Virtual KOL Event to Discuss Updated Data from the ALLOHA Phase 1 Heme Trial and Market Opportunity for TSC-101

December 8, 2025

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TSCAN THERAPEUTICS

Agenda

Welcome and Overview of Heme Program
Gavin MacBeath, Ph.D.

Updated Data from Phase 1 ALLOHA™ Trial
Ran Reshef, M.D., M.Sc.

Manufacturing Update and Pivotal Trial Design for TSC-101
Gavin MacBeath, Ph.D.

Market Opportunity for TSC-101 and Follow-on Product Candidates
Stephen Camiolo, BSN, ACNP

Q&A Session
Gavin MacBeath, Dr. Reshef, Stephen Camiolo, and Chrystal Louis, M.D., M.P.H.

TSCAN THERAPEUTICS

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

Clinical

HEME MALIGNANCY PROGRAM

- Targets residual disease to prevent relapse in patients undergoing bone marrow transplant
- **Promising data:** 100% (3/3) of patients remain relapse-free two years post-HCT compared to 25% (1/4) of control-arm patients[(1)]
- **Launch of pivotal study** expected in Q2 2026
- Substantial commercial opportunity, with potential to expand addressable market with additional **INDs to be filed in 1Q26**

Preclinical

SOLID TUMOR PROGRAM

- **First patients dosed with multiplex TCR-T therapy on the PLEXI-T™ study** with initial safety and efficacy data expected in 1Q26
- With our target discovery platform and *ex vivo* clinical experience, we are **uniquely positioned** to develop ***in vivo*-engineered multiplex TCR-T for solid tumors**
- Working with strategic partner to develop "off-the-shelf" *in vivo*-engineered TCR-T cell therapy

Discovery

AUTOIMMUNITY PROGRAM

- TScan's proprietary platform enables the discovery of disease-driving autoantigens in areas of high unmet medical need
- **Targets identified for systemic sclerosis, ulcerative colitis, ankylosing spondylitis, and birdshot uveitis**[(2)]
- Ongoing collaboration with Amgen for target discovery in Crohn's disease

$184.5M as of Sept 30, 2025 funds operations into H2 2027

129.8M[(3)] total economic shares outstanding as of Sept 30, 2025

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(1) As of latest data cut of Sept 19, 2025; Al-Malki et al, abstract ID 2391 presented at ASH Annual Meeting December 2025; IND: investigational new drug; (2) Weinheimer et al, and Pryor et al, presented at ACR Convergence 2025, abstracts 0888, 0997; (3) Includes 56,747,993 outstanding common shares plus 73,087,945 pre-funded warrants

Heme Malignancies:

Targeting residual disease to prevent relapse in patients undergoing allogeneic HCT

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TScan is working to treat residual disease and prevent relapse in heme malignancies

Current Standard of Care	Allogeneic hematopoietic cell transplant (Allo-HCT) is the only potential cure for patients with AML and MDS
Unmet Medical Need	38-44% of patients relapse within two years following Allo-HCT with reduced intensity conditioning (RIC)*
TScan Approach	TCR-T cell therapy targeting antigens on patient cells, but not donor cells, to prevent relapse after transplant

TSC-101 is a TCR-T cell therapy designed to **eliminate residual cancer** and **prevent relapse** following Allo-HCT in HLA-A*02:01-positive patients

