affiliates and sublicensees to comply, with all foreign, federal, state, and local laws, rules, ordinances, and regulations with respect to (i) the Licensed Patents, (ii) the manufacture, marketing, import, use, and sale of the Licensed Products, (iii) the operation of their respective businesses. Licensee also agrees, and shall cause its Affiliates and sublicensees, to comply with all patent marking laws in each jurisdiction in the Territory, the patent markings required of Licensee by Licensor.

(c) Licensee acknowledges that it is subject to all United States laws and regulations (including the Export Administration Act of 1979 and the Arms Export Control Act (collectively, the "***Export Acts***")) that control the export of technical data, computer software, laboratory prototypes, biological material and other commodities, including without limitation, the Materials and Technical Information. The transfer of those items may require a license by Licensee from the Government or written assurances by Licensee that it will not export such items to certain foreign countries without prior approval from the Government.

(d) Licensee will at all times (a) comply with the Export Acts and obtain all required export licenses and approvals necessary to comply with the Export Acts and any other applicable law; and (b) be solely responsible for ensuring that the Licensed Products comply with all applicable laws, rules, regulations, orders, decrees, judgments and other governmental acts of any foreign governmental authorities having jurisdiction over Licensee or the Licensed Products (including any health and safety rules and regulations and any patent, copyright, trademark or other infringement laws).

13. Insurance. Licensee will maintain and provide evidence of general and product liability insurance with deductibles and minimum limits of liability in amounts commensurate with industry standards and Licensee's business, but not less than USD $**[***]** per occurrence, and sufficient to satisfy its obligations under this Agreement, including with respect to its indemnification obligations. The insurance coverage must be written by insurers licensed to provide insurance coverage in the United States and shall insure against all liability, including but not limited to, bodily injury or property damage arising out of the manufacture, sale, distribution, marketing, development or commercialization of Licensed Products. Evidence of insurance coverage, and payments of premiums, including without limitation certificates of insurance, shall be provided to Licensor upon request.

14. General.

14.1 Governing Law. This Agreement shall be governed by and interpreted in accordance with the laws of the United States and of the state of New York excluding the provisions of conflicts of laws or choice of laws. Any disputes arising out of or in connection with this Agreement shall be settled by the competent federal or state court of New York, except as to any issue which depends upon the validity, scope or enforceability of any patent within Licensed Patents which issue shall be determined in accordance with the laws of the territory in which such Licensed Patents exist. Each Party hereby agrees and does submit to the jurisdiction and venue of the federal and state courts located in New York.

14.2 Severability. Should any provision of this Agreement be or become invalid, ineffective or unenforceable as a whole or in part, the validity, effectiveness and enforceability of the remaining provisions shall not be affected thereby. Any such invalid, ineffective or unenforceable provision shall, to the extent permitted by law, be deemed replaced by such valid, effective and enforceable provision as comes closest to the economic intent and purpose of such invalid, ineffective or unenforceable provision.

14.3 Amendments and Waivers. Any changes or modifications of this Agreement must be made in writing and signed by both Parties. Neither the failure nor any delay on the part of any Party to exercise any right under this Agreement will operate as a waiver, nor will any single or partial exercise of any right preclude any other or further exercise of the same or any other right, nor will any waiver of any right with respect to any occurrence be construed as a waiver of such right with respect to any other occurrence. All waivers must be in writing and signed by the waiving Party.

14.4 Counterparts and Signatures. This Agreement may be executed in two (2) or more counterparts, each of which shall be deemed an original and all of which will together be deemed to constitute one agreement. The Parties agree that the execution of this Agreement by exchanging pdf signatures, and/or by industry standard electronic signature software, shall have the same legal force and effect as the exchange of original signatures. In any proceeding arising under or relating to this Agreement, each Party hereby waives any right to raise any defense or waiver based upon execution of this Agreement by means of such electronic signatures or maintenance of the executed agreement electronically.

14.5 Notices. All notices and other communications under this Agreement will be in writing and will be deemed to have been given (a) when delivered, if delivered personally; (b) when received by the addressee if sent by an internationally recognized overnight courier (receipt requested); or (c) on the date sent by facsimile or email (in each case with confirmation of transmission) if sent during the recipient's normal business hours, and on the next business day if sent after the recipient's normal business hours. The address for such notices will be:

Licensor: TScan Therapeutics, Inc.
Att: Shane Maltbie, Vice President of Finance
Address: 830 Winter Street, Waltham, MA 02451
Email: **[***]**

Licensee: QIAGEN Sciences, LLC
Att: QIAGEN Legal Department
Address: 19300 Germantown Road, Germantown, MD 20874
Fax: **[***]**
Email: **[***]**

Either Party may by written notice to the other party designate a different address and/or contact information.

14.6 Independent Contractors. The relationship between the Parties is that of independent contractors. Nothing contained in this Agreement shall be construed as creating any agency, partnership, joint venture or other form of joint enterprise, employment, or fiduciary relationship between the parties, and neither Party shall have authority to contract for or bind the other Party in any manner whatsoever

14.7 Entire Agreement. This Agreement constitutes the entire agreement between the Parties concerning the subject matter hereof and supersedes all written or oral, prior or contemporaneous agreements, or understandings with respect thereto.

IN WITNESS WHEREOF, the Parties have executed this Option and Exclusive License Agreement as follows:

Licensor: TScan Therapeutics, Inc.		Licensee: QIAGEN Sciences, LLC	
By:	/s/ Shane Maltbie	By:	/s/ Thierry Bernard
Name:	Shane Maltbie	Name:	Thierry Bernard
Title:	Vice President of Finance	Title:	Chief Executive Officer

Schedule A

Licensed Patents

[***]

Schedule B

Copy of the MTA

[***]

Schedule C

Form of Royalty Report

[***]

Exhibit 10.8

CERTAIN IDENTIFIED INFORMATION HAS BEEN OMITTED FROM THIS DOCUMENT BECAUSE IT IS BOTH NOT MATERIAL AND WOULD LIKELY CAUSE COMPETITIVE HARM TO THE REGISTRANT IF PUBLICLY DISCLOSED, AND HAS BEEN MARKED WITH "[***]" TO INDICATE WHERE OMISSIONS HAVE BEEN MADE.

Execution Copy

CONFIDENTIAL

COLLABORATION AND LICENSE AGREEMENT

between

TSCAN THERAPEUTICS, INC.

and

NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH, INC.

March 27, 2020

COLLABORATION AND LICENSE AGREEMENT

This COLLABORATION AND LICENSE AGREEMENT (this "**Agreement**") is entered into as of March 27, 2020 (the "**Effective Date**"), by and between TSCAN THERAPEUTICS, INC., a Delaware corporation with a place of business at 830 Winter Street, Waltham MA 02451 ("**TScan**"), and NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH, INC., a Delaware corporation with a place of business at 250 Massachusetts Avenue, Cambridge, MA 02139 USA ("**Novartis**"). In this Agreement, Novartis and TScan are collectively referred to as the "**Parties**" and each individually a "**Party**".

RECITALS

WHEREAS, TScan has licensed and further developed a technology to perform a genome-wide screening platform to identify antigens recognized by activated cytotoxic T-cells, and owns or controls certain intellectual property rights in respect of such technology;

WHEREAS, Novartis is engaged in the research, development and commercialization of human therapeutic products;

WHEREAS, Novartis desires to enter into a research and development collaboration with TScan to use the TScan Platform on [***] tumor tissues to identify shared tumor antigens and associated T-cell receptors directed to such antigens, which would enable Novartis to develop and subsequently commercialize one or more therapies based on these antigens and/or the T-cell receptors as targets for therapeutic development; and

WHEREAS, TScan desires to grant to Novartis exclusive, worldwide licenses to develop, manufacture and commercialize certain products directed to the results of the collaboration, and Novartis desires to obtain such licenses.

NOW, THEREFORE, in consideration of the mutual covenants contained herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties hereto hereby agree as follows:

ARTICLE 1
DEFINITIONS

As used in this Agreement, the following terms shall have the meanings set forth below:

1.1. "**Accounting Standards**" shall mean, with respect to TScan, US GAAP (United States Generally Accepted Accounting Principles) and shall mean, with respect to Novartis, the IFRS (International Financial Reporting Standards), in each case, as generally and consistently applied throughout the Party's organization. Each Party shall promptly notify the other in the event that it changes the Accounting Standards pursuant to which its records are maintained, *provided*, *however*, that each Party may only use internationally recognized accounting principles (*e.g.*, IFRS, US GAAP, *etc*.).

1.2. "**Acquiring Entity**" shall mean a Third Party (the "**Acquiror**") which acquires TScan through a Change of Control, together with any Affiliates of such Acquiror. For purposes of clarity, TScan's "Acquiring Entity" shall exclude TScan and all of its Affiliates existing immediately prior to the consummation of the Change of Control.

1.3. "**Acquiring Entity Intellectual Property**" shall mean Patents and Know-How which are (a) Controlled by an Acquiring Entity immediately prior to the consummation of the Change of Control pursuant to which such Acquiring Entity acquired TScan, or (b) Controlled by the Acquiring Entity after the effective date of the Change of Control but that are generated without use of any Collaboration Tumor Samples or Collaboration Know-How that TScan discloses or transfers to such Acquiring Entity.

1.4. "**Affiliate**" shall mean, with respect to a Party, any Person that controls, is controlled by, or is under common control with that Party, but only for so long as such control exists. For the purpose of this definition, "control" shall mean, direct or indirect, ownership of fifty percent (50%) or more of the shares of stock entitled to vote for the election of directors, in the case of a corporation, or fifty percent (50%) or more of the equity interest in the case of any other type of legal entity, status as a general partner in any partnership, or any other arrangement whereby the entity or person controls or has the right to control the board of directors or equivalent governing body of a corporation or other entity, or the ability to cause the direction of the management or policies of a corporation or other entity. In the case of entities organized under the laws of certain countries, the maximum percentage ownership permitted by law for a foreign investor may be less than fifty percent (50%), and in such case such lower percentage shall be substituted in the preceding sentence, *provided* that such foreign investor has the power to direct the management and policies of such entity.

1.5. "**Agreement**" shall have the meaning set forth in the preamble hereto.

1.6. "**Alliance Manager**" shall have the meaning set forth in Section 4.7.

1.7. "**Annual Net Sales**" for a Calendar Year shall mean, on an Optioned Program-by-Optioned Program basis, the Net Sales of the TCR Products and/or Target Products (as applicable) associated with such Optioned Program in all countries in such Calendar Year.

1.8. "**Audited Party**" shall have the meaning set forth in Section 6.12.2.

1.9. "**Auditing Party**" shall have the meaning set forth in Section 6.12.2.

1.10. "**Auditor**" shall have the meaning set forth in Section 6.12.2.

1.11. "**Bankruptcy Code**" shall have the meaning set forth in Section 9.6.2.

1.12. "**Budget**" shall have the meaning set forth in Section 2.2.

1.13. "**Business Day**" shall mean any day that is not a Saturday, Sunday or other day on which commercial banks are authorized or required to be closed, as the case may be, in New York, USA; Massachusetts, USA; and Basel, Switzerland.

1.14. "**BWH License Agreement**" shall mean the Exclusive Patent License Agreement between Brigham and Womens' Hospital, Inc. and TScan, dated December 5, 2018.

1.15. "**Calendar Quarter**" shall mean the respective periods of three (3) consecutive calendar months ending on March 31, June 30, September 30 and December 31.

1.16. "**Calendar Year**" shall mean a period of twelve (12) consecutive calendar months ending on December 31.

1.17. "**Change of Control**", with respect to TScan, shall mean (a) the closing of a sale of all or substantially all of TScan's assets to which this Agreement relates to a Third Party in one transaction or series of transactions, (b) the closing of a merger or other business combination or transaction that results in a Third Party owning, directly or indirectly, more than 50% of the voting securities of TScan or of its ultimate parent entity, or (c) the closing of a transaction, following which a Third Party acquires direct or indirect ability or power to direct or cause the direction of the management and policies of TScan or of its ultimate parent entity or otherwise direct the affairs of TScan or of its ultimate parent entity, whether through ownership of equity, voting securities, beneficial interest, by contract or otherwise. Notwithstanding the foregoing, a public offering of TScan's capital stock or any other financing transaction involving TScan and one or more Third Parties whose business is primarily or principally that of financial investing would not constitute a Change of Control.

1.18. "**Clinical Trial**" shall mean any human clinical study of a pharmaceutical product.

1.19. "**Co-Chair**" shall have the meaning set forth in Section 4.3.

1.20. "**Collaboration**" means the collaborative research activities contemplated under the Research Plan and performed by Novartis or TScan during the Collaboration Term.

1.21. "**Collaboration Know-How**" shall mean any and all Know-How that is first generated by or on behalf of a Party or its Affiliates, whether alone or jointly with the other Party or its Affiliates, in the conduct of the Collaboration, whether or not patented or patentable, but excluding (a) TScan Platform Improvements, and (b) any Know-How that is first generated by Novartis or its Affiliates in the course of its and their evaluation of a Data Package to determine whether or not to exercise the relevant Option. For purposes of clarity, Collaboration Know-How shall exclude any Acquiring Entity Intellectual Property but shall include Joint Collaboration Know-How. Following the designation of Removed Targets and/or Declined Programs, the Know-How specifically relating to such Removed Targets and/or Declined Programs (and/or any Identified TCR Directed to such Removed Target or Declined Program, as the case may be) shall cease to be deemed to be Collaboration Know-How.

1.22. "**Collaboration Patent**" shall mean any Patent that claims any Collaboration Know-How.

1.23. "**Collaboration Target**" shall mean an antigen that is identified by TScan as a target for cancer therapy in performance of the Collaboration. Notwithstanding the foregoing, none of following antigens shall be deemed a Collaboration Target: [***].

1.24. "**Collaboration Technology**" shall mean the Collaboration Know-How and the Collaboration Patents.

1.25. "**Collaboration Term**" has the meaning set forth in Section 2.1.

1.26. "**Collaboration Tumor**" shall mean [***] tissue.

1.27. **"Collaboration Tumor Sample"** shall mean any [***] tissue samples that are presented to and approved by the JSC for inclusion in the Collaboration.

1.28. "**Combination Product**" shall mean any pharmaceutical product (in any formulation) containing one or more active pharmaceutical ingredients in addition to a Product.

1.29. "**Commercial Milestone Event**" shall have the meaning set forth in Section 6.4.

1.30. "**Commercial Milestone Payment**" shall have the meaning set forth in Section 6.4.

1.31. "**Commercialize**" shall mean any and all activities directed to the promotion, marketing, distribution or sale (and offer for sale or import or export for sale) of a product. "**Commercializing**" and "**Commercialization**" shall have corresponding meanings.

1.32. "**Commercially Reasonable Efforts**" shall mean, [***].

1.33. "**Committee Deadlock**" shall have the meaning set forth in Section 4.6.2.

1.34. "**Confidential Information**" shall mean all secret, confidential or proprietary information, Know-How, or data, whether provided in written, oral, graphic, video, computer or other form, that is provided by one Party (the "**Disclosing Party**") to the other Party (the "**Receiving Party**") that is marked or otherwise identified as confidential or that by its nature a reasonable Person would understand to be confidential, including information, Know-How or data relating to the Disclosing Party's existing or proposed research, Development or Commercialization efforts, Patent applications, business, Products, other compositions of matter or products and any other materials that have not been made available by the Disclosing Party to Third Parties (other than under an obligation of confidentiality). Notwithstanding the foregoing sentences, Confidential Information shall not include any information, Know-How, or data:

(a) already known to the Receiving Party or its Affiliates at the time of disclosure by the Disclosing Party to the extent such Receiving Party or its Affiliates has contemporaneous documentation or other competent evidence to that effect;

(b) generally available to the public or otherwise part of the public domain at the time of its disclosure to the Receiving Party;

(c) generally available to the public or otherwise part of the public domain after its disclosure, other than through any act or omission of a Party in breach of such Party's confidentiality obligations under this Agreement;

(d) subsequently disclosed to the Receiving Party or its Affiliates by a Third Party who had no obligation to the Disclosing Party not to disclose such information to others; or

(e) independently discovered or developed by or on behalf of the Receiving Party or its Affiliates without the use of, reliance on or reference to the Confidential Information belonging to the other Party and the Receiving Party has contemporaneous documentation or other competent evidence to that effect. For clarity, any TScan Independently Identified Antigens and Novartis Independently Identified Antigen are within this exception.

The terms of this Agreement shall be deemed to be the Confidential Information of both Parties (and both Parties shall be deemed to be the Receiving Party with respect thereto).

Subject to the exceptions (a) through (e) set forth above and the exceptions set forth below, Collaboration Know-How shall be deemed to be the Confidential Information of both parties (and both parties shall be deemed to be the Receiving Party with respect thereto). Once a Program becomes an Optioned Program, all Collaboration Know-How for such Program shall be deemed the Confidential Information of Novartis only. Following the designation of a Removed Target and/or a Declined Program, Know-How relating specifically and solely to such Removed Target and/or Declined Program (and/or any Identified TCR Directed to such Removed Target or Declined Program, as the case may be) shall be deemed to be TScan's Confidential Information only.

1.35. "**Control**" and its correlative terms, "**Controlled**" or "**Controls**", with respect to intellectual property, shall mean the ability to grant a right, license or sublicense to such intellectual property (other than pursuant to any rights granted in this Agreement) without violating the terms of any agreement with any Third Party in effect as of the date such right, license or sublicense is granted hereunder; *provided, however*, that if a Party has a right to grant a license or sublicense with respect to an item of intellectual property to the other Party only upon payment of compensation (including milestones or royalties) to a Third Party that would not have been payable had a license or sublicense not been granted or exercised under this Agreement ("**Third Party Compensation**"), then the first Party will be deemed to have "Control" of the relevant item of intellectual property only if the other Party agrees to bear the cost of such Third Party Compensation (subject to any permitted reductions under Section 6.7). The granting Party will promptly notify the other Party after becoming aware that any such license or sublicense could require the payment of any Third Party Compensation.

1.36. "**Controlling Party**" shall have the meaning set forth in Section 8.4.2.

1.37. "**Cover**," "**Covering**" or "**Covers**" shall mean, as to a process, composition of matter, or product and Patent, that, in the absence of a license granted under, or ownership of, such Patent, the making (including methods of making), using (including methods of use, such as methods of treatment), selling, offering for sale or importation of such process, composition of matter or product would infringe such Patent or, as to a pending claim included in such Patent, the making, using, selling, offering for sale or importation of such composition of matter or product would infringe such Patent if such pending claim were to issue in an issued Patent without modification.

1.38. "**Data Package**" for a Program shall mean the deliverables set forth in "Step 2: Pre-Clinical Development" and "Step 3: TCR Validation/ IND Enabling Activities" of the Research Plan with respect to such Program. For clarity, Data Package excludes any deliverables set forth in the "Potential Additional Activities" section of the Research Plan.

1.39. "**Declined Program**" shall have the meaning set forth in Section 3.1. and shall also mean any Collaboration Target that Novartis, in its sole discretion, declares in writing to be a Declined Program.

1.40. "**Declining Party**" shall have the meaning set forth in Section 8.2.2.4.

1.41. "**Development**" shall mean any and all activities, including research, discovery, composition of matter identification and generation, non-clinical, pre-clinical trials and Clinical Trials, post approval studies, supporting Manufacturing, production process development and formulation and related regulatory activities directed to obtaining and maintaining Regulatory Approval for a product for any indication. "**Develop**" and "**Developing**" shall have corresponding meanings.

1.42. "**Development Milestone**" shall have the meaning set forth in Section 6.3.1.

1.43. "**Development Milestone Payment**" shall have the meaning set forth in Section 6.3.1.

1.44. "**Development and Commercialization Sublicense**" shall have the meaning set forth in Section 3.3.1.

1.45. "**Directed**" shall mean, with respect to a pharmaceutical product or TCR (including a pharmaceutical product that constitutes, incorporates, comprises or contains such product or TCR) and an antigen, that such pharmaceutical product or TCR binds to, comprises a portion of or physically interacts with such antigen.

1.46. "**Disclosing Party**" shall have the meaning set forth in Section 1.34.

1.47. "**Divestiture Sublicense**" shall have the meaning set forth in Section 3.3.1.

1.48. "**Effective Date**" shall have the meaning set forth in the preamble hereto.

1.49. "**EMA**" shall mean the European Medicines Agency and any successor or replacement agency.

1.50. "**Europe**" shall mean the European Union and the United Kingdom.

1.51. "**Excluded Technology**" means technology (and the Patents that Cover and the Know-How that embodies such technology) owned or Controlled by Third Parties related to:

(a) methods of use or treatment using any antibodies or TCRs (or other constructs) or products containing antibodies or TCRs (or other constructs);

(b) product formulation;

(c) manufacturing, purification, or production;

(d) any modification to a TCR Therapeutic Product;

(e) technology used in activities performed by or on behalf of Novartis or its Affiliates (other than by TScan);

(f) the format, construct or components of any Product, including the format, construct, and components of an antibody-drug conjugate, a CAR-T, a multispecific, a nanoparticle conjugate, and the like; and

(g) technology related to anything other than the manner in which TScan discovered a Collaboration Target or TCR paired therewith.

1.52. "**Exclusivity End Date**" shall mean the earlier of: (a) the end of the Collaboration Term; and (b) the date Novartis exercises its third (3rd) Option.

1.53. "**Exploit**" shall mean to make, have made, import, use, sell or offer for sale, including to Develop, Manufacture, Commercialize, register, hold or keep (whether for disposal or otherwise), have used, export, transport, distribute, promote, market or have sold or otherwise dispose of. "**Exploitation**" shall mean the act of Exploiting a composition of matter, product or process.

1.54. "**FDA**" shall mean the US Food and Drug Administration, and any successor or replacement agency.

1.55. "**FD&C Act**" shall mean the Federal Food, Drug and Cosmetic Act, as the same may be amended or supplemented from time to time.

1.56. "**First Commercial Sale**" shall mean, with respect to a Product, the first sale of such Product by Novartis or an Affiliate, or its or their sublicensee, to a Third Party or governmental authority in a country following Regulatory Approval for sale of such Product in that country. Sales or transfers of reasonable quantities of a Product for research or Development, including proof of concept studies or other clinical trial purposes, or for compassionate or similar use, shall not be considered a First Commercial Sale.

1.57. "**Five Sample Threshold**" means Novartis has received at least [***] complete Validation Packages on Collaboration Targets selected by the JSC and TScan has performed "Step 1: Target ID/TCR Discovery" (as set forth in the Research Plan) from at least five Collaboration Tumor Samples.

1.58. "**Force Majeure Event**" shall have the meaning set forth in Section 12.4.

1.59. "**FTE**" shall mean the equivalent of the work of one (1) employee full time for one (1) Calendar Year (consisting of at least a total of [***] hours per Calendar Year) of work directly related to the Research Plan. Any person who works more than [***] hours per Calendar Year and any person who devotes less than [***] hours per Calendar Year (or such other number as may be agreed by the JSC) shall be treated as an FTE on a *pro rata* basis based upon the actual number of hours worked divided by [***].

1.60. "**FTE Cost**" shall mean, for any period, the FTE Rate multiplied by the number of FTEs in such period.

1.61. "**FTE Rate**" shall mean, with respect to either Party, a rate of USD $[***] per FTE per year.

1.62. "**GAAP**" shall mean United States generally accepted accounting principles, consistently applied.

1.63. "**Good Clinical Practice**" or "**GCP**" shall mean the then-current good clinical practice applicable to the clinical Development of a pharmaceutical product under applicable Law, including the ICH guidelines, U.S. Good Clinical Practice and clause 2 of Article 1 of European Union directive on the conduct of clinical trials 2001/20/EC.

1.64. "**Good Laboratory Practice**" or "**GLP**" shall mean the then-current Good Laboratory Practice Standards promulgated or endorsed by the FDA or in the case of any other country, comparable regulatory standards promulgated or endorsed by the Regulatory Authorities in that country.

1.65. "**Good Manufacturing Practice**" or "**GMP**" shall mean the then-current Good Manufacturing Practices as specified in the United States Code of Federal Regulations, ICH Guideline Q7A, or equivalent Laws of an applicable Governmental Authority of any other relevant country at the time of manufacture.

1.66. "**Governmental Authority**" shall mean any court, tribunal, arbitrator, agency, department, board, division, administration, legislative body, commission, official or other instrumentality of (a) any government of any country, (b) a federal, state, province, county, city or other political subdivision thereof, or (c) any international, multinational or supranational body.

1.67. "**High Priority Target**" shall mean a Collaboration Target selected by Novartis as a High Priority Target in accordance with Section 3.5.3 but only for so long as such Collaboration Target has such designation. For clarity, if Novartis removes a Collaboration Target's status as a High Priority Target , then all terms of this Agreement applicable to such Collaboration Target as a High Priority Target (including, without limitation, any license, right, or obligation relating to such Collaboration Target or related Collaboration Technology) shall cease to apply.

1.68. "**HSR Act**" shall mean the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended, and the rules and regulations promulgated thereunder.

1.69. "**HSR Clearance**" shall mean, with respect to the exercise of an Option under this Agreement, the expiration or termination of all applicable waiting periods and requests for information (and any extensions thereof) under the HSR Act for the HSR Filing with respect to such Option exercise.

1.70. "**HSR Filing**" shall mean filings by Novartis and TScan with the United States Federal Trade Commission (the "**FTC**") and the Antitrust Division of the United States Department of Justice (the "**DOJ**") of a Notification and Report Form for Certain Mergers and Acquisitions (as that term is defined in the HSR Act) with respect to the exercise of an Option under this Agreement, together with all required documentary attachments thereto.

1.71. "**ICH**" shall mean the International Conference on Harmonization of Technical Requirements for Registration of Pharmaceuticals for Human Use.

1.72. "**Identified TCR**" for a Program, shall mean any TCR: (a) that is identified by TScan in the conduct of the Collaboration; (b) that is Directed to the Collaboration Target for such Program; (c) that is disclosed to Novartis in a Data Package; and (d) for which the activities under "Step 2: Pre-Clinical Development" of the Research Plan have been completed for such Program; and (d) that is (i) covered by Collaboration Patents, and/or (ii) researched, Developed, or Commercialized using Collaboration Know-How.

1.73. "**IND**" shall mean any Investigational New Drug application, as defined in Title 21 of the Code of Federal Regulations, on file with the FDA before commencement of Clinical Trials, or any comparable filing with any relevant Regulatory Authority in any country or jurisdiction including a Clinical Trial application.

1.74. "**Indemnification Claim Notice**" shall have the meaning set forth in Section 11.3.

1.75. "**Indemnified Party**" shall have the meaning set forth in Section 11.3.

1.76. "**Indemnifying Party**" shall have the meaning set forth in Section 11.3.

1.77. "**Indemnitees**" shall have the meaning set forth in Section 11.3.

1.78. "**Initiation**" of a Clinical Trial shall mean the first dosing of the first patient in the relevant Clinical Trial.

1.79. "**Invalidity/Unenforceability Action**" shall have the meaning set forth in Section 8.4.1.

1.80. "**Invoice**" shall mean invoice in the form of Schedule 1.80.

1.81. "**Joint Collaboration Patents**" means the portion of Joint Collaboration Technology consisting of Patents.

1.82. "**Joint Collaboration Technology**" means Collaboration Technology that is jointly owned by the Parties pursuant to Section 8.1.2.

1.83. "**Joint Steering Committee**" or "**JSC**" shall have the meaning set forth in Section 4.1.

