Company Presentation

July 2024

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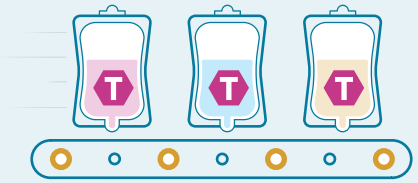
TSCAN THERAPEUTICS

TScan is a fully integrated, next-generation TCR-T cell therapy company

Proprietary discovery platform

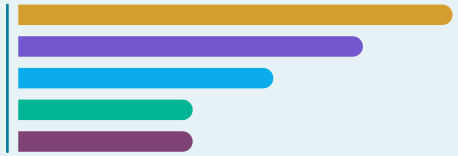
Rapid discovery of targets and TCRs

In-house GMP manufacturing



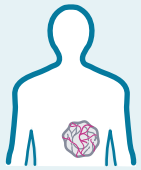
Transposon-based T cell engineering

Rapidly-growing oncology pipeline

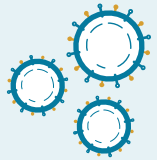


Clinical-phase programs in heme and solid tumor malignancies

Broad therapeutic potential



Oncology

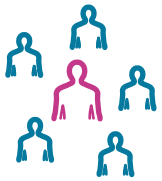


Infectious disease

Autoimmune disease

TSCAN THERAPEUTICS

TScan is building on the remarkable success of immunotherapy



Checkpoint & TIL therapy

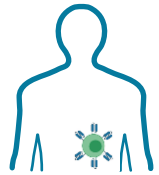
Rejuvenating and expanding a patient's existing T cells

- ✓ Proven efficacy in solid tumors
- ✓ Full range of targets seen by immune system
- ✗ Most patients lack anti-cancer T cells and do not respond
- ✗ Limited applicability to heme malignancies to date

TCR-T therapy

Engineering T cells to express natural T cell receptors

- ✓ Promising efficacy in solid tumors
- ✓ Full range of targets seen by immune system
- ✓ T cells engineered with natural anti-cancer TCRs
- ✓ Promising efficacy in heme malignancies



CAR-T therapy

Engineering T cells with a synthetic receptor

- ✗ Poor solid tumor penetration
- ✗ Limited to cell surface antigens
- ✓ T cells engineered with potent targeting receptors
- ✓ Proven efficacy in heme malignancies

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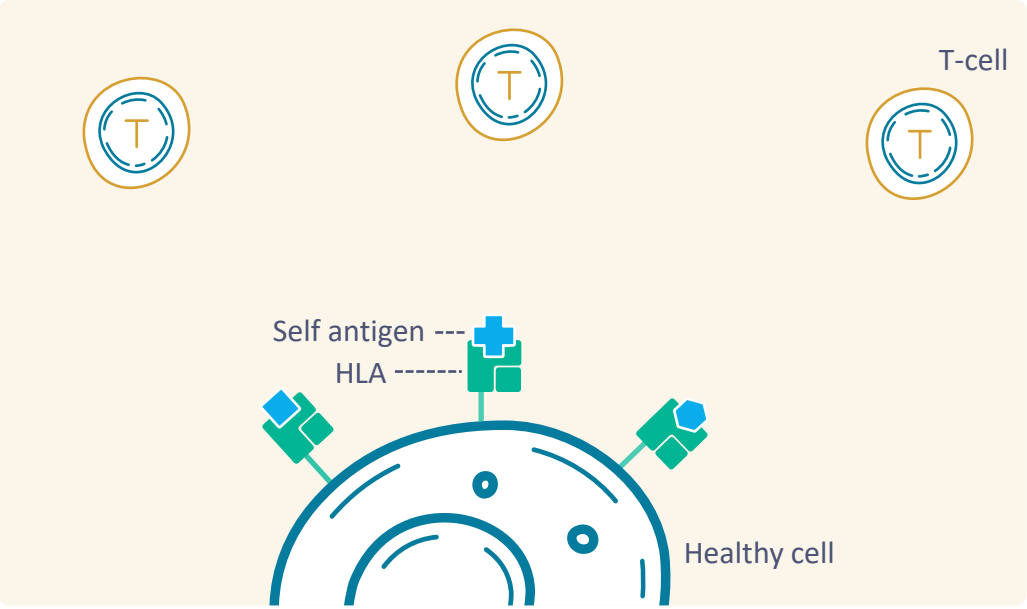
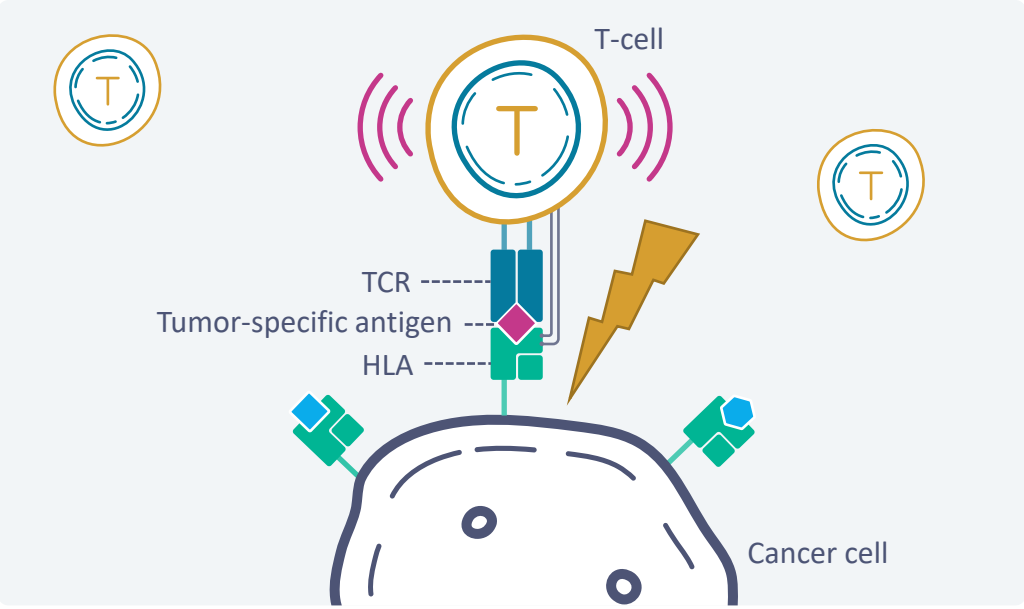
T-cells search for and kill abnormal cells

Normal cell



Healthy cells display normal self-antigens that do not activate circulating T-cells

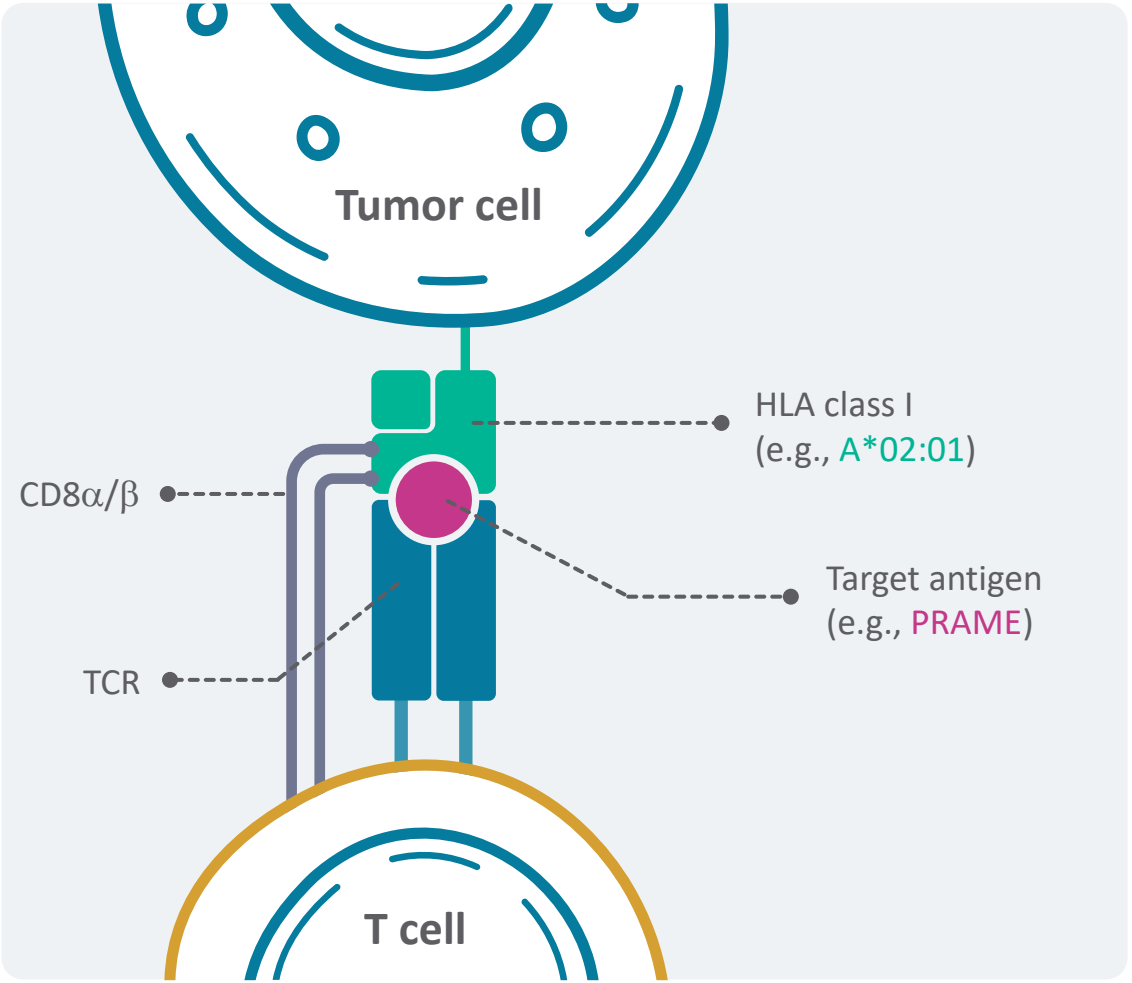
Cancer cell



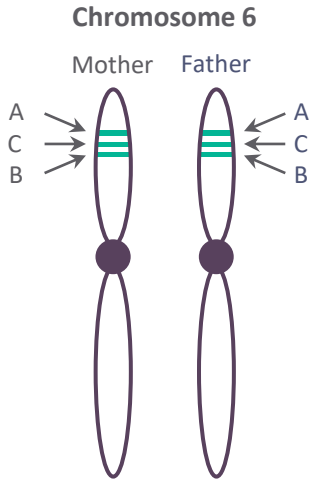
Tumor-specific antigens activate circulating T-cells to kill cancer cells

TSCAN THERAPEUTICS

TScan is targeting the most frequent human leukocyte antigens (HLAs) to address a broad patient population



Everyone has six class I HLAs



There are 100s of different HLA types

~90% of people in the U.S. are positive for at least one of the top six HLA types*