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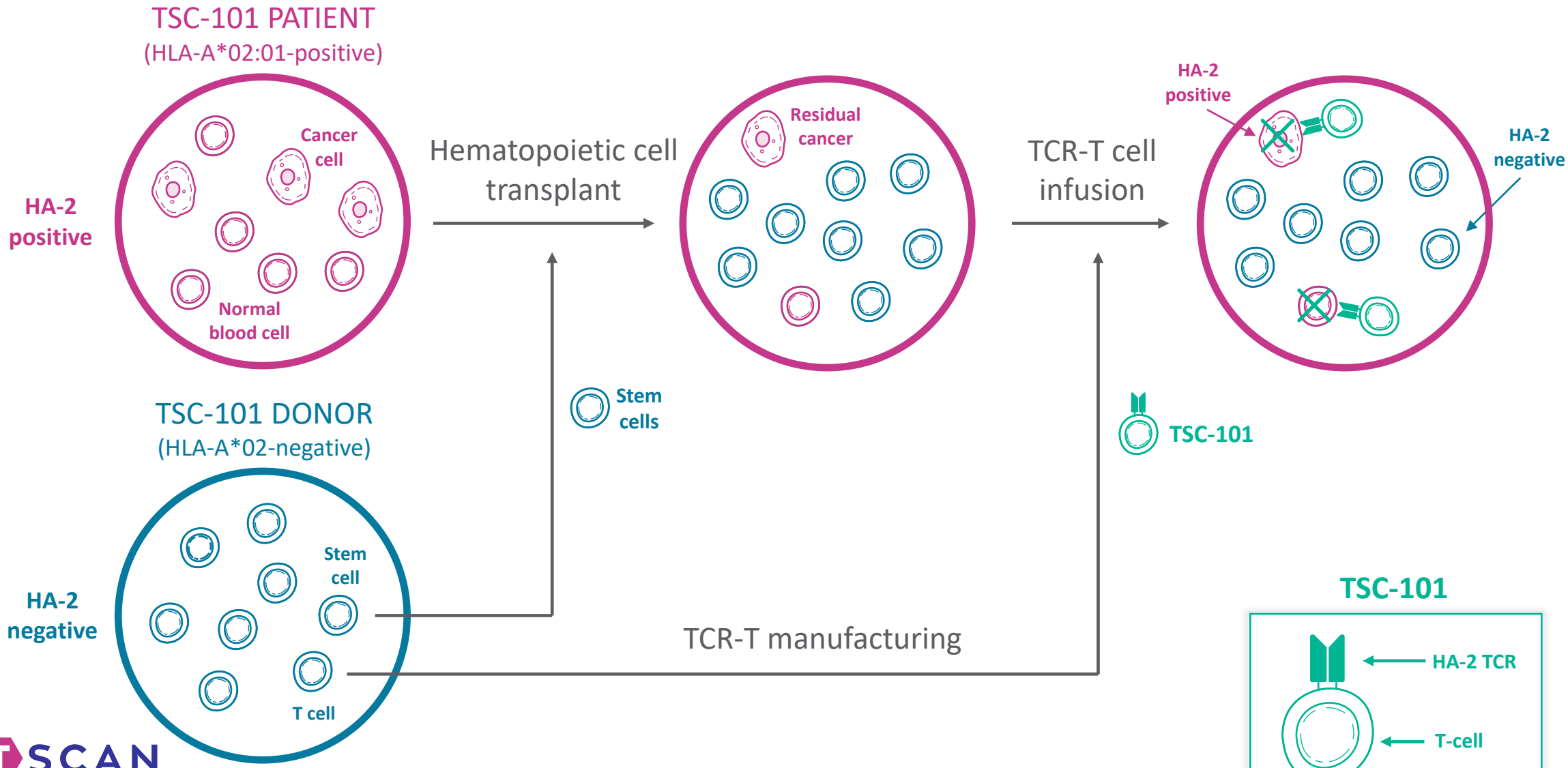
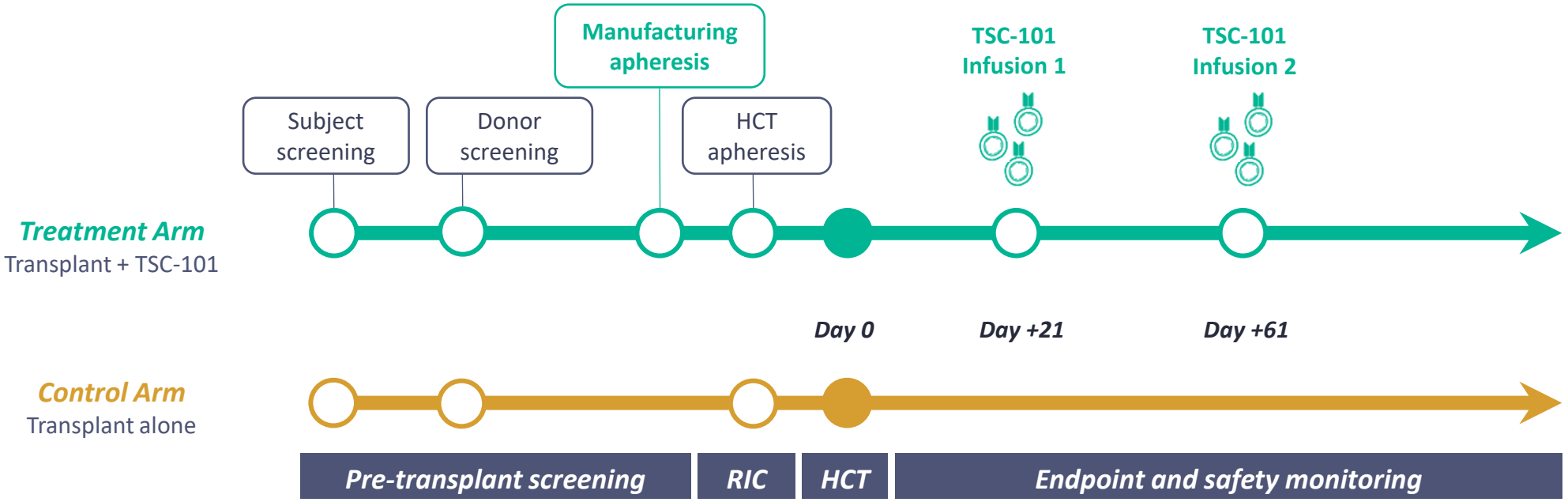
* CIBMTR analysis of AML, ALL, MDS allogeneic transplants with reduced intensity conditioning (RIC) between 2017-2019 with 2-year follow-up