1.84. "**Know-How**" shall mean all technical information, know-how and data, including inventions (whether patentable or not), discoveries, trade secrets, specifications, instructions, processes, formulae, materials, expertise and other technology applicable to compositions of matter, formulations, compositions, products or to their manufacture, development, registration, use or commercialization or methods of assaying or testing them or processes for their manufacture, formulations containing them, compositions incorporating or comprising them and including all biological, chemical, pharmacological, biochemical, toxicological, pharmaceutical, physical and analytical, safety, quality control, manufacturing, preclinical and clinical data, instructions, processes, formulae, expertise and information, regulatory filings and copies thereof, relevant to the development, manufacture, use or commercialization of and/or which may be useful in studying, testing, development, production or formulation of products, or intermediates for the synthesis thereof.

1.85. "**Knowledge**" shall mean, with respect to each Party, the actual knowledge of the individuals responsible for the relevant matter on behalf of such Party, in each case after due inquiry of such individuals' files and records and of outside counsel (including patent counsel, as applicable).

1.86. "**Law**" shall mean all laws, statutes, ordinances, rules, rulings, treaties, procedures, notices, regulations, writs, judgments, decrees, injunctions (whether preliminary or final), orders and other pronouncements having the effect of law of any Governmental Authority that may be in effect from time to time

1.87. "**Manufacture**" shall mean, in respect of a product, the production, manufacture, formulation, processing, filling, finishing, packaging, labeling, shipping and holding of such product or any intermediate thereof, including pre-clinical, clinical and commercial manufacture and analytic development, product characterization, stability testing, quality assurance and quality control.

1.88. "**Materials**" shall mean any tangible chemical or biological material, including any small molecules, DNA, RNA, clones, cells, and any expression product, progeny, derivative or other improvement thereto, along with any tangible chemical or biological material.

1.89. "**NDA**" shall mean a new drug application submitted to the FDA pursuant to Section 505(b) of the FD&C Act (21 U.S.C. § 355(b)), and all amendments and supplements thereto, or any comparable filing with any relevant Regulatory Authority in any country or jurisdiction.

1.90. "**Net Sales**" shall mean the net sales on behalf of Novartis and any of its Affiliates or Sublicensees for any Product sold to Third Parties other than sublicensees in bona fide, arms-length transactions, as determined in accordance with Novartis' Accounting Standards as consistently applied, less a deduction of [***] for direct expenses related to the sales of such Product, distribution and warehousing expenses and uncollectible amounts on previously sold products.

(a) The deductions booked on an accrual basis by Novartis and its Affiliates under its Accounting Standards to calculate the recorded net sales from gross sales include, without limitation, the following:

[***]

(b) In the case of any sale or other disposal of a Product between or among Novartis and its Affiliates or Sublicensees, for resale, Net Sales shall be calculated only on the value charged or invoiced on the first arm's-length sale thereafter to a Third Party.

(c) In the case of any sale which is not invoiced or is delivered before invoice, Net Sales shall be calculated at the time all the revenue recognition criteria under Novartis Accounting Standards are met.

(d) In the case of any sale or other disposal for value, such as barter or counter-trade, of any Product, or part thereof, other than in an arm's length transaction exclusively for money, Net Sales shall be calculated on the value of the non-cash consideration received or the fair market price (if higher) of the Product in the country of sale or disposal.

(e) In the event that a Product is sold as a Combination Product, the Net Sales of the Product, for the purposes of determining royalty payments, shall be determined by [***].

(f) For the avoidance of doubt, sales between Novartis, its Affiliates, Sublicensees and designees shall not be considered Net Sales (unless such Person is the end user of the Product), which shall be calculated on Net Sales of Novartis, its Affiliates, Sublicensees and designees to independent third party customers.

1.91. "**Novartis**" shall have the meaning set forth in the preamble hereto.

1.92. **"Novartis Independently Identified Antigen"** shall mean an antigen, where the antigen or epitope thereof is identified by Novartis, its Affiliates, or its or their licensees, as a target for therapy through research and/or Development activities that Novartis can demonstrate through contemporaneous records or documents available in the public domain were conducted both: (a) outside of the Collaboration; and (b) without the use of Collaboration Know-How consisting of Confidential Information.

1.93. **"Novartis Independently Identified TCR"** shall mean a TCR identified by Novartis, its Affiliates, or its or their licensees, as the case may be, through research and Development activities that Novartis can demonstrate through contemporaneous records or documents available in the public domain were conducted both: (a) outside of the Collaboration; and (b) without the use of any Collaboration Know-How consisting of Confidential Information.

1.94. "**Option**" has the meaning set forth in Section 3.1.1.

1.95. "**Option Exercise Payment**" shall have the meaning set forth in Section 6.2.

1.96. "**Option Exercise Period**" has the meaning set forth in Section 3.1.1.

1.97. "**Optioned Program**" shall mean a Program associated with a High Priority Target for which Novartis exercises the Option.

1.98. "**Optioned Program Patent**" shall have the meaning set forth in Section 1.99.

1.99. "**Optioned Program Technology**" for an Optioned Program, shall mean all Collaboration Know-How corresponding to the Optioned Program and all Collaboration Patents that claim such Collaboration Know-How (an "**Optioned Program Patent**" associated with such Optioned Program).

1.100. "**Party**" and "**Parties**" shall have the meaning set forth in the preamble hereto.

1.101. "**Patent Challenge**" shall have the meaning set forth in Section 9.5.

1.102. "**Patents**" shall mean (a) all patents or patent applications, including any continuations, continuations-in-part, divisions, provisional, converted provisional, continued prosecution or substitute applications, (b) any patent issued with respect to any of the foregoing patent applications, including utility models, petty patents, innovation patents and design patents and certificates of invention, (c) any reissue, reexamination, renewal, restoration or extension (including any supplementary protection certificate and the like) of any of the foregoing patents or patent applications, and (d) all foreign counterparts of any of the foregoing, or as applicable portions thereof or individual claims therein.

1.103. "**Person**" shall mean any individual, corporation, company, partnership, trust, limited liability company, association or other business entity.

1.104. "**Phase I Clinical Trial**" shall mean, as to a specific product, a Clinical Trial of such product designed to obtain data on the safety and tolerability of such product, including pharmacological or pharmacokinetic information, as described in 21 C.F.R. 312.21(a) or the corresponding regulation in jurisdictions other than the United States.

1.105. "**Phase II(b) Clinical Trial**" shall mean, as to a specific product, a Clinical Trial of such product, the primary intention of which is to demonstrate clinical safety and efficacy in a target population for a specific disease or condition under study (*i.e.*, statistically significant differences between groups for clinical endpoints, which may include generally accepted surrogate pharmacodynamic endpoints), including dose ranging or dose response, in a manner that is generally consistent with (a) in the United States, 21 CFR § 312.21(b), (b) in the European Union, the equivalent of such Clinical Trial for submission to the EMA, and (c) in any other country, the equivalent of such Clinical Trial for submission to the applicable Regulatory Authority in such other country.

1.106. "**Phase III Clinical Trial**" shall mean, as to a specific product, a Clinical Trial designed to obtain evidence of statistical significance of the efficacy of such product in a target patient population, and to obtain expanded evidence of safety for such product that is needed to evaluate the overall benefit-risk relationship of such product and provide an adequate basis for filing an NDA, as described in 21 C.F.R. 312.21(c) or the corresponding regulation in jurisdictions other than the United States.

1.107. "**Product**" for a Program shall mean (a) a TCR Therapeutic Product associated with such Program, or (b) a Target Product associated with such Program.

1.108. "**Product Development Plan**" shall have the meaning set forth in Section 5.2.

1.109. "**Program**" shall mean a Collaboration Target and all Identified TCRs Directed to such Collaboration Target.

1.110. "**Receiving Party**" shall have the meaning set forth in Section 1.34.

1.111. "**Regulatory Approval**" shall mean any and all approvals (including applicable pricing and reimbursement approvals), licenses, registrations or authorizations of any Regulatory Authority, necessary to Develop or Commercialize a product in a country, including NDAs and any authorization for sale pursuant to Section 505(b)(2) of the FD&C Act.

1.112. "**Regulatory Authority**" shall mean any national, supranational, regional, state or local regulatory agency, administration, department, bureau, commission, council or other governmental entity including the FDA and the EMA and any other agencies in any country involved in the granting or receipt of Regulatory Approvals.

1.113. "**Regulatory Documentation**" shall mean all (a) applications (including all INDs), registrations, licenses, authorizations and Regulatory Approvals; (b) correspondence and reports submitted to or received from Regulatory Authorities (including minutes and official contact reports relating to any communications with any Regulatory Authority) and all supporting documents with respect thereto, including all adverse event files and complaint files; and (c) clinical data, chemistry, manufacturing and controls data and other data contained or relied upon in any of the foregoing.

1.114. "**Removed Target**" shall have the meaning set forth in Section 3.5.3.

1.115. "**Research Costs**" shall mean the costs and expenses incurred by or on behalf of TScan or its Affiliates in connection with the performance of the Research Plan, consisting of (a) costs of TScan's or its Affiliates' employees supporting such efforts (calculated as the FTE Costs), and (b) all out-of-pocket costs, without markup, of procuring services, products or materials used in the performance of the Research Plan. For clarity, Research Costs shall exclude capital expenditures, general office or facility supplies, insurance and costs attributable to general corporate activities, executive management, investor relations, treasury services, business development, corporate government relations, legal and patent support, external financial reporting and other overhead activities.

1.116. "**Requested Data Package**" shall have the meaning set forth in Section 2.7.

1.117. "**Research Plan**" shall mean the research plan set forth in Schedule 1.117.

1.118. "**ROFN Election Notice**" shall have the meaning set forth in Section 3.4.

1.119. "**ROFN Election Period**" shall have the meaning set forth in Section 3.4.

1.120. "**ROFN Negotiation Period**" shall have the meaning set forth in Section 3.4.

1.121. "**ROFN Term**" shall have the meaning set forth in Section 3.4.

1.122. "**Royalty Payment**" shall have the meaning set forth in Section 6.5.

1.123. "**Royalty Rate**" shall have the meaning set forth in Section 6.5.

1.124. "**Royalty Term**" shall have the meaning set forth in Section 6.5.

1.125. "**Sales & Royalty Report**" shall mean a written report or reports showing each of: (a) the Net Sales of each Product, on a country-by-country basis, during the reporting period by Novartis and its Affiliates and Sublicensees; and (b) the royalties payable, in United States Dollars, which shall have accrued hereunder with respect to such Net Sales.

1.126. "**Senior Officer**" shall mean the Chief Executive Officer of TScan and the Global Head, Business Development and Licensing (NIBR) of Novartis or the functional successor in their respective organizations, or their respective designees at Vice President level or above.

1.127. "**Sublicense Agreement**" shall mean any agreement under which Novartis has granted a sublicense to a Sublicensee under any Collaboration Technology or TScan Background Product IP licensed to Novartis pursuant to this Agreement.

1.128. "**Sublicensee**" shall mean any Third Party to whom Novartis has granted a sublicense under any Collaboration Technology or TScan Background IP licensed to Novartis pursuant to this Agreement.

1.129. "**Target Product**" for a Program shall mean any product (other than any TCR Therapeutic Product) that both (a) is Directed to the Collaboration Target for such Program; and (b) is researched, Developed, or Commercialized using Collaboration Know-How.

1.130. "**Target Selection Date**" shall mean the date [***] days after the later of: (a) the date TScan has Validated [***] Collaboration Tumor Samples; and (b) the date TScan has provided Novartis with an aggregate of at least [***] unique Collaboration Targets and with matched TCRs in Validation Packages resulting from Validated Collaboration Tumor Samples.

1.131. "**TCR**" shall mean T-cell receptor.

1.132. "**TCR Therapeutic Product**" for a Program shall mean any product that both (a) comprises or contains an Identified TCR (or any modified version of such TCR) for such Program; and (b) is researched, Developed, or Commercialized using Collaboration Know-How.

1.133. "**Term**" shall have the meaning set forth in Section 9.1.

1.134. "**Termination Date**" shall mean the effective date of termination of this Agreement in accordance with its terms.

1.135. "**Third Party**" shall mean any Person who is not a Party or an Affiliate of a Party.

1.136. "**Third Party Claim**" shall have the meaning set forth in Section 11.1.

1.137. "**Third Party Infringement Claim**" shall have the meaning set forth in Section 11.1.

1.138. "**TScan**" shall have the meaning set forth in the preamble hereto.

1.139. "**TScan Background IP**" shall mean all TScan Background Platform IP and all TScan Background Product IP, collectively. For purposes of clarity, TScan Background IP (including, without limitation, TScan Background Platform IP and TScan Background Product IP) shall exclude any Acquiring Entity Intellectual Property.

1.140. "**TScan Background Platform IP**" shall mean all Patents and Know-How Controlled by TScan as of the Effective Date relating directly to the technology described in Schedule 1.140 (the "**TScan Platform**").

1.141. "**TScan Background Product IP**" shall mean all Patents and Know-How Controlled by TScan as of the Effective Date corresponding to any Product (if any). For clarity, TScan Background Product IP excludes TScan Background Platform IP.

1.142. "**TScan Collaboration Patents"** means the portion of TScan Collaboration Technology consisting of Patents.

1.143. "**TScan Collaboration Technology**" means the means Collaboration Technology owned solely by TScan pursuant to Section 8.1.2.

1.144. "**TScan Indemnitees**" shall have the meaning set forth in Section 11.1.

1.145. **"TScan Independently Identified Antigen"** shall mean an antigen, where the antigen or epitope thereof is identified by TScan, its Affiliates, or its or their licensees, as a target for therapy through research and/or Development activities that TScan can demonstrate through contemporaneous records or documents available in the public domain were conducted both (a) outside of the Collaboration, and (b) without the use of Collaboration Know-How consisting of Confidential Information.

1.146. **"TScan Independently Identified TCR"** shall mean a TCR identified by TScan, its Affiliates, or its or their licensees, as the case may be, through research and Development activities that TScan can demonstrate through contemporaneous records or documents available in the public domain were conducted both (a) outside of the Collaboration, and (b) without the use of any Collaboration Know-How consisting of Confidential Information.

1.147. "**TScan Platform**" shall have the meaning given in Section 1.140.

1.148. "**TScan Platform Improvement**" shall mean any and all Know-How that is generated by or on behalf of a Party or its Affiliates, whether alone or jointly with the other Party or its Affiliates, in the course of performing activities under this Agreement, whether or not patented or patentable, that is an improvement to the TScan Platform (*i.e.*, inventions predicated on the use or practice of the TScan Platform).

1.149. "**TScan Platform Technology**" shall mean all Know-How Controlled by TScan or any of its Affiliates as of the Effective Date relating specifically to the TScan Platform.

1.150. "**Unblock License**" shall have the meaning set forth in Section 3.2.2.

1.151. "**US**" and "**USA**" shall mean the United States of America, including all of its territories and possessions.

1.152. "**USD**" shall mean United States Dollars.

1.153. "**Valid Claim**" shall mean: (a) a claim of an issued and unexpired Patent that has not been abandoned, cancelled or held permanently revoked, unenforceable or invalid by a decision of a court or other governmental agency of competent jurisdiction unappealed within the time allowed for appeal, or that has not been admitted to be invalid or unenforceable through reissue or disclaimer or otherwise; or (b) a claim of a pending patent application, which patent application was filed and is being prosecuted in good faith and has not been cancelled, withdrawn from consideration, abandoned or finally disallowed without the possibility of appeal or refiling of the application or pending for more than [***] years from the relevant patent office's initial substantive office action.

1.154. "**Validate**" for a Collaboration Tumor Sample shall mean that TScan has performed the following for such Collaboration Tumor Sample: Antigen Target Validation, TCR Validation *in vitro*, and Safety Screens (each as described in the "Data Package Part 1, Step 2: Pre-Clinical Development" portion of the Research Plan).

1.155. "**Validation Package**" for an antigen means the deliverables for Antigen Target Validation, TCR Validation *in vitro*, and Safety Screens (each as described in the "Data Package Part 1, Step 2: Pre-Clinical Development" portion of the Research Plan) with respect to such antigen.

1.156. "**Value Added Tax**" or "**VAT**" shall mean any value added tax, ad valorem, goods and services or similar tax chargeable on the supply or deemed supply of goods or services, sales and use taxes, transaction taxes, consumption taxes and other similar taxes required by applicable Law including any interest, penalties or other additions to tax thereon, required under applicable Law.

1.157. "**Withholding Taxes**" shall have the meaning set forth in Section 6.8.

1.158. Interpretation. Unless the context of this Agreement otherwise requires: (a) words of one gender include the other gender; (b) words using the singular or plural number also include the plural or singular number, respectively; (c) the terms "hereof," "herein," "hereby," and other similar words refer to this entire Agreement; (d) the words "include", "includes", and "including" when used in this Agreement shall be deemed to be followed by the words "without limitation", unless otherwise specified; (e) the terms "Article" and "Section" refer to the specified Article and Section of this Agreement (unless clear from the context that it refers to an Article or Section of some other document); (f) "or" has the inclusive meaning represented by the phrase "and/or"; (g) the words "will" and "shall" shall have the same meaning; (h) The letter "M" used in connection with the USD figures in this Agreement denotes "million" and the letter "B" used in connection with the USD figures in this Agreement denotes "billion"; and (i) references to a Law include any amendment or modification to such Law and any rules or regulations issued thereunder, whether such amendment or modification is made, or issuance of such rules or regulations occurs, before or, only with respect to events or developments occurring or actions taken or conditions existing after the date of such amendment, modification or issuance, after the date of this Agreement, but only to the extent such amendment or modification, to the extent it occurs after the date hereof, does not have a retroactive effect. Whenever this Agreement refers to a number of days, unless otherwise specified, such number shall refer to calendar days.

ARTICLE 2
RESEARCH AND DEVELOPMENT COLLABORATION

2.1. Conduct of Research Plan; Research Term. TScan and Novartis shall use Commercially Reasonable Efforts during the Collaboration Term to perform all activities set forth in the Research Plan. Without limiting the foregoing, TScan shall devote FTEs sufficient to perform the activities set forth in the Research Plan during the Collaboration Term, which FTEs shall be appropriately qualified research and development personnel possessing at least the level of skill and experience as similarly situated companies in the biotechnology industry. TScan and Novartis will conduct their activities under the Research Plan in accordance with good scientific standards and practices and in compliance in all material respects with the requirements of GLP, GMP, GCP and all applicable Laws, including those regarding environmental, safety and industrial hygiene, quality assurance and quality control (including data integrity), standards for pharmacovigilance practice, and all requirements relating to the protection of human subjects. TScan and Novartis shall maintain laboratories, offices and all other facilities reasonably necessary to carry out the activities to be performed by it pursuant to the Research Plan. The JSC shall be responsible for discussing any updates or amendments to the Research Plan prior to submitting them for approval by each Party. The initial collaboration term (the "**Collaboration Term**") shall commence on the Effective Date and expire [***] years after the Effective Date; *provided* that Novartis may extend the Collaboration Term by [***] months each to the extent reasonably necessary to complete the activities described in the Research Plan by notifying TScan of such extension prior to the expiration of the then-current Collaboration Term. Novartis may make such extension no more than [***] times (*i.e.*, in no event shall the Collaboration Term extend past the [***] anniversary of the Effective Date).

2.2. Research Costs. Novartis shall reimburse TScan for all of its actual, documented Research Costs incurred by TScan in conducting the activities set forth in the Research Plan; *provided*, *however*, that Novartis shall have no obligation to reimburse such Research Costs to the extent they exceed USD$[***] in the aggregate (the "**Budget**"). Additionally, notwithstanding anything to the contrary, TScan shall have no obligation to perform the Research Plan to the extent its actual, documented Research Costs incurred in connection with doing so exceed the Budget (except to the extent Novartis agrees in writing to reimburse such Research Costs).

2.3. Invoicing; Payment of Research Costs Within [***] days following the last day of each Calendar Quarter during which TScan is conducting activities under the Research Plan, TScan shall provide Novartis (i) with a report, in reasonable detail, of all Research Costs that were incurred by TScan in performing such activities in the prior Calendar Quarter and reasonable supporting documentation with respect thereto; and (ii) an Invoice for the amount of such Research Costs. Novartis shall pay the undisputed amount of Invoices provided pursuant to this Section 2.3 within [***] days of receipt. If Novartis disputes in good faith any charge contained in an Invoice, it will pay any undisputed amounts in accordance with the preceding sentence and notify TScan of the nature of the dispute, and the disputed amount will be addressed under the dispute resolution provisions of Section 12.3.

2.4. Subcontracts. TScan and Novartis may perform Collaboration activities under the Research Plan through one or more Third Party subcontractors, *provided* that any such subcontractor must be reasonably acceptable to the other Party or specifically identified in the applicable Research Plan, and *provided*, *further* that each Party engages each such subcontractor through a written agreement consistent with the terms and conditions of this Agreement. Any subcontracting shall not relieve TScan of its obligations or liability under this Agreement, and, in the event of any subcontracting by TScan, TScan will remain responsible for the performance of its obligations hereunder notwithstanding any such subcontracts. Any subcontracting shall not relieve Novartis of its obligations or liability under this Agreement, and, in the event of any subcontracting by Novartis, Novartis will remain responsible for the performance of its obligations hereunder notwithstanding any such subcontracts.

2.5. Materials. Each Party will, as a matter of course as described in the Research Plan or on the other Party's reasonable written request, furnish to the other Party samples of Materials that it Controls and that are necessary for the other Party to carry out its responsibilities under the Research Plan or for Novartis and its Affiliates to evaluate the work under the Research Plan. Each Party (and, in the case of Novartis, Novartis' Affiliates) will use such Materials only in accordance with the Research Plan and otherwise in accordance with the terms and conditions of this Agreement. Except with the prior written consent of the supplying Party, the Party receiving any Materials will not distribute or otherwise allow the release of Materials to any Third Party (other than to its Affiliates, in the case of Novartis), except for subcontracting (subject to the provisions of Section 2.4) as permitted hereunder. All Materials will remain the sole property of the supplying Party, will be used in compliance with all applicable Laws, and will be used with prudence and appropriate caution in any experimental work because not all of their characteristics may be known. Neither Party (and, in the case of Novartis, Novartis' Affiliates) shall use any Materials provided by the other Party in humans except as specifically set forth in the Research Plan.

2.6. Reports. TScan shall promptly provide Novartis with written reports of all Collaboration Know-How it generates in the course of performing activities under the Research Plan. Without limiting the foregoing TScan shall prepare and provide to Novartis (a) a written report within [***] days after the end of every Calendar Quarter during which TScan is conducting activities under the Research Plan that (i) details the activities performed under the Research Plan, including all results achieved, and (ii) sets forth the expected

activities for the next Calendar Quarter, and (b) such other reports or updates as may be required under such Research Plan or as otherwise reasonably requested by Novartis. The Parties may agree, on a case by case basis, that minutes and presentations from JSC meetings may be used in place of such written reports to satisfy certain of the foregoing reporting requirements.

2.7. Data Packages; Antigen Identification Information. The JSC shall determine certain proposed Programs for which TScan should prepare Data Packages for Novartis' evaluation ("**Requested Data Packages**") on a timeline to be agreed upon by the Parties. TScan shall provide Novartis with such Requested Data Packages after completion thereof, and TScan shall use Commercially Reasonable Efforts to deliver such Requested Data Packages in compliance with the relevant timelines.

2.8. Tumor Sample Selection. Consistent with the Research Plan, TScan shall present every [***] tissue sample it receives prior to the Exclusivity End Date to the JSC for potential inclusion in the Collaboration until the JSC has selected [***] Collaboration Tumor Samples for inclusion in the Collaboration. The JSC may not select more than [***] Collaboration Tumor Samples for inclusion in the Collaboration.

ARTICLE 3
OPTIONS; LICENSE GRANTS

3.1 Program Options.

3.1.1. For each Program, TScan hereby grants to Novartis an exclusive right and option to obtain the licenses set forth in Section 3.2 (the "**Option**"). The Option will be available on a Program-by-Program basis with respect to each High Priority Target until the earliest of (a) [***] days after the expiry of the Collaboration Term; (b) [***] days after complete Data Packages have been provided for Collaboration Targets from [***] Collaboration Tumor Samples, or (c) the date on which Novartis has exercised the Option with respect to three Programs (the "**Option Exercise Period**"). If, during the Option Exercise Period for a Program, Novartis notifies TScan in writing that it wishes to exercise the Option for such High Priority Target's Program, TScan will, and upon receipt of such notice hereby does, grant to Novartis the license set forth in Section 3.2; *provided* that, if Novartis determines that an HSR Filing is required to be made to exercise the Option and notifies TScan of such determination on or before the time that it delivers a notice of exercise of the Option, the Parties will promptly make HSR Filings in accordance with Section 12.13 and Novartis will not be obligated to pay TScan the Option Exercise Payment (and the Option will not be deemed exercised) until the [***] Business Day after HSR Clearance. If, by the end of the Option Exercise Period for a Program, Novartis or its designated Affiliate has not provided TScan notice stating that Novartis is exercising its Option, then the Option will expire for such Program (a "**Declined Program**").

3.1.2. Novartis may exercise the Option for up to, but not more than, three (3) Programs.

3.1.3. For clarity, Novartis' right to receive a license under Section 3.1.1 does not apply to Removed Targets, Declined Programs and/or Collaboration Technology outside of the (up to) three Optioned Programs (*e.g.*, if Novartis exercises the Option with respect to three Programs, it will not apply to any additional Collaboration Technology outside of the Optioned Program Technology corresponding to those three Optioned Programs), and TScan would be free to pursue research, Development and/or Commercialization of any such Removed Targets and Declined Program(s) or any such additional Collaboration Technology outside of the Collaboration, subject to the right of first negotiation set forth in Section 3.4 (to the extent applicable).

3.2 License Grants.

3.2.1 Effective as of Novartis' exercise of the Option for a Program pursuant to Section 3.1.1 and subject to the terms and conditions of this Agreement, TScan, on behalf of itself and its Affiliates, shall grant and does hereby grant to Novartis and its Affiliates an exclusive (even as to TScan and its Affiliates), royalty-bearing, sublicensable (subject to Section 3.3), transferable (subject to Section 12.1), worldwide license, under TScan's rights in the corresponding Optioned Program Technology, to Exploit such Optioned Program Technology and Products associated with such Optioned Program. For clarity this license extends to use of Optioned Program Technology for the Collaboration Target and Identified TCR(s) associated with the Optioned Program to Develop and Commercialize Products Directed thereto (including TCR Therapeutic Products and Target Products) for all therapeutic indications. For the avoidance of doubt, with respect to an Optioned Program, until the termination or expiration of such Optioned Program pursuant to Section 9.7 or the expiration of the Royalty Term for such Optioned Program, neither TScan nor its Affiliates shall (a) use Optioned Program Technology for such Optioned Program to research, Develop or Commercialize any products Directed to or made from any Collaboration Target of such Optioned Program (or assist any Third Party to do the same); nor (b) grant any Third Party a license to practice under any Optioned Program Patents or Optioned Program Technology, in each case, for such Optioned Program.

3.2.2 Effective as of Novartis' exercise of the Option for a Program pursuant to Section 3.1.1 and subject to the terms and conditions of this Agreement, TScan, on behalf of itself and its Affiliates, shall grant and does hereby grant to Novartis and its Affiliates, an non-exclusive, royalty-bearing, sublicensable (subject to Section 3.3), transferable (subject to Section 12.1), worldwide license, under the TScan Background Product IP and TScan Platform Improvements, solely to the extent necessary to Exploit Products associated with such Program (the "**Unblock License**"). For clarity, to the extent applicable, the Unblock License will extend to the use of Collaboration Targets and Identified TCR(s) associated with the Optioned Programs to the extent necessary to Develop and Commercialize Products Directed thereto or made therefrom (including TCR Therapeutic Products and Target Products) for all therapeutic indications.