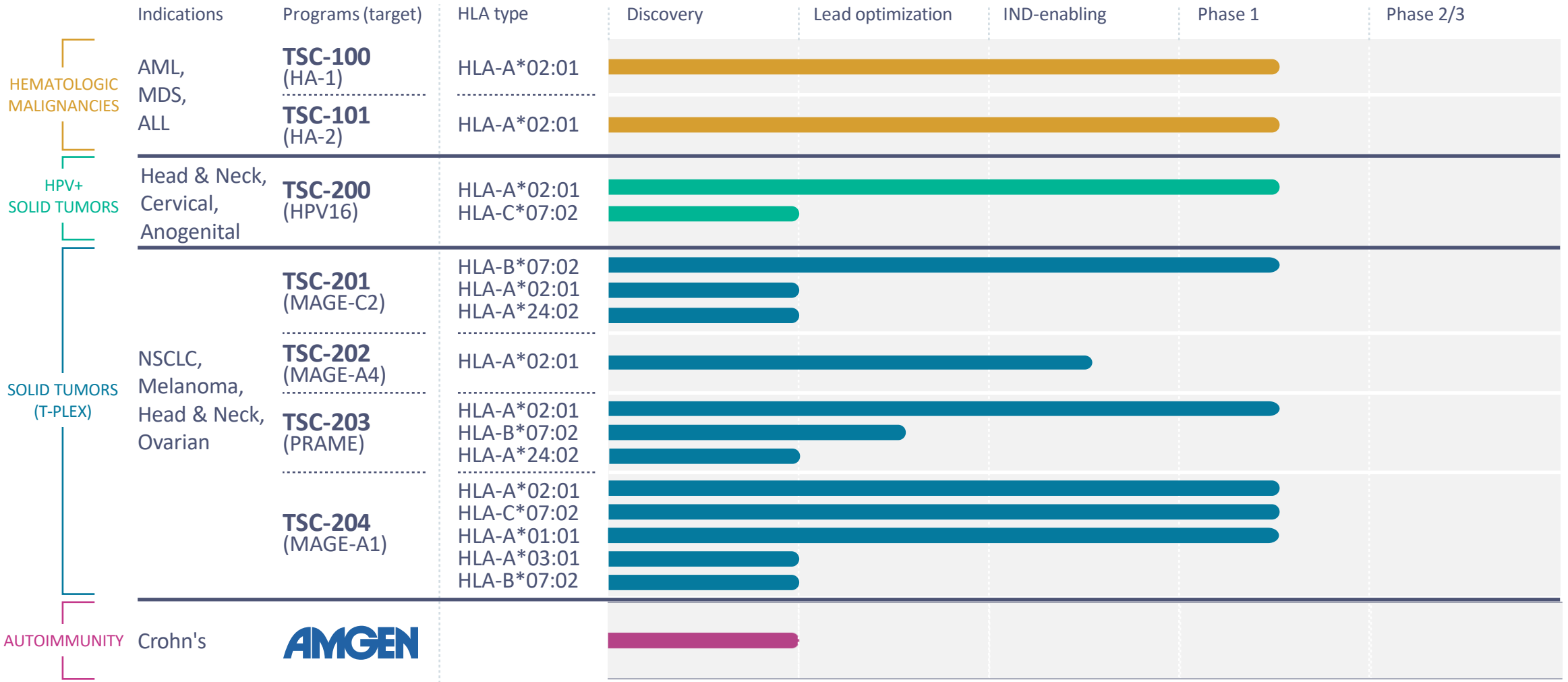
	% people positive for each HLA type		
HLA type	United States	Europe	Asia
A*02:01	42	47	19
A*01:01	24	26	14
A*03:01	22	25	7.0
B*07:02	20	21	8.1
C*07:02	24	23	24
A*24:02	17	19	37

Most TCR-T companies only target **one** HLA (A*02:01)

TScan is developing a broad pipeline targeting the top **six** HLAs

*allelefrequencies.net

Platform delivers broad proprietary pipeline



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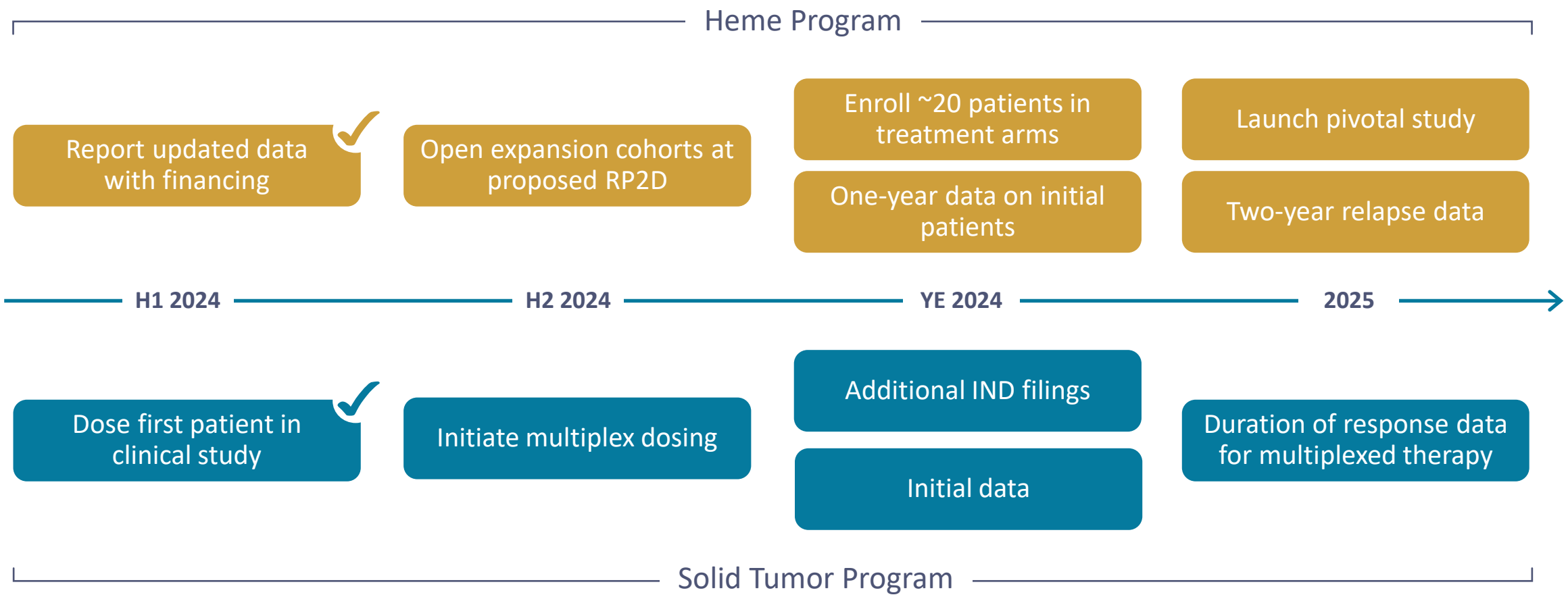
Steady value-generating data flow planned across clinical programs



TSCAN THERAPEUTICS

Heme malignancies: targeting residual disease to prevent relapse in patients undergoing allogeneic HCT

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Relapse after hematopoietic cell transplant remains an unmet need

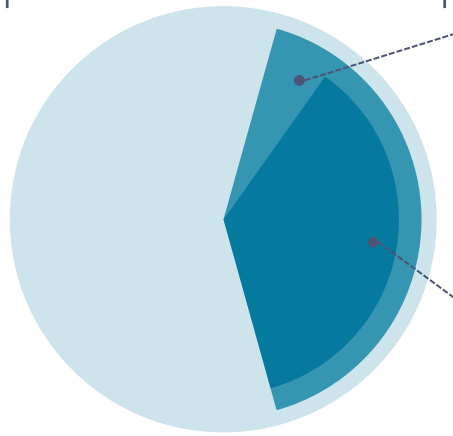
AML, MDS, some ALL is not addressed by CAR-T due to shared antigens with normal blood cells

~35,000
cases/year US

Allogeneic hematopoietic cell transplant (HCT) expected to remain standard of care

Allo-HCT creates a unique opportunity to safely target residual cancer cells while sparing normal blood cells

~7,350[1]
undergo transplant



>33% relapse within 2 years[2]
RIC range 38-44%
MAC range 26-30%

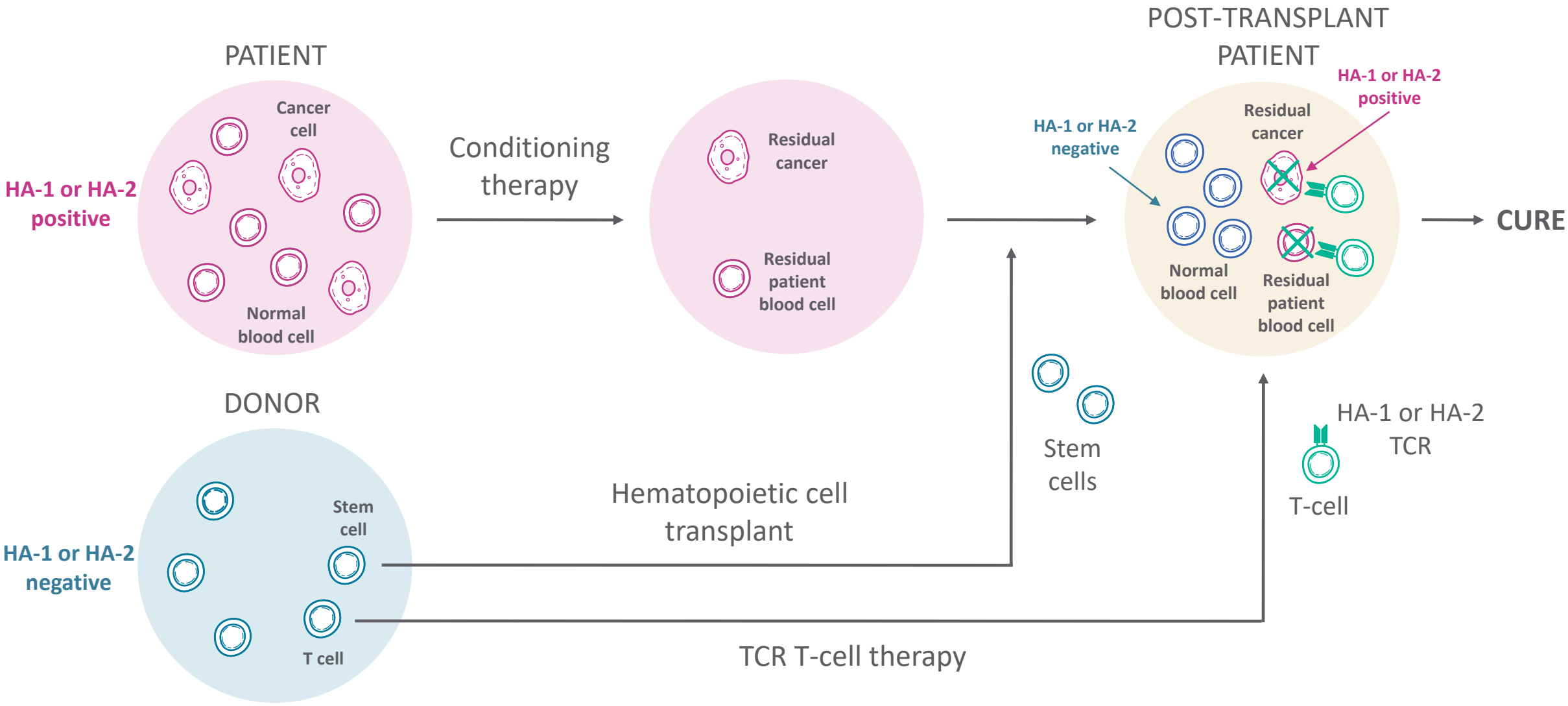
>90% mortality within 1 year[2]