TSC-101 is a TCR-T cell therapy designed to eliminate residual cancer and prevent relapse following Allo-HCT



ALLOHA™, a multi-arm Phase 1 trial for TSC-101 in subjects with AML, ALL, and MDS (NCT05473910)



Key eligibility criteria

- Age ≥18 years
- Undergoing first allo-HCT for ALL, AML, MDS
- Subject positive for HA-2 with a haploidentical HA-2 negative donor
- Eligible for RIC-HCT followed by PTCy for GvHD prophylaxis

Key endpoints

- Safety: Dose limiting toxicities, adverse events
- Efficacy
- Exploratory endpoints: Donor chimerism, minimal residual disease

ALL, acute lymphoblastic leukemia; AML, acute myeloid leukemia; MDS, myelodysplastic syndromes; GvHD, graft vs host disease; RIC-HCT, reduced intensity conditioning hematopoietic cell transplantation

Updated Results from the Phase 1 ALLOHA™ trial

Data presented at the 67th American Society of Hematology (ASH) Annual Meeting and Exposition

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Patients in both the treatment and control arms are at high risk for relapse

		TSC-101	Control
Enrolled Subjects		23	19
Evaluable Subjects*		19 (100%)	18 (100%)
Median Time from HCT, months		13.4 (4-33)	16.1 (1-36)
Age, Median (Range)		65 (52-74)	66 (23-77)
Sex, Male %)		13 (68%)	9 (50%)
Underlying Disease	ALL	2 (11%)	1 (6%)
	AML	13 (68%)	11 (61%)
	MDS	4 (21%)	6 (33%)
Genetics/ cytogenetics	**TP53 mutated**	**6 (32%)**	**2 (11%)**
	Adverse Risk**	13 (68%)	11 (61%)
Pre-HCT MRD Positive		13 (68%)	8 (44%)
MRD positive or adverse risk genetics		**15 (79%)**	**13 (72%)**
Clinical Status at time of HCT			
CR1		9 (47%)	12 (67%)
CR2		2 (11%)	1 (6%)
MLFS		5 (27%)	0 (0%)
Hematologic improvement		1 (5%)	0 (0%)
PR		1 (5%)	1 (6%)
Untreated		1 (5%)	1 (6%)
Other status		0 (0%)	3 (17%)

TSCAN THERAPEUTICS

Data as of September 19, 2025; *Subjects on the treatment arm who received ≥1 infusion of TSC-101 and on the control arm who reached Day 21; **Adverse risk is defined as having either an IPSS-M mutation (MDS) or ELN high risk genetics or cytogenetics (AML)