3.3 Sublicenses.

3.3.1 Novartis and its Affiliates shall have the right, in its sole discretion, to grant sublicenses, in whole or in part, under the licenses granted in Section 3.2 both (a) to Sublicensees engaged in research, Development, and Commercialization of Products for the benefit of Novartis or its Affiliates, solely to the extent necessary or useful to Develop or Commercialize such Products (a "**Development and Commercialization Sublicense**"), and (b) to Sublicensees in connection with the divestiture in whole of a Product or Optioned Program (but only to the extent of such

divestiture) (a "**Divestiture Sublicense**"); *provided, however*, that Novartis (i) shall ensure that the terms of any Sublicense Agreement are consistent with this Agreement, (ii) shall remain responsible for compliance with the terms of this Agreement, (iii) may not delegate, assign or transfer any of its administrative roles or responsibilities set forth in Article 4, including its role on the JSC, to any Sublicensee at any time during the Term without TScan's prior written consent, and (iv) shall only grant sublicenses of the Optioned Program Technology, or Unblock License (as applicable) (1) in connection with the Development and/or Commercialization of Products by or on behalf of Novartis or its Affiliates (in connection with a Development and Commercialization Sublicense) or (2) in connection with a sublicense or license by Novartis of a Product for the Optioned Program to which such Optioned Program Technology, TScan Background Product IP or Unblock License relates (in the case of a Divestiture Sublicense). Novartis' rights to sublicense are limited to those expressly set forth in this Section 3.3 and any sublicense which is not granted in accordance with the terms and conditions of this Section 3.3 is hereby deemed null and void.

3.3.2 Any Sublicensee of a Development and Commercialization Sublicense shall not have the right to grant further sublicenses to Third Parties. For clarity, any Sublicensee of a Divestiture Sublicense may grant sublicenses to Third Parties subject to compliance with Section 3.3.1 and Section 3.3.3 as if such Sublicensee were Novartis in those sections; *provided*, that, for the avoidance of doubt, Novartis will also remain responsible its Sublicensee's compliance with the responsibilities assigned to it in Section 3.3.1, but will remain solely responsible for compliance with clause (iii) of the proviso in the first sentence of that Section.

3.3.3 Novartis shall provide TScan with a copy of any Sublicense Agreement, and any amendment thereto, within [***] days after its execution; *provided* that Novartis shall have the right to redact from such copy of such Sublicense Agreement for a Divestiture Sublicense or amendment thereto (a) any information which Novartis determines in good faith to be necessary to redact in order to protect any of its or its Sublicensee's confidential or proprietary information that is not necessary in order to confirm compliance with Novartis' obligations under this Agreement; and (b) any financial terms.

3.4 Right of First Negotiation. Commencing on the Effective Date and expiring [***] days after the conclusion of the Collaboration Term (the "**ROFN Term**"), TScan shall notify Novartis of a decision by TScan's Board of Directors to seek a Third Party to exclusively license or similarly grant rights under Collaboration Technology to Develop or Commercialize products Directed to a Declined Program (excluding any offer for a Change of Control) (a "**ROFN Notice**"). TScan shall not commence discussions with a Third Party with respect to such Program until [***] days after providing the corresponding ROFN Notice (the "**ROFN Election Period**"). Additionally, if, during the ROFN Election Period, Novartis provides TScan with a term sheet to exclusively license such Collaboration Technology to develop or commercialize Products Directed to such Declined Program ("**ROFN Election Notice**"), then TScan shall not enter into an agreement with respect to such Collaboration Technology until [***] days after providing the corresponding ROFN Notice (the "**ROFN Negotiation Period**"), during which period Novartis may negotiate an agreement for TScan to grant Novartis such rights to such Collaboration Technology. On a Program-by-Program basis, TScan shall be free to Develop and Commercialize Collaboration Technology associated with such Declined Program, alone or with Third Parties without

regard to this Section 3.4, after the earlier of: (a) the expiration of the ROFN Election Period for such Product without ROFN Election Notice; (b) the expiration of the ROFN Negotiation Period for such Product; and (c) the expiration of the ROFN Term. Notwithstanding the foregoing of this Section 3.4, Section 3.4 shall not apply to (and TScan shall have no obligation to notify Novartis prior to or refrain from entering into) any agreement to Develop or Commercialize products Directed to any antigen identified in a non-Collaboration Tumor Sample, Directed to any TScan Independently Identified Antigen, or consisting of a TScan Independently Identified TCR.

3.5 Exclusivity.

3.5.1 Tissue Exclusivity. Prior to the Exclusivity End Date, TScan will not use any Collaboration Tumor for antigen or TCR identification outside of the Collaboration.

3.5.2 Tumor Samples. Except with respect to Collaboration activities under or as expressly permitted by this Agreement, neither TScan nor its Affiliates shall use any of the Collaboration Tumor Samples for any purpose. For clarity, this Section 3.5.2 shall not restrict TScan's rights under Section 3.1.3 to Develop or Commercialize Technology as expressly permitted by that section.

3.5.3 Target Exclusivity.

3.5.3.1 Designations.

(a) Subject to Section 3.5.3.1(c), Novartis may designate any Collaboration Target as a High Priority Target by providing written notice to TScan of such designation. For clarity, Removed Targets (as defined below) are no longer Collaborations Targets upon proper designation pursuant to Section 3.5.3.1(d) and cannot be selected as High Priority Targets.

(b) For clarity, Novartis may also remove any Collaboration Target's status as a High Priority Target at any time prior to exercising an Option on such Collaboration Target by notifying TScan of such status change and may replace such High Priority Target with a substitute or replacement Collaboration Target, subject to the limitation in Section 3.5.3.1(c).

(c) No more than [***] Collaboration Targets may be High Priority Targets at any given time.

(d) For each Collaboration Target, commencing [***] days after the later of (1) the achievement of the Five Sample Threshold, or (2) the date that TScan first provides Novartis with a Validation Package for such Collaboration Target, TScan may designate such Collaboration Target as a "**Removed Target**" if: (i) such Collaboration Target is a TScan Independently Identified Antigen; (ii) such

Collaboration Target is not designated as a High Priority Target by Novartis in accordance with the terms of this Section 3.5.3 at the time of TScan's designation; and (iii) such designation is made more than [***] days after TScan provides Novartis with a Validation Package for such Collaboration Target after (and based on) TScan's most then-recent identification of such Collaboration Target as a target for cancer therapy in performing "Step 1: Target ID/TCR Discovery" (as set forth in the Research Plan) for a Collaboration Tumor. Removed Targets shall cease to be Collaboration Targets upon notice of such written designation. For clarity, once a Collaboration Target becomes a Removed Target it cannot be selected as a High Priority Target or otherwise become a Program that Novartis can Option. All Collaboration Targets that are not High Priority Targets shall be deemed Removed Targets upon and after the Exclusivity End Date. (For reference, all High Priority Targets for which Novartis does not exercise its Option become Declined Programs pursuant to Section 3.1.1.)

3.5.3.2 High Priority Targets. Prior to the Exclusivity End Date, TScan shall not (and TScan's Affiliates shall not use Collaboration Technology consisting of Confidential Information to) Develop or Commercialize any products Directed at any High Priority Target.

3.5.3.3 Collaboration Targets. Prior to the Exclusivity End Date, TScan shall not (and TScan's Affiliates shall not use Collaboration Technology consisting of Confidential Information to) Develop or Commercialize any products Directed at any Collaboration Targets.

3.5.3.4 Exception. Notwithstanding the foregoing: (a) without limiting Section 3.5.3.2, Section 3.5.3.3 does not restrict TScan or its Affiliates from Developing or Commercializing products Directed at any Removed Target in any way; and (b) Sections 3.5.1 and 3.5.3 (and its subsections) do not apply with respect to any Declined Program.

3.5.4 Intent Regarding TScan Independently Identified Antigens. Novartis acknowledges that TScan is a company primarily engaged in the area of antigen discovery and that this Agreement is not intended to broadly prevent TScan from pursuing (and/or partnering with Third Parties to pursue) TScan Independently Identified Antigens that may subsequently become Collaboration Targets. Upon TScan's request, Novartis agrees to discuss in good faith amendments to this Agreement that reasonably enable TScan to pursue (and/or partner with Third Parties to pursue) the Development and/or Commercialization of products Directed at such TScan Independently Identified Antigens.

3.6 Novartis Restriction.

3.6.1 Neither Novartis nor its Affiliates shall Exploit any TScan Background Product IP or TScan Platform Improvements for any purpose except to Develop and Commercialize Products associated with an Optioned Program.

3.6.2 Notwithstanding anything in this Agreement to the contrary, Novartis shall be free to Develop and Commercialize any Novartis Independently Identified TCR and any product Directed to or made from any Novartis Independently Identified Antigen (including, without limitation, any TCR Directed to such proteins), alone or with Third Parties, outside of the scope of this Agreement and without any obligation to TScan, For clarity, this Section 3.6.2 does not grant a license under any Patents or other intellectual property rights. Further, this Section 3.6.2 does not preclude TScan from bringing forth a claim of infringement against or requesting royalties should such Novartis Independently Identified TCR, Product, or any use thereof is Covered by at least one (1) Valid Claim of a TScan Collaboration Patent or a Patent included in the TScan Background Product IP.

3.7 No Implied Rights. Neither Party grants any right or license to the other Party under any Know-How, Patent or other intellectual property rights of such Party except as expressly granted in this Agreement. All rights not expressly granted by a Party under this Agreement are reserved to such Party. For the sake of clarity, except to the extent an Acquiring Entity affirmatively participates in the performance of the Research Plan and notifies Novartis of such participation, in no event shall anything in this Agreement, including Section 3.2, be construed to include any automatic grant of any right, license or other authorization by an Acquiring Entity to any Party to this Agreement to use any Acquiring Entity Intellectual Property or, to limit any grant of any right, license or other authorization by an Acquiring Entity to any Third Party to use any Acquiring Entity Intellectual Property to research, develop, commercialize or co-promote compositions of matter or products.

3.8 Retained Rights. For clarity, nothing in this Agreement: (a) grants Novartis or its Affiliates any right or license with respect to the TScan Platform Technology or, except to the extent expressly licensed pursuant to the Unblock License, any TScan Platform Improvement; or (b) except for Section 3.2(to the extent an Option is exercised) and Sections 3.5.1, 3.5.2, and 3.5.3 restricts TScan or its Affiliates from using the TScan Platform Technology or TScan Platform Improvements in any way.

ARTICLE 4
GOVERNANCE

4.1 Establishment of Joint Steering Committee. Within [***] days after the Effective Date, the Parties shall establish a joint steering committee (the "**Joint Steering Committee**" or "**JSC**") consisting of an appropriate number of representatives as may be agreed upon by the Parties, with an equal number of representatives designated by each Party. Each representative of the JSC must be an employee of Novartis or TScan. The initial members of the JSC will be nominated by the Parties promptly following the Effective Date. Such representatives shall be individuals suitable in seniority and experience and having delegated authority to make decisions of the JSC with respect to matters within the scope of the JSC's responsibilities. The JSC shall operate in accordance with the provisions of Sections 4.2 to 4.8, and shall have no authority to alter, amend or waive the terms and conditions of this Agreement (other than amending the Research Plan), and specifically will have no right to alter or amend any payment obligations or terms, periods for performance, or the intellectual property rights of the Parties. A Party may change one or more of its

representatives serving on the JSC at any time upon written notice to the other Party, *provided* that such replacement is of comparable authority and scope of functional responsibility within that Party's organization as the person he or she is replacing. At its meetings, the JSC shall discuss the matters described below and such other matters as are reasonably requested by either Party's Alliance Manager. The JSC shall remain in effect, on a Product-by-Product basis, until the completion of the Collaboration Term.

4.2 Responsibilities. The JSC shall perform the following functions:

4.2.1 review and discuss the conduct of the activities and results under the Research Plan;

4.2.2 approval of Collaboration Tumor Samples for inclusion in the Collaboration consistent with the Research Plan;

4.2.3 determine which Collaboration Targets to prepare Validation Packages for;

4.2.4 determine the Programs and maintain a list for which TScan should prepare Requested Data Packages for Novartis' evaluation;

4.2.5 review and discuss any scientific or technical issues arising under the Agreement;

4.2.6 propose amendments to the Research Plan; and

4.2.7 perform such other functions as are specifically designated for the JSC in this Agreement or that the Parties mutually agree in writing to refer to the JSC.

4.3 Co-Chairs. Each Party shall designate one of its representatives on the JSC to co-chair the meetings for the JSC (each, a "**Co-Chair**"). The Co-Chairs shall, through and with the assistance of the Alliance Managers, coordinate and prepare the agenda for, and ensure the orderly conduct of, the meetings of the JSC. The Co-Chairs shall, through and with the assistance of the Alliance Managers, solicit agenda items from the JSC members and provide an agenda, along with appropriate information for such agenda, reasonably in advance of any meeting. Such agenda shall include all items requested by either Co-Chair for inclusion therein. Each agenda shall include discussion regarding the need and/or status of Requested Data Packages as well as any delivered Data Packages. In the event the Co-Chairs or another JSC member from either Party is unable to attend or participate in a meeting of the JSC, the Party whose Co-Chair or member is unable to attend may designate a substitute co-chair or other representative for the meeting with prior written notice.

4.4 Meetings. The JSC shall meet in person at least [***] times a year or more frequently (a) as mutually agreed between the Parties, (b) as required to review the Research Plan and/or the Product Development Plans submitted for its review, or any amendments thereto, and (c) as required to resolve disputes, disagreements or deadlocks unresolved by the Alliance Managers, in each case, on such dates, and at such places and times, as the Parties shall agree; *provided* that the Parties shall endeavor to have the first meeting of the JSC within [***] days after its establishment. The members of the JSC also may convene or be polled or consulted from time to time by means of telecommunication, video conference, electronic mail or correspondence, as deemed necessary or appropriate. Each Party shall be

responsible for the cost of such Party's own personnel and for its own expenses in attending such meetings and carrying out the other activities contemplated under this Article 4. As appropriate, the JSC may invite a reasonable number of non-voting employees, consultants and scientific advisors to attend its meetings as non-voting observers, *provided* that such invitees are bound by confidentiality obligations at least as stringent as the provisions set forth herein. Each Party may also call for special meetings of the JSC to discuss particular matters requested by such Party.

4.5 Minutes. The Co-Chairs of the JSC (or their respective designees) shall keep the minutes of the JSC meetings. The JSC shall formally accept the minutes of the previous meeting at or before the next meeting of the JSC. Minutes shall list action items, key decisions made, and shall designate any issues that need to be resolved by the JSC or applicable resolution process. In the event of any objection to the minutes that is not resolved by mutual agreement of the Parties, such minutes will be amended to reflect such unresolved dispute.

4.6 Decisions.

4.6.1 All decisions of the JSC shall be made by unanimous vote, with each Party having one (1) vote. In order to make any decision, the JSC must have present (in person or via telephone or videoconference) and voting at least one (1) representative of each Party.

4.6.2 Subject to the terms of this Agreement, if the JSC cannot resolve a matter within [***] days, or such shorter time as may be determined by the Parties, after it begins discussing any such delegated matter (a "**Committee Deadlock**"), then the JSC shall escalate such Committee Deadlock to the Senior Officers for resolution by consensus. If, following consideration by the Senior Officers for a period of up to [***] days, there is still no consensus, then Novartis shall have the final decision-making authority with respect to such Committee Deadlock. Notwithstanding the foregoing, the JSC cannot amend the Research Plan or Budget without the mutual written consent of both Parties.

4.7 Alliance Managers. Each Party shall designate an individual to serve as the main point of contact for such Party to exchange information, facilitate communication and coordinate the Parties' activities under this Agreement (each, an "**Alliance Manager**"). Without limiting the foregoing, the Alliance Managers will be responsible for presenting to the JSC for its consideration and review any and all updates to Research Plan, including to the budget associated with a Research Plan, proposed or requested by either Party. The Alliance Managers shall attend meetings (or designate an appropriate representative to attend meetings on the Alliance Manager's behalf) between the Parties, including JSC meetings. Each Party may change its designated Alliance Manager from time to time upon written notice to the other Party.

4.8 Joint Research Committee. In addition to the JSC, the Parties will establish a joint research committee ("**Joint Research Committee**" or "**JRC**"), which will be subordinate to the JSC, consisting of an appropriate number of representatives as may be agreed upon by the Parties, with an equal number of representatives designated by each Party. Each representative of the JRC must be an employee of Novartis or TScan. The initial members of the JRC will be nominated by the Parties promptly following the Effective Date. All decisions of the JRC shall be made by unanimous vote, with each Party having one (1)

vote. In order to make any decision, the JRC must have present (in person or via telephone or videoconference) and voting at least one (1) representative of each Party. In the event of a dispute that cannot be informally resolved by the JRC, the matter will be presented to the JSC for determination. The JRC shall meet on a monthly basis on dates and times to be determined by the JRC. The JRC shall be responsible for promoting ongoing discussions with respect to the progress of the Collaboration, including scientific updates and day to day guidance of the research activities and such other matters that may be assigned to it by the JSC.

ARTICLE 5
DEVELOPMENT OF PRODUCTS.

5.1 Development Diligence Obligations. Following the exercise of the Option with respect to a Program, Novartis shall use Commercially Reasonable Efforts, by itself, through its Affiliates and agents, or through Sublicensees, to Develop Products associated with such Optioned Program, and Novartis will have sole responsibility with respect thereto.

5.2 Product Development Plans. Following the exercise of the Option with respect to a Program, Novartis shall provide TScan with a high-level development plan covering Novartis' Development activities through its first filing of an NDA for the first Product associated with such Optioned Program with any Regulatory Authority and annual (or more frequently as Novartis may determine) updates thereto (each, a "**Product Development Plan**"). Novartis may modify each Product Development Plan at any time in its sole discretion.

5.3 Regulatory Affairs. Novartis shall own, and be solely responsible, at its sole expense, for preparing, seeking, submitting and maintaining, all regulatory filings and Regulatory Approvals for each Product associated with any Optioned Programs. Except to the extent prohibited by applicable Law, all Regulatory Documentation (including all Regulatory Approvals) relating to such Products shall be owned by and shall be the sole property and held in the name of Novartis or its designated Affiliate, or its or their designee. Novartis shall have the sole right to conduct and control all interactions and communications with any Governmental Authority relating to any such Products.

5.4 Commercialization of Products.

5.4.1 Diligence Obligations. Novartis shall use Commercially Reasonable Efforts, by itself or through its Affiliates and agents or through its or their Sublicensees to Commercialize each Product in each country following Regulatory Approval of such Product in the respective country.

5.4.2 Commercialization Responsibilities. Novartis shall have the sole right and responsibility, in its sole discretion and at its sole cost and expense, to Commercialize the Products.

ARTICLE 6
FINANCIAL PROVISIONS

6.1 Upfront Payment. Within [***] Business Days after the Effective Date, Novartis shall make a one-time lump sum payment to TScan of Twenty Million Dollars (USD$20,000,000), which payment shall be non-refundable, non-contingent and non-creditable against other payments due hereunder.

6.2 Option Exercise Payment. On a Program-by-Program basis, Novartis shall pay to TScan an option exercise payment of [***] if Novartis exercises an Option under Section 3.1.1 (the "**Option Exercise Payment**" for such Program). Such payments shall be made within [***] days after receipt of an Invoice for the same, which will be issued upon TScan's receipt of Novartis' election to exercise the Option as set forth in Section 3.1.1. Each such payment shall be non-refundable, non-contingent and non-creditable against other payments due hereunder.

6.3 Development Milestone Payments.

6.3.1 On an Optioned Program-by-Optioned Program basis, Novartis shall pay TScan the following one-time Milestone

6.3.2 Payments (each, a "**Development Milestone Payment**") upon achievement of each of the corresponding Milestones for such Optioned Program (each, a "**Development Milestone**") by Novartis, its Affiliates, or any Sublicensees:

Milestone	Milestone Payment (USD)
[***]	$ [***]
[***]	$ [***]
[***]	$ [***]
[***]	$ [***]
[***]	$ [***]
[***]	$ [***]
Total Amount	**$ 230,000,000**

Each Development Milestone Payment shall be deemed earned as of the first achievement of the corresponding Development Milestone for such Optioned Program. Novartis shall provide TScan with notice of the achievement of each Development Milestone within [***] days after such Development Milestone has been achieved, and will pay such Development Milestone Payment within [***] days of receipt of an Invoice for the relevant amount. For the avoidance of doubt, subject to Section 6.3.3: (i) each Development Milestone Payment shall be payable only on the first occurrence of the corresponding Development Milestone with respect to the corresponding Optioned Program; and (ii) none of the Development Milestone Payments shall be payable more than once for the corresponding Optioned Program (regardless of the number of Products associated with such Optioned Program that achieve such Development Milestone). For the avoidance of doubt, the total amount of Development Milestone Payments for each Optioned Program shall not exceed USD$230,000,000.

6.3.3 For each of the Development Milestones for an Optioned Program, if Novartis, its Affiliates, or any Sublicensee first achieves (or is deemed to have achieved pursuant to Section 6.3.4) such Development Milestone through the use of a Target Product, then the Milestone Payment associated with such achievement shall instead be [***] of the Milestone Payment that would otherwise be due for the achievement of such Milestone with a TCR Therapeutic Product (i.e., [***]% of the amount set forth in the table in Section 6.3.1). If, after achievement of such Milestone for such Optioned Program with a Target Product, such Milestone for such Optioned Program is subsequently achieved (or deemed achieved pursuant to Section 6.3.4) with a TCR Therapeutic Product, then Novartis shall pay TScan the remaining [***] of such Milestone Payment. For the avoidance of doubt, if a TCR Therapeutic Product achieves a milestone set forth in Section 6.3.1 and a Target Product from the same Optioned Program subsequently achieves the same Development Milestone, only the Development Milestone for the TCR Therapeutic Product will be paid. This Section 6.3.3 supersedes Section 6.3.1 to the extent of any conflict.

6.3.4 For Section 6.3.1 and Section 6.3.3, the achievement of a later Development Milestone shall trigger the Development Milestone Payment of an earlier Development Milestone in the event such earlier Development Milestone event had not been triggered prior to achievement of the later development milestone event. For the purposes of Section 6.3.3, achievement of a Development Milestone for an Optioned Program with an TCR Therapeutic Product shall be deemed achievement of all earlier Development Milestones for such Optioned Program. For example, the Phase III Clinical Trial may be skipped if the Phase II(b) Clinical Trial study is considered a pivotal trial sufficient for seeking Regulatory Approval of a Product, or a Phase II(b) Clinical Trial study may be skipped for a Phase III Clinical Trial. In the former case, the Milestone for the initiation of a Phase III Clinical Trial will be considered to have been met upon First Commercial Sale of the Product anywhere in the world and, in the latter case, both the Phase II(b) Clinical Trial and Phase III Clinical Trial Milestone will be considered to have been met upon initiation of the first Phase III Clinical Trial.

6.4 Commercial Milestone Payments.

6.4.1 Subject to the terms of this Agreement, on an Optioned Program-by-Optioned Program basis, Novartis shall make the following payments to TScan (each a "**Commercial Milestone Payment**") after the first achievement by of the applicable event set forth below with respect to such Optioned Program (each a "**Commercial Milestone Event**"). Solely for the purpose of determining whether the various Commercial Milestone Events set forth below have been met, for each Calendar Year and each Optioned Program, an amount (the "**Adjusted Net Sales Amount**") shall be computed, which will be equal to the sum of: (a) Annual Net Sales of all TCR Therapeutic Products associated with such Optioned Program in all countries in such Calendar Year; plus (b) [***] of Annual Net Sales of all Target Products associated with such Optioned Program in all countries in such Calendar Year. Each of the Commercial Milestone Payments are payable only once for each Optioned Program, upon the first achievement of such Commercial Milestone Event for such Optioned Program. Novartis will notify TScan in writing of the achievement of each Commercial Milestone Event via the applicable Sales & Royalty Report, and Novartis shall pay to TScan the corresponding Commercial Milestone Payment together with the Royalty payment in the manner set forth in Section 6.10. For the avoidance of doubt, the total amount of Commercial Milestone Payments for each Optioned Program shall be no more than USD$260,000,000.

Commercial Milestone Event	Commercial Milestone Payment
Adjusted Net Sales Amount for such Optioned Program exceed $[***] in any Calendar Year.	$ [***]
Adjusted Net Sales Amount for such Optioned Program exceed $[***] in any Calendar Year.	$ [***]
Adjusted Net Sales Amount for such Optioned Program exceed $[***] in any Calendar Year.	$ [***]
Total Amount	**$ 260,000,000**

6.5 Royalty Payments. On an Optioned Program-by-Optioned Program basis, Novartis shall pay TScan a percentage of annual Net Sales of TCR Therapeutic Products and/or Target Products associated with such Optioned Program (the "**Royalty Rate**") as set forth in this Section 6.5 ("**Royalty Payment**"). The Royalty Payment shall be payable to TScan on a Product-by-Product basis and country-by-country basis until the latest to occur of (a) the last to expire Valid Claim of all Patents in the Optioned Program Technology in each case, that Covers the manufacture, use, importation or sale of such Product in such country, (b) [***] years after First Commercial Sale of such Product in such country, or (c) the expiration of any regulatory or marketing exclusivity, including any regulatory data protection, for such Product in such country (the "**Royalty Term**"). If, with respect to an Optioned Program, the Royalty Term in a country continues only as a result of clauses (b) and or (c) of the prior sentence (i.e., there is no Valid Claim of any Patent in the Optioned Program Technology (or Patents licensed pursuant to the Unblock License), in each case, that Covers the manufacture, use, importation or sale of such Product from such Optioned Program in such country), then, for the purpose of computing the Royalty Rate in such country after such point in time, for the purpose of determining the Royalty Rate set forth in the chart below, the applicable Net Sales shall be multiplied by [***]%. For the purpose of determining Net Sales Tranches as set forth below, for each Optioned Program, the Annual Net Sales of all TCR Products from such Optioned Program will be aggregated and the Royalty Rates and Royalty Payments for TCR Products will be computed accordingly, and, separately, the Annual Net Sales of all Target Products from such Optioned Program will be aggregated, and the respective Royalty Rates and Royalty Payments for such Target Products will be computed:

Net Sales Tranche	Royalty Rate for TCR Therapeutic Products	Royalty Rate for Target Products
For the portion of Net Sales of such Product that are a portion of the first $[***] in Annual Net Sales for such Optioned Program in such Calendar Year.	[***]%	[***]%
For the portion of Net Sales of such Product that are a portion of the Annual Net Sales for such Optioned Program greater than $[***] but less than or equal to $[***] in such Calendar Year.	[***]%	[***]%
For the portion of Net Sales of such Product that are a portion of the Annual Net Sales for such Optioned Program greater than $[***] but less than or equal to $[***] in such Calendar Year.	[***]%	[***]%
For the portion of Net Sales of such Product that are a portion of the Annual Net Sales for such Optioned Program greater than $[***] but less than or equal to $[***] in such Calendar Year.	[***]%	[***]%
For the portion of Net Sales of such Product that are a portion of the Annual Net Sales for such Optioned Program greater than $[***] in such Calendar Year.	[***]%	[***]%

6.6 Payments under BWH License Agreement. TScan will be solely responsible for the payment of all costs arising under the BWH License Agreement. TScan will promptly make all such payments in accordance with the provisions of the BWH License Agreement.