Targeting antigens mismatched between patients and donors can potentially prevent relapse after allo-HCT

1. CIBMTR summary statistics 2022, allogeneic transplants for malignant diseases in 2019 before the COVID-19 pandemic
2. CIBMTR analysis of AML, ALL, MDS allogeneic transplants with myeloablative (MAC) or reduced intensity conditioning (RIC) between 2017-2019 with 2-year follow-up; MAC relapse range 26-30%, RIC relapse range 38-44%

TSCAN THERAPEUTICS

TSC-100 and TSC-101 are engineered TCR-T cells designed to eliminate residual recipient cells and prevent relapse following HCT



TSCAN THERAPEUTICS

Multi-arm Phase 1 trial for TSC-100 & TSC-101 has reached highest dose level

AML, MDS, ALL undergoing haploidentical transplant with reduced intensity conditioning

Dose Level	Day 21	Day 61
1	5×10^6/kg	
2	5×10^6/kg	5×10^6/kg
3	5×10^6/kg	2×10^7/kg

Control Arm
(HLA-A*02:01 negative)

Transplant Alone

Treatment Arms
(HLA-A*02:01 positive[1])

Transplant + TSC-100 (HA-1 positive[2])

Transplant + TSC-101 (HA-2 positive[2])

Key endpoints

- Safety: adverse event profiles, GvHD rates/ grades
- Relapse rates: 6m, 1y, 2y
- Exploratory endpoints: donor chimerism, MRD

Expected relapse rates for HCT alone	
6 months	22%
1 year	33%
2 years	42%

CIBMTR analysis of RIC-haplo transplants from 2017-2019

[1] 42% of U.S. population
[2] >99% patients are either HA-1 or HA-2 positive

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Similar baseline and demographic characteristics between arms

N,%		TSC-100	TSC-101	All TSC-10X	Control
Patients Enrolled/Dosed		4	4	8	8
Age, median (range)		66 (52-73)	56 (52-66)	59 (52-73)	69 (23-74)
Sex, male (n,%)		3 (75%)	3 (75%)	6 (75%)	5 (63%)
Underlying Disease	AML	2	1	3	5
	ALL	1 (T-ALL)	2 (B-ALL)	3	0
	MDS	1	1	2	3
Mutations^	*TP53*	0	1	1	2
	FLT3	1	0	1	1
	IDH2	1	1	2	0
	ASXL1	2	1	3	1
	Other[#]	5	4	9	15
Pre-HCT MRD		3 (75%)	2 (50%)	5 (63%)	4 (50%)

^Relevant mutations documented pre-transplant. Patients may have had more than one mutation.

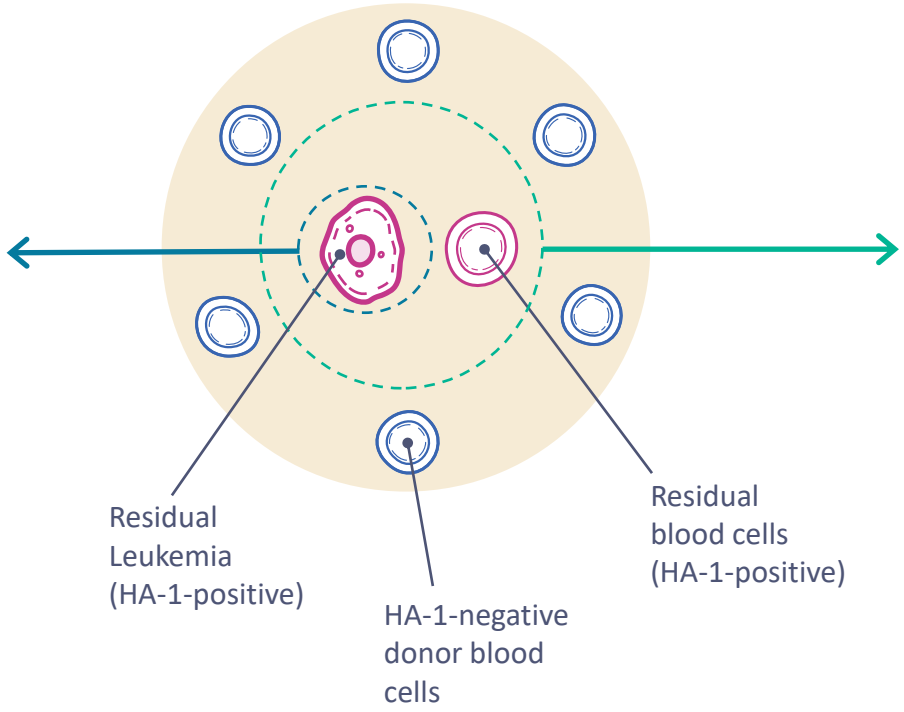
[#] *ALK, CUX1, Del5q, DNMT3A, EZH2, KRAS, Monosomy 7, NMP1, NRAS, RUNX1, SETB1, SRSF2, STAG2, TET2, Trisomy 8, WT1*

TSCAN THERAPEUTICS

As of 12 Apr 2024

Key biomarkers for residual leukemia or residual patient-derived blood cells serve as potential early surrogates of efficacy

Post-transplant Patient



Minimal Residual Disease (MRD)

MRD+: high risk of relapse
MRD-: low risk of relapse[1, 2]

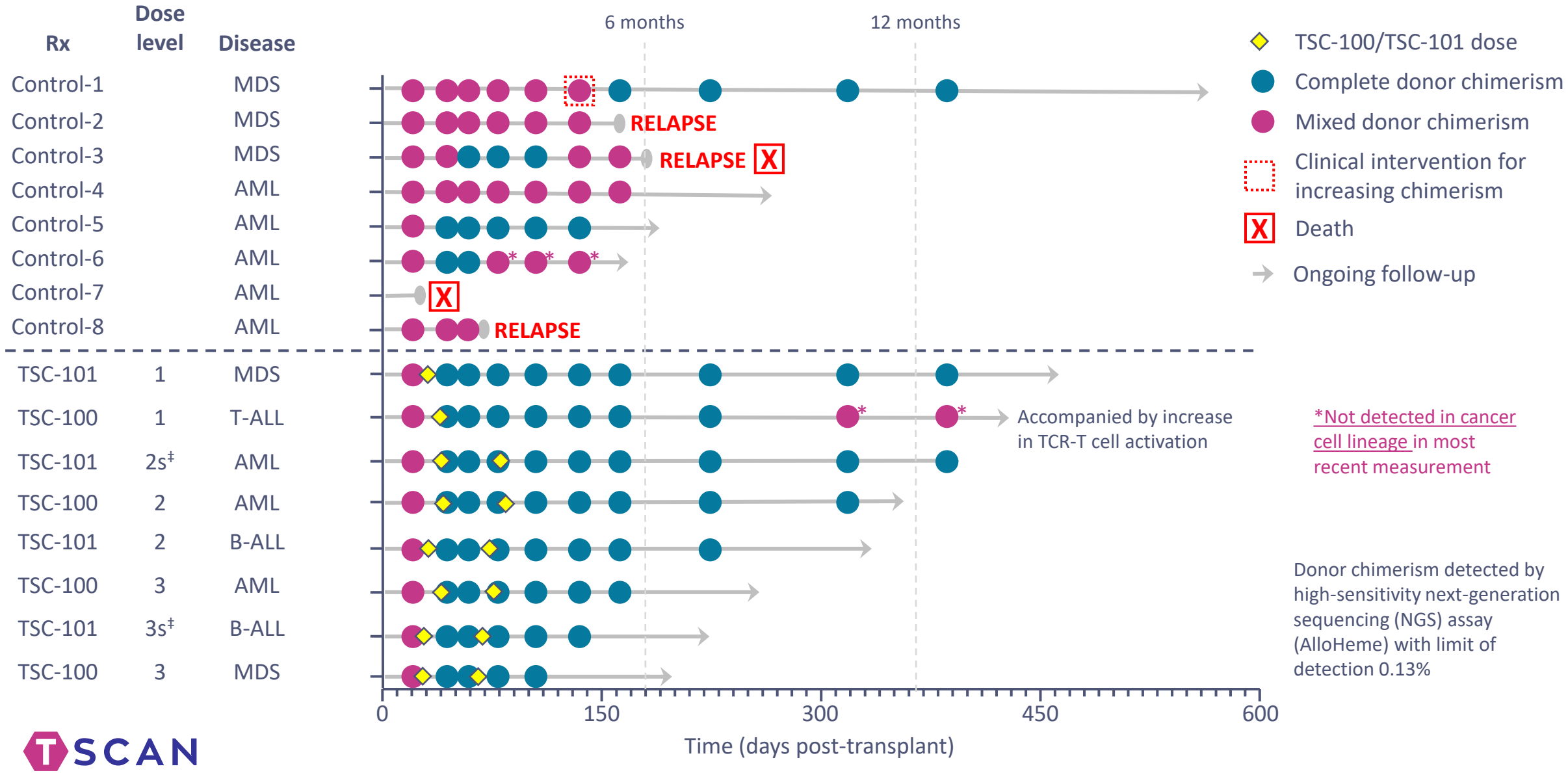
Donor Chimerism

Mixed: high risk of relapse
Complete: low risk of relapse[3]