TSC-101 is well tolerated with no dose-limiting toxicity

	TSC-101 n=19	Control n=18
Treatment-emergent aGvHD (MAGIC)	12 (63%)	10 (56%)
Grade I	8 (42%)	5 (28%)
Grade II	3 (16%)	4 (22%)
Grade III	1 (5%)	1 (6%)
Grade IV	0 (0%)	0 (0%)
Any Treatment-emergent cGvHD (NIH)	1 (5%)	2 (11%)
Mild	1 (5%)	1 (6%)
Moderate	0 (0%)	1 (6%)
Severe	0 (0%)	0 (0%)
Any CRS	14 (74%)	7 (39%)
Grade 1 - 2	14 (74%)	6 (33%)
Grade 3 - 4	0 (0%)	1 (6%)
Treatment-emergent CRS	3 (16%)	0 (0%)
Grade 1 - 2	3 (16%)	0 (0%)
Grade 3 - 4	0 (0%)	0 (0%)
Any ICANS	1 (5%)	0 (0%)

- No DLTs reported
- No moderate or severe chronic GvHD (cGVHD) with TSC-101
  - One case of mild cGVHD seen in both arms
- Three cases of CRS reported after TSC-101 infusions
  - Two Grade 1 events and one Grade 2 event; all resolved
- One case of ICANS reported after a TSC-101 infusion
  - Depressed consciousness (Grade 2) reported following infusion #2 in a patient with relapsing disease. Treated with tocilizumab and steroids; resolved within 24 hours

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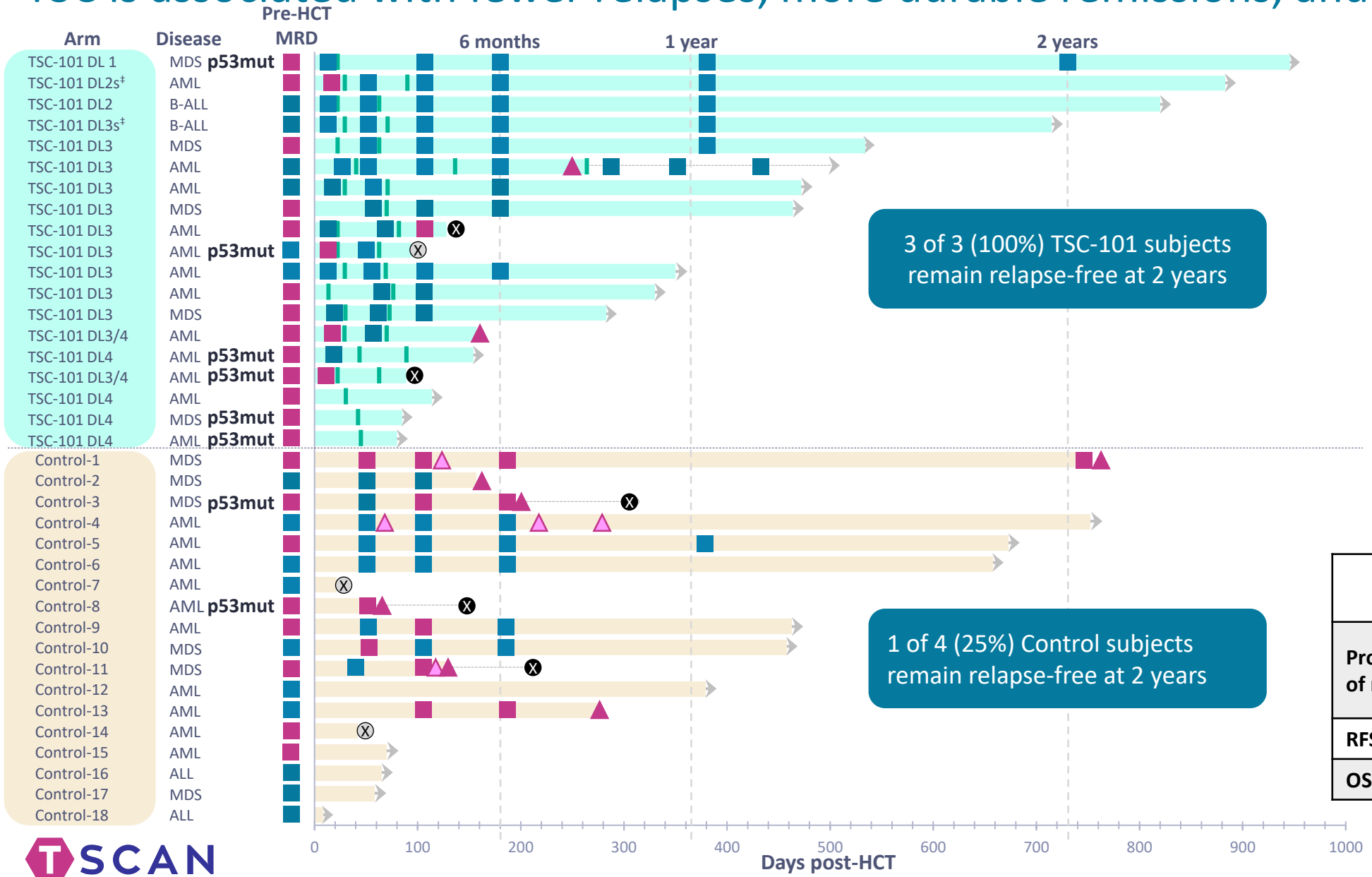
Data as of September 19, 2025; GvHD = graft-versus-host disease; ICANS = Immune Effector Cell Associated Neurotoxicity Syndrome; CRS = Cytokine Release Syndrome