6.7 Blocking Third Party Patents. On a Product-by- Product basis and Calendar Quarter-by-Calendar Quarter basis, Novartis shall have the right to reduce any Royalty Payments for a Product otherwise payable to TScan for a Calendar Quarter by [***] of any royalties that are paid by Novartis in such Calendar Quarter to any Third Party in consideration for a license or other rights to any Patents that are infringed by the use of the Optioned Program Technology (or any Patents licensed pursuant to the Unblock License, if applicable); *provided*, *however*, that in no event may any Royalty Payment payable to TScan hereunder for any Product be reduced as a result of the application of the royalty reductions set forth in this Section 6.7 by more than [***] of the amount that would otherwise be owed to TScan under Section 6.5 for such Product. Novartis will be entitled to carry forward any amounts that it is not able to deduct as a result of the proviso in the prior sentence to subsequent Calendar Quarters.

6.8 Taxes. Each Party shall be responsible for its own taxes, duties, levies, imposts, assessments, deductions, fees, withholdings or similar charges imposed on or measured by net income or overall gross income (including branch profits), gross receipts, capital, ability or right to do business, property, and franchise or similar taxes pursuant to applicable Law. If Novartis is required to deduct or withhold from any payment due hereunder any taxes, duties, levies, imposts, assessments, deductions, fees, and other similar charges by applicable Law or any Governmental Authority ("**Withholding Taxes**") for any

payment under Section 6, then Novartis shall pay such Withholding Taxes to the local applicable Governmental Authority and make the payment to TScan of the net amount due after deduction or withholding of such taxes. Such Withholding Taxes shall be treated for all purposes of this Agreement as having been paid to TScan hereunder. Novartis shall submit reasonable proof of payment of the Withholding Taxes within a reasonable period of time after such Withholding Taxes are remitted to the Governmental Authority. The Parties shall reasonably cooperate to eliminate or minimize any such Withholding Taxes.

6.9 Value Added Tax. Notwithstanding anything contained in Section 6.8, this Section 6.9 shall apply with respect to VAT. All payments under this Agreement are exclusive of VAT. If any VAT is required in respect of any payments under applicable Law, the payor shall pay VAT at the applicable rate in respect of any such payments following the receipt of a valid VAT invoice in the appropriate form issued by the payee in respect of those payments, such VAT to be payable on the later of the due date of the payments to which such VAT relates and [***] days after the receipt by the payor of the applicable valid invoice relating to that VAT payment. The Parties will reasonably cooperate to issue valid VAT invoices for all amounts due under this Agreement consistent with VAT requirements. The payor shall not be responsible for any penalties and interest resulting from the failure by the payee to collect (if not included on a valid VAT invoice) or remit any such VAT. The Parties shall reasonably cooperate to report, eliminate or minimize the amount of any such VAT imposed on the transactions contemplated in this Agreement. For clarity, any invoice to be provided to Novartis pursuant to this Section 6.9 shall be an Invoice.

6.10 Novartis Statements and Payment. Within [***] days after each Calendar Quarter during the term of this Agreement following the First Commercial Sale of a Product, Novartis will, on a Product-by-Product basis, provide to TScan a Sales & Royalty Report, which will also indicate which Optioned Program the relevant Product(s) relate to. TScan shall submit an Invoice to Novartis with respect to the royalty amount shown therein. Novartis shall pay such royalty amount within [***] days after receipt of the Invoice.

6.11 Currency Exchange. All payments under this Agreement shall be payable in US dollars via wire transfer of immediately available USD funds from a bank in the United States to an account designated in writing by that Party to the other Party. When conversion of payments from any foreign currency is required to be undertaken by Novartis, the USD equivalent shall be calculated using Novartis' then-current standard exchange rate methodology as applied in its external reporting.

6.12 Records Retention; Financial Audit.

6.12.1 Record Retention. Each Party shall maintain complete and accurate books, records and accounts for the calculation of Research Costs, reporting and payment of Withholding Taxes, and Royalty Payments due, as applicable, in sufficient detail to confirm the accuracy of any Research Cost reports and any Royalty Payments required under this Agreement, which books, records and accounts shall be retained until [***] years after the end of the period to which such books and records pertain, or longer as is required by applicable Law.

6.12.2 Financial Audit. Each Party (in such context, the "Auditing Party") may, upon written request, cause an internationally-recognized independent accounting firm (the "Auditor"), which is reasonably acceptable to the other Party (the "Audited Party"), to inspect the relevant records of the Audited Party and its Affiliates to verify the

Research Costs (in the case of TScan) and Royalties (in the case of Novartis) and the related reports, statements, and books of accounts, as applicable. Before beginning its audit, the Auditor shall execute an undertaking acceptable to the Audited Party by which the Auditor agrees to keep confidential all information reviewed during the audit. The Auditor shall have the right to disclose to the Auditing Party only its conclusions regarding any payments owed under this Agreement.

6.12.3 Availability of Books and Records. The Audited Party shall make their records available for inspection by the Auditor during regular business hours at such place or places where such records are customarily kept, upon receipt of reasonable advance notice from the Auditing Party. The records shall be reviewed solely to verify the accuracy of the Research Costs (in the case of TScan) and Royalties and Commercial Milestone Payments (in the case of Novartis) and compliance with this Agreement. Such inspection right shall not be exercised more than once in any calendar year and not more frequently than once with respect to records covering any specific period of time. In addition, the Auditing Party shall only be entitled to audit the books and records of the Audited Party from the [***] calendar years prior to the calendar year in which the audit request is made. The Auditing Party will hold in strict confidence all information received and all information learned in the course of any audit or inspection, except to the extent necessary to enforce its rights under this Agreement or to the extent required to comply with any law, regulation or judicial order.

6.12.4 The Auditor shall provide its audit report and basis for any determination to the Audited Party at the time such report is provided to the Auditing Party before it is considered final. The Audited Party shall have the right to request a further determination by such Auditor as to matters which the Audited Party disputes within [***] days following receipt of such report. In such event, the Audited Party will provide the Auditing Party and the Auditor with a reasonably detailed statement of the grounds upon which it disputes any findings in the audit report and the Auditor shall undertake to complete such further determination within [***] days after the dispute notice is provided, which determination shall be limited to the disputed matters. Any matter that remains unresolved shall be resolved in accordance with the dispute resolution procedures contained in Section 12.3.

6.12.5 Payment of Additional Amounts. The Auditing Party shall pay for such inspections, as well as its expenses associated with enforcing its rights with respect to any payments hereunder. In addition, if an underpayment of more than [***] of the total payments due for the applicable audit period is discovered, the fees and expenses charged by the Auditor shall be paid by the Audited Party. If, based on the results of any audit conducted under Section 6.12.2, undisputed payments are owed to a Party under this Agreement, then such Party shall make such payments within [***] days after the accounting firm's written report is delivered to the Parties, with interest calculated thereon in accordance with Section 6.13.

6.13 Interest on Late Payments. Any failure by either Party to make a payment of any undisputed amount when due shall obligate that Party to pay interest to the other Party on the amount unpaid at the most recently published LIBOR plus [***] per annum (or, if lower, the maximum rate permitted by applicable Law) calculated on a daily basis and payable for the period from the date payment is due until the date payment is actually made, without prejudice to the recipient's right to receive payment on the due date.

ARTICLE 7
CONFIDENTIALITY

7.1 Protection of Confidential Information. The Receiving Party shall not, and shall cause its Affiliates and its and their officers, directors, employees and agents not to, disclose or disseminate Confidential Information of the Disclosing Party to any Third Party unless expressly permitted hereunder, and shall not use such Confidential Information for any purpose other than in performing the Receiving Party's obligations or exercising the Receiving Party's rights under this Agreement. In addition, the Receiving Party shall take, and shall cause its Affiliates to take, reasonable steps to protect the Confidential Information of the Disclosing Party from unauthorized use or disclosure, which steps shall be no less than those the Receiving Party takes to protect its own confidential or proprietary material of a similar nature. Each Party shall be responsible for any breach of its confidentiality obligations by its respective employees and agents. The foregoing obligations shall apply equally to all copies, extracts and summaries of the Disclosing Party's Confidential Information.

7.2 Certain Permitted Disclosures.

7.2.1 Disclosure Required by Law. Notwithstanding the foregoing, the Receiving Party may disclose Confidential Information of the Disclosing Party to the extent such disclosure is required by applicable Law, *provided* that, to the extent it may legally do so, the Receiving Party shall: (a) give reasonable advance notice to the Disclosing Party of such disclosure to permit the Disclosing Party to use its reasonable efforts to secure confidential treatment of such Confidential Information prior to disclosure to the extent such treatment is applicable (whether through protective orders or otherwise), (b) cooperates with the Disclosing Party in the exercise of its right to protect the confidentiality of the Confidential Information, and (c) discloses only that Confidential Information that is required to be disclosed.

7.2.2 Disclosure for Agreement Purposes. The Receiving Party may disclose Confidential Information of the Disclosing Party to a Third Party to the extent such disclosure is reasonably necessary to exercise the rights granted to or retained by it under this Agreement, including in preparing, filing, maintaining or prosecuting Patents, prosecuting or defending litigation or submitting information to Governmental Authorities for the purpose of seeking Regulatory Approvals with respect to a Product, as applicable.

7.2.3 Disclosure to Certain Third Parties. The Receiving Party may disclose such of the Disclosing Party's Confidential Information to (a) its Affiliates, and its and their employees, directors and consultants who have a need to know such Confidential Information, (b) to Third Party subcontractors identified in the Research Plan or approved by the JSC; (c) in the case of Novartis, its existing or potential Sublicensees, in each case ((a), (b) and (c)), who are bound by obligations of confidentiality and non-use at least as stringent as those by which the Receiving Party is bound hereunder, and (d) in the case of TScan, to (i) Brigham and Women's Hospital, Inc., but only if and to the extent TScan is required to do so to comply with its obligations under the BWH License Agreement (*e.g.*, royalty reports) or (ii) its existing or potential investors, collaborators or acquirers, in each case who are bound by obligations of confidentiality and non-use at least as stringent as those by which the Receiving Party is bound hereunder.

7.3 Return of Confidential Information. Upon termination of this Agreement, the Receiving Party shall promptly return or destroy all of the Disclosing Party's Confidential Information, including all information relating to Products received hereunder and copies thereof in any medium, unless, and solely for so long as, the Receiving Party has continuing rights to use the foregoing pursuant to Article 9. Notwithstanding the foregoing, the Receiving Party may retain one copy for its legal files. Nothing herein shall require the erasure or destruction of back-up media made in the ordinary course of business, *provided* that it is not accessible in the ordinary course of business.

7.4 Unauthorized Use. If the Receiving Party becomes aware or has Knowledge of any unauthorized use or disclosure of the Disclosing Party's Confidential Information, it shall promptly notify the Disclosing Party of such unauthorized use or disclosure.

7.5 Public Disclosure.

7.5.1 Neither Party shall mention or otherwise use the name, logo or trademark of the other Party or any of its Affiliates or any abbreviation or adaptation thereof in any advertising, marketing, promotional or sales literature or other form of publicity, except as follows:

(a) Subject to Section 7.5.1(c), each Party may state that they have entered into this Agreement. For this purpose, each Party may use the name of the other Party, and may make a high level non-confidential statement about the existence, scope and key terms of this contractual relationship, and development and regulatory status of any Products associated with Optioned Programs.

(b) Either Party or its Affiliates may make such a disclosure to the extent required by the rules of any nationally recognized securities exchange, quotation system or over-the-counter market on which such Party has its securities listed or traded.

(c) Upon either Party's request, the Parties shall cooperate in good faith to mutually agree on a press release with respect to this Agreement. Except for any subsequent announcements that contain no additional information that is not included in such press release, neither Party shall issue any other public announcement, press release or other public disclosure regarding this Agreement or its subject matter without the other Party's prior written consent, such consent not to be unreasonably withheld, conditioned or delayed.

7.5.2 If either Party is required to file this Agreement with the U.S. Securities and Exchange Commission, any successor or replacement agency, or its foreign equivalent, the filing Party shall use commercially reasonable efforts to secure confidential treatment of this Agreement consistent with such mutually agreed redacted version.

7.5.3 Once a Collaboration Target becomes a Declined Program or becomes Removed Target (or Novartis' rights thereto terminate pursuant to Section 9.7), Collaboration Know-How specifically and solely relating to such Collaboration Target (and/or any Identified TCR Directed to such Collaboration Target) shall be deemed to be the Confidential Information of TScan only. Additionally, Collaboration Know-How specifically and solely relating to any Collaboration Target (and/or any Identified TCR Directed to such Collaboration Target) shall cease to be deemed Collaboration Know-How once such Collaboration Target becomes a Removed Target (but shall remain Confidential Information of TScan).

ARTICLE 8
INTELLECTUAL PROPERTY

8.1 Collaboration Technology.

8.1.1 TScan Background IP. As between Novartis and TScan, subject to the licenses and other rights granted herein, TScan will retain all right, title and interest, title to all TScan Background IP, including rights to any Third Party intellectual property rights that are licensed to TScan ("In-Licensed IP"). TScan will maintain the BWH License Agreement and any Agreements that it has with Third Parties with respect to In-Licensed IP that is sublicensed to Novartis under this Agreement (if any) (collectively "***In-Licensed IP Agreements***") in full force and effect, and will not take any action, or fail to take any action, that would cause TScan to breach its obligations under the In-Licensed IP Agreements or otherwise diminish the scope or exclusivity of the rights granted to Novartis through amendment, waiver or otherwise without the prior written consent of Novartis, which will not be unreasonably withheld. TScan will give written notice to Novartis within [***] Business Days after becoming aware of (a) any facts or circumstances that constitute a breach of the In-Licensed IP Agreement by TScan that could lead to termination under the terms of such In-Licensed IP Agreement, and (b) any notice, correspondence, or communication alleging or confirming a breach of the In-Licensed IP Agreements by TScan. TScan will use Commercially Reasonable Efforts to promptly cure any such breach by it or its Affiliates of the In-Licensed IP Agreements within the timeframes set forth in the relevant In-Licensed IP Agreements to avoid the termination of such agreements. If TScan receives notice of such a breach by TScan or one of its Affiliates of the In-Licensed IP Agreements, where termination of the In-Licensed IP Agreements or any diminishment of the scope or exclusivity of the licenses thereunder is being or could be sought by the relevant Third Parties as a result of such breach, then TScan will promptly, but in any event within [***] Business Days following TScan's receipt of such notice, provide written notice thereof to Novartis, and TScan hereby grants Novartis the right (but not the obligation) to cure such breach.

8.1.2 Ownership of Collaboration Technology. Ownership of Collaboration Technology shall be determined by inventorship (*i.e.*, Collaboration Technology invented solely by TScan, its Affiliates, and its or their employees and agents shall be owned by TScan; Collaboration Technology invented solely by Novartis, its Affiliates, and its or their employees and agents shall be owned by Novartis; and Collaboration Technology invented jointly by TScan, its Affiliates, and its or their employees and agents together with Novartis, its Affiliates, and its or their employees and agents shall be jointly owned by the Parties).

8.1.3 United States Law. The determination of whether Know-How is invented by a Party for the purpose of allocating proprietary rights (including Patent, copyright or other intellectual property rights) therein, shall, for purposes of this Agreement, be made in accordance with the principles of patent law in the USA, irrespective of where or when such invention occurs (in the case of non-patentable Know-How, inventorship will also be determined under such principles by treating such Know-How as if it were patentable. Subject to the licenses granted under Sections 3.2 and the other provisions of this Agreement and the applicable exclusivity obligations hereunder and without granting any rights in any intellectual property other than Joint Collaboration Technology, each Party shall have the right to Exploit any of the Joint Collaboration Technology without the consent of (or right to account to) the other Party.

8.1.4 Platform Improvements. Notwithstanding the foregoing (a) as between the Parties, TScan shall solely own all right, title and interest in and to TScan Platform Improvements; and (b) TScan Platform Improvements shall not be considered Collaboration Technology.

8.1.5 Assignment Obligation. Each Party shall, and does hereby, assign, and shall cause its Affiliates to so assign, to the other Party, without additional compensation, such right, title and interest in and to any Collaboration Technology or TScan Platform Improvements, as applicable, as is necessary to fully effect, as applicable, the allocation of ownership set forth in Section 8.1.2, Section 8.1.3 and Section 8.1.4. Each Party shall cause all Persons who invent any Collaboration Technology or TScan Platform Improvements to be under an obligation to assign their rights in any Collaboration Technology or TScan Platform Improvements resulting therefrom to such Party.

8.2 Prosecution and Maintenance of Patents.

8.2.1 Solely Owned Patents.

8.2.1.1 Subject to Section 8.2.2, each Party shall have the sole right (but not the obligation), in its sole discretion and at its sole cost, to prepare, file, prosecute and maintain all Patents that are owned solely by such Party.

8.2.1.2 Subject to Section 8.2.2, with respect to TScan Collaboration Patents: (a) TScan shall give Novartis an opportunity to review any application with respect to such TScan Collaboration Patents before filing, shall consult with Novartis with respect thereto, and shall incorporate any reasonable comments of Novartis with respect thereto; (b) TScan shall supply Novartis with a copy of such application as filed, together with notice of its filing date and serial number; (c) TScan shall keep Novartis reasonably informed of the status of the actual and prospective patent filings with respect to such TScan Collaboration Patents; and (d) TScan shall provide advance copies of any official correspondence related to the filing, prosecution and maintenance of such patent filings.

8.2.1.3 Subject to Section 8.2.2, with respect to any TScan Collaboration Patents, if TScan elects not to file a patent application for such TScan Collaboration Patent in any country or elects to cease the prosecution or maintenance of such TScan Collaboration Patents in any country, then TScan shall provide Novartis with notice immediately, but not less than [***] days before any action is required, upon the decision to not file or continue the prosecution of such patent application or maintenance of such patent. In the event TScan has provided notice to Novartis as described in the preceding sentence, Novartis shall be permitted, at its sole cost, to file or continue prosecution or maintenance of such TScan Collaboration Patents in such country, in TScan's name, using patent counsel selected by Novartis and reasonably acceptable to TScan. If Novartis does not file and continue prosecution and maintenance of such TScan Collaboration Patents, then such TScan Collaboration Patents shall then be excluded from the relevant Option.

8.2.1.4 Novartis' rights under this Section 8.2.1.2 and Section 8.2.1.3 shall expire on with respect to the relevant TScan Collaboration Patents upon the expiration of the relevant Option Exercise Period.

8.2.2 Joint Collaboration Patents and Optioned Program Patents.

8.2.2.1 If any Joint Collaboration Know-How arises under this Agreement, the Parties shall promptly meet to discuss and determine the patent strategy with respect thereto.

8.2.2.2 Novartis shall have the first right, but not the obligation, to prepare, file, prosecute and maintain any Joint Collaboration Patent and/or Optioned Program Patents throughout the world using patent counsel selected by Novartis and reasonably acceptable to TScan. In such event, Novartis shall give TScan an opportunity to review any application with respect to such Joint Collaboration Patent and/or Optioned Program Patents before filing, shall consult with TScan with respect thereto, and shall incorporate any reasonable comments of TScan with respect thereto. Novartis shall supply TScan with a copy of the application as filed, together with notice of its filing date and serial number. Novartis shall keep TScan reasonably informed of the status of the actual and prospective patent filings (including the grant of any Joint Collaboration Patent and/or Optioned Program Patent), and shall provide advance copies of any official correspondence related to the filing, prosecution and maintenance of such patent filings. TScan shall reimburse Novartis for [***] of the reasonable out-of-pocket costs incurred by Novartis in preparing, filing, prosecuting and maintaining such Joint Collaboration Patents, which reimbursement will be made pursuant to invoices submitted by Novartis to TScan no more often than once per Calendar Quarter. Novartis shall bear all its costs for preparing, filing, prosecuting and maintaining such Optioned Program Patents.

8.2.2.3 If Novartis elects not to file a patent application included in such Joint Collaboration Patents and/or Optioned Program Patents in any country or elects to cease the prosecution or maintenance of any such Joint Collaboration Patent and/or Optioned Program Patents in any country, then Novartis shall provide TScan with notice immediately, but not less than [***] days before any action is required, upon the decision to not file or continue the prosecution of such patent application or maintenance of such patent. In the event Novartis has provided notice to TScan as described in the preceding sentence, TScan shall be permitted to file or continue prosecution or maintenance of such Joint Collaboration Patent and/or Optioned Program Patents in such country using patent counsel selected by TScan and reasonably acceptable to Novartis. TScan shall give Novartis an opportunity to review any application with respect to such Joint Collaboration Patent and/or Optioned Program Patents before filing, shall consult with Novartis with respect thereto, and shall incorporate any reasonable comments of Novartis with respect thereto. TScan shall supply Novartis with a copy of the application as filed, together with notice of its filing date and serial number. In such event, TScan

shall keep Novartis reasonably informed of the status of the actual and prospective patent filings (including the grant of any Joint Collaboration Patent and/or Optioned Program Patent), and shall provide advance copies of any official correspondence related to the filing, prosecution and maintenance of such patent filings. Novartis shall reimburse TScan for [***] of the reasonable out-of-pocket costs incurred by TScan in preparing, filing, prosecuting and maintaining such Optioned Program Patent, which reimbursement will be made pursuant to Invoices submitted by TScan to Novartis no more often than once per Calendar Quarter. TScan shall bear all its costs for preparing, filing, prosecuting and maintaining such Joint Collaboration Patents.

8.2.2.4 If either Party (the "**Declining Party**") at any time declines to share in the costs of filing, prosecuting and maintaining any such Joint Collaboration Patent and/or Optioned Program Patent on a country by country basis as set out in Section 8.2.2.2 and 8.2.2.3, the Declining Party shall provide the other Party (the "**Continuing Party**") with [***] days' prior notice to such effect, in which event, the Declining Party shall have no responsibility for any expenses incurred in connection with such Joint Collaboration Patent and/or Optioned Program Patent after the end of such [***] day period. With respect to Joint Collaboration Patents, if the Continuing Party elects to continue prosecution or maintenance, the Declining Party will, upon the Continuing Party's request, execute such documents and perform such acts, at the Continuing Party's expense, (a) as may be reasonably necessary to assign to the Continuing Party all of the Declining Party's right title, and interest in and to such Joint Collaboration Patent, and (b) to permit the Continuing Party to file, prosecute, and maintain such Joint Collaboration Patent. In the case of Optioned Program Patents consisting of TScan Collaboration Patents, if Novartis is the Declining Party, the license to Novartis to such Optioned Program Patents set forth in this Agreement will thereupon terminate, and if TScan is the Declining Party, the license to such TScan Collaboration Patents will continue in full force and effect.

8.2.3 Cooperation Regarding Prosecution of Patents. Each Party shall cooperate with the other Party to the extent reasonably necessary for such Party to prosecute the Collaboration Patents, including the execution and delivery of documents to such prosecuting Party at such other Party's cost and expense, and providing access to relevant documents (including laboratory notebooks) and other evidence and making its employees available at reasonable business hours.

8.3 Enforcement of Patents.

8.3.1 Notice. On an Optioned Program-by-Optioned Program basis, each Party shall notify the other Party of any actual or threatened infringement of any Joint Collaboration Patent or Optioned Program Patent of which such Party becomes aware.

8.3.2 Enforcement of Optioned Program Patents. Novartis shall have the first right to enforce any Optioned Program Patents against actual or potential infringers at its sole cost and expense, using counsel of its choice. If Novartis fails to take commercially reasonable steps to prosecute or settle any such potential within [***] days of receiving a notice with respect to such infringement pursuant to Section 8.3.1 or within [***] Business Days before the time limit, if any, under applicable Law for taking any action with respect to the timeframe of any other relevant regulatory or statutory framework that may govern, or earlier notifies TScan in writing of its intent not to bring such action or proceeding, TScan may enforce, at its sole cost and expense, using counsel of its choice.

8.3.3 Enforcement of Other Patents. Except as otherwise expressly set forth in Section 8.3.2, each Party shall have the sole right (but not the obligation), in its sole discretion, to enforce Patents Controlled by such Party.

8.3.4 Cooperation Regarding Enforcement of Patents. The Parties shall cooperate fully in any enforcement action pursuant to this Section 8.3, including by making the inventors, applicable records, and documents (including laboratory notebooks) with respect to the relevant Patents available to the enforcing Party and its advisors at the enforcing Party's request. The non-enforcing Party shall, and shall cause its Affiliates to, assist and cooperate with the enforcing Party, as the enforcing Party may reasonably request from time to time, in connection with its activities set forth in this Section 8.3, including, where necessary to establish standing, joining in, or being named as a necessary party to, such action, providing access to relevant documents and other evidence, making its employees available at reasonable business hours, and executing any settlement agreement as requested by the enforcing Party, *provided* that the enforcing Party shall reimburse the non-enforcing Party for its reasonable and verifiable out-of-pocket costs and expenses incurred in connection therewith. Unless otherwise set forth herein, the enforcing Party shall have the right to settle such claim, *provided* that neither Party shall have the right to settle any litigation under this Section 8.3 in a manner that (a) imposes any costs or liability on the other Party or its Affiliates or its or their Sublicensees, (b) involves any admission by the other Party or its Affiliates or its or their Sublicensees, (c) admits the invalidity or unenforceability of intellectual property Controlled by a Party or its Affiliates or its or their Sublicensees, or (d) imposes restrictions or obligations on the other Party or its Affiliates or its or their Sublicensees not otherwise permitted under this Agreement, in each case ((a) through (d)), without the express written consent of such other Party, which consent shall not be unreasonably withheld, conditioned or delayed. In connection with any activities with respect to an action prosecuted by the applicable enforcing Party pursuant to this Section 8.3 involving Patents Controlled by or licensed under this Agreement to the other Party, without limiting any of the enforcing Party's other obligations in this Section 8.3.4, the enforcing Party shall keep the non-enforcing Party reasonably informed of any material steps taken in connection with such action, and shall consider in good faith any comments from the non-enforcing Party with respect thereto.

8.3.5 Recoveries. Except as otherwise agreed by the Parties in writing, any recovery realized as a result of enforcing a Patent under Section 8.3.2 (whether by way of settlement or otherwise) shall be first allocated to reimburse the Parties for their costs and expenses in making such recovery (which amounts shall be allocated pro rata if insufficient to cover the totality of such expenses). Thereafter, any [***] of any remainder after such reimbursement is made shall be paid to the non-enforcing Party and [***] of such remainder shall be retained by the enforcing Party.

8.4 Invalidity or Unenforceability Actions

8.4.1 Notice. Each Party shall promptly notify the other Party in writing of any alleged or threatened assertion of invalidity or unenforceability, including any *inter partes* review, post-grant review, reexamination, opposition or any other similar action before a patent office, of any of the Optioned Program Patents or Joint Collaboration Patent, in by a Third Party of which such Party becomes aware (an "**Invalidity/Unenforceability Action**").

8.4.2 Control of Invalidity or Unenforceability Actions. The Party that is prosecuting any Optioned Program Patent or Joint Collaboration Patent that is the subject of an Invalidity/Unenforceability Action shall have the first right (but not the obligation) to defend any Invalidity/Unenforceability Action with respect to such Patent, using counsel of its choice and at its sole cost and expense, including when such Invalidity/Unenforceability Action is raised as a defense or counterclaim in connection with an infringement action initiated pursuant to Section 8.3. The Party having the first right to defend an Invalidity/Unenforceability Action with respect to a Patent pursuant to this Section 8.4.2 shall be the "**Controlling Party**". If the Controlling Party does not take commercially reasonable steps to defend against an Invalidity/Unenforceability Action under this Section 8.4.2 by the earlier of (a) [***] days after notice of such Invalidity/Unenforceability Action, and (b) [***] Business Days before the time limit, if any, under applicable Law for taking any action with respect to the defense of such Invalidity/Unenforceability Action, then (i) such Party shall so notify the non-Controlling Party and (ii) the non-Controlling Party shall have the right (but not the obligation) to defend against such Invalidity/Unenforceability Action at its sole cost and expense, using counsel of its choice, and shall thereafter be deemed the Controlling Party with respect to such Invalidity/Unenforceability Action. The non-Controlling Party may participate in the defense of any Invalidity/Unenforceability Action under this Section 8.4.2, at its sole cost and expense and using counsel of its choice, *provided* that the Controlling Party shall retain the right to control the defense of such Invalidity/Unenforceability Action.