1. Craddock, J Clin Oncol, 2021
2. Loke, ASH, 2021
3. Lindhal, Bone Marrow Transpl, 2022

TSCAN THERAPEUTICS

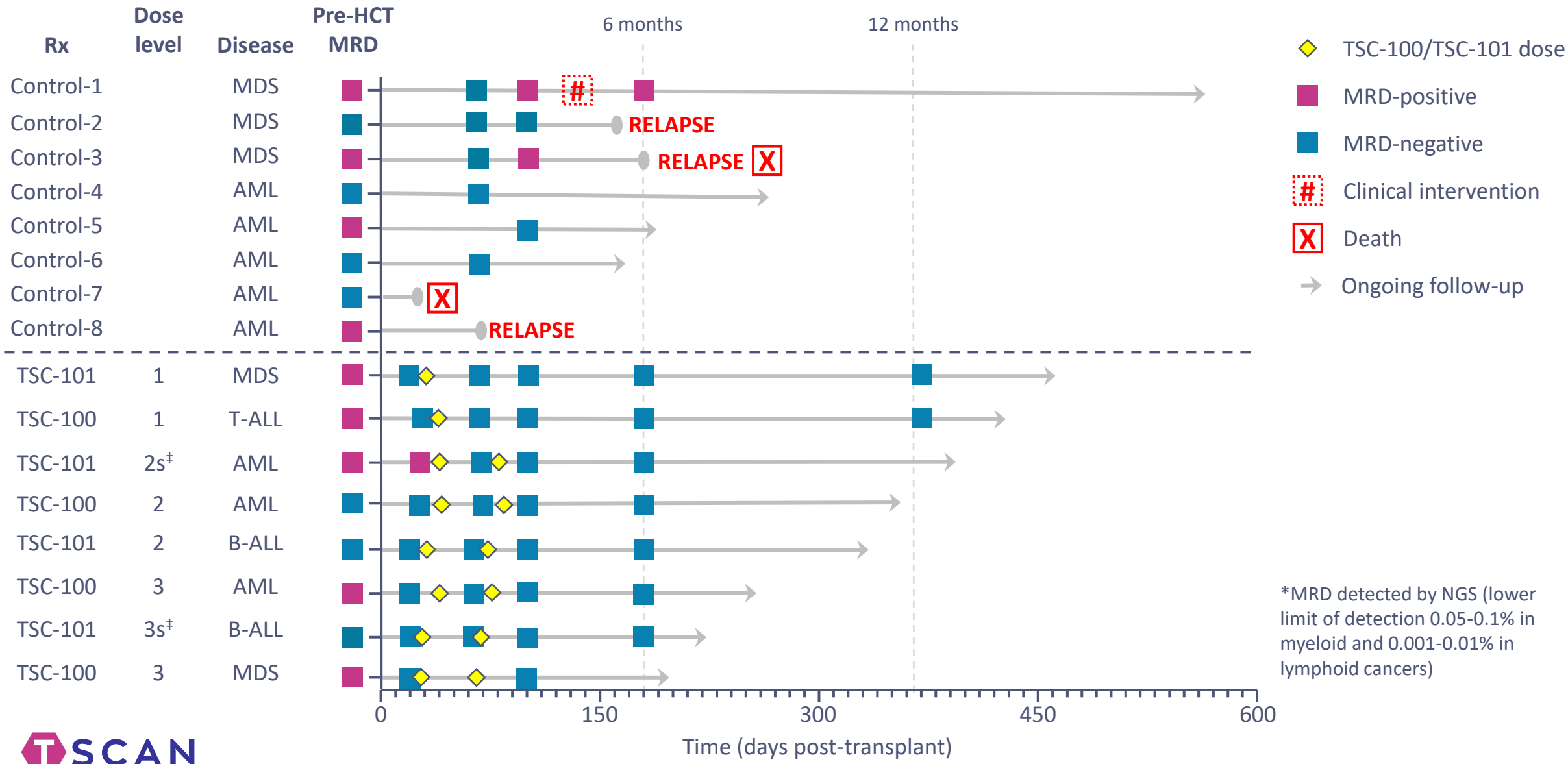
All 8 patients on the treatment arm remain relapse-free with no detectable cancer



Data cutoff May 21, 2024

‡Dose did not meet target dose criteria in supplemental cohorts

All treated patients to date achieved and maintained MRD negativity*



*MRD detected by NGS (lower limit of detection 0.05-0.1% in myeloid and 0.001-0.01% in lymphoid cancers)

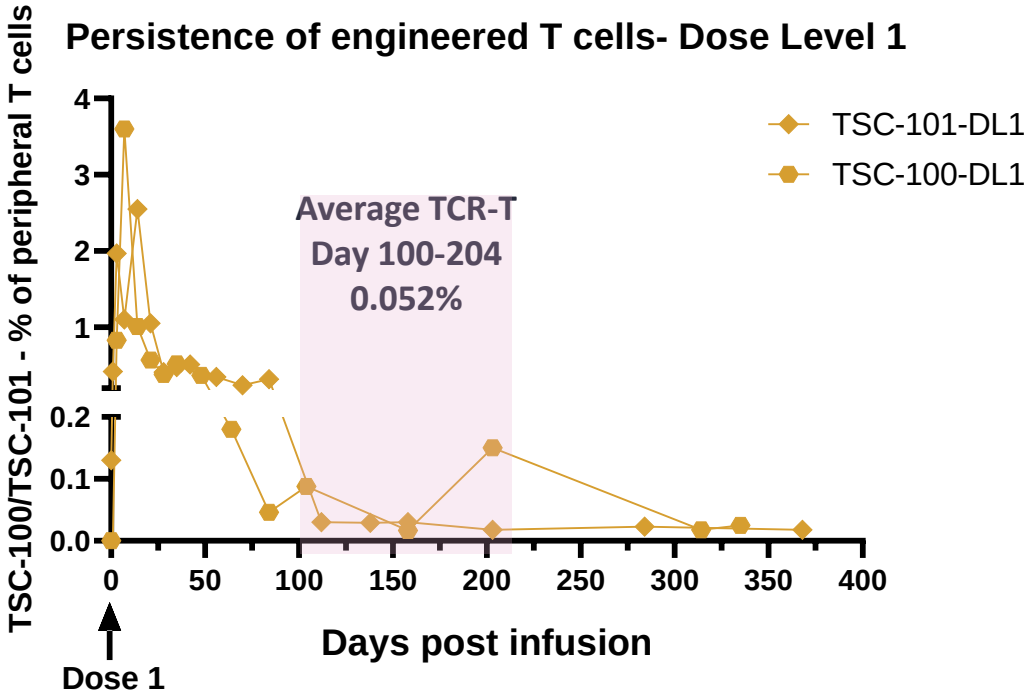
Data cutoff May 21, 2024

‡Dose did not meet target dose criteria in supplemental cohorts

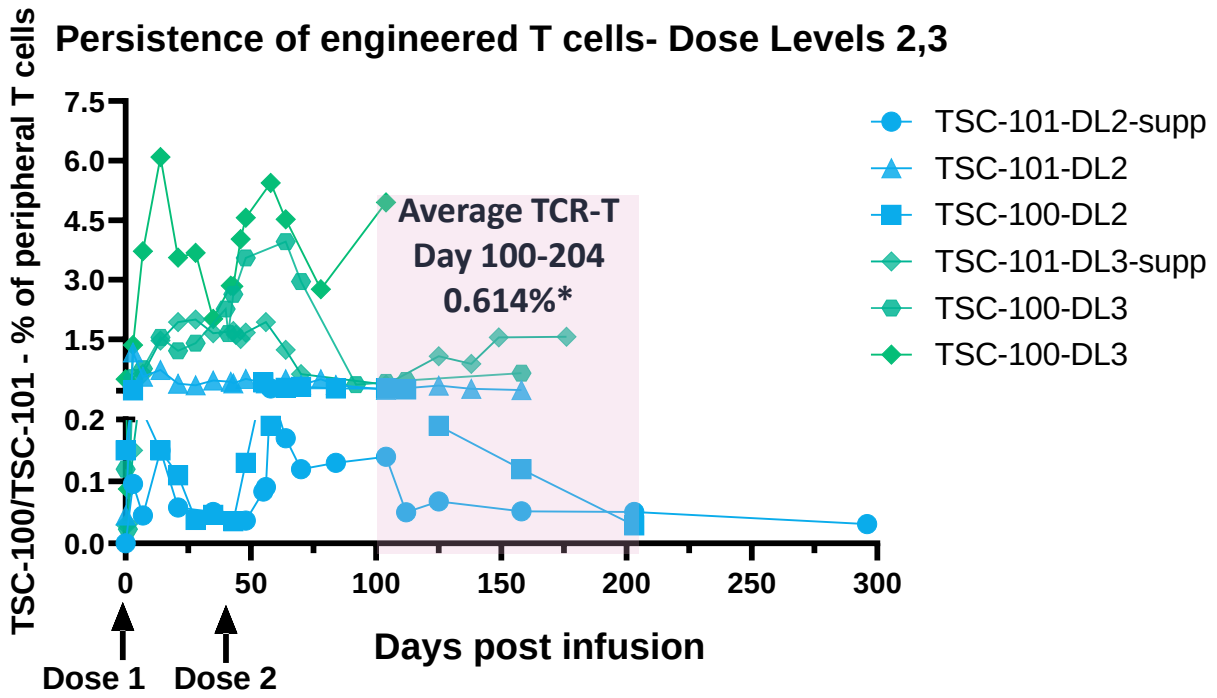
Repeat dosing resulted in increased persistence of circulating TCR-T cells

- TSC-100 and TSC-101 TCR-T cells detected in all patients at all time points to date

Single dose cohorts



Repeat dose cohorts



*Average TCR-T Day 100-204 DL3: 1.73%; DL2 and DL-supp: 0.22%

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Data cutoff April 12, 2024

Serious adverse events were similar between treatment and control arms

	Control-arm Patient	Serious Adverse Event	Highest Grade*	Post-transplant Day	TSC Relatedness
	Control 3	Cytokine release syndrome	2	+2	Not Applicable
	Control 4	Neck pain	3	+53	Not Applicable
Same patient	Control 2	Acute graft versus host disease in skin	3	+49	Not Applicable
Same patient	Control 2	Acute graft versus host disease in gastrointestinal tract	3	+53	Not Applicable
Same patient	Control 2	Pneumonia	3	+56	Not Applicable
	Control 5	RSV Pneumonia	3	+28	Not Applicable
	Control 7	Acute kidney injury, septic shock	5	+7	Not Applicable

*Grading by CTCAE v5.0 or MAGIC consortium grading for GvHD

See next slide for treatment-arm patients

Data cutoff April 12, 2024

Serious adverse events were similar between treatment and control arms

	Treatment-arm Patient	Serious Adverse Event	Highest Grade*	Post-transplant Day	TSC Relatedness
	TSC-100-DL3	Sepsis, respiratory failure	4	+9	Not applicable (pre-TSC)
	TSC-100-DL2	Pyrexia	1	+136	Not related
	TSC-100-DL3	Pericardial effusion#	4	+77	Not related
Same patient	TSC-101-DL1	Acute graft versus host disease in gastrointestinal tract#, acute kidney injury	3	+49	Possibly related
Same patient	TSC-101-DL1	Adenovirus viremia, Pneumonia, Clostridium difficile infection	2	+71	Not Related
Same patient	TSC-101-DL1	Pyrexia	1	+148	Not Related
Same patient	TSC-101-DL1	Interstitial pneumonitis	2	+182	Not Related
Same patient	TSC-101-DL1	Pneumonia	3	+368	Not Related
Same patient	TSC-101-DL1	Pneumonia, pleural effusion	3	+400	Not Related
Same patient	TSC-101-sDL2	HHV-6 reactivation	1	+21	Not applicable (pre-TSC)
Same patient	TSC-101-sDL2	Influenza viremia, pneumonia, pleural effusion	3	+252	Not Related
Same patient	TSC-101-sDL2	Urinary tract infection	2	+295	Not Related
	TSC-101-sDL3	COVID-19, catheter infection	3	+95	Not Related
	Donor	Acute pulmonary embolism	3	N/A	Not applicable

*Grading by CTCAE v5.0 or MAGIC consortium grading for GvHD
Research testing by flow cytometry or immunohistochemistry for TSC-100/101 markers did not find evidence of involvement