TSC is associated with fewer relapses, more durable remissions, and longer survival



3 of 3 (100%) TSC-101 subjects remain relapse-free at 2 years

1 of 4 (25%) Control subjects remain relapse-free at 2 years

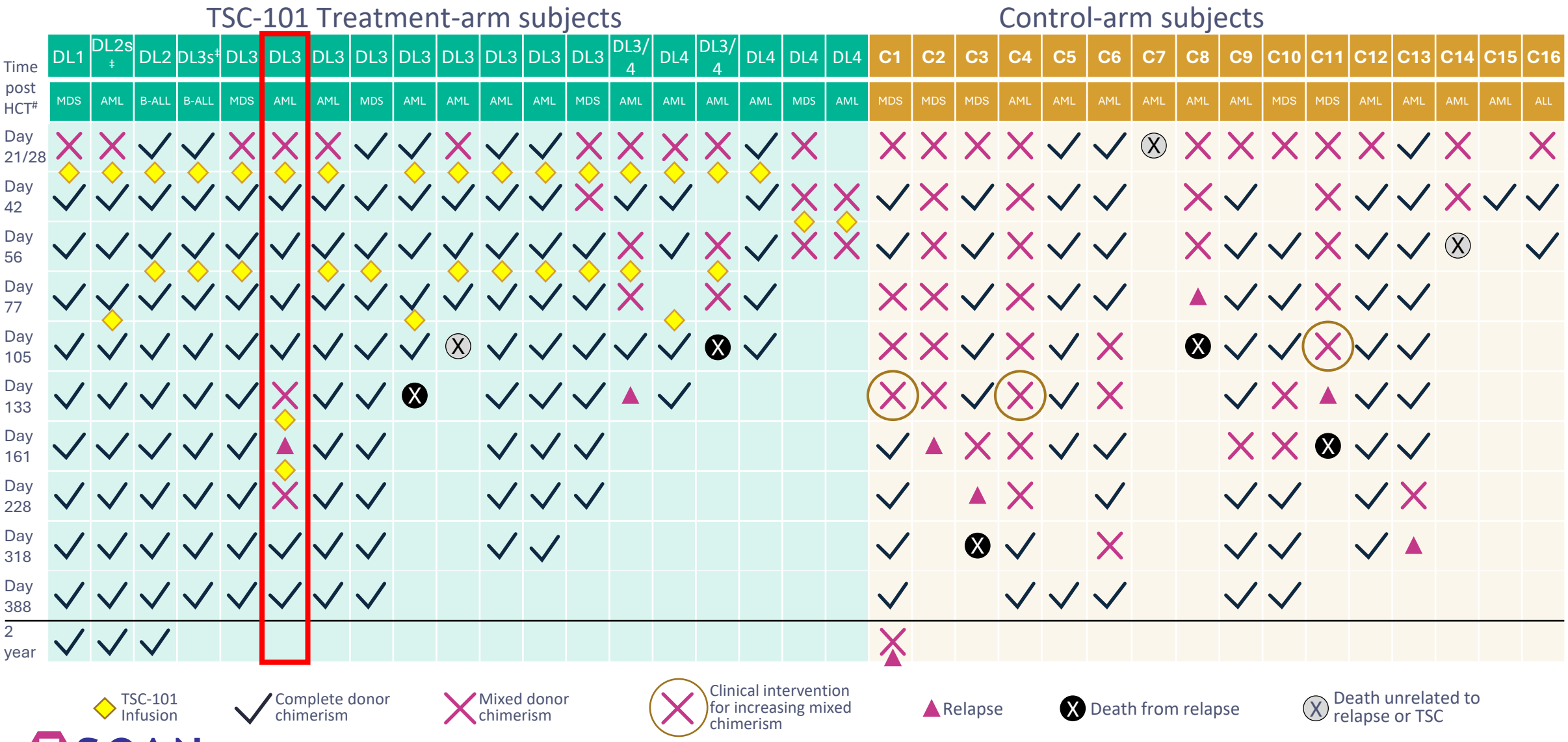
- TSC-101 infusion
- Clinical intervention for concern for relapse
- Relapse
- Death from relapse
- Death unrelated to relapse or TSC
- Ongoing follow-up
- MRD-positive
- MRD-negative
- MRD pending