8.4.3 Cooperation. The Parties shall cooperate fully in defense of any Invalidity/Unenforceability Action pursuant to this Section 8.4, including by making applicable records and documents (including laboratory notebooks) with respect to the relevant Invalidity/Unenforceability Action available to the Controlling Party on the Controlling Party's request. The non-Controlling Party shall, and shall cause its Affiliates to, assist and cooperate with the Controlling Party, as the Controlling Party may reasonably request from time to time, in connection with its activities set forth in this Section 8.4, including, where necessary, joining in, or being named as a necessary party to, such action, providing access to relevant documents and other evidence, and making its employees available at reasonable business hours, and executing any settlement agreement as requested by the Controlling Party, *provided* that the Controlling Party shall reimburse the non-Controlling Party for its reasonable and verifiable out-of-pocket costs and expenses incurred in connection therewith. Unless otherwise set forth herein, the Controlling Party shall have the right to settle an Invalidity/Unenforceability Action, *provided* that neither Party shall have the right to settle any Invalidity/Unenforceability Action under this Section 8.4 in a manner that imposes any costs or liability on, or involves any admission of infringement or invalidity by, the other Party or its Affiliates or its or their Sublicensees, without the express written consent of such other Party (which consent shall not be unreasonably withheld, conditioned or delayed). In connection with any activities with respect to defense of an Invalidity/Unenforceability Action under Section 8.4.2, the Controlling Party shall (a) consult with the non-Controlling Party as to

the strategy for the defense of such Invalidity/Unenforceability Action, (b) consider in good faith any comments from the non-Controlling Party with respect thereto, and (c) keep the non-Controlling Party reasonably informed of any material steps taken, and provide copies of all material documents filed, in connection with such action.

8.4.4 Each Party shall inform the other Party of any certification regarding any Product associated with an Optioned Program it has received pursuant to either 21 U.S.C. §§355(b)(2)(A)(iv) or (j)(2)(A)(vii)(IV) or its successor provisions (or foreign equivalent thereof) and shall provide the other Party with a copy of such certification within [***] Business Days of receipt. Each Party's rights with respect to the initiation and prosecution of any legal action as a result of such certification shall be as defined in Section 8.3.

8.5 Patent Term Extension. Novartis shall give TScan notification in writing of its or its Sublicensees' (as applicable) first obtaining Regulatory Approval for a Product within [***] Business Days from its receipt of notice of the Regulatory Approval from the Regulatory Authority. Novartis will have the right to select which, if any, of the Optioned Program Patents would be selected for patent term extension pursuant to 35 U.S.C. §154-156 and as appropriate, applicable foreign patent Laws (the "**Patent Term Extension**"), and then in obtaining the Patent Term Extension with respect to such Optioned Program Patents.

ARTICLE 9
TERM AND TERMINATION

9.1 Term. Unless terminated earlier pursuant to this Article 9, the term of this Agreement shall commence on the Effective Date and shall continue in full force and effect until (a) if all Options expire unexercised, the expiration of the last to expire Option or (b) if any Options are exercised, on a Product-by-Product and country-by-country basis for each Optioned Program, upon the expiration of the Royalty Term for all Products associated with such Optioned Program in such country (the "**Term**"). Upon expiration of the Royalty Term for all Products associated with an Optioned Program, on a Product-by-Product and country-by-country basis, the license granted to Novartis for such Optioned Program pursuant to Section 3.2, as applicable, shall become worldwide, fully paid, irrevocable and perpetual.

9.2 Termination at Will by Novartis. Novartis shall have the right to terminate this Agreement for any reason or no reason, either in its entirety or on a Program-by- Program basis, at any time on [***] days' prior notice to TScan.

9.3 Material Breach. In the event of a material breach of this Agreement, the non-breaching Party shall have the right to terminate this Agreement by notice to the breaching Party specifying the nature of such breach in reasonable detail. Such termination shall become effective [***] days from receipt of such notice by the breaching Party, unless the breaching Party has cured such breach within such [***] day period. Notwithstanding the foregoing, if either Party initiates a dispute resolution procedures under Section 9.4 on or before the end of such [***] day period to resolve the dispute for which termination is being sought and is diligently pursuing such procedure, the cure period set forth in this Section 9.3 shall be tolled and termination shall become effective only if such alleged material breach remains uncured for [***] days after the final resolution of the dispute through such dispute resolution procedure.

9.4 Material Breach Dispute Resolution. Notwithstanding anything to the contrary herein, any dispute arising out of an allegation of material breach of this Agreement under Section 9.3 will be resolved as follows:

9.4.1 the Senior Officers will meet to attempt to resolve the dispute by good faith negotiations;

9.4.2 if the Senior Officers cannot resolve the dispute within [***] days after a Party requests such a meeting, then either Party may seek resolution of the dispute pursuant to Section 12.3; and

9.4.3 notwithstanding anything to the contrary in this Agreement, if either Party in its sole judgment believes that any such dispute could cause it irreparable harm, such Party shall be entitled to seek equitable relief in order to avoid such irreparable harm and will not be required to follow the procedures set forth in this Section 9.4.

9.5 Patent Challenge. If Novartis or any of its Affiliates or Sublicensees challenges, under any court action or proceeding, or before any patent office, the validity, patentability or enforceability of any Patent licensed to Novartis under this Agreement, or initiates a reexamination of any such Patent, or materially assists any Third Party to conduct any of the foregoing activities (each, a "**Patent Challenge**") and such Patent Challenge is not required under a court order or subpoena and is not a defense against a claim, action or proceeding asserted by TScan, its Affiliates or its licensees against Novartis or its Affiliates or Sublicensees, then TScan may terminate this Agreement in its entirety if such Patent Challenge is not withdrawn within [***] days after TScan notifies Novartis of such Patent Challenge ("**Challenge Notice**"). Notwithstanding the foregoing: (a) if a Sublicensee makes a Patent Challenge and Novartis terminates such Sublicensee's sublicense or causes such Sublicensee to withdraw such Patent Challenge within [***] days after Challenge Notice, then TScan may not terminate this Agreement pursuant to this Section 9.5 with respect to such Sublicensee's Patent Challenge; and (b) TScan may not terminate this Agreement pursuant to this Section 9.5 with respect to a Patent Challenge that, pursuant to applicable Law in the jurisdiction of such Patent Challenge, cannot be withdrawn within [***] days, provided that Novartis uses Commercially Reasonable Efforts and acts in good faith to withdraw (or cause such Patent Challenge to be withdrawn) as soon as reasonably possible.

9.6 Insolvency.

9.6.1 Either Party may terminate this Agreement in its entirety effective immediately upon notice to the other Party if, at any time, such other Party (a) files in any court or agency pursuant to any statute or regulation of any state or country a petition in bankruptcy or insolvency or for reorganization (except for solvent reorganization or solvent reconstruction) or for an arrangement or for the appointment of a receiver or trustee of the Party or of substantially all of its assets, (b) proposes a written agreement of composition or extension of substantially all of its debts, (c) is served with an involuntary petition against it, filed in any insolvency proceeding, and such petition is not be dismissed within [***] days after the filing thereof, (d) proposes to be a party to any dissolution or liquidation, (e) admits in writing its inability generally to meet its obligations as they fall due in the general course or (f) makes an assignment of substantially all of its assets for the benefit of creditors.

9.6.2 All rights and licenses granted under or pursuant to any section of this Agreement are for purposes of Section 365(n) of Title 11, United States Code or any analogous provisions in any other country or jurisdiction (the "**Bankruptcy Code**") licenses of rights to "intellectual property" as defined in Section 101(56) of the Bankruptcy Code (and any equivalent provisions under the bankruptcy or insolvency Laws of any other relevant jurisdiction). The Parties shall retain and may fully exercise all of their respective rights and elections under the Bankruptcy Code. The non-bankrupt Party shall further be entitled to a complete duplicate of, or complete access to, any such intellectual property and all embodiments of such intellectual property, which, if not already in its possession, shall be promptly delivered to the non-bankrupt Party (a) upon the commencement of a bankruptcy proceeding upon the non-bankrupt Party's written request therefor, unless the Party subject to such proceeding elects to continue to perform all of its obligations under this Agreement or (b) if not delivered under clause (a) above, following the rejection of this Agreement by or on behalf of the Party subject to such proceeding upon written request therefor by the non-bankrupt Party. The Parties acknowledge and agree that payments made under Section 2.2 shall not (x) constitute royalties within the meaning of Section 365(n) of the Bankruptcy Code or any analogous provisions in any other country or jurisdiction or (y) relate to licenses of intellectual property hereunder.

9.7 Effect of Expiration or Termination of this Agreement.

9.7.1 Accrued Obligations. Upon expiration or termination of this Agreement for any reason neither Party shall be released from any liability (including, without limitation, any payment obligation) that, at the time of such expiration or the Termination Date, has already accrued to the other Party or that is attributable to a period prior to such expiration or the Termination Date.

9.7.2 Termination. If either Party terminates this Agreement in accordance with this Article 9:

9.7.2.1 the license and rights granted to Novartis under Section 3.1 and Section 3.2, with respect to the applicable Program and all associated Products (or, if the Agreement is terminated in its entirety, with respect to all Programs and all associated Products), shall terminate; and

9.7.2.2 except as otherwise expressly provided herein all rights and obligations of each Party hereunder will cease with respect to the applicable Program and all associated Products (or, if the Agreement is terminated in its entirety, with respect to all Programs (and all associated Products)), including all rights, licenses and sublicenses granted by a Party to the other hereunder, *provided* that Article 6 will survive with regard to any then outstanding payment obligations.

9.7.3 In-Process Clinical Trials. Notwithstanding any other provision in this Section 9.7, if there is any Clinical Trial being conducted at the Termination Date, the Party conducting such Clinical Trial shall be entitled to continue Exploiting the Products, as applicable, to the extent and for the period necessary to effect an orderly transfer or wind down of such Clinical Trial, in a timely manner and in accordance with applicable Laws.

9.8 Survival. Upon the expiration or termination of this Agreement for any reason, all rights and obligations of the Parties under this Agreement shall terminate, *provided* that the rights and obligations of the Parties set forth in Sections 2.2 (to the extent accrued prior to such termination or expiration), 2.3, 2.5, 2.6, 8.2.2, 8.3 (with respect to Joint Collaboration Patents), 8.4 (with respect to Joint Collaboration Patents), Article 6, Article 7, Article 9, Article 11, and Article 12 shall survive the expiration or termination of this Agreement for any reason.

9.9 Termination Not Sole Remedy. Termination is not the sole remedy under this Agreement and, whether or not termination is effected, all other remedies at equity or law shall remain available to the Parties except as agreed to otherwise herein.

ARTICLE 10
REPRESENTATIONS AND WARRANTIES

10.1 Mutual Representations and Warranties. Each of TScan and Novartis represents and warrants to the other Party, as of the Effective Date, that:

10.1.1 such Party is an entity duly organized, validly existing and in good standing under the Laws of the state or country (as applicable) of its organization, is qualified to do business and is in good standing as a foreign entity in each jurisdiction in which the conduct of its business or the ownership of its properties requires such qualification and failure to have such qualification would prevent it from performing its obligations under this Agreement, and has full power and authority to enter into this Agreement and to carry out the provisions hereof;

10.1.2 such Party is duly authorized, by all requisite action, to execute and deliver this Agreement and the execution, delivery and performance of this Agreement by such Party does not require any shareholder action or approval, and the Person executing this Agreement on behalf of such Party is duly authorized to do so by all requisite action;

10.1.3 except for HSR Filings (if any are required), no consent, approval, order or authorization of, or registration, qualification, designation, declaration or filing with, any Governmental Authority or a Third Party is required on the part of such Party in connection with the valid execution, delivery and performance of this Agreement;

10.1.4 this Agreement is a legal and valid obligation binding upon such Party and enforceable in accordance with its terms except as enforceability may be limited by (a) bankruptcy, insolvency, reorganization, moratorium or similar Laws affecting the enforcement of creditors' rights; and (b) equitable principles of general applicability; and

10.1.5 such Party has all requisite authorization and consent necessary to provide the Materials (including, without limitation, Collaboration Tumors) provided by such Party and for such Materials to be used as contemplated in the Research Plan, in each case, without violation of any applicable Laws or Third Party rights; and

10.1.6 the execution, delivery and performance by it of this Agreement and its compliance with the terms and provisions of this Agreement does not conflict with or result in a breach of any of the terms or provisions of (a) any other contractual or other obligations of such Party, (b) the provisions of its operating documents or bylaws, or (c) any order, writ, injunction or decree of any Governmental Authority entered against it or by which it or any of its property is bound.

10.2 TScan's Additional Representations and Warranties. TScan additionally represents and warrants to Novartis, as of the Effective Date, that:

10.2.1 Except for such Patents that either Party has identified to and discussed with the other Party prior to the Effective Date, there are no Patents owned by any Third Party that, to TScan's Knowledge, would be infringed by TScan's practice of the TScan Platform in performance of the Research Plan;

10.2.2 the BWH License Agreement and any In-License Agreements are in full force and effect, and TScan has no Knowledge of (a) any facts or circumstances that constitute a breach of such Agreements, or (b) any notice, correspondence or other communication from such parties indicating that TScan is in breach of or otherwise not compliant with the terms of such In-License Agreements;

10.2.3 TScan will not use any materials obtained from Brigham and Women's Hospital, Inc. in the conduct of the Collaboration in a manner that would breach the terms of the BWH License Agreement; and

10.2.4 it has not received notice of any claims, and there are no judgments or settlements against or owed by TScan or, to the Knowledge of TScan, any pending or threatened claims or litigation, in each case relating to the TScan Platform.

10.3 Disclaimer. Except as otherwise expressly set forth in this Agreement, NEITHER PARTY MAKES ANY REPRESENTATION OR EXTENDS ANY WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY THAT ANY PATENTS ARE VALID OR ENFORCEABLE, AND EXPRESSLY DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Except as otherwise expressly set forth in this Agreement, all Materials are provided "AS IS" without any other representation or warranty of any kind. Without limiting the generality of the foregoing, except as otherwise expressly set forth in this Agreement, each Party disclaims any warranties with regards to: (a) the success of any study or test commenced under this Agreement, (b) the safety or usefulness for any purpose of the technology or materials it provides or discovers under this Agreement and (c) the validity, enforceability, or non-infringement of any intellectual property rights or technology it provides or licenses to the other Party under this Agreement.

ARTICLE 11
INDEMNIFICATION

11.1 Novartis. Subject to Section 11.3 and Section 11.4, Novartis shall defend, indemnify and hold TScan, Brigham and Women's Hospital, Inc., and their respective Affiliates and its and their respective directors, officers, trustees, faculty, employees, agents, representatives, successors and assigns (the "**TScan Indemnitees**"), at Novartis' cost and expense, harmless from and against any and all Third Party claims, suits or demands ("**Third Party Claims**") arising out of or in connection with: (i) Products for an Optioned Program or otherwise in relation to Development, Commercialization or any other Exploitation of any Products for an Optioned Program, (ii) Novartis or its Affiliates' or its or their Sublicensees', distributors', subcontractors' or its or their respective directors', officers', employees' or

agents' gross negligence or willful misconduct in performing any of their obligations or exercising any of their rights under this Agreement, (iii) any violation of applicable Law in connection with the Development, Commercialization, or any other Exploitation and/or any use, handling, storage, distribution or other disposition of any Product by Novartis, its agents, subcontractors or Sublicensees, (iv) any personal bodily injury, death or property damage resulting from the Development, Commercialization, or any other Exploitation, use, handling, storage, distribution or other Exploitation of any Product by Novartis, its Affiliates, its agents, subcontractors or Sublicensees or (v) any breach by Novartis of any of its representations, or warranties under this Agreement. Notwithstanding the preceding sentence, Novartis shall have no obligation with respect to Third Party Claims to the extent they are attributable to any of the circumstances set forth in clauses (i) through (iii) of Section 11.2.

11.2 TScan. Subject to Section 11.3 and Section 11.4, TScan shall defend Novartis and its Affiliates and each of their officers, directors, shareholders, employees, successors and permitted assigns from and against all Third Party Claims arising out of (i) TScan's or its Affiliates' or its or their subcontractors' or its or their respective directors', officers', employees' or agents' gross negligence or willful misconduct in performing any of their obligations or exercising any of their rights under this Agreement, (ii) TScan's or its Affiliates' or its or their subcontractors' violation of applicable Law in connection with its performance under this Agreement, (iii) any breach by TScan of any of its representations or warranties under this Agreement, or (iv) Novartis' or its Affiliate's Exploitation of a Product infringing such Third Party's intellectual property rights but only if such infringement would not have occurred had TScan granted Novartis or its Affiliates a license under the TScan Background Platform IP used by TScan to identify the Collaboration Target to which such Product is Directed. Notwithstanding the preceding sentence, TScan shall have no obligation with respect to Third Party Claims to the extent they (a) are subject to indemnification by Novartis pursuant to Section 11.1 above, (b) are attributable to the negligence or willful misconduct of the Novartis Indemnitees, or (c) arise from Novartis' infringement of Excluded Technology.

11.3 Notice of Claim. All indemnification claims in respect of any person seeking indemnification under Section 11.1 or 11.2 (collectively, the "**Indemnitees**" and each an "**Indemnitee**") shall be made by the corresponding Party (the "**Indemnified Party**"). The Indemnified Party shall give the indemnifying Party (the "**Indemnifying Party**") prompt notice (an "**Indemnification Claim Notice**") of any Third Party Claim or the discovery of any fact upon which such Indemnified Party intends to base a request for indemnification under Section 11.1 or 11.2, but in no event shall the Indemnifying Party be have indemnification obligations that result from any delay by the Indemnified Party in providing such notice that materially prejudices the defense of such Third Party Claim. Each Indemnification Claim Notice must contain a description of the claim. Together with the Indemnification Claim Notice, the Indemnified Party shall furnish promptly to the Indemnifying Party copies of all notices and documents (including court papers) received by any Indemnitee in connection with the Third Party Claim. The Indemnifying Party shall not be obligated to indemnify the Indemnified Party to the extent any admission or statement made by the Indemnified Party materially prejudices the defense of such Third Party Claim.

11.4 Indemnification Procedure. In respect of Third Party Claims, the obligations of an Indemnifying Party under this Section 11.4 shall be governed by and contingent upon the following:

11.4.1 At its option, the Indemnifying Party may assume control of the defense of any Third Party Claim (which, for the avoidance of doubt, shall include the conduct of all dealings with such Third Party) by giving notice to the Indemnified Party within [***] days after the Indemnifying Party's receipt of an Indemnification Claim Notice. The assumption of control of the defense of a Third Party Claim by the Indemnifying Party shall not be construed as an acknowledgement that the Indemnifying Party is liable to indemnify any Indemnitee in respect of the Third Party Claim, nor shall it constitute a waiver by the Indemnifying Party of any defenses it may assert against any Indemnified Party's claim for indemnification.

11.4.2 Upon the assumption of the control of the defense of a Third Party Claim by the Indemnifying Party:

11.4.2.1 subject to the provisions of Section 11.4.3, it shall have the right to and shall assume sole control and responsibility for dealing with the Third Party and the Third Party Claim, including the right to settle the claim on any terms the Indemnifying Party chooses, but at all times in accordance with the provisions of Sections 11.4.3 and 11.4.3.1;

11.4.2.2 if it chooses, the Indemnifying Party may appoint as counsel in the defense of the Third Party Claim any law firm or counsel selected by the Indemnifying Party; and

11.4.2.3 except as expressly provided in Section 11.4.3, the Indemnifying Party shall not be liable to the Indemnified Party for any legal expenses subsequently incurred by such Indemnified Party or any Indemnitee in connection with the analysis, defense or settlement of the Third Party Claim. In the event that it is ultimately determined that the Indemnifying Party is not obligated to indemnify, defend or hold harmless an Indemnitee from and against the Third Party Claim, the Indemnified Party shall reimburse the Indemnifying Party for any and all costs and expenses (including lawyers' fees and costs of suit) in its defense of the Third Party Claim with respect to such Indemnified Party or Indemnitee.

11.4.3 Without limiting the remainder of this Section 11.4, any Indemnitee shall be entitled to participate in, but not control, the defense of a Third Party Claim and to retain counsel of its choice for such purpose, *provided* that such retention shall be at the Indemnitee's own cost and expense unless (i) the Indemnifying Party has failed to assume the defense and retain counsel in accordance with Section 11.4.1 (in which case the Indemnified Party shall control the defense), or (ii) the interests of the Indemnitee and the Indemnifying Party with respect to such Third Party Claim are sufficiently adverse to prohibit the representation by the same counsel of both Parties under any legal requirement, ethical rules or equitable principles.

11.4.3.1 With respect to any judgements or settlements relating solely to the payment of money to the Third Party to settle the Third Party Claim and that will not result in the Indemnified Party or the Indemnitee becoming subject to injunctive relief, and as to which the Indemnifying Party shall have acknowledged in writing the obligation to indemnify the Indemnitee under Section 11.4.1, the Indemnifying Party shall have authority to consent to the entry of any judgment, enter into any settlement or otherwise dispose of

such a. With respect to all other judgments or settlements or where the Indemnified Party will be subject to injunctive relief, where the Indemnifying Party has assumed the defense of a Third Party Claim in accordance with Section 11.4.1, the Indemnifying Party must not consent to the entry of any judgment or enter into any settlement, unless it obtains the prior written consent of the Indemnified Party (which consent shall not be unreasonably withheld, conditioned or delayed).

11.4.3.2 If the Indemnifying Party chooses not to take control of the defense or prosecute any Third Party Claim, the Indemnified Party shall retain control of the defense thereof, but no Indemnified Party or Indemnitee shall admit any liability with respect to, or settle, compromise or discharge, any such Third Party Claim without the prior written consent of the Indemnifying Party, which consent shall not be unreasonably withheld, conditioned or delayed. The Indemnifying Party shall not be liable for any settlement by an Indemnified Party or an Indemnitee under such a Third Party Claim that is reached without the written consent of the Indemnifying Party, which consent will not be unreasonably withheld, conditioned or delayed.

11.4.3.3 If the Indemnifying Party chooses to control the defense of any Third Party Claim, the Indemnified Party shall, and shall cause each other Indemnitee to, reasonably cooperate in the defense thereof and shall furnish such records, information and testimony, provide such witnesses and attend such conferences, discovery proceedings, hearings, trials and appeals as may be reasonably requested in connection therewith. Such cooperation shall include access during normal business hours by the Indemnifying Party to, and reasonable retention by the Indemnified Party of, records and information that are reasonably relevant to such Third Party Claim, and making the Indemnified Party, the Indemnitees and its and their employees and agents available on a mutually convenient basis to provide additional information and explanation of any records or information, to the extent the Third Party Claim is subject to indemnification hereunder.

11.5 Expenses. Except as expressly provided above, the reasonable and verifiable out-of-pocket costs and expenses, including fees and disbursements of counsel, incurred by the Indemnified Party where it participates in the defense under Sections 11.4.2.1 or 11.4.2.2 or cooperates pursuant to Section 11.4.3.3 shall be reimbursed on a quarterly basis by the Indemnifying Party, without prejudice to the Indemnifying Party's right to contest the Indemnified Party's right to indemnification and subject to refund in the event the Indemnifying Party is ultimately held not to be obligated to indemnify the Indemnified Party.

11.6 Insurance. TScan shall have and maintain, at its sole cost and expense, an adequate liability insurance policy (including product liability insurance) obtained from a reputable insurer to protect against potential liabilities and risk arising out of activities to be performed under this Agreement and any agreement related hereto and upon such terms (including coverages and deductible limits) as are customary in the pharmaceutical industry generally for the activities to be conducted by such Party under this Agreement. Novartis shall participate in a commercially reasonable program of self-insurance that is reasonably designed to address potential liabilities and risk arising out of activities to be performed such party. If a party elects to obtain insurance provided by a third party, such liability insurance shall insure against all types of liability, including personal injury, physical injury or property

damage arising out of such Party's activities hereunder. TScan will maintain such liability insurance policy for a period of three years after the end of the Collaboration Term. Novartis shall continue to participate in such self-insurance program for as long as Novartis or any of its Affiliates or Sublicensees continues to make, use or sell a Product under this Agreement. This Section 11.6 shall not create any limitation on the Parties' liability under this Agreement. Such insurance information shall be kept in confidence in the same manner as any other Confidential Information disclosed by the Parties hereunder.

11.7 Consequential Damages.

11.7.1 EXCEPT IN THE EVENT OF THE GROSS NEGLIGENCE, WILLFUL MISCONDUCT OR FRAUD OF A PARTY, IN NO EVENT SHALL EITHER PARTY OR THEIR AFFILIATES BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL, PUNITIVE, TREBLE OR CONSEQUENTIAL DAMAGES OR INDIRECT LOST PROFITS, WHETHER BASED ON CONTRACT, TORT OR ANY OTHER LEGAL THEORY; *PROVIDED, HOWEVER,* THAT THIS LIMITATION SHALL NOT LIMIT (A) EITHER PARTY'S LIABILITY FOR BREACHES OF CONFIDENTIALITY OBLIGATIONS UNDER ARTICLE 7, (B) TSCAN'S LIABILITY FOR WILLFUL BREACHES OF ITS EXCLUSIVITY OBLIGATIONS UNDER SECTION 3.1 OR EITHER PARTY'S WILLFUL BREACH OF THEIR EXCLUSIVITY OBLIGATIONS UNDER SECTION 3.5 OR (C) THE INDEMNIFICATION OBLIGATION OF EITHER PARTY IN RESPECT OF AMOUNTS ACTUALLY AWARDED AGAINST AN INDEMNIFIED PARTY AS A PART OF A THIRD PARTY CLAIM UNDER THE PROVISIONS OF THIS ARTICLE 11.

11.7.2 Nothing in this Agreement shall limit a Party's liability for death or personal injury caused by its negligence or for fraud.

ARTICLE 12
MISCELLANEOUS

12.1 Assignment. Neither Party may assign or transfer (whether by operation of applicable Law or otherwise) this Agreement or any rights or obligations hereunder without the prior written consent of the other Party, except that a Party may make such an assignment without the other Party's consent, in whole or in part, to an Affiliate or to a successor to substantially all of the business to which this Agreement relates, whether in a merger, sale of stock, sale of assets, reorganization or other transaction. Further, each Party shall have the right to cause the performance by an Affiliate of some or all of its obligations hereunder, without the prior written consent of the other Party; *provided*, *however*, such Party will be responsible and liable for any and all acts or omissions of any such Affiliate which, if such action or omission was by such Party, would constitute a breach of the terms and conditions hereof. In all cases, the assigning Party shall provide the other Party with prompt notice of any such assignment and the permitted assignee shall assume the obligations of the assigning Party hereunder in writing. No assignment of this Agreement shall act as a novation or release of either Party from responsibility for the performance of any accrued obligations.

12.2 Governing Law. This Agreement and any dispute or claim arising out of or in connection with it (whether contractual or non-contractual in nature such as claims in tort, from breach of statute or regulation or otherwise) shall be governed by and construed in accordance with the Laws of the State of New York, excluding any conflicts or choice of

Law rule or principle that might otherwise refer construction or interpretation of this Agreement to the substantive Law of another jurisdiction. Notwithstanding the foregoing, any dispute with respect to infringement, validity, or enforceability of any Patent shall be governed by and construed and enforced in accordance with the Laws of the jurisdiction in which such Patent is issued or published.