See previous slide for control-arm patients

Data cutoff April 12, 2024

Adverse events of special interest similar between treatment and control arms

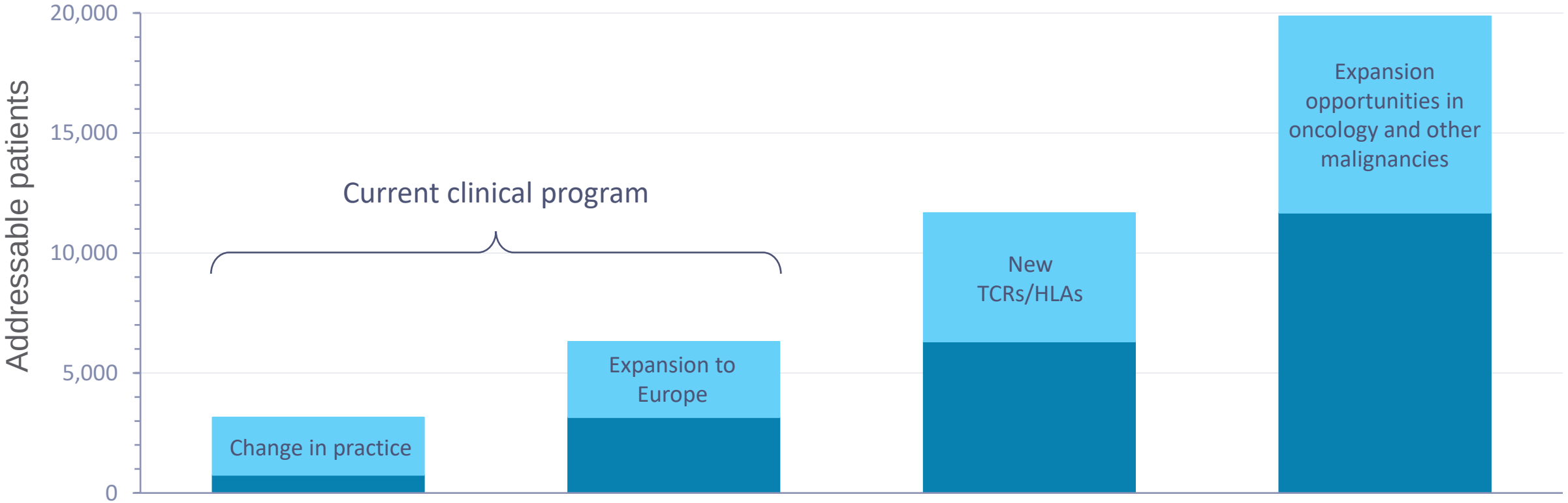
All cytokine release syndrome (CRS) events occurred before TSC-100/ TSC-101 treatment

Arm-Dose Level	Grade*	Adverse Event	HCT Day of Onset	Duration	TSC relatedness
TSC-100-DL2	Grade 1	CRS	+3	2 days	Not applicable (pre-TSC)
TSC-100-DL3	Grade 1	CRS	+3	3 days	Not applicable (pre-TSC)
TSC-101- DL2supp	Grade 2	CRS	+1	3 days	Not applicable (pre-TSC)
TSC-101-DL2	Grade 1	CRS	+1	5 days	Not applicable (pre-TSC)
TSC-101-sDL3	Grade 1	CRS	+1	3 days	Not applicable (pre-TSC)
Control 1	Grade 1	CRS	+2	3 days	Not applicable
Control 2	Grade 1	CRS	+3	2 days	Not applicable
Control 3	Grade 2	CRS	+2	2 days	Not applicable
Control 6	Grade 1	CRS	+1	3 days	Not applicable
TSC-100-DL1	Grade 1	Skin GvHD	+48	8 days	Possibly related
TSC-101-DL1	Grade 3	GI GvHD	+49	8 days	Possibly related
TSC-101-DL2supp	Grade 1	Skin GvHD	+43	3 days	Possibly related
TSC-101-DL2	Grade 1	Skin GvHD	+127	7 days	Possibly related
Control 2	Grade 3	GI GvHD	+53	18 days	Not applicable
Control 2	Grade 3	Skin GvHD	+49	12 days	Not applicable
Control 1	Grade 1	Skin GvHD	+180	Pending	Not applicable
Control 3	Grade 1	Skin GvHD	+131	>50 days (off study)	Not applicable

*MAGIC consortium grading for graft-versus host disease (GvHD); ASTCT grading for cytokine release syndrome (CRS)

Data cutoff April 12, 2024

Current program addresses sizable patient population, with several global and lifecycle management opportunities



- Increased adoption of haploidentical donors
- Increased use of more tolerable conditioning

- Increased eligibility of AML, MDS, ALL patients

- Enable transplant for relapsed, refractory heme malignancies
- Use as a conditioning regimen pre-transplant

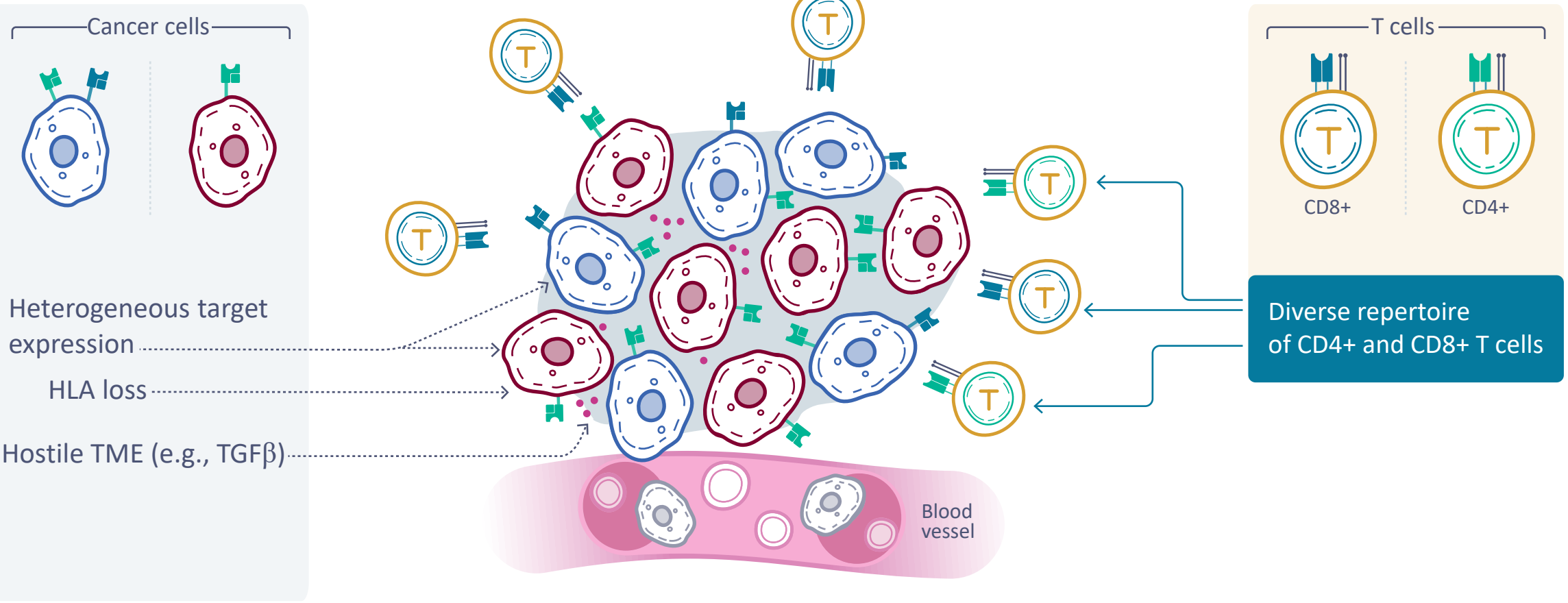
Source: SEER, CIBMTR, ClearView analysis

Solid Tumors:
Developing multiplex TCR-T to overcome tumor heterogeneity

TSCAN THERAPEUTICS

TScan is learning from nature to understand, exploit, and enhance how T cells recognize and fight cancer

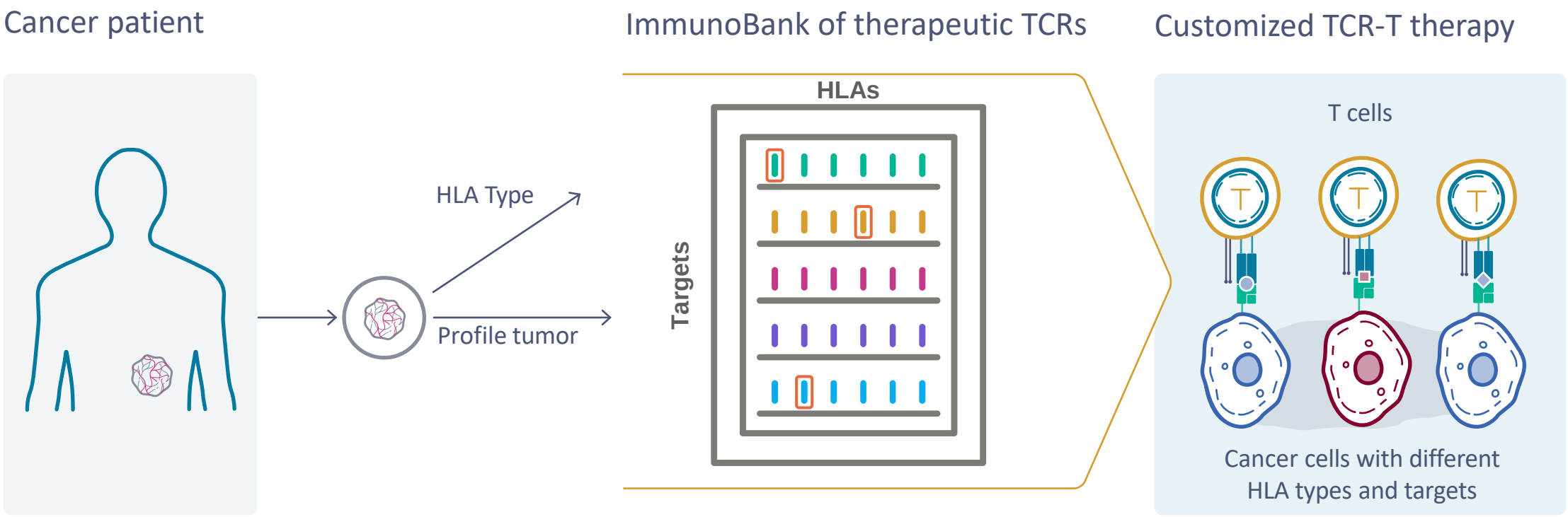
The challenge:



Nature's solution:

TME: tumor microenvironment

TScan is building an ImmunoBank of TCRs to enable enhanced, multiplexed TCR-T cell therapy



- Determine target and HLA expression in patient tumor
- Manufacture and administer customized, multiplexed TCR-T therapy

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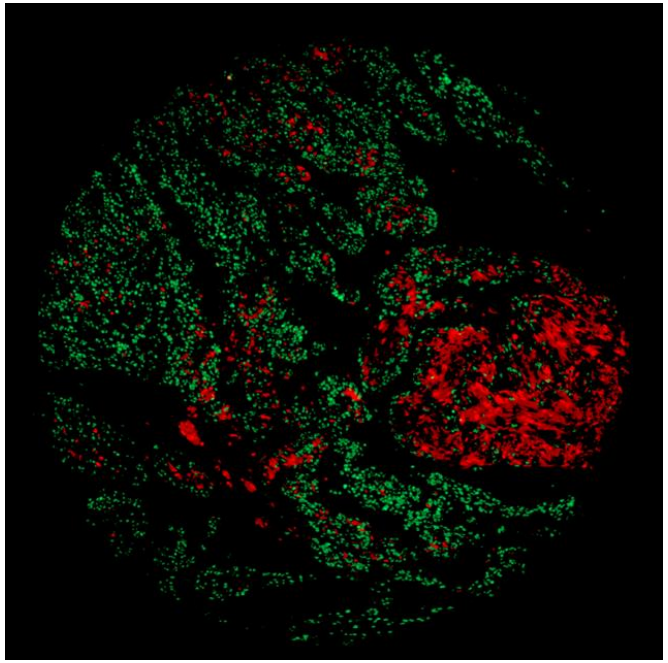
Target heterogeneity in solid tumors limits the efficacy of singleplex therapies