‡Dose did not meet target dose criteria in supplemental cohorts

	Hazard Ratio	p value
Probability of relapse	0.46	0.22
RFS	0.50	0.23
OS	0.61	0.52

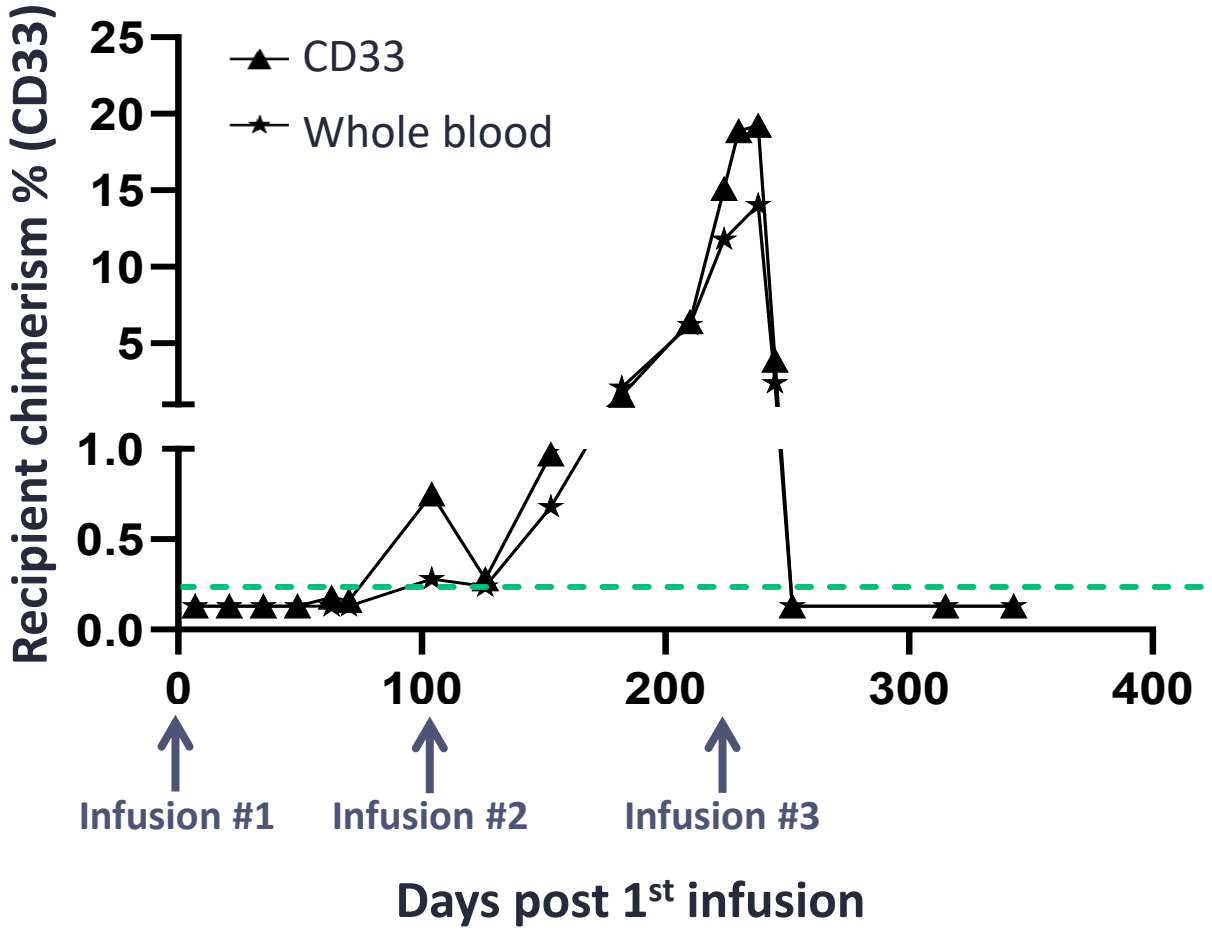
Data as of Sept 19, 2025; MRD measured by flow cytometry (lower limit of detection 0.1-1%) or NGS (lower limit of detection 0.05-0.1% in myeloid and 0.001-0.01% in lymphoid malignancies)