12.3 Dispute Resolution.

12.3.1 Subject to Section 9.4, any dispute or claim arising out of or in connection with this Agreement (including any question regarding the Agreement's existence, validity or termination), other than a dispute or claim that (a) may arise under Section 8.1, (b) relates to the scope, construction, validity, or enforceability of any Patent in a country, (c) otherwise requires the interpretation or application of applicable Law regarding Patents to resolve such dispute or claim or (d) for which a Party or other Person has been granted final decision-making authority hereunder, shall be referred to and finally resolved by arbitration under this Section 12.3. The place of arbitration shall be New York. The language to be used in the arbitration procedures shall be English. The arbitrator(s) shall have experience in pharmaceutical licensing disputes. The arbitration proceedings, including any outcome, shall be confidential. Nothing in this Section 12.3 will preclude either Party from seeking equitable interim or provisional relief from a court of competent jurisdiction including a temporary restraining order, preliminary injunction or other interim equitable relief, concerning a dispute either prior to or during any arbitration if necessary to protect the interests of such Party or to preserve the status quo pending the arbitration proceeding.

12.3.2 With respect to any dispute or claim that is subject to this Section 12.3, such dispute or claim shall be finally resolved by arbitration pursuant to the rules of the International Chamber of Commerce, which are deemed incorporated into this Section 12.3.2. The number of arbitrators shall be three (3), of which each Party shall appoint one (1); the arbitrators so appointed will select the third and final arbitrator. The arbitrators shall be requested to render their decision within [***] days after the arbitrators declare the hearing closed, which decision shall include a written statement describing the essential findings and conclusions on which the decision is based. The decision rendered by the arbitrators shall be final, binding and non-appealable, and judgment may be entered upon it in any court of competent jurisdiction. Each Party shall bear its own attorney's fees, costs, and disbursements arising out of the arbitration, and shall pay an equal share of the fees and costs of the arbitrators.

12.4 Force Majeure. Neither Party shall be liable to the other for any failure or delay in the fulfillment of its obligations under this Agreement (other than the payment of monies due and owing to a Party under this Agreement), when any such failure or delay is caused by epidemics and/or pandemics, fire, flood, earthquakes, explosions, sabotage, terrorism, civil commotions, riots, invasions, wars, peril of the sea or requirements of Governmental Authorities (each, a "**Force Majeure Event**"). In the event that either Party is prevented from discharging its obligations under this Agreement on account of a Force Majeure Event, the performing Party shall promptly notify the other Party, and such other Party shall use good faith efforts to discharge its obligations, even if in a partial or compromised manner.

12.5 No Debarred Personnel. Each Party agrees that it and its Affiliates and Sublicensees, as applicable, shall not use, during the Term, the services of any employee, consultant, contractor or clinical investigator that has been debarred by the FDA or any other Governmental Authority or that is the subject of debarment proceedings by the FDA or any other Governmental Authority. If a Party becomes aware that it or its Affiliates or Sublicensees, as applicable, has breached the foregoing obligation, it shall immediately (i) notify the other Party in writing and provide full details of the circumstances and extent of such breach and (ii) promptly replace the relevant employee, consultant, contractor or clinical investigator with a suitably qualified replacement that has not been debarred by the FDA or any other Governmental Authority or that is not the subject of debarment proceedings by the FDA or any other Governmental Authority.

12.6 Expenses. Except as otherwise expressly provided herein or mutually agreed, all costs and expenses incurred in connection with this Agreement and the transactions contemplated hereby shall be borne by the Party incurring such costs and expenses.

12.7 No Agency. Nothing herein contained shall be deemed to create an agency, joint venture, amalgamation, partnership or similar relationship between TScan and Novartis. Notwithstanding any of the provisions of this Agreement, neither Party shall at any time enter into, incur, or hold itself out to Third Parties as having authority to enter into or incur, on behalf of the other Party, any commitment, expense, or liability whatsoever, and all contracts, expenses and liabilities undertaken or incurred by one Party in connection with or relating to the Development, Manufacture or Commercialization of Product shall be undertaken, incurred or paid exclusively by that Party, and not as an agent or representative of the other Party.

12.8 No Third Party Beneficiaries. The warranties and agreements contained in this Agreement are for the sole benefit of the Parties, and in Novartis' case, Novartis' Affiliates, and their respective successors and permitted assigns, and they shall not be construed as conferring any rights to any other Persons other than, (a) with respect to the Parties' obligations in Sections 11.1 and 11.2, the other Persons expressly referenced as Indemnitees thereunder.

12.9 Entire Agreement; Amendment. This Agreement (including all schedules and exhibits hereto) constitutes the entire agreement between the Parties with respect to the subject matter hereof and supersedes all prior agreements or understandings, oral or written, with respect to such matters. The Parties acknowledge that this Agreement has not been entered into wholly or partly in reliance on, nor has either party been given, any warranty, statement, promise or representation by the other or on its behalf other than as expressly set out in this Agreement. This Agreement may be amended or modified only by a writing signed by both Parties.

12.10 Severability. If any provision of this Agreement is held to be illegal, invalid or unenforceable under any present or future Law and if the rights or obligations of either Party under this Agreement will not be materially and adversely affected thereby, (a) such provision shall be fully severable, (b) this Agreement shall be construed and enforced as if such illegal, invalid or unenforceable provision had never comprised a part hereof, (c) the remaining provisions of this Agreement shall remain in full force and effect and shall not be affected by the illegal, invalid or unenforceable provision or by its severance herefrom, and (d) in lieu of such illegal, invalid or unenforceable provision, there shall be added automatically as a part of this Agreement a legal, valid and enforceable provision as similar in terms to such illegal, invalid or unenforceable provision as may be possible and reasonably acceptable to the Parties. To the fullest extent permitted by applicable Law, each Party hereby waives any provision of law that would render any provision hereof illegal, invalid or unenforceable in any respect.

12.11 Extension; Waiver. At any time, either TScan or Novartis may (a) with respect to obligations owed to it or the performance of other acts for its benefit, extend the time for the performance of such obligations or such other acts to be performed hereunder by the other, (b) waive any inaccuracies in the representations and warranties of the other contained herein or in any document delivered pursuant hereto and (c) waive compliance with any of the conditions to the obligations of the other contained herein. Any agreement on the part of either Party to any such extension or waiver shall be valid only if set forth in an instrument executed by such Party. No such waiver shall be operative as a waiver of any other subsequent requirement of this Agreement. The failure of any Party to assert any of its rights under this Agreement or otherwise shall not constitute a waiver of such rights.

12.12 Notices. All communications required to be made under this Agreement shall be effective upon receipt, and shall be sent to the addresses set out below, or to such other addresses as may be designated by one Party to the other by notice pursuant hereto, by (a) internationally recognized overnight courier; (b) prepaid registered or certified US mail, return receipt requested; or (c) facsimile transmission or other electronic means of communication (including email) with confirmation by letter sent by the close of business on or before the next following Business Day at the address set forth below, or such other address as may be designated in writing hereafter, in the same manner, by such Party as follows:

If to TScan, as follows:

TScan Therapeutics, Inc.
830 Winter Street
Waltham MA 02451
Attention: Henry Rath
Attention: Chief Financial Officer

With a copy (which shall not constitute notice) to:

Gunderson Dettmer Stough Villeneuve Franklin &
Hachigian, LLP
One Marina Park Drive
Suite 900
Boston, MA 02210
Attention: Timothy H. Ehrlich
[***]

If to Novartis, as follows:

Novartis Institutes for BioMedical Research, Inc.
250 Massachusetts Avenue
Cambridge, MA 02139 USA
Attention: Global Head, NIBR BD&L

with required copies to:

Novartis Institutes for BioMedical Research, Inc.
250 Massachusetts Avenue
Cambridge, MA 02139 USA
Attention: General Counsel

12.13 HSR Act Compliance

12.13.1 HSR Filing. If Novartis notifies TScan that an HSR Filing is required to exercise an Option under this Agreement, each of TScan and Novartis shall make an HSR Filing as soon as practicable and advisable after delivery of such notice by Novartis. The Parties shall cooperate with one another to the extent necessary in the preparation of any such filings. Novartis shall be responsible for the filing fee and TScan's reasonable costs and expenses associated with any such filings.

12.13.2 HSR Clearance. In connection with obtaining HSR Clearance, TScan and Novartis shall use their respective commercially reasonable efforts to resolve as promptly as practicable any objections that may be asserted by the FTC or the Antitrust Division of the DOJ with respect to the transactions notified in the HSR Filing. The term "commercially reasonable efforts" as used in this Section 12.13.2 shall not require Novartis or TScan to (a) sell, divest (including through a license or a reversion of licensed or assigned rights), hold separate, transfer, or dispose of any portion of the assets, operations, rights, product lines, or businesses, or interests therein, of itself or any of its Affiliates (or consent to any of the foregoing actions), (b) restrain, restrict, prohibit or limit the ability of Novartis or TScan to conduct its business or own its assets (or consent to any of the foregoing actions) or (c) litigate or otherwise formally oppose any determination (whether judicial or administrative in nature) by a Governmental Authority seeking to challenge the transactions contemplated by this Agreement or impose any of the restrictions referenced in clause (a) or (b) above, *provided* that (i) Novartis shall not be required to agree to or effectuate any remedy related to any TScan assets and (ii) TScan shall not agree to or effectuate any remedy without the prior written consent of Novartis.

12.13.3 Cooperation. In connection with obtaining HSR Clearance with respect to an Option, each of TScan and Novartis shall (a) cooperate with each other in connection with any investigation or other inquiry relating to an HSR Filing; (b) keep the other Party or its counsel informed of any material communication received from or given to the FTC or DOJ relating to the HSR Filing (and provide a copy to the other Party if such material communication is in writing); and (c) permit the other Party or its counsel to review in advance, and in good faith consider the views of the other Party or its counsel concerning, any written submission or filing (and documents submitted therewith) intended to be given to the FTC or DOJ, *provided* that, after good faith consideration of any input from TScan, Novartis shall make the final determination as to the appropriate strategy relating to any filing or submission that is necessary under the HSR Act, including with respect to any filings, notifications, submissions and communications with or to the FTC or the Antitrust Division of the DOJ.

12.13.4 If HSR Clearance has not occurred within [***] days after Novartis notifies TScan pursuant to Section 12.13.1, that an HSR Filing is required to exercise an Option under this Agreement, Novartis shall withdraw its HSR Filings upon notice to TScan and the applicable Option will be deemed not to have been exercised.

12.14 Further Assurances. Each Party shall perform all further acts and things and execute and deliver such further documents as may be necessary or as the other Party may reasonably require to implement or give effect to this Agreement.

12.15 No Strict Construction. This Agreement shall be construed as if it were drafted jointly by the Parties.12.16 Headings. The headings herein are for convenience purposes only and shall not be used to interpret any of the provisions hereof.

12.17 Counterparts. This Agreement may be executed in any number of counterparts, each of which shall be deemed an original and all of which taken together shall be deemed to constitute one and the same instrument. An executed signature page of this Agreement delivered by facsimile transmission or by electronic mail in "portable document format" (".pdf") shall be as effective as an original executed signature page.

12.18 Non-Exclusive Remedies. The remedies set forth in this Agreement shall be in addition to, and shall not be to the exclusion of, any other remedies available to the Parties at Law, in equity or under this Agreement.

[*Signature page follows.*]

IN WITNESS WHEREOF this Agreement has been signed by the duly authorized representatives of the Parties as of the Effective Date.

TSCAN THERAPEUTICS, INC.

By: /s/ David P. Southwell
Name: David P. Southwell
Title: President & Chief Executive Officer

NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH, INC.

By: /s/ Scott A. Brown
Name: Scott A. Brown
Title: VP CAO

SCHEDULE 1.80

INSTITUTION LOGO

contact person at institution
position
e-mail
Tel +1xxxx

institution name
institution address

INVOICE

Date
Invoice number: xxxx
PO Number: xxxx **[to be provided by Novartis]**

Re: xxxx Agreement, dated [_____].

[for example] For research project activities in Q1 2020 as described in the sponsored research agreement signed on xxxx. Provide reasonable detail on the activities driving the cost.

Total amount Payable: USD xxxx

Payment terms: [***] days

Remit to bank wire information
Bank Name: xxxx
Account No.: xxxx
ABA#: xxxx
SWIFT code: xxxx

Instructions for e-mail submission of invoices

- The e-mail address is [***]
- Attached invoice files must contain a Novartis issued purchase order (PO) number on them and cannot be zipped. Invoices without a PO number on them or zipped attachments will not be accepted for processing.
- cc:

  [***][***] (Novartis contact in Alliance Management)

  [***] (Novartis contact in BD&L Finance)

SCHEDULE 1.117

Research Plan

TScan / Novartis Partnership Research Plan
March 2020

Outlined below is the Research Plan for Novartis and TScan's target discovery collaboration from TCR Discovery through Pre-clinical Development.

Step 1: Target ID / TCR Discovery
[***]

DATA PACKAGE Part 1
Step 2: Pre-Clinical Development
[***]

DATA PACKAGE Part 2
Step 3: TCR Validation / IND Enabling Activities
[***]

SCHEDULE 1.140

TScan Background Platform IP

[***]

CERTAIN IDENTIFIED INFORMATION HAS BEEN OMITTED FROM THIS DOCUMENT BECAUSE IT IS BOTH NOT MATERIAL AND WOULD LIKELY CAUSE COMPETITIVE HARM TO THE REGISTRANT IF PUBLICLY DISCLOSED, AND HAS BEEN MARKED WITH "[***]" TO INDICATE WHERE OMISSIONS HAVE BEEN MADE.

NON-EXCLUSIVE LICENSE AGREEMENT

THIS NON-EXCLUSIVE LICENSE AGREEMENT (this "**Agreement**") is made as of October 15, 2020 (the "**Effective Date**")

BETWEEN

PROVINCIAL HEALTH SERVICES AUTHORITY, continued under the *Societies Act* of British Columbia and having its administrative offices at 600 West 10th Avenue, Vancouver, British Columbia, Canada, V5Z 4E6 ("**PHSA**");

AND

TSCAN THERAPEUTICS, INC., a corporation incorporated under the laws of the state of [Delaware] and having its head office at 830 Winter Street, Waltham, Massachusetts, U.S.A., 02451

("**TScan**")

PHSA and TScan may be referred to individually as a "**Party**" and collectively as the "**Parties**".

WHEREAS

A. PHSA (through its division, the BC Cancer ("**BC Cancer**")) holds the rights to certain Licensed Patents (as defined herein) which is based on research undertaken by investigators at BC Cancer, the University of British Columbia ("**UBC**") and Simon Fraser University ("**SFU**").

B. PHSA is desirous of entering into this Agreement to grant a non-exclusive license to TScan to exploit the Licensed Patents for the public benefit and in a manner consistent with PHSA's status as a non-profit, tax exempt institution, and TScan is desirous of accepting such license, on the terms and conditions set out in this Agreement.

NOW THEREFORE in consideration of the promises and the performance of the covenants herein contained and other good and valuable consideration (the receipt and sufficiency of which are hereby acknowledged), the Parties agree as follows:

ARTICLE 1
DEFINITIONS

1.1 Definitions. For the purposes of this Agreement, the following terms will have the following meanings:

(a) "**Affiliate**" means, with respect to a Person, any other Person (other than an individual) that, directly or indirectly, whether as of or after the Effective Date, through one (1) or more intermediaries, controls, is controlled by or is under common control with such first Person at any time for so long as such Person controls, is controlled by or is under common control with such first Person. For purposes of this Agreement, "**control**" and, with correlative meanings, the terms "**controlled by**" and "**under common control with**" means: the possession, directly or indirectly, of the power to direct the management or policies of a business entity, whether through the ownership of voting securities, by contract relating to voting rights or corporate governance or otherwise; or the ownership, directly or indirectly, of fifty percent (50%) or more of the voting securities or other ownership interest of a business entity (or, with respect to a limited partnership or other similar entity, its general partner or controlling entity).

(b) "**Agreement Payments**" has the meaning given to it in Section 4.4(c).

(c) "**Anti-Corruption Laws**" means the federal laws of Canada and the laws of the Province of British Columbia relating to anti-bribery or anti-corruption matters, together with the *United States Foreign Corrupt Practices Act*, and any other applicable anti-bribery or anti-corruption laws.

(d) "**Applicable Laws**" means all applicable laws, rules, and regulations, including any rules, regulations, guidelines, or other requirements of Governmental Authorities, that may be in effect from time to time.

(e) "**BC Cancer**" has the meaning given to it in the recitals.

(f) "**BIA**" has the meaning given to it in Section 10.6.

(g) "**Business Day**" means any day, other than a Saturday or a Sunday, on which banking institutions are open or authorized to be open in Vancouver, Canada or Boston, Massachusetts.

(h) "**Calendar Year**" means each successive period of twelve (12) months commencing on January 1 and ending on December 31, except that the first Calendar Year of the Term will commence on the Effective Date and end on December 31 of the year in which the Effective Date occurs and the last Calendar Year of the Term will commence on January 1 of the year in which the Term ends and end on the last day of the Term.

(i) "**CCAA**" has the meaning given to it in Section 10.6.

(j) "**Claim**" means any cause of action, action, account, lien of any kind whatsoever, claim, demand, complaints, grievances, applications, suits, causes of action, lawsuits, audit, proceeding, or arbitration, including any proceeding or investigation by a Governmental Authority.

(k) "**Clinical Trials**" means human studies designed to measure the safety or efficacy of a Product, and any post-marketing approval studies.

(l) "**Confidential Information**" means any information which is confidential in nature or that is treated as being confidential by a Party or by any of its Affiliates and that is furnished or transferred by or on behalf of such a Party or any of its Affiliates (collectively, the "**Disclosing Party**") to the other Party or to any of its Affiliates (collectively, the "**Receiving Party**") pursuant to this Agreement. If such information is not furnished or transferred in writing by the Disclosing Party to the Receiving Party then, unless the Receiving Party knows or reasonably should know such information is confidential, it will not be considered Confidential Information unless reduced to writing and provided by the Disclosing Party to the Receiving Party within [***] days of the original disclosure.

(m) "**Disclosing Party**" has the meaning given to it in Section 1.1(l).

(n) "**Dispute**" means any dispute, controversy or Claim between the Parties (of any and every kind or type, whether based on contract, tort, statute, regulation or otherwise) arising out of, relating to or connected with this Agreement or the activities carried out under this Agreement, including any dispute as to the construction, validity, interpretation, enforceability or breach of this Agreement.

(o) "**Encumbrances**" means pledges, liens, charges, security interests, leases, title retention agreements, mortgages, restrictions, options or adverse Claims or encumbrances of any kind or character whatsoever. When used as a verb, "**to Encumber**" mean to grant or permit an Encumbrance.

(p) "**Force Majeure**" has the meaning given to it in Section 13.10.

(q) "**Governmental Authority**" means any court, agency, authority, department, regulatory body or other instrumentality of any government or country or of any national, federal, state, provincial, regional, county, city or other political subdivision of any such government or any supranational organization of which any such country is a member.

(r) "**Indemnitees**" has the meaning given to it in Section 9.1.

(s) "**Intellectual Property**" means all intellectual property as recognized under the Applicable Laws of Canada, the United States or other jurisdictions as applicable, including rights in and to Patents.

(t) "**Licensed Patents**" means: (a) the patents or patent applications ("**Patents**") set out in Schedule A; (b) any and all Patents claiming priority to or corresponding to any of the Patents set out in Schedule A or to which the Patents set out in Schedule A claim priority or otherwise claim the subject matter of the Patents set out in Schedule A (and their international equivalents); (c) any divisionals, continuations, continuations-in-part (to the extent claiming the subject matter of the Patents set out in Schedule A), and continued prosecution applications of the Patents described in clause (a) or (b) (and their international equivalents); (d) any Patents resulting from any of the Patents described in clause (a), (b) or (c) (and their international equivalents); and (e) any Patents resulting from reissues, reexaminations or extensions (and their international equivalents) of any Patents described in clause (a), (b), (c), or (d).

(u) "**Party Claiming Force Majeure**" has the meaning given to it in Section 13.10.

(v) "**Patent Challenge**" has the meaning given to it in Section 7.2.

(w) "**Patent Prosecution**" means activities directed to: (i) preparing, filing and prosecuting applications (of all types) for any Licensed Patents; (ii) managing any interference, opposition, re-issue, reexamination, supplemental examination, invalidation proceedings (including *inter partes* or post-grant review proceedings), revocation, nullification, or cancellation proceeding relating to the foregoing; (iii) maintaining any Licensed Patents; (iv) deciding whether to abandon, extend or maintain Licensed Patents; (v) listing in regulatory publications (as applicable); and (vi) settling any interference, opposition, reexamination, invalidation, revocation, nullification or cancellation proceeding, but excluding the defense of challenges to such Licensed Patent or Licensed Patent application as a counterclaim in an infringement proceeding with respect to the particular Licensed Patent and the prosecution of infringement proceedings with respect to a particular Licensed Patent, and any appeals therefrom.

(x) "**Person**" means any natural person, corporation, limited liability corporation, unincorporated association, partnership, joint venture or other entity.

(y) "**Public Official**" means (i) any officer, employee or representative of any regional, federal, state, provincial, county or municipal government or government department, agency or other division; (ii) any officer, employee or representative of any commercial enterprise that is owned or controlled by a government, including any state-owned or controlled veterinary, laboratory or medical facility; (iii) any officer, employee or representative of any public international organization, such as the African Union, the International Monetary Fund, the World Health Organization, the United Nations or the World Bank; and (iv) any person acting in an official capacity for any government or government entity, enterprise or organization identified above.

(z) "**Receiving Party**" has the meaning given to it in Section 1.1(l).

(aa) "**Securities Regulators**" has the meaning given to it in Section **Error! Reference source not found.**.

(bb) "**SFU**" has the meaning given to it in the recitals.

(cc) "**Sublicense Agreement**" means any agreement under which TScan, a TScan Controlled Subsidiary, or a Sublicensee grants a sublicense licenses under the Licensed Patents to a Sublicensee.

(dd) "**Sublicensee**" means any Third Party or TScan Affiliate (other than a TScan Controlled Subsidiary) who has obtained, directly or indirectly, from or through TScan, Tscan Controlled Subsidiary, or a Sublicensee a sublicense of any or all of the Licensed Patents granted under this Agreement to TScan. A Sublicensee and all of its Affiliates shall be considered a single Sublicensee for all purposes of this Agreement.

(ee) "**Sublicensee Entity"** has the meaning given in Schedule "B".

(ff) "**Taxes**" means any federal, state, local or foreign income, gross receipts, license, payroll, employment, excise, severance, stamp, occupation, premium, windfall profits, environmental, customs duties, capital stock, franchise, profits, withholding, social security, unemployment, disability, real property, personal property, sales, use, transfer, registration, value added, alternative or add-on minimum, estimated, or other tax of any kind whatsoever, including any interest, penalty, or addition thereto, whether disputed or not.

(gg) "**Term**" has the meaning given to it in Section 10.1.

(hh) "**Territory**" means worldwide.

(ii) "**Third Party**" means a Person other than PHSA or its Affiliate or TScan or a TScan Controlled Subsidiary.

(jj) "**Third Party Claim**" means a Claim brought against a Party by a Third Party.

(kk) "**Trademarks**" means trademarks, service marks, certification marks, official marks, trade names, trade dress, distinguishing guises and other distinguishing features used in association with wares or services, logos, slogans, business names, corporate names, uniform resource locators, trading styles, commercial symbols and other source and business identifiers, designs, domain names, whether registered primary domain names or secondary or other higher level domain names, and general intangibles of like nature, whether or not registered or the subject of an application for registration and whether or not registrable and all goodwill associated therewith.

(ll) "**TScan Controlled Subsidiary**" means an entity in which TScan owns 50% or more of the voting shares of such entity and has the right to elect the majority of the board of directors (or equivalent in respect of jurisdictions or entities that do not have a board of directors) of such entity.

(mm) "**TScan Technology License**" means a license of (i) material Patents other than the Licensed Patents, or (ii) material Know-How, in each case, owned or exclusively licensed by TScan and granted under the Sublicense Agreement in connection with a sublicense of any or all of the Licensed Patents in which the scope and term of the sublicense to Licensed Patents is no broader than the scope of the license or sublicense, as the case may be, granted to such other Patents or Know-How owned or exclusively licensed by TScan.

(nn) "**UBC**" has the meaning given to it in the recitals.

ARTICLE 2
LICENSES

2.1 Grant of License. Effective upon receipt by PHSA of the amounts payable pursuant to Section 4.1, PHSA hereby grants to TScan on the Effective Date a worldwide, non-exclusive, perpetual, non-transferable (except as set forth herein) license, with right to grant sublicenses through multiple tiers (but, for clarity, the Sublicense of the Licensed Patents and the TScan Technology License shall be included in the same agreement with the Sublicensee or sub-Sublicensee), under the Licensed Patents, to make, have made, use, offer for sale, import, and sell products and services and otherwise practice under the Licensed Patents in any way.

2.2 TScan Controlled Subsidiaries; Affiliates. The license granted under Section 2.1 shall extend to any TScan Controlled Subsidiary (but not to any other Affiliate of TScan that is not a TScan Controlled Subsidiary) but shall terminate on the date such entity ceases to be a TScan Controlled Subsidiary. A list of all TScan Controlled Subsidiaries as of the Effective Date is attached as Schedule C. Upon request from time-to-time from PHSA, TScan shall notify PHSA in writing of its then current TScan Controlled Subsidiaries. TScan will cause each TScan Controlled Subsidiary to comply with the terms and conditions of this Agreement applicable to it and will be fully responsible for the compliance of each TScan Controlled Subsidiary with the terms and conditions of this Agreement. TScan may grant a sublicense to an Affiliate that is not a TScan Controlled Subsidiary but, in such case, such entity shall be deemed a Sublicensee and such sublicense shall be subject to payment pursuant to Section 4.2 and the terms set out in Section 2.3.

2.3 Sublicensing to Third Parties. In addition to its rights pursuant to Section 2.2, TScan, TScan Controlled Subsidiaries, and Sublicensees may grant one or more sublicenses of the licenses granted to TScan under the Licensed Patents pursuant to Section 2.1 without the consent of PHSA but only pursuant to a TScan Technology License. TScan will pay the Sublicensing Fee (as defined in Section 4.2 and only to the extent required by Section 4.2) with respect to such sublicense irrespective of whether such sublicense is granted by TScan, a TScan Controlled Subsidiary or a Sublicensee. TScan agrees (and, with respect to Sublicensees and TScan Controlled Subsidiaries that grant sublicenses, shall cause such Persons to agree) to the following with respect to each Sublicense Agreement it enters into:

(a) will not conflict or be inconsistent in any material respect with the terms and conditions of this Agreement and such Sublicense Agreement will be in writing and will contain the terms and conditions outlined in Schedule B;

(b) TScan shall provide PHSA with the information set out in Schedule D in respect of each Sublicense Agreement and Sublicensee (whether such Sublicense Agreement is entered into by TScan, any TScan Controlled Subsidiary or Sublicensee) within [***] of the grant of any sublicense..

2.4 Sublicense Agreement. For clarity, neither TScan, any TScan Controlled Subsidiary nor any Sublicensee will grant any sublicense of the Licensed Patents without first entering into a Sublicense Agreement.