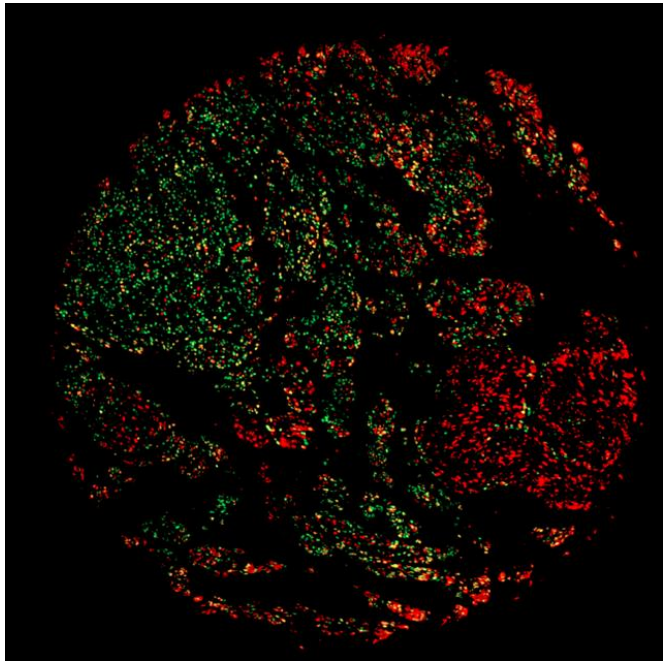
Melanoma

MAGE-C2 MAGE-A4



Melanoma

MAGE-C2 PRAME

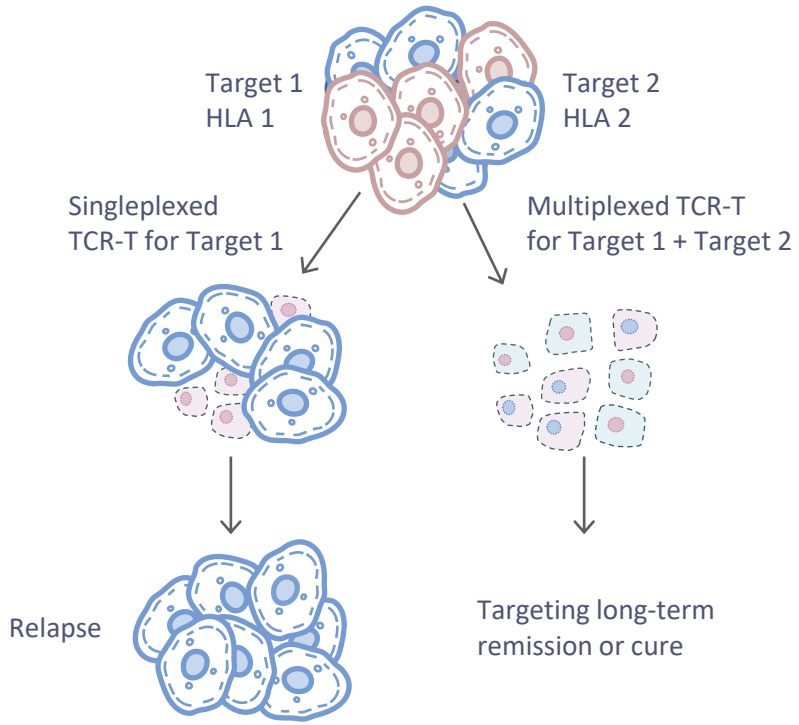


- Treatment with a TCR-T against one target does not address the full tumor
- TCR-T therapy against multiple targets may be required improve efficacy and durability

Data on file

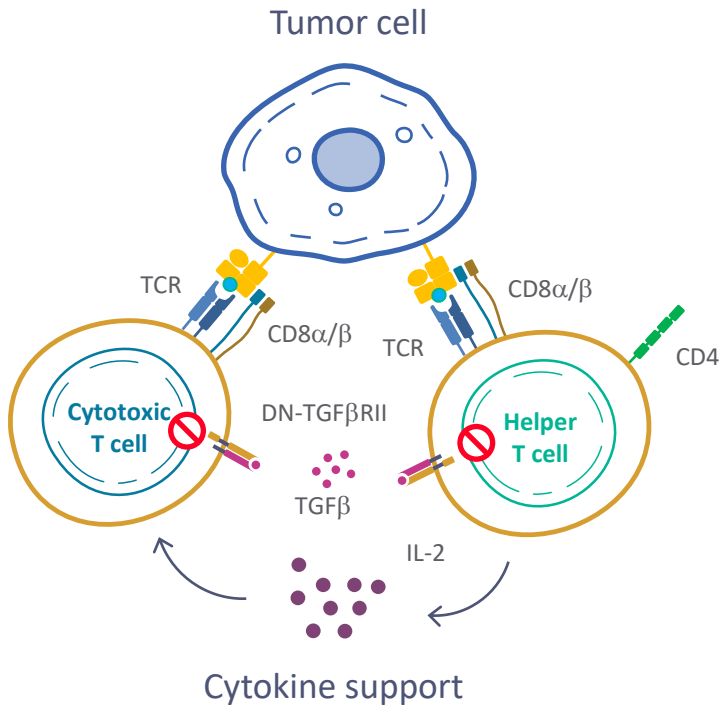
TScan's solution for inducing deep and durable responses

Multiplexed TCR-T to overcome target heterogeneity and HLA loss



- Treat patients with multiple TCR-Ts
- Prospectively select patients for target and HLA expression

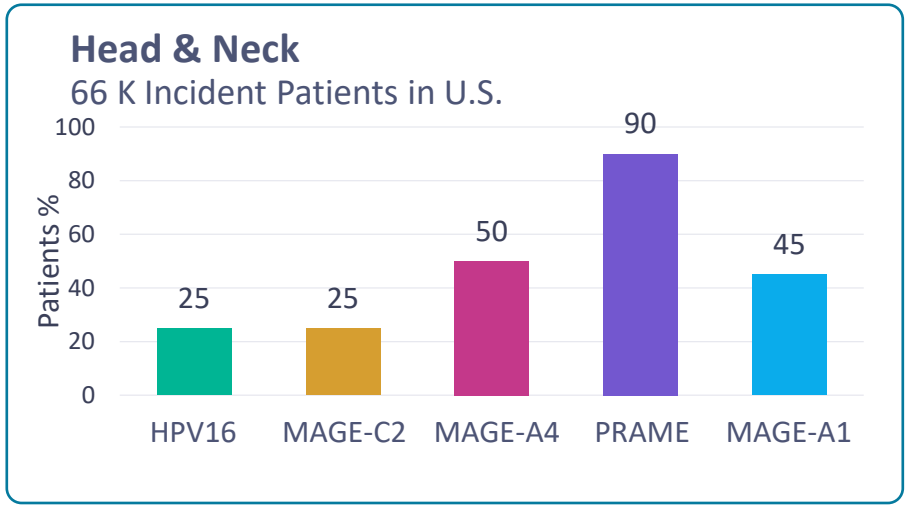
Enhanced TCR-T to combat the hostile tumor microenvironment

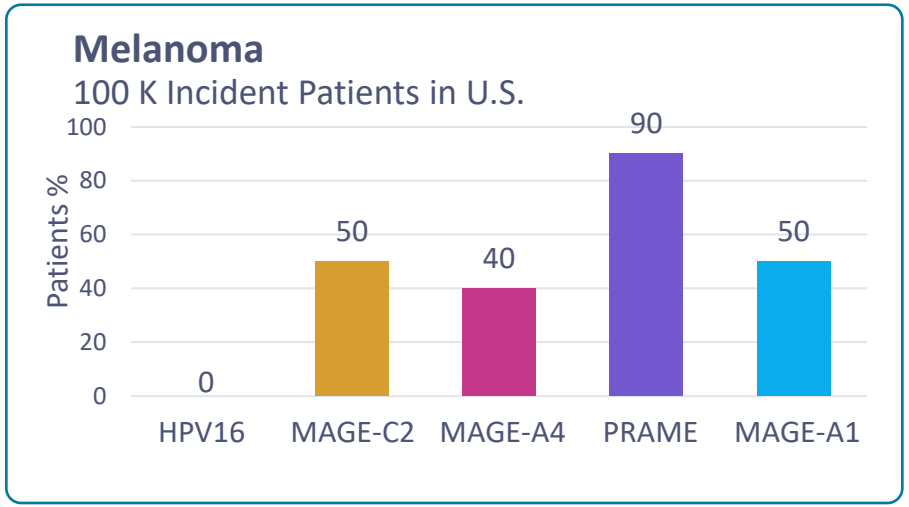


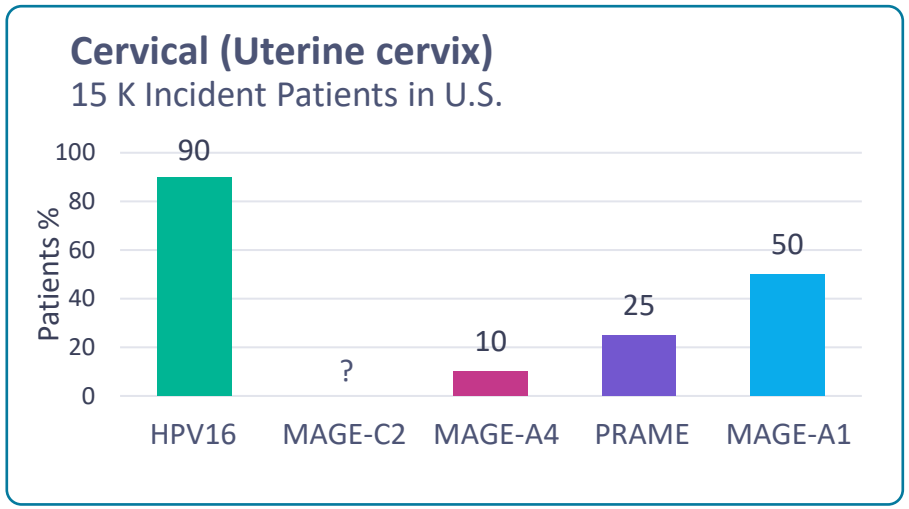
- Co-deliver CD8α/β to engage helper T-cells
- Co-deliver DN-TGFβRII to enhance T-cell expansion/persistence