TSC-101 continues to show strong activity by chimerism assays



Data as of Sept 19, 2025; #Donor chimerism results using investigational NGS assay (Alloheme) with LOD of 0.2% or the short tandem repeat (STR) with LOD of 1-2% at indicated times post-HCT ± 3 days in patients at least 60 days post-HCT as of data cut; ‡Dose did not meet target dose criteria in supplemental cohorts

TSC-101 infusion post-relapse converted subject to complete donor chimerism and complete remission



- 74-year-old male with AML in CR1 received 2 infusions of TSC-101 per DL3
- 2nd infusion was delayed by 36 days due to treatment of aGvHD
- At time of relapse, received 370 M cells without lymphodepletion or additional chemotherapy
- No evidence of disease at next evaluation and remained in complete remission for 5 months

Data as of Sept 19, 2025

Manufacturing

Commercial-ready process developed that shortens manufacturing time and reduces COGs

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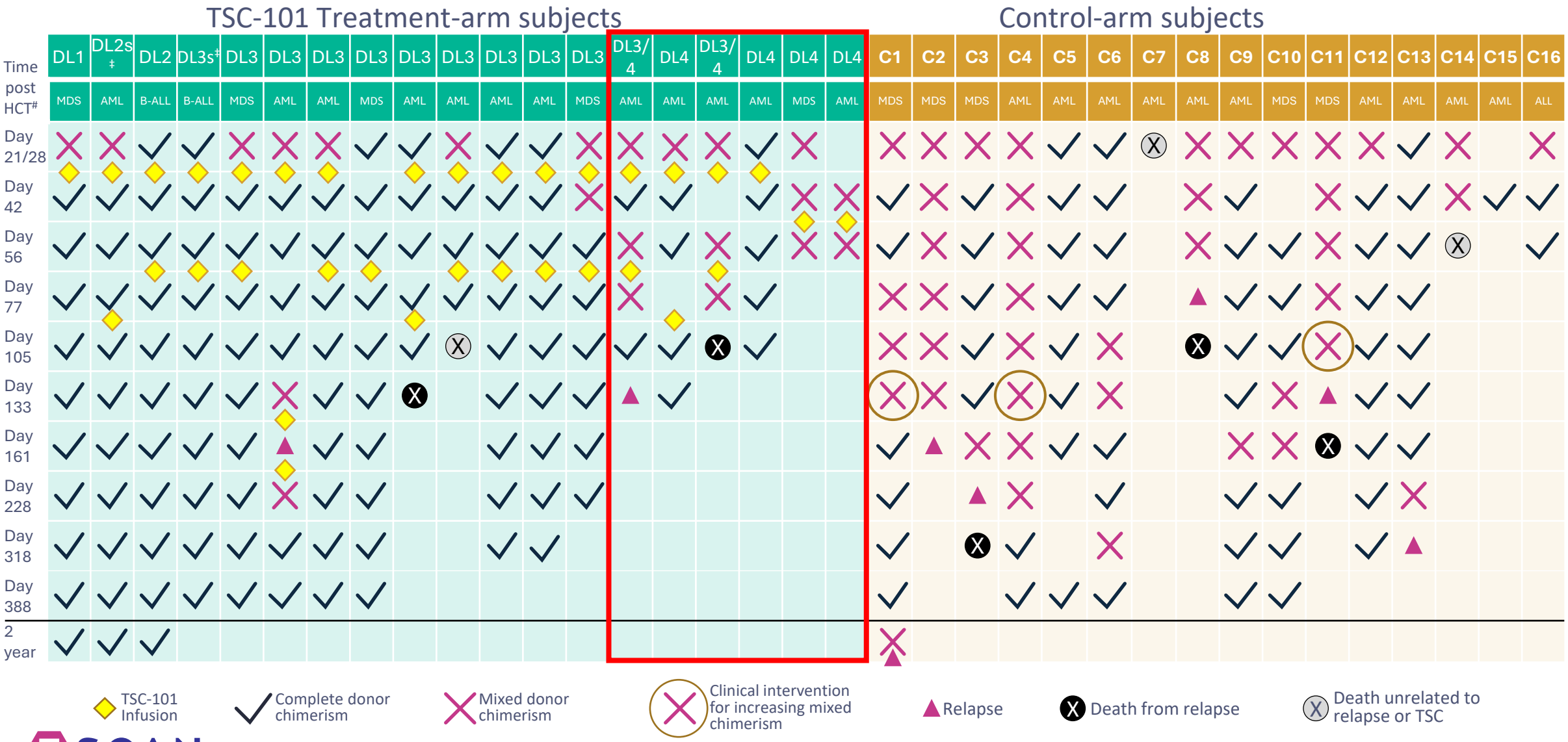
Some patients recently treated at dose level 4 showed incomplete chimerism