ARTICLE 3
DEVELOPMENT; COMMERCIALIZATION; REGULATORY

3.1 Development/Commercialization/Regulatory Responsibilities. As between the parties, TScan, or its Sublicensees will be fully responsible at its cost for the development and commercialization of any products or services that may be covered under the Licensed Patents in the Territory. PHSA shall not have any regulatory responsibilities in connection with such development and commercialization by TScan, its TScan Controlled Subsidiaries and Sublicensees of such products or services. TScan will, and will cause its TScan Controlled Subsidiaries, to comply with all Applicable Laws in connection with the exploitation of the Licensed Patents and the development and commercialization of any such products or services.

ARTICLE 4
FINANCIAL TERMS; PAYMENTS

4.1 Up-Front Payment. Concurrent with the execution of this Agreement, TScan will pay to PHSA a non-refundable:

(a) US $[***] as an up-front license fee; plus

(b) a one-time reimbursement of Patent and legal costs incurred to date by PHSA related to the Licensed Patents, of US $[***].

4.2 Sublicensing Fee. In addition to the amounts payable under Sections 4.1 and 4.3, TScan shall pay (or cause a Sublicensee to pay) to PHSA an up-front US$[***] sublicensing fee (the "**Sublicensing Fee**") for each Sublicense Agreement; provided, however, that where such fee was paid by TScan to PHSA in respect of a particular Sublicensee, such fee shall not be due with respect to any Sublicense Agreement between that Sublicensee and its Affiliates but, for clarity, additional Sublicensing Fees shall be payable by TScan to PHSA in respect of any sub-sublicense by such Sublicensee or its Affiliate to any other Person. For further clarity, any Sublicense Agreement that grants a sublicense under the Licensed Patents to a Third Party and its Affiliates shall be deemed one Sublicense Agreement, with no more than one (1) Sublicensing Fee payable with respect thereto (if any). The Sublicense Fees will be payable to PHSA within [***] following the execution of a Sublicense Agreement. For the purpose of calculating Sublicensing Fees owing by TScan to PHSA, each Affiliate of such Sublicensee shall be deemed to be the same Sublicensee and the grant of a sublicense in accordance with the terms of this Agreement by such Sublicensee to its Affiliate shall not require payment by TScan to PHSA of an additional Sublicensing Fee (beyond that already paid to PHSA in connection with the grant of the sublicense by TScan to the applicable Sublicensee) for so long as such entity remains an Affiliate of the original Sublicensee. If such Person is no longer an Affiliate of such Sublicensee and retains the sublicense to the Licensed Patents, then TScan shall be obligated to pay to PHSA an additional US$[***] Sublicensing Fee in respect of such sublicense to such Person as if it were a new sublicense of the Licensed Patents granted by TScan to such Person unless such Person is an Affiliate of a Person for which a Sublicensing Fee has been (or is concurrently) paid. The Sublicensing Fees will not be creditable against any other payments owing by TScan to PHSA under this Agreement and will not be refundable by PHSA if the Sublicense Agreement giving rise to such Sublicensing Fee.

4.3 Minimum Annual Fee for the First Five Years. In addition to the other amounts payable under this Agreement, TScan will pay to PHSA an annual license maintenance fee of US$[***] per year for five years (for a total of US$[***]), with the first such payment commencing on the first anniversary of the Effective Date and the subsequent payments due on each subsequent anniversary date thereafter until the fifth such payment has been made to PHSA. The amount payable under this Section 4.3 will not be creditable against any other payments owing by TScan to PHSA under this Agreement.

4.4 Payments; Reporting.

(a) Sublicensing Fee and Reporting. Concurrent with the payment of a Sublicensing Fee pursuant to Section 4.2, TScan will deliver to PHSA a report containing the information specified in Schedule D to this Agreement.

(b) Payment Currency / Exchange Rate. All payments to be made by TScan to PHSA under this Agreement will be made in United States dollars. Payments to PHSA will be made by electronic wire transfer of immediately available funds to an account of PHSA designated in writing by PHSA to TScan.

(c) Taxes. Each Party will be responsible for its own Tax liabilities arising under this Agreement, provided that PHSA will be liable for all Taxes imposed upon any payments made by TScan to PHSA under this Agreement ("**Agreement Payments**"). If Applicable Laws require the withholding of Taxes, TScan will make such withholding payments and will subtract the amount thereof from the Agreement Payments and submit to PHSA appropriate proof of payment of the withheld Taxes as well as the official receipts within a reasonable period of time. TScan will provide PHSA reasonable assistance in order to allow PHSA to obtain the benefit of any present or future treaty against double taxation or refund or reduction in Taxes which may apply to the Agreement Payments. Notwithstanding the foregoing, if as a result of a Party assigning this Agreement or changing its domicile additional Taxes become due that would not have otherwise been due hereunder with respect to Agreement Payments, such Party will be responsible for all such additional Taxes. The Parties will, where possible and, in the case of PHSA, consistent with any policies or other requirements applicable to such PHSA, endeavor to reasonably cooperate in order to mitigate adverse tax consequences to a Party that may arise as a result of this Agreement, including by completing, filing, or delivering documents to lawfully enable PHSA, and TScan, its Affiliates and Sublicensees, to mitigate withholding taxes applicable to any of them.

(d) Additional Payment Terms; Late Payment. All payments in this Article 4 are non-refundable and non-creditable and will be paid by TScan without notice or demand therefor. Late payments, unless disputed by TScan in good faith, will bear a rate of [***]% compound interest per month (equivalent to [***]% per annum), or the maximum rate permitted by law, whichever is lower on the entire outstanding balance from the due date.

4.5 Records; Audits. TScan will keep true and accurate books, records and accounts sufficient to permit PHSA to determine TScan's payment obligations under this Agreement in accordance with, and subject to, this Section 4.5. During the Term and for [***] years thereafter, at the request of PHSA, and not more than once per Calendar Year, TScan will, within [***] Business Days of a written request by PHSA, permit an independent auditor from an internationally recognized accounting firm selected by PHSA and acceptable to TScan, acting reasonably, during ordinary business hours to have access to TScan's records in order to verify the accuracy of the Sublicensing Fees

payable under this Agreement. As a condition of the foregoing, such auditor will be required to enter into with TScan a confidentiality agreement in a form mutually agreeable to PHSA and TScan, each acting reasonably, that will require such auditor to keep all information confidential except that such auditor may share with PHSA only its conclusions of such audit and such information as is reasonably required to support such conclusions. TScan will reasonably cooperate at TScan's sole cost and expense in any review or inspection conducted under this Section and make reasonably available on a timely basis the information required to conduct the review or inspection. If the review of such records reveals an underpayment by TScan, then TScan will promptly pay to PHSA the underpayment together with interest calculated in the manner provided in Section 4.4(d). The fees and expenses of such independent auditor will be borne by PHSA, provided that if such audit reveals that TScan failed to pay Sublicensing Fees owed to PHSA by more than $[***] then the reasonable fees and expenses of PHSA's auditor in performing such audit will be borne by TScan.

ARTICLE 5
OWNERSHIP OF INTELLECTUAL PROPERTY

5.1 Licensed Patents. PHSA owns all right, title and interest in and to the Licensed Patents.

5.2 TScan Improvements. TScan shall not be required to assign to PHSA any improvements (or any other intellectual property of any kind) created or developed by TScan, its Affiliates or Sublicensees.

5.3 PHSA' Retained Rights. Except for the licenses and rights under the Licensed Patents expressly set forth in this Agreement, no license, immunity, interest, or other right is or shall be deemed to be granted or otherwise conveyed under or pursuant to this Agreement by PHSA under any other patents or technology, whether directly, by implication, by reason of estoppel, or otherwise. Without limiting the generality of the foregoing, TScan acknowledges and agrees that:

(a) PHSA and and its Affiliates retain the right to use and exploit, including for both non-commercial and commercial purposes, the Licensed Patents in the Territory; and

(b) PHSA and its Affiliates may grant non-exclusive licenses to one or more Third Parties in the Territory in respect of the Licensed Patents without any obligation to, accounting to or reporting to TScan.

ARTICLE 6
CONFIDENTIALITY

6.1 Confidentiality. Except to the extent expressly authorized by this Agreement or otherwise agreed in writing by the Parties, each Receiving Party agrees that, during the Term, and for [***]Calendar Years thereafter (or, in the case of any trade secrets, for so long as they remain secret), the Receiving Party will keep confidential and will not publish or otherwise disclose and will not use for any purpose other than as expressly provided for in this Agreement any Confidential Information made available by the Disclosing Party

pursuant to this Agreement. The Receiving Party may use Confidential Information of the Disclosing Party only to the extent required to accomplish the purposes of this Agreement. The Receiving Party will use at least the same standard of care as it uses to protect proprietary or confidential information of its own to ensure that its employees, agents, consultants and other representatives do not disclose or make any unauthorized use of the Confidential Information. The Receiving Party will promptly notify the Disclosing Party upon discovery of any unauthorized use or disclosure of the Confidential Information.

6.2 Exceptions. Confidential Information will not include any information which the Receiving Party can prove by competent evidence: (a) is now, or hereafter becomes, through no act or failure to act on the part of the Receiving Party, generally known or available; (b) is known by the Receiving Party at the time of receiving such information from the Disclosing Party, as evidenced by its records; (c) is hereafter furnished to the Receiving Party by a Third Party, as a matter of right and without restriction on disclosure; or (d) is independently discovered or developed by the Receiving Party without the use of Confidential Information of the Disclosing Party.

6.3 Authorized Disclosure. The Receiving Party may disclose Confidential Information of the Disclosing Party if and to the extent such disclosure is reasonably necessary in the following instances:

(a) disclosure to Affiliates, to potential or actual licensees or sublicensees, and to employees, contractors, consultants, agents or other representatives of the Receiving Party and its Affiliates who have a need to know such information in order for the Receiving Party to exercise its rights or fulfill its obligations under this Agreement provided, in each case, that any such Affiliate, potential or actual sublicensee, or employee, contractor, consultant, agent or other representative agrees to be bound or are bound by confidentiality obligations comparable in scope to those set forth in this Article 6;

(b) disclosure to such Receiving Party’s attorneys, independent accountants or financial advisors for the sole purpose of enabling such attorneys, independent accountants or financial advisors to provide advice to the Receiving Party, on the condition that such attorneys, independent accountants and financial advisors are bound by confidentiality and non-use obligations consistent with the confidentiality provisions of this Agreement as they apply to the Receiving Party;

(c) disclosure to Third Parties in connection with due diligence or similar investigations by such Third Parties provided, in each case, that any such Third Party agrees to be bound by obligations of confidentiality and non-use at least as stringent as set out in this Article 6;

(d) as approved by the Disclosing Party in writing for disclosure or publication by each of the Parties;

(e) prosecuting or defending Claims as permitted by this Agreement; and

(f) complying with applicable court orders, Applicable Laws, rules or regulations, or the listing rules of any exchange on which the Receiving Party's securities are traded, provided that: in the event the Receiving Party is required to make a disclosure of the Confidential Information of the Disclosing Party pursuant to this Section 6.3(f), it will, except where prohibited or impracticable, give reasonable advance notice to the Disclosing Party of such disclosure so that the Disclosing Party is afforded a reasonable opportunity to oppose such requirement or otherwise seek an appropriate protective order.

6.4 Confidentiality of Terms of Agreement. The terms of this Agreement will be considered the Confidential Information of PHSA for purposes of this Article 6, provided that TScan may disclose the terms of this Agreement to Sublicensees and in connection with due diligence pursuant to a financing, acquisition or securities transaction if such recipient agrees to maintain such information confidential on terms no less stringent than those set out in this Article 6.

6.5 Additional PHSA Disclosures. Notwithstanding anything contained in this Article 6, TScan acknowledges and agrees that: (i) PHSA may to disclose to UBC and SFU, and PHSA, UBC and SFU may each disclose to the inventors of the Licensed Patents, all financial reports or payment information provided by TScan pursuant to this Agreement; and (ii) PHSA may disclose any other TScan Confidential Information received pursuant to this Agreement to UBC and SFU, provided in the case of this subsection (ii) that such recipient agrees to be bound by terms of confidentiality and restrictions on use at least as stringent as those set forth in this Article 6.

6.6 Freedom of Information Disclosures. The Parties acknowledge that PHSA, UBC and SFU may be required to disclose records relating to this Agreement pursuant to the *Freedom of Information and Protection of Privacy Act* ("**FIPPA**"). PHSA, UBC and SFU will comply with all of the provisions of FIPPA relating to disclosure of records before making any such disclosure pursuant to FIPPA, including the notice, review and appeal provisions with respect to third party requests for disclosure, but will not be liable in any way whatsoever to TScan or its employees, contractors, agents, subcontractors, representatives, Affiliates, or Sublicensees, if such records (including the information therein) are required to be so disclosed pursuant to FIPPA, provided they otherwise comply with their obligations herein. Without limiting the generality of the foregoing, PHSA will, and if they are not already bound to do so by FIPPA, will request that UBC and SFU agree to, provide TScan written notice in accordance with section 23 of FIPPA before disclosing any records relating to this Agreement pursuant to FIPPA, and will limit the disclosure to the minimum amount which PHSA, UBC or SFU, as applicable, reasonably determines after consultation with TScan is required to be disclosed under FIPPA.

6.7 Publication. Notwithstanding anything to the contrary in this Agreement, PHSA, UBC and SFU are not restricted from presenting at symposia, national or regional professional meetings or from publishing in journals or other publications accounts of their respective research relating to the Licensed Patents.

6.8 Use of Trademarks. Notwithstanding the licenses conferred under this Agreement, and except as may otherwise be agreed to by the Parties, neither Party will use the other Party's Trademarks, or the names of the other Party's employees, in any advertising or sales promotional material, without prior written permission of that other Party. Any Party granting such approval will comply with any and all restrictions on such use as a Party may provide in writing from time to time. Notwithstanding this Section 6.8, each Party may use the legal or trade name of the other Party only where necessary to reflect the factual nature of a Party's participation in, or activities under, this Agreement, and then only in a disclosure or publication as permitted by this Agreement.

6.9 Press Releases. Each Party agrees not to issue any press release or other public statement, whether oral or written, disclosing the terms or the names of the Parties of this Agreement without the prior written consent of the other Party (such consent not to be unreasonably withheld, conditioned or delayed), provided, however, that neither Party will be prevented from complying with any duty of disclosure it may have pursuant to Applicable Laws or pursuant to the rules of any recognized stock exchange or quotation system, subject to (and to the extent there is sufficient time while still being able to comply with such Applicable Laws or stock exchange or quotation system rules) that Party notifying the other Party of such duty and limiting such disclosure as reasonably requested by the other Party (and giving the other Party sufficient time to review and comment on any proposed disclosure). Notwithstanding the foregoing, disclosures of information for which consent has previously been obtained under this Section will not require advance approval but will be provided to the other Party as soon as practicable after the release or communication thereof.

6.10 Securities Exchanges. The Parties hereby acknowledge and agree that TScan may be required by Applicable Laws to submit a copy of this Agreement to a national or sub-national securities regulatory body in any jurisdiction (collectively, the "**Securities Regulators**"). If TScan is required by Applicable Laws to submit a description of the terms of this Agreement to or file a copy of this Agreement with any Securities Regulator, then it will have the right to make such disclosure or filing at the time and in the manner reasonably determined by its counsel to be required by Applicable Laws or the applicable Securities Regulators after consultation with PHSA on the proposed disclosure or filing and, to the extent not inconsistent with TScan's obligations under Applicable Laws or the rules of the applicable Securities Regulators, providing PHSA with reasonable time to comment upon and request confidential treatment for such disclosure.

6.11 If TScan seeks to make a disclosure or filing as set forth in this Section 6.10 and PHSA provides comments within the respective time periods or constraints specified herein, TScan will in good faith incorporate such comments unless it reasonably determines that it is not permitted to do so under Applicable Laws or the applicable Securities Regulators and advises PHSA of such determination and the reasons therefor.

6.12 Injunctive Relief for Breach. In the event of any breach of this Article 6 by a Party, the aggrieved Party will be entitled to seek preliminary and permanent injunctive relief, which remedy will be in addition to any other rights or remedies the aggrieved Party may be entitled under this Agreement or otherwise under Applicable Laws.

ARTICLE 7
PATENT PROSECUTION; INFRINGEMENT

7.1 Prosecution of Licensed Patents. PHSA will have the sole right to manage the Patent Prosecution of the Licensed Patents and to enforce the Licensed Patents as PHSA, in its sole discretion, determines and without the consent of or accounting to TScan, including the right to elect whether or not to continue the prosecution or maintenance of, to abandon or to enforce against Third Parties, any Licensed Patent in any country in the Territory.

7.2 Patent Challenge. If TScan, its Affiliates, or any Third Party acting under the direction of Tscan or its Affiliates:

(a) challenges the validity or of any Licensed Patent (or any claim thereof) under this Agreement by way of a declaratory judgment action or any other legal proceedings, and if such challenger withdraws the suit or it ends in a final judgment from which no appeal can be or has been taken as a matter of right that any of the claims of any Licensed Patent is valid or enforceable;

(b) initiates or participates in a re-examination, review or other proceeding at the United States Patent and Trademark Office or any foreign equivalent with respect to any Licensed Patent, and if such governmental authority issues a review decision, reexamination certificate or similar document indicating that any claim of any of the Licensed Patent is valid or institution is denied (without regard to whether any claim of any Licensed Patent is amended during re-examination or review); or

(c) otherwise disputes the validity of Licensed Patents, directly or indirectly through a representative, or any rights or interests of PHSA in, to or under any of the Licensed Patents;

and the foregoing is not a defense against a claim, action proceeding alleging infringement of the Licensed Patents by TScan, a TScan Controlled Subsidiary or any of their respective Affiliates asserted by PHSA against such Person (each of the actions referred to in (a), (b) and/or (c) above), as qualified, when initiated or filed, is a "**Patent Challenge**") then PHSA can terminate this Agreement upon [***] days notice to TScan. TScan shall give PHSA at least [***] prior written notice prior to TScan or its Affiliates or any Third Party acting under any of their direction commencing a Patent Challenge.

ARTICLE 8
REPRESENTATIONS AND WARRANTIES

8.1 Representations and Warranties of the Parties. Each of the Parties represents and warrants to the other that as of the Effective Date:

(a) it is duly organized, validly existing and in good standing under the Applicable Laws of the jurisdiction of its incorporation and has full power and authority to enter into this Agreement and to carry out the provisions hereof;

(b) the execution and delivery of this Agreement and the performance by it of the transactions contemplated hereby have been duly authorized by all necessary corporate action and do not violate: (i) such Party's charter documents, bylaws or other organizational documents; (ii) any requirement of any Applicable Laws; or (iii) any order, writ, judgment, injunction, decree, determination or award of any court or Governmental Authority presently in effect applicable to such Party;

(c) this Agreement is a legal, valid and binding obligation of such Party enforceable against it in accordance with its terms and conditions, subject to the effects of bankruptcy, insolvency or other laws of general application affecting the enforcement of creditor rights, judicial principles affecting the availability of specific performance and general principles of equity (whether enforceability is considered a proceeding at law or equity); and

(d) it has not in connection with the transactions contemplated by this Agreement: (i) taken any action in violation of any applicable Anti-Corruption Laws; (ii) corruptly offered, paid, given, promised to pay or give, or authorized the payment or gift of anything of value, directly or indirectly, to any Public Official, for the purposes of: (A) influencing any act or decision of any Public Official in his or her official capacity; (B) inducing such Public Official to do or omit to do any act in violation of his or her lawful duty; (C) securing any improper advantage; or (D) inducing such Public Official to use his or her influence with a government, governmental entity, or commercial enterprise owned or controlled by any government (including state-owned or controlled veterinary, laboratory or medical facilities) in obtaining or retaining any business whatsoever.

8.2 Limited Representation and Warranties of PHSA. PHSA represents and warrants that it has not granted exclusive rights, or assigned any rights of PHSA in, the Licensed Patents to Third Parties that would prevent PHSA from granting to TScan the non-exclusive licenses granted under the License Agreement.

8.3 Disclaimer. TScan acknowledges and agrees that, except as specifically set out in Section 8.2:

(a) the Licensed Patents and the license granted thereto under this Agreement are provided “as is”;

(b) PHSA expressly disclaims any warranty or condition that the use of the Licensed Patents does not infringe any patent, copyright, Trademark, trade secret or other rights of Third Parties;

(c) PHSA makes no representation, warranty or condition with respect to the Licensed Patents;

(d) TScan has been advised by PHSA to undertake TScan’s own due diligence regarding the Licensed Patents;

(e) PHSA disclaims all representations, warranties or conditions with regard to the Licensed Patents, including, but not limited to, all warranties or conditions, expressed or implied, of merchantability, merchantable quality, durability, and fitness for any particular purpose; and

(f) PHSA additionally disclaims all obligations and liabilities on the part of PHSA and its Affiliates, and disclaims on behalf of UBC and SFU, for damages including, but not limited to, direct, indirect, special, and consequential damages, solicitors’ and experts’ fees, and court costs (even if they have been advised of the possibility of such damages, fees or costs), arising out of or in connection with the use, research, development, or commercialization of the Licensed Patents by TScan, its Affiliates or any Sublicensees.

ARTICLE 9
INDEMNITIES; LIMITATION OF LIABILITY; INSURANCE

9.1 Indemnity. TScan hereby indemnifies, holds harmless and defends each of PHSA, UBC, SFU, their respective Affiliates and their respective Boards of Governors, officers, employees, faculty, students, invitees, and agents (the "**Indemnitees**") from and against any and all Third Party Claims arising out of the exercise by TScan of its rights under this Agreement, including without limiting the foregoing, against any damages or losses, consequential or otherwise, arising from or out of the use, research, development, or commercialization of the Licensed Patents or anything made, used, sold or otherwise disposed of under the license granted under this Agreement by TScan, its Affiliates or its Sublicensees, or their respective customers or end-users, including but not limited to any patent infringement claim. TScan acknowledges and agrees that UBC and SFU are third party beneficiaries of TScan's obligations under this Article 9, Schedule B and the other provisions of this Agreement that specifically refer to UBC or SFU.

9.2 Indemnification Procedure. TScan's obligation to indemnify the Indemnities under Seciton 9.1. is conditioned on (a) any Indemnitee seeking indemnification hereunder notifying TScan in writing reasonably promptly after receipt by it of written notice of any Third Party Claim in respect of which it intends to base a claim for indemnification hereunder, (b) TScan having the right, upon providing notice to PHSA and, where the Indemnitee is not PHSA, such other Indemnitee of its intent within [***] days after receipt of the notice from the Indemnitee of any Third Party Claim, to assume the defense and handling of such Third Party Claim, at TScan's sole expense, and (c) TScan having control over selection of counsel reasonably acceptable to the Indemnitee in connection with conducting the defense and handling of such Third Party Claim. TScan will defend or handle such defense in reasonable consultation with the Indemnitee, and will keep the Indemnitee reasonably apprised of the status of such Third Party Claim. The Indemnitee will reasonably cooperate with TScan with respect to such Third Party Claim, at the request and expense of TScan. TScan will not settle such Third Party Claim without obtaining the Indemnitee's prior written consent, which will not be unreasonably withheld, except no consent is needed in the case of a settlement that does not admit liability on the part of any Indemnitee or otherwise impose on any Indemnitee any liability or obligations, and so long as the Indemnitees are unconditionally released from all liability in such settlement. Without limiting the foregoing, each Indemnitee will be entitled to appoint separate counsel to assist such Indemnitee in the defense and handling of such Third Party Claim with its own counsel and at its own expense.

9.3 Limitation of Liability. The total, aggregate liability of PHSA, UBC, SFU and their Affiliates considered together, whether under the express or implied terms of this Agreement, in tort (including negligence) or at common law, for any loss or damage suffered by TScan, its Affiliates or its Sublicensees, whether direct, indirect, consequential, incidental or special, or any other similar damage that may arise or does arise from any breaches of this Agreement by any Indemnitees, is limited to CAD$[***] except only that PHSA's liability for a breach of PHSA's warranty in Section 8.2 (but not a breach of PHSA's warranty under Section 8.1 or otherwise under this Agreement) shall be limited to the greater of $[***] or the amount actually paid by TScan to PHSA under this Agreement in the [***] period prior to a Claim being made in writing by TScan to PHSA for breach of that warranty under Section 8.2.

9.4 Damages Exclusions. TSCAN ACKNOWLEDGES AND AGREES THAT PHSA AND THEIR AFFILIATES WILL NOT BE LIABLE FOR INDIRECT, CONSEQUENTIAL, INCIDENTAL, OR SPECIAL DAMAGES, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. PHSA ACKNOWLEDGES AND AGREES THAT TSCAN, ITS AFFILIATES AND THEIR SUBLICENSEES WILL NOT BE LIABLE FOR INDIRECT, CONSEQUENTIAL, INCIDENTAL, OR SPECIAL DAMAGES, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES; PROVIDED, HOWEVER, THAT THIS CLAUSE WILL NOT BE CONSTRUED TO LIMIT TSCAN'S INDEMNIFICATION OBLIGATIONS WITH RESPECT TO THIRD PARTY CLAIMS UNDER SECTIONS 9.1 AND 9.2.

9.5 Insurance. TScan will have and maintain such type and amounts of liability insurance covering its activities and responsibilities under this Agreement as is normal and customary in TScan's industry generally for similarly-situated entities. Upon PHSA's written request from time to time, TScan will promptly furnish to PHSA a certificate of insurance or other evidence of such insurance. Without limiting the generality of the foregoing, TScan will, at its own cost and expense, obtain and maintain in full force and effect during the Term (and, if any of the following policies of insurance are written on a claims made basis, for a period of at least three (3) years thereafter), insurance with coverage and minimum policy limits set forth as follows:

(a) Commercial General Liability Insurance (including Public Liability Insurance) with a per-occurrence limit of not less than USD$[***].

(b) Products and Completed Operations Liability Insurance with a per-occurrence limit of not less than USD$[***]; provided, however, that TScan need not obtain or maintain such insurance prior to the initiation of the first Clinical Trial of any product that is covered under a Licensed Patent.

(c) Not less than one (1) month before the start of (A) any Clinical Trials of a product referred to in (b), or (B) the first use by TScan, its Affiliates or any of its Sublicensees of the Licensed Patents in exchange for valuable consideration, TScan will give notice to PHSA of the terms and amount of the product liability, Clinical Trials public liability, and commercial general liability insurance which TScan, its Affiliates or any of its Sublicensees have placed. Without limiting the generality of the foregoing, neither TScan, its Affiliates nor any of its Sublicensees will start any Clinical Trials, or sell or offer to sell any product referred to in (b) or use the Licensed Patents in exchange for valuable consideration, unless the insurance outlined above in reasonable amounts is in effect, with a reputable and financially secure insurance carrier, and TScan has provided to PHSA an insurance certificate evidencing such insurance. The above policies of insurance described in this Section 9.5(c) will:

(i) include as additional insureds the following: PHSA, UBC, SFU, their respective Board of Governors, faculty, officers, employees, students, invitees and agent;

(ii) provide coverage regarding all activities under this Agreement;

(iii) include a waiver of subrogation against PHSA, UBC and SFU, and a severability of interest and cross-liability clauses; and

(iv) provide that the policies cannot be cancelled or materially altered except on at least [***]days' prior notice to PHSA, UBC and SFU.

ARTICLE 10
TERM; TERMINATION

10.1 Term. The term of this Agreement will continue in its entirety until the date of expiration of the last Licensed Patent in the Territory, unless earlier terminated in accordance with the terms of this Agreement (the "**Term**").