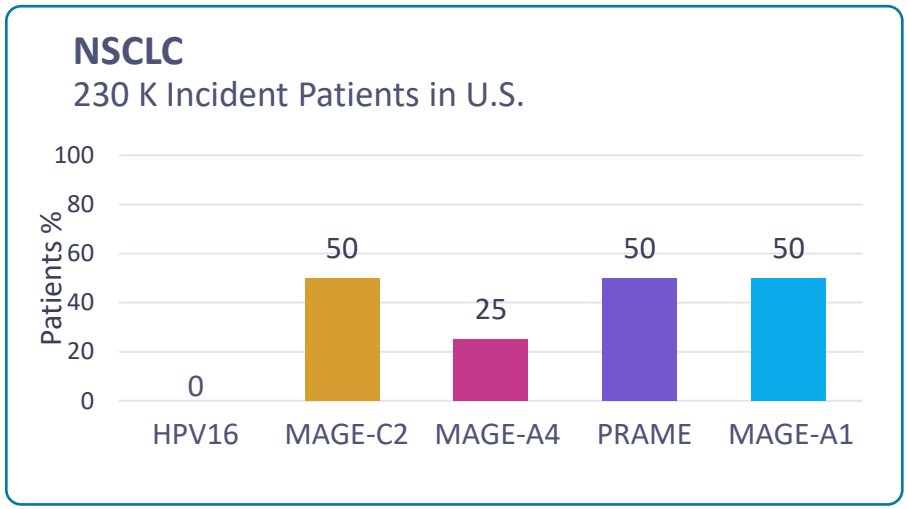
TSCAN THERAPEUTICS

Programs address targets frequently co-expressed in prevalent solid tumors



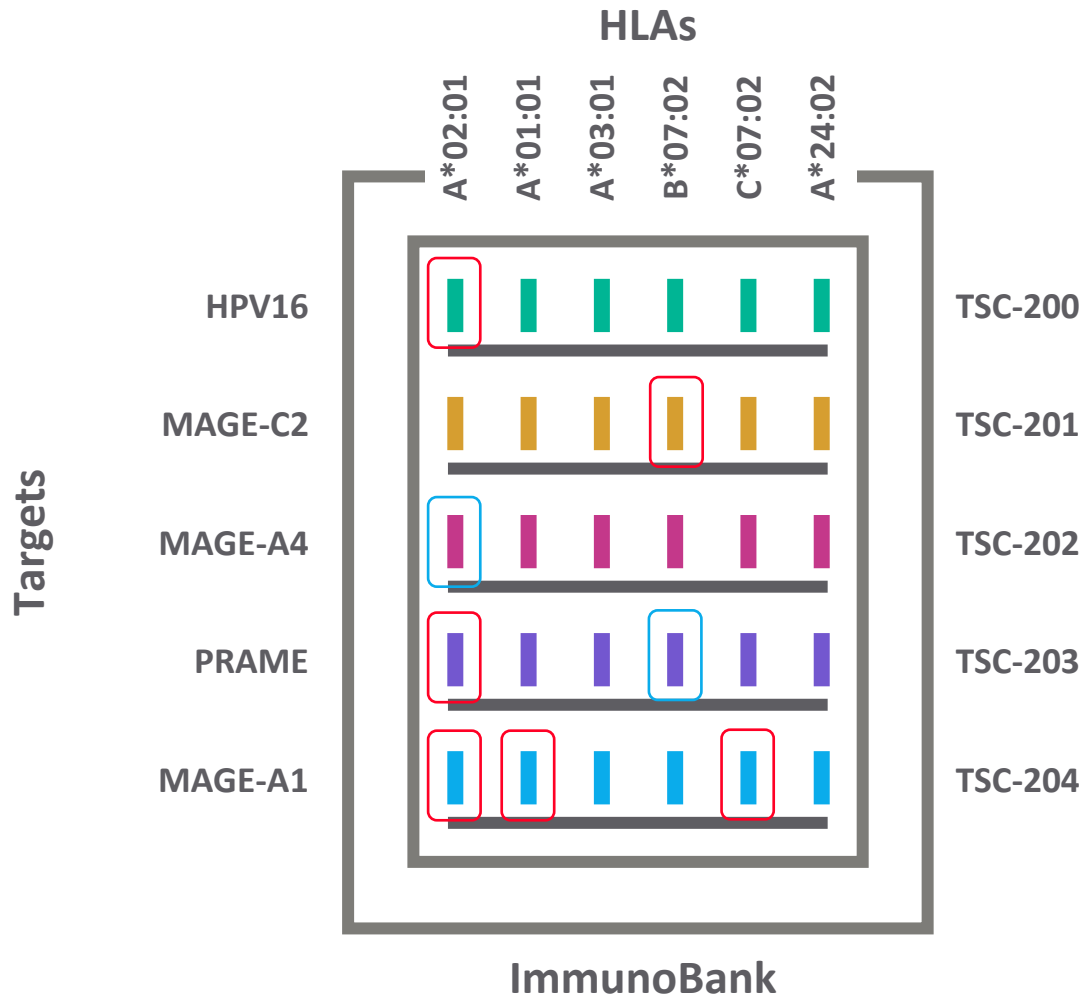






Source: American Cancer Society

TScan is rapidly filling the ImmunoBank to enable multiplexed TCR-T therapy in solid tumors



INDs

Cleared

Planned INDs

Currently INDs for 6 TCRs

INDs planned for this year

Expand the ImmunoBank through ongoing discovery

TSCAN THERAPEUTICS

Dose escalation scheme provides a rapid path to multiplex TCR-T in Phase 1

	TSC-204-A0201 (MAGE-A1)	TSC-204-C0702 (MAGE-A1)	TSC-200-A0201 (HPV16)	TSC-203-A0201 (PRAME)	TSC-201-B0702 (MAGE-C2)	TSC-204-A0101 (MAGE-A1)
DL1	0.5B	0.5B	0.5B	0.5B	0.5B	0.5B
DL2	2B	2B	2B	2B	2B	2B
DL3	T-Plex					
DL4	T-Plex					

DL3 Any two TCR-Ts that have cleared DL2

DL4 Any two TCR-Ts that have cleared DL3

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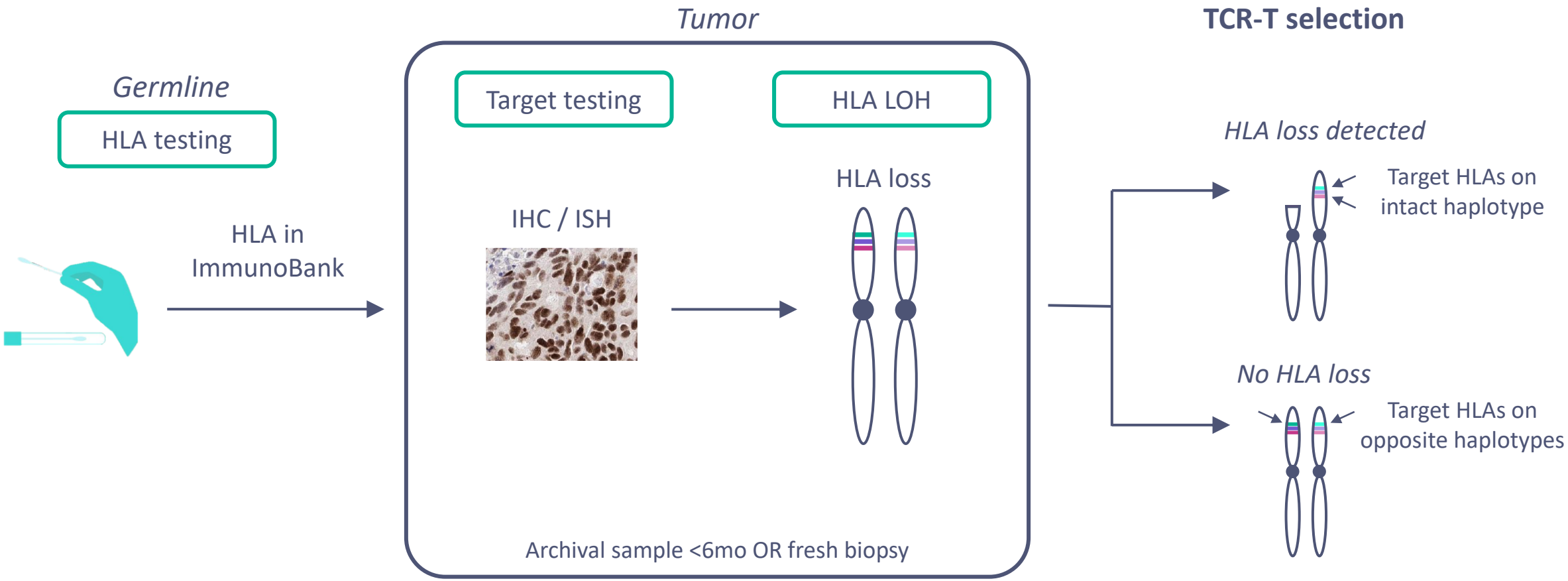
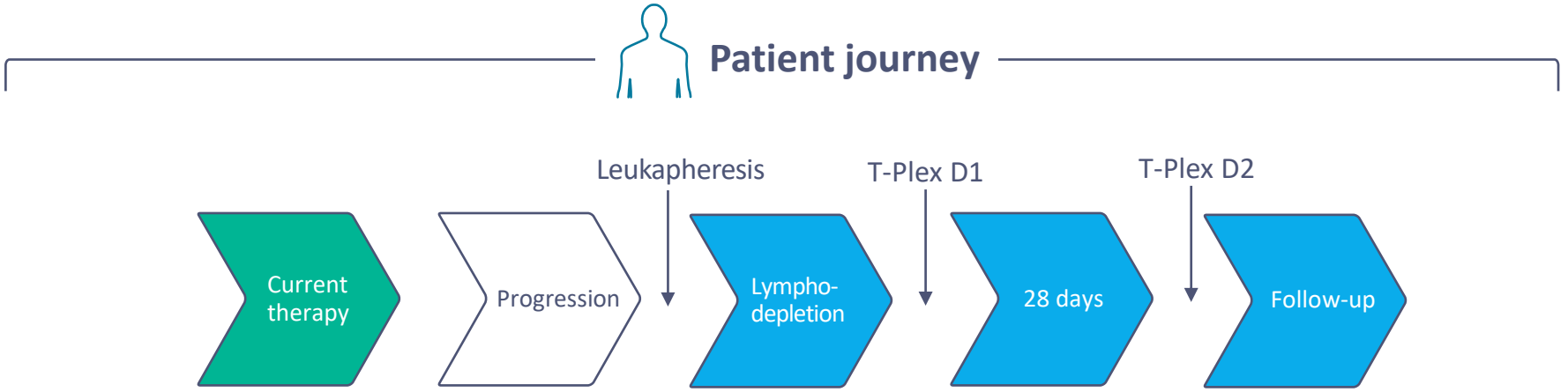
Prospectively selecting for target and HLA expression maximizes chance of success



Screening protocol pre-identifies patients for treatment



Screening protocol:

- Pre-screens patients for trial eligibility during standard-of-care therapy/before progression
- Germline HLA testing
- Archival tumor sample:
  - Tumor IHC
  - HLA LOH testing

Treatment protocol:

- Rapid enrollment
- Vein-to-vein time 25 days
- No IL-2 given
- Endpoints:
  - Primary: Safety
  - Secondary: ORR, DOR
  - Exploratory: T-cell persistence

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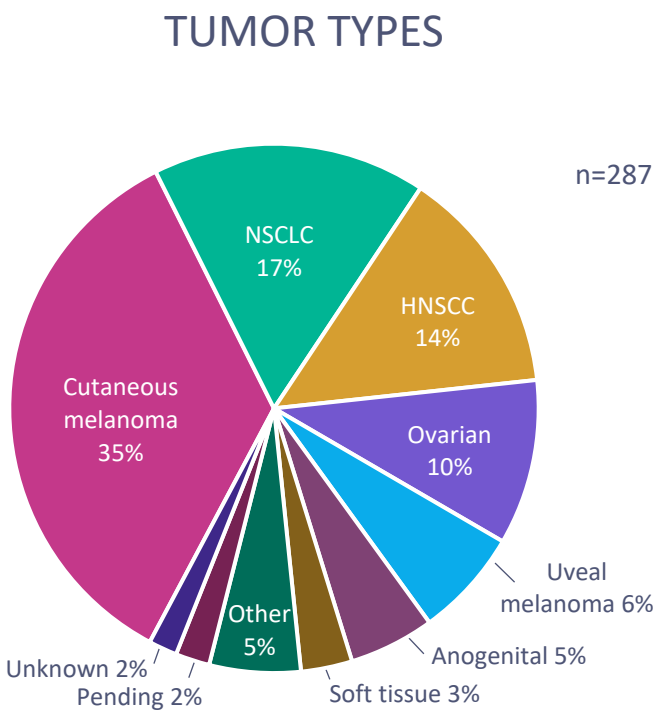
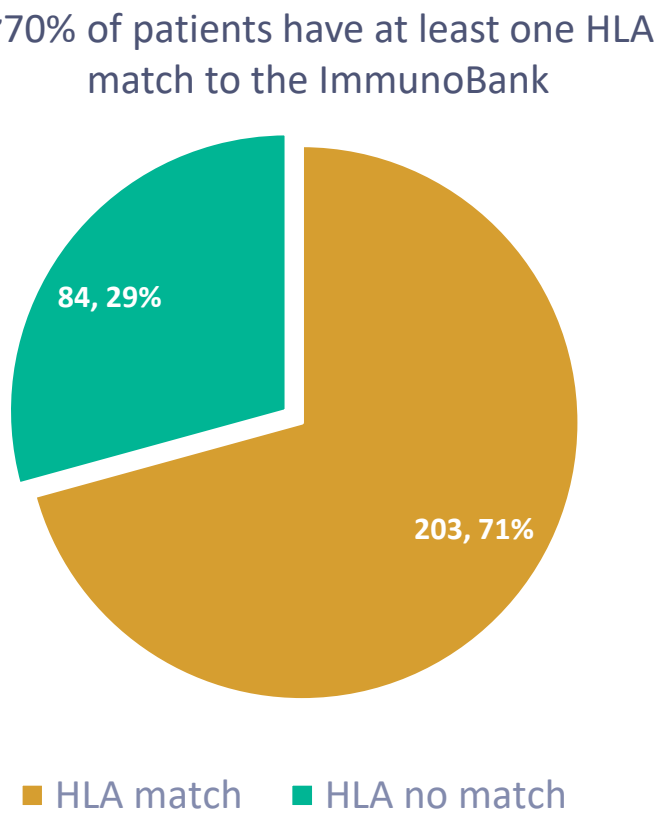
Broad array of tumor types with ~70% matching to an HLA in the ImmunoBank

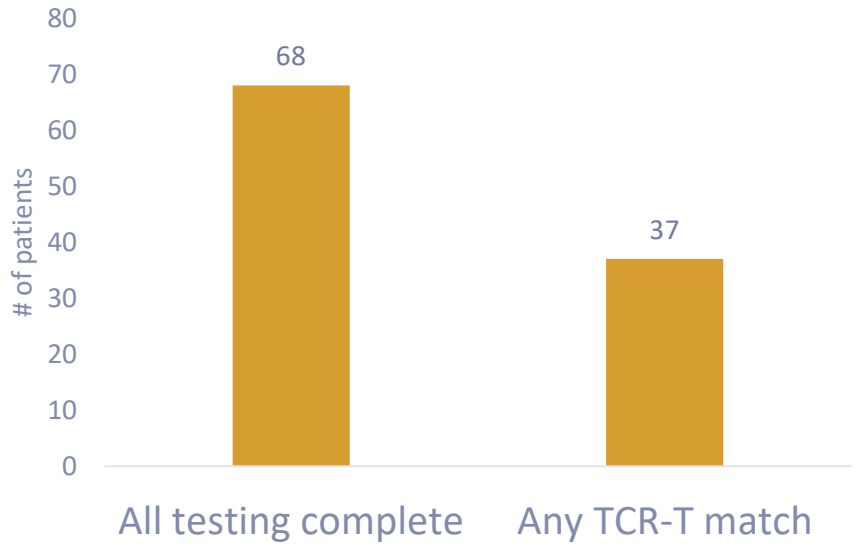




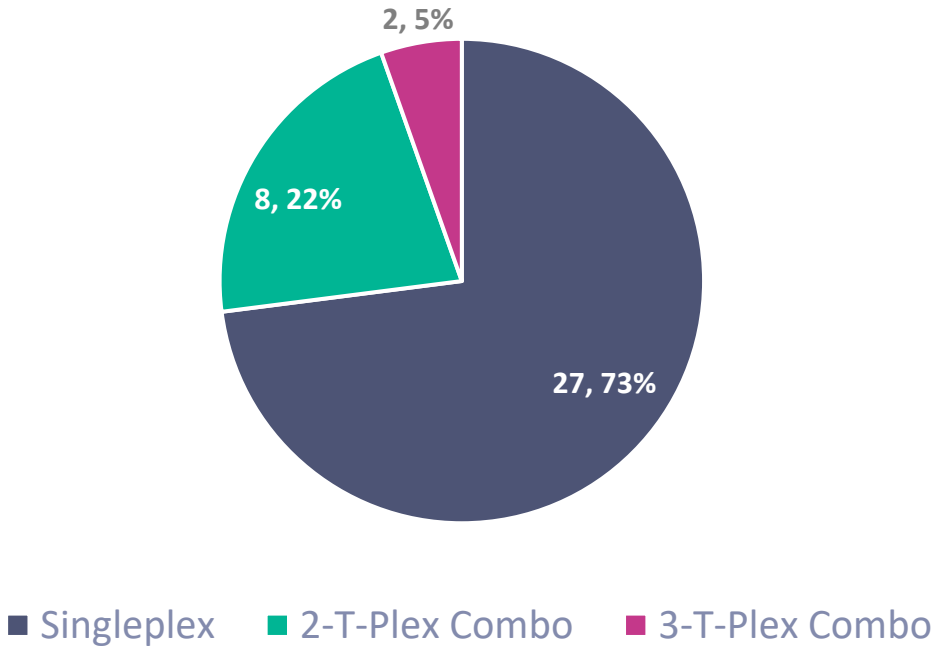
Presented at ASCO; data cut May 8, 2024

High percentage of patients have a TCR match for singleplex therapy and many would be eligible for T-Plex

>50% of patients with all testing completed have at least one TCR in ImmunoBank



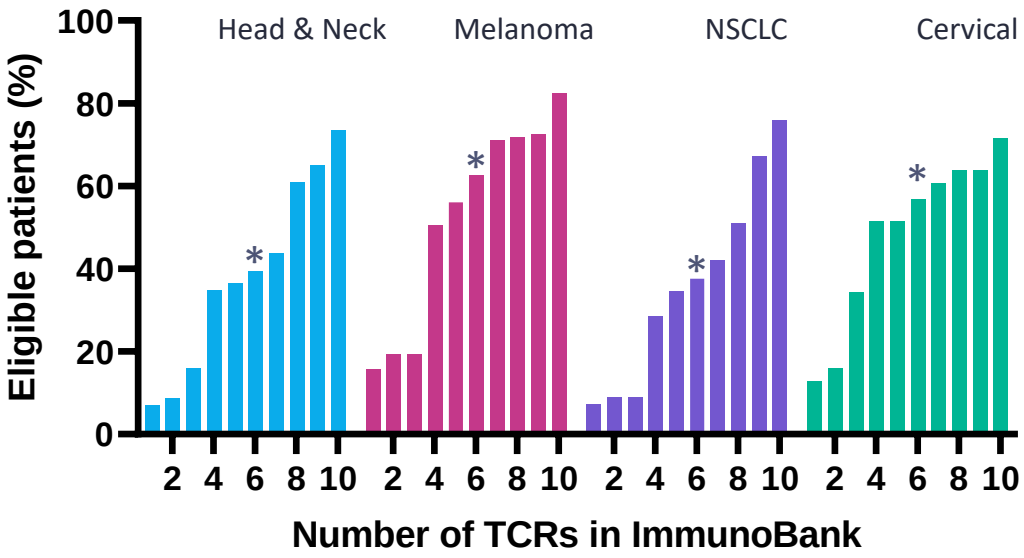
27% of patients with TCR-T would qualify for T-Plex



Presented at ASCO; data cut May 8, 2024

Patient eligibility expected to increase rapidly as ImmunoBank grows

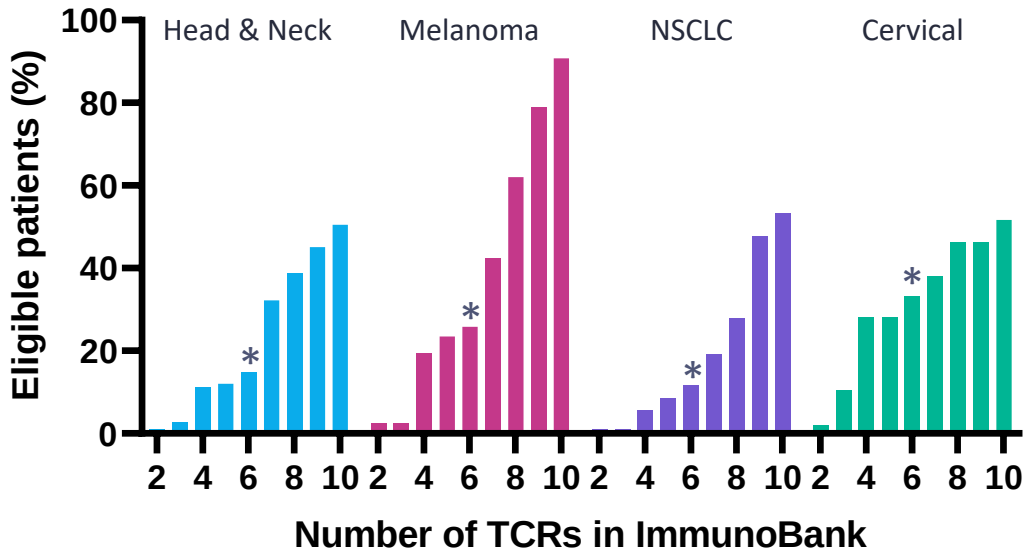
Singleplex therapy



Eligible patients include patients who are positive for at least 1 TCR-T in the ImmunoBank

*Current number of TCR-Ts in Immunobank

T-Plex



Eligible patients include patients who are positive for at least 2 TCR-Ts in the ImmunoBank.

*Current number of TCR-Ts in Immunobank

TSCAN THERAPEUTICS

TScan highlights

Transformative platform enables rapid discovery of TCRs and targets for engineered T cell therapy

Amgen collaboration highlights applicability outside oncology

In-house GMP manufacturing using non-viral vectors

Hematologic malignancies program to prevent relapse with HCT

First eight patients treated remain relapse-free with no detectable cancer*

No DLTs observed*

TSC-100 and TSC-101 progressed to third and final dose level

Solid tumor program to deliver enhanced multiplex TCR-T

INDs cleared for six TCR-Ts with regulatory path to multiplexing

First patient dosed May 6, 2024

Initial solid tumor data by end of 2024

*data cut April 16, 2024

Q1 2024:
$162.8 M

Existing cash resources along with $161.4 M net proceeds from public offering funds Company into Q4 2026

TSCAN THERAPEUTICS

THANK YOU