10.2 Termination for Breach.

(a) Without limiting PHSA's rights to seek damages or injunctive relief in connection with any breach by TScan of this Agreement, PHSA may terminate this Agreement on written notice to TScan in the event:

(i) PHSA is entitled to terminate this Agreement pursuant to Section 7.2;

(ii) TScan fails to pay to PHSA, individually or in the aggregate, US $[***]or more owing pursuant to this Agreement unless the payment of such amount is being disputed in good faith by TScan; or

(iii) TScan fails to comply with the material terms of this Agreement set forth in Articles 2 and 9 and, even if such failure relates to any of such Articles, for which monetary damages is not an adequate remedy;

and TScan fails to cure such failure after receiving two separate written notices from PHSA specifying such failure (with each such notice given by PHSA to TScan at least [***]days apart).

Notwithstanding the foregoing, in the case of a notice given pursuant to this Section 10.2, and TScan in good faith notifies PHSA in writing that it disputes whether such breach occurred, PHSA's right to terminate shall be first referred for resolution pursuant to Article 11 and termination will be stayed pending the final resolution of such proceedings or mutual written agreement of PHSA and TScan. If TScan fails to pay such Sublicensing Fee (plus interest calculated in accordance with Section 4.4(d) and any legal fees awarded pursuant to Article 11) or cure such breach, as applicable. within [***]days after it is finally determined pursuant to Article 11 to be owing by TScan to PHSA, then PHSA may terminate this Agreement.

(b) Except as specifically provided in Section 10.2(a), neither Party shall have the right to terminate this Agreement for breach by the other Party but the foregoing shall not relieve TScan from its obligations to terminate, or cause to be terminated, a Sublicense Agreement due to the material breach of the Sublicensee or preclude either party from seeking an interim, interlocutory or final order for injunctive relief to prevent such material breach from continuing. Further, TScan's termination of an applicable Sublicense Agreement shall be deemed to cure any breach hereof by TScan caused by a breach of a Sublicensee, and PHSA shall not be entitled to terminate this Agreement as against TScan, any TScan Controlled Subsidiary or other Sublicensee pursuant to Section 10.2 but TScan shall remain liable to indemnify PHSA in respect of such breach pursuant and subject to Section 9.1 and 9.2.

10.3 Termination by TScan. TScan may terminate this Agreement at any time upon notice to PHSA provided that no such termination under this Section 10.3 shall be effective until the later of (a) [***]months and one day after the Effective Date, and (b) TScan has made aggregate payments in the amount of $[***] to PHSA as otherwise would have been required under Section 4.1 and Section 4.3 should this Agreement not have been terminated. For clarity, following the period referred to in Section 10.3(a), TScan may accelerate such payments for the purposes of early termination pursuant to this Section 10.3.

10.4 Effect of Termination. Upon expiration or termination of this Agreement:

(a) TScan will immediately pay to PHSA all amounts owing under this Agreement and not being disputed in good faith by TScan;

(b) all licenses granted under this Agreement will immediately terminate and revert to PHSA, provided that all Sublicense Agreements entered into with any Sublicensee (other than a TScan Controlled Subsidiary or TScan Affiliate) that have not previously been terminated shall survive provided that:

(i) TScan has paid to PHSA the Sublicensing Fee in respect of such Sublicense Agreement;

(ii) the Sublicensee is solvent;

(iii) Sublicensee or its Sublicensee Affiliates are in compliance in all material respects with the Sublicense Agreement; and

(iv) such Sublicensee enters into an agreement with PHSA in substantially the same form as this Agreement to become a direct licensee of PHSA, which Agreement does not require additional payment of Sublicensee to retain its existing rights, and except that in such agreement the equivalent of Section 9.3 of this Agreement shall automatically be amended to delete the words "except only that PHSA's liability for a breach of PHSA's warranty in Section 8.2 (but not a breach of PHSA's warranty under Section 8.1 or otherwise under this Agreement) shall be limited to the greater of $[***]or the amount actually paid by TScan to PHSA under this Agreement in the [***]period prior to a Claim being made in writing by TScan to PHSA for breach of that warranty under Section 8.2" so that Section 9.3 of such replacement license agreement shall read as follows:

"9.3 Limitation of Liability. The total, aggregate liability of PHSA, UBC, SFU and their Affiliates considered together, whether under the express or implied terms of this Agreement, in tort (including negligence) or at common law, for any loss or damage suffered by TScan, its Affiliates or its Sublicensees, whether direct, indirect, consequential, incidental or special, or any other similar damage that may arise or does arise from any breaches of this Agreement by any Indemnitees, is limited to CAD$[***]."

(c) each Receiving Party will deliver to the Disclosing Party or destroy the Disclosing Party's Confidential Information except that the Receiving Party may retain (i) one (1) copy of the Disclosing Party's Confidential Information for legal archival purposes; and (ii) shadow or back-up copies which may remain within the Receiving Party's computer systems or its back-up or electronic archive systems until such time as such back-up copies are overwritten in accordance with the Receiving Party's reasonable document retention policies, and provided such back-up copies will not be accessed or used by anyone except as necessary and subject to the same terms and conditions as those contained in this Agreement. Each Receiving Party will deliver to the Disclosing Party a certificate of an officer of the Receiving Party certifying its compliance with this Section 10.4(c).

10.5 Survival. Any expiration or termination of this Agreement will not relieve either Party of any obligation or liability accrued hereunder prior to such expiration or termination. In addition, Article 46, 9, Section 10.4, Section 10.5, Section 10.6, and Articles 11 to and including 13, and any right, obligation, or required performance of the Parties which, by its express terms is intended to survive termination or expiration of this Agreement, will survive any such termination or expiration.

10.6 Rights in Bankruptcy. PHSA hereby acknowledges and agrees, on behalf of itself and its Affiliates, that TScan, as licensee of rights under this Agreement, may retain and fully exercise all its rights under any provision of Section 65.11 of the *Bankruptcy and Insolvency Act* of Canada (the "**BIA**") and Section 32 of the *Companies' Creditors Arrangement Act* of Canada (the "**CCAA**"), and that TScan will retain its rights to use the Licensed Patents under Section 65.11(7) of the BIA and Section 32(6) of the CCAA in any event. Without limiting the foregoing, TScan will have the benefit of any laws in force from time to time which provide for the protection of licensees' rights generally in the event of an insolvency of PHSA. For the purposes of ensuring that PHSA has the rights afforded to it pursuant to the rights and licenses granted by TScan to PHSA under this Agreement will apply, *mutatis mutandis*, to any proceedings, actions or motions brought in respect of TScan or its Affiliates under the CCAA, BIA or similar provisions in the bankruptcy laws of other jurisdictions.

ARTICLE 11
DISPUTE RESOLUTION/GOVERNING LAW

11.1 Dispute Resolution.

(a) The Parties agree that in the event of a Dispute between PHSA and TScan arising out of or in connection with this Agreement, or in respect of any legal relationship associated therewith or derived therefrom, the Parties will undertake good faith efforts to resolve any such Dispute, with the Dispute being referred at the request of either Party to a senior representative of each Party.

(b) If after [***] days of the Dispute first being referred to the senior representatives the Parties are unable to resolve such Dispute, either Party may refer the matter to arbitration pursuant to Section 11.2.

(c) Notwithstanding any term of this Article 11, a Party may apply to any court of competent jurisdiction for any temporary injunctive or provisional relief necessary to protect the rights or property of that Party pending final resolution of the Dispute as contemplated by this Article 11.

11.2 Arbitration. All Disputes will be referred to and finally resolved by arbitration by a single arbitrator and administered by the Judicial Arbitration and Mediation Services, Inc. ("JAMS") pursuant to its applicable Rules. The place of arbitration will be Vancouver, British Columbia, Canada. The arbitrator will have the power to award interim or permanent injunctive relief until the arbitration award is rendered or the controversy is otherwise resolved, and either Party may apply to a court of competent jurisdiction to enforce any injunctive relief granted by the arbitrator. Any final award by the arbitrator may be entered by either Party in any court having appropriate jurisdiction for a judicial recognition of the decision and applicable orders of enforcement. The existence, content, and results of an arbitration will be the Confidential Information of all Parties (i.e., each Party will be considered both the Disclosing Party and the Receiving with respect thereto), and, except to the extent necessary to confirm an award or as permitted by Article 6, neither a Party nor the arbitrator may disclose any such information without the prior written consent of all Parties. In no event will an arbitration be initiated after the date when commencement of a legal or equitable proceeding based on the dispute, controversy or claim would be barred by the applicable statute of limitations.

11.3 Governing Law; Attornment. This Agreement will be governed by the laws of the Province of British Columbia and the federal laws of Canada applicable therein. Subject to Sections 11.1 and 11.2, the Parties irrevocably submit to and accept generally and unconditionally the exclusive jurisdiction of the courts and appellate courts of British Columbia with respect to any legal action or proceeding which may be brought at any time relating in any way to this Agreement. Each of the Parties irrevocably waives any objection it may now or in the future have to the venue of any such action or proceeding, and any claim it may now or in the future have that any such action or proceeding has been brought in an inconvenient forum.

ARTICLE 12
ASSIGNMENT

12.1 OMITTED.

12.2 Assignment. TScan shall not assign or transfer any of the rights granted to it under this Agreement without the prior written consent of PHSA. For clarity, this Section 12.2 does not restrict TScan from sublicensing any of its rights under this Agreement in accordance with, and subject to the terms and conditions, set out in this Agreement. Notwithstanding the foregoing, TScan may assign or transfer all of the rights granted to it under this Agreement without PHSA's consent (a) to a TScan Controlled Subsidiary if TScan remains remain jointly and severally liable with such TScan Controlled Subsidiary for their obligations under this Agreement; or (b) in connection with the sale of all or substantially all of its stock or business/assets to which this Agreement relates to such assignee. In the event that TScan assigns this Agreement to an Affiliate that is not a TScan Controlled Subsidiary or to a Third Party that is not controlled by the same shareholders that controlled TScan prior to such assignment, such assignment will be deemed to be a Sublicense Agreement entered into by TScan to a Third Party and conditional on payment by the assignee to PHSA of the Sublicensing Fee pursuant to Section 4.2. PHSA will have the right to assign its rights, duties and obligations under this Agreement without the consent of TScan to a society which it has incorporated or which has purposes which are consistent with the objectives of PHSA or to a purchaser of all or substantially all of its business or assets related to the Licensed Patents.

In the case of any such assignment as permitted by this Section 12.2: (A) the assigning Party must provide notice of the assignment to the other Party; (B) the assignee must concurrently with the assignment agree in writing to assume all obligations and covenants of the assignor and to be bound by this Agreement and the assignee must provide an undertaking to this effect to the other Party; and (C) in the event of an assignment of this Agreement by PHSA, any such assignment will include an assignment of all of such PHSA's right, title and interest in the Licensed Patents.

No assignment will release the assigning Party from any liability and obligations in respect of the assigned rights and obligations, except as may be otherwise agreed in writing by the Parties at such time. Any attempt by any Party to assign any of the rights or obligations of this Agreement except as permitted by this Agreement is void.

ARTICLE 13
MISCELLANEOUS

13.1 Management of Conflicts of Interest.

(a) TScan acknowledges that it is aware of PHSA's, UBC's and SFU's respective policies on conflict of interest, patents and licensing, and research, and that PHSA, UBC and SFU may amend these policies or introduce new policies from time to time. TScan agrees that:

(i) the facilities and research programs of TScan will be conducted independently of all PHSA, UBC or SFU facilities, faculty, students or staff during the period of their employment with PHSA; and

(ii) no students, post-doctoral fellows or other PHSA, UBC or SFU staff will participate or be involved in TScan's research, projects or utilize TScan's facilities.

The express terms of this Agreement, including the rights and obligations of the Parties, will not be changed or altered as a result of any change in policies implemented during the Term.

13.2 BC Cancer. Each Party will be responsible for compliance with this Agreement by any of its Affiliates. BC Cancer, a part of PHSA, may carry out PHSA's obligations under this Agreement.

13.3 Waiver. The waiver by either Party of a breach or default of any provisions of this Agreement by the other Party will not be construed as a waiver of any succeeding breach of the same or any other provision, nor will any delay or omission on the part of either Party to exercise or avail itself of any right, power or privilege that it has or may have hereunder operate as a waiver of any right, power or privilege of such Party. No waiver will be effective unless it has been given in writing and signed by the Party giving such waiver. No provision of this Agreement may be amended or modified other than by a written document signed by authorized representatives of each Party.

13.4 Entire Agreement. This Agreement sets forth the entire agreement and understanding of the Parties hereto and will supersede all previous communications, representations and understandings, either oral or written, between the Parties relating to the subject matter hereof, and will not be subject to any change or modification except by the signing of a written instrument by or on behalf of both Parties. There is no representation, warranty, collateral term or condition or collateral agreement affecting this Agreement, other than as expressed in writing in this Agreement.

13.5 Notices. Any notice or other communication required or permitted to be made or given to either Party hereto pursuant to this Agreement will be sufficiently made or given on the date of receipt if sent to such Party by: (i) overnight or other courier that provides documented proof of delivery; (ii) registered mail; or (iii) scanned and converted into a portable document format file (i.e., pdf file), and sent as an attachment to an e-mail message, where, when such message is received, a read receipt e-mail is received by the sender (and such read receipt e-mail is preserved by the Party sending the notice), provided further that a copy is promptly sent by an internationally recognized overnight delivery service (receipt requested) (although the sending of the e-mail message will be when the notice is deemed to have been given), addressed to it as stated herein below, or to such other address as it will designate by notice given to the other Party.

(b) In the case of PHSA:

To Provincial Health Services Authority:

BC Cancer Research Centre
675 West 10th Avenue
Vancouver, British Columbia, Canada
V5Z1L3
Attention: Technology Development Office

(c) In the case of TScan:

TScan Therapeutics Inc.
830 Winter Street
Waltham, Massachusetts, U.S.A.
02451

Attention: Shane Maltbie, Vice President Finance
E-mail address: [***]

13.6 Severability. If any part or parts of this Agreement will be held unenforceable for any reason, the remainder of this Agreement will continue in full force and effect. If any provision of this Agreement is deemed invalid or unenforceable by any court of competent jurisdiction, and if limiting such provision would make the provision valid, then such provision will be deemed to be construed as so limited.

13.7 Export. Each Party agrees that it will not export or re-export restricted commodities or the technical data of the other Party in any form without appropriate Canadian and foreign government licenses.

13.8 Further Assurances. Each Party will execute and, if necessary, file with the appropriate governmental entities, such documents, and cooperate with the other Party to take such further action, as the other Party will reasonably request, to carry out the purposes of this Agreement.

13.9 Relationship of Parties. Nothing in this Agreement will be construed as constituting the Parties as partners, joint venturers or legal entity of any type or as creating the relationships of employer/employee, franchisor/franchisee or principal/agent between the Parties.

13.10 Force Majeure. The failure or delay of any Party to this Agreement to perform any obligation under this Agreement solely by reason of acts of God, acts of civil or military authority, civil disturbance, war, strikes or other labour disputes or disturbances, fire, transportation contingencies, shortage of facilities, fuel, energy, labour or materials, or laws, regulations, acts or orders of any Governmental Authority or official, other catastrophes, or any other circumstance beyond its reasonable control ("**Force Majeure**") will be deemed not to be a breach of this Agreement so long as the Party so prevented from complying with this Agreement has not contributed to such Force Majeure, has used reasonable efforts to avoid such Force Majeure or to ameliorate its effects, and continues to take all actions within its power to comply as fully as possible with the terms of this Agreement. In the event of any such Force Majeure, performance of the obligations will be deferred until the Force Majeure ceases. This Section will not apply to excuse a failure to make any payment when due. Regardless of any other provision of this Agreement, if one or more events of Force Majeure prevent PHSA, on the one hand, or TScan, on the other hand (in such capacity, the "**Party Claiming Force Majeure**"), from fully performing their respective obligations hereunder for more than [***]days in the aggregate, then, the Party not claiming Force Majeure will be entitled, in their sole discretion, to terminate this Agreement without penalty, by providing notice thereof to the Party Claiming Force Majeure.

13.11 Headings. The headings of the several sections are inserted for convenience of reference only and are not intended to be a part of or to affect the meaning or interpretation of this Agreement. Unless specified to the contrary, references to Articles, Sections or Schedules mean the particular Articles, Sections or Schedules to this Agreement and references to this Agreement include all Schedules hereto. In the event of any conflict between the main body of this Agreement and any Schedule hereto, the main body of this Agreement will prevail.

13.12 Interpretation. Unless the context of this Agreement otherwise requires, to the extent necessary so that each clause will be given the most reasonable interpretation, the singular number will include the plural and vice versa, the verb will be construed as agreeing with the word so substituted, and words importing the masculine gender will include the feminine and neuter genders. Unless context otherwise clearly requires, whenever used in this Agreement: (a) the words “include” or “including” will be construed as incorporating, also, “but not limited to” or “without limitation;” (b) the word “day” or “year” means a calendar day or Calendar Year unless otherwise specified; (c) the word “notice” will mean notice in writing (whether or not specifically stated) and will include notices, consents, approvals and other written communications contemplated under this Agreement; (d) the words “hereof,” “herein,” “hereby” and derivative or similar words refer to this Agreement as a whole and not merely to the particular provision in which such words appear; (e) the words “will” and “will” have interchangeable meanings for purposes of this Agreement; (f) the word “or” will have the inclusive meaning commonly associated with “and/or”; (g) provisions that require that a Party or the Parties “agree,” “consent” or “approve” or the like will require that such agreement, consent or approval be specific and in writing, whether by written agreement, letter, approved minutes or otherwise; (h) references to any specific law, rule or regulation, or article, section or other division thereof, will be deemed to include the then-current amendments thereto or any replacement law, rule or regulation thereof; and (i) neither Party or its Affiliates will be deemed to be acting “under authority of” the other Party.

13.13 Counterparts. This Agreement may be executed in several counterparts, each of which will be deemed an original, and all such counterparts together will constitute but one and the same instrument. Delivery of an executed signature page to this Agreement by any Party by electronic transmission will be as effective as delivery of an originally executed copy of this Agreement by such Party.

13.14 Enurement. Subject to the restrictions on transfer contained in this Agreement, this Agreement will enure to the benefit of and be binding on the Parties and their respective successors and assigns.

13.15 Applicable Laws. The Parties will comply fully at all time with all Applicable Laws in their performance under this Agreement of the territory in which the Parties conduct business.

13.16 No Third Party Beneficiary. Except for the Indemnitees, who will be third party beneficiaries of the of those terms expressly stated to be applicable to them in this Agreement with the right to enforce those terms against the Parties, this Agreement is not intended to and will not be construed to give any Third Party any interest or rights (including any Third Party beneficiary rights) with respect to or in connection with any agreement or provision contained herein or contemplated hereby, except as otherwise expressly provided for in this Agreement.

13.17 Expenses. Each Party will pay its own costs, charges and expenses incurred in connection with the negotiation, preparation and completion of this Agreement.

13.18 Construction. The Parties hereto acknowledge and agree that: (a) each Party and its counsel reviewed and negotiated the terms and provisions of this Agreement and have contributed to its revision; (b) the rule of construction to the effect that any ambiguities are resolved against the drafting Party will not be employed in the interpretation of this Agreement; and (c) the terms and provisions of this Agreement will be construed fairly as to all Parties hereto and not in a favor of or against any Party, regardless of which Party was generally responsible for the preparation of this Agreement.

13.19 Cumulative Remedies. No remedy referred to in this Agreement is intended to be exclusive unless explicitly stated to be so, but each will be cumulative and in addition to any other remedy referred to in this Agreement or otherwise available under law.

13.20 Compliance with Anti-Corruption Laws. Notwithstanding anything to the contrary in this Agreement, each Party agrees that:

(a) it will not, in the performance of this Agreement, perform any actions that are prohibited by Anti-Corruption Laws applicable to such Party;

(b) it will adhere to its own internal anti-corruption policies and will not, in the performance of this Agreement, directly or indirectly, make any payment, or offer or transfer anything of value, or agree or promise to make any payment or offer or transfer anything of value, to a government official or government employee, to any political party or any candidate for political office or to any other Third Party with the purpose of influencing decisions related to either Party or its business in a manner that would violate applicable Anti-Corruption Laws; and

(c) it will promptly provide notice to the other Party of any violations of Anti-Corruption Laws by such Party, its Affiliates or sublicensees, or persons employed by or subcontractors used by such Party or its Affiliates or sublicensees in the performance of this Agreement of which it becomes aware..

13.21 Anti-Bribery Commitment. Without limiting the other obligations of the Parties set forth in this Agreement, in connection with any activities of the Parties under this Agreement, the Parties confirm that they have not given, offered, promised, or authorized, and will not give, offer, promise, or authorize, any payment, benefit, or gift of money or anything else of value, directly or through a Third Party, to: (i) any Public Official; (ii) any political party, party official or candidate for public or political office; (iii) any Person while knowing or having reason to know that all or a portion of the value will be given, offered or promised, directly or indirectly, to anyone described in terms (i) or (ii) above; or (iv) any owner, director, employee, representative or agent of any actual or potential customer of the Parties, for purposes of influencing any act or decision of such individual in his official capacity, inducing such individual to do or omit to do any act in violation of the individual’s duty, inducing the individual to use the individual’s official influence with a

government to affect or influence an act or decision of the government, or to secure any improper advantage in order to assist in obtaining or retaining business. In connection with any activities or the Parties under this Agreement, the Parties will comply with all applicable anti-bribery laws of any jurisdiction, including any record keeping requirements of such laws, in the countries where such Party has their principal places of business and where it conducts any activities under this Agreement.

(Signature page follows.)

IN WITNESS WHEREOF, the Parties hereto have executed this Agreement as of the Effective Date.

PROVINCIAL HEALTH SERVICES AUTHORITY

By: _____
Name: [***]
Title: [***]Cancer

By: _____
Name: [***]
Title: [***]Office, Provincial Health Services Authority

TSCAN THERAPEUTICS INC.

By: /s/ Shane Maltbie
Name: Shane Maltbie
Title: Vice President, Finance

SCHEDULE A
LICENSED PATENTS

1. US patent No. [***]
2. US patent application No. [***]
3. Canadian patent application No. [***]
4. U.S. Provisional Patent Application No. [***]
5. PCT International Patent Application No. PCT/[***]
6. U.S. Utility Patent Application No. [***]

SCHEDULE B
MANDATORY SUBLICENSING PROVISIONS

1. The Sublicensee will acknowledge that nothing in the Sublicense Agreement grants to it any ownership in the sublicensed Licensed Patents except for the non-exclusive license to use such sublicensed Licensed Patents in accordance with the Sublicense.

2. The Sublicensee, its Sublicensee Controlled Subsidiaries and their Sublicensees shall comply with all Applicable Laws in connection with the exploitation of the Licensed Patents.

3. The Sublicensee will keep and use all of PHSA's Confidential Information in confidence and will materially conform with the obligations of confidentiality imposed upon TScan with respect to PHSA confidential information in this Agreement.

4. Except as required under Applicable Laws or the rules of any Securities Regulators, the Sublicensee will agree not to use PHSA's, UBC's or SFU's name, trade-marks, service marks, logos, insignia, seal, or designs without the prior written consent of PHSA.

5. The Sublicensee will procure and maintain insurance as provided for in this Agreement.

6. The Sublicensee will acknowledge and agree that PHSA, UBC and SFU make no representations, conditions or warranties, either express or implied, to the Sublicensee with respect to the Licensed Patents. Without limiting the generality of the foregoing, the Sublicensee will acknowledge that PHSA specifically disclaims any express or implied warranty, condition or representation:

(a) that anything made, used, sold or otherwise disposed of under the Sublicense Agreement granted to the Sublicensee correspond with a particular description, are of merchantable quality, are fit for a particular purpose or are durable for a reasonable period of time; and

(b) as to title to the Licensed Patents, or that anything made, used, sold or otherwise disposed of under the Sublicense Agreement granted to the Sublicensee will not infringe the patents, copyrights, trade-marks, industrial designs or other intellectual property rights of any third parties, including any patents, copyrights, trade-marks, industrial design or other intellectual property rights owned, in whole or in part, by PHSA, or licensed by PHSA to any third parties;

(c) that the Sublicensee has, or will have, the freedom to operate or practice the Licensed Patents.

7. The Sublicensee will acknowledge and agree that PHSA, UBC and SFU will not be liable for any loss, whether direct, consequential, incidental or special, which the Sublicensee or any other third parties suffer, arising from any defect, error or fault of the Licensed Patents or anything made, used, sold or otherwise disposed of under the Sublicense Agreement granted to the Sublicensee, or their failure to perform, even if PHSA, UBC or SFU is aware of the possibility of the defect, error, fault or failure. The Sublicensee will also acknowledge that it has been advised to undertake its own due diligence regarding the Licensed Patents, and that PHSA is under no obligation to bring, prosecute or defend actions or suits against third parties for infringement of patents, copyrights, trademarks, industrial designs or other intellectual property or contractual rights in relation to the Licensed Patents.

8. The Sublicensee will indemnify, hold harmless and defend PHSA, UBC, SFU and their respective Boards of Governors, Board of Directors, officers, employees, faculty, students, invitees and agents against any and all claims (including all associated legal fees and disbursements actually incurred) in a manner consistent with the terms of TScan's indemnification obligations under this Agreement.

9. The Sublicensee will agree to limit its claims against PHSA, UBC and SFU, whether under the express or implied terms of the Sublicense Agreement or this Agreement, in tort (including negligence) or at common law, for any loss or damage suffered by the Sublicensee, whether direct, indirect or special, or any other similar damage that may arise or does arise from any actions or inactions, defaults or breaches by PHSA, UBC or SFU or their respective Board of Governors, Board of Directors, officers, employees, faculty, students or agents, to the amount of CDN. $[***].

10. The Sublicensee will also acknowledge and agree that PHSA, UBC and SFU will not be liable for consequential or incidental damages, including any consequential or incidental damages arising from any breach or breaches of the Sublicense Agreement or this Agreement.

11. The Sublicense Agreement will include termination provisions in respect of the Sublicensee's rights in respect of the Licensed Patents or obligations to be imposed on the Sublicensee in accordance with this Agreement as apply to its obligations in respect of the TScan Technology License or other similar obligations under the Sublicense Agreement to TScan, a TScan Controlled Subsidiary or, in the case of a sub-sublicense, a Sublicensee and will include a provision providing that the Sublicense Agreement as it relates to the Licensed Patents will terminate:

(a) upon termination of this Agreement between PHSA and TScan unless the particular Sublicensee enters into a direct license agreement with PHSA on, and subject to the terms set out in, Section 10.4(b);

(b) if the Sublicensee is in material breach of its obligations under the Sublicense Agreement as it relates to the Licensed Patents or obligations required pursuant to Section 2.3 and Schedule B of this Agreement, and such breach is not cured within the cure period set out in the Sublicense Agreement;

(c) If the Sublicensee or any of its Affiliates commences a Patent Challenge (as defined in the Agreement), and does not withdraw such Patent Challenge within [***]days after PHSA's notice to Sublicensee thereof. For clarity, in the case of a Sublicensee, the references in Section 7.2 to TScan and a TScan Affiliate or TScan Controlled Subsidiary shall be deemed to be to the Sublicensee and its Affiliates.

SCHEDULE C

TSCAN CONTROLLED SUBSIDIARIES

As of the date of this Agreement, the following are TScan Controlled Subsidiaries:

TScan Securities Corporation

SCHEDULE D
REQUIRED REPORTING ON SUBLICENSE AGREEMENTS

1. Date Sublicense Agreement was entered into with the particular Sublicensee.
2. Full legal name of Sublicensee.
3. Description of other TScan Patents or Know-How included licensed concurrently to such Sublicensee sufficient for PHSA to confirm compliance with Section 2.3 and Schedule B.
4. Excerpt of the signed Sublicense Agreement sufficient to confirm the above information and compliance with Schedule B (and for greater certainty, excluding any financial terms or terms not strictly necessary to confirm the foregoing).