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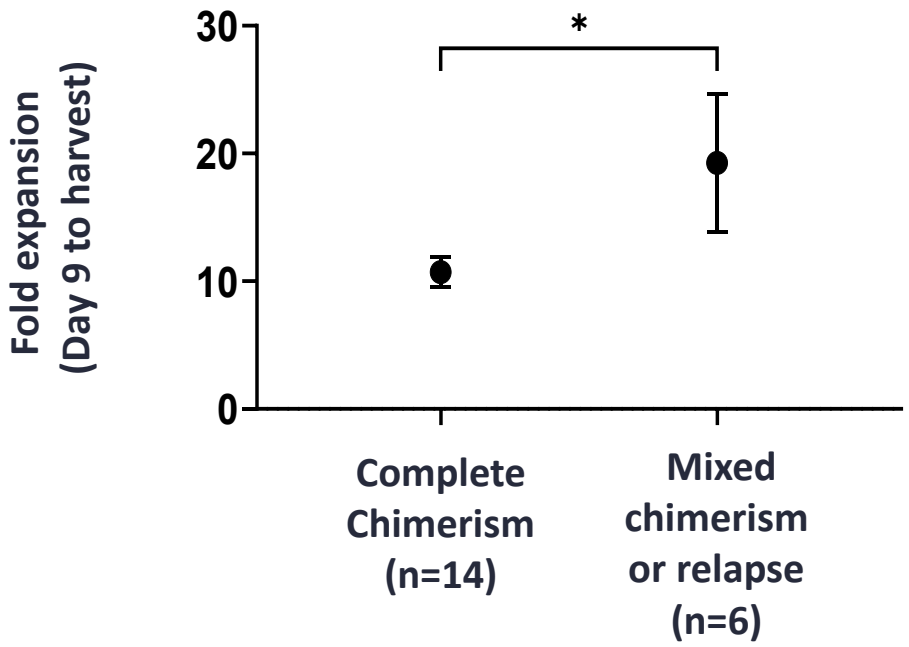
Extent of *ex vivo* expansion in phase 1 manufacturing process may be associated with chimerism results

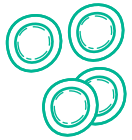
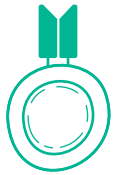
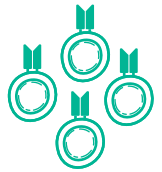
- Phase 1 process required 17 days to manufacture TSC-101 (range 14-20 days)
- Mixed chimerism and relapse in the TSC-101 arm appear associated with higher *ex vivo* expansion of TCR-T cells



Symbols: mean +/- standard error; *p<0.05.

Optimized manufacturing process results in robust production with shorter time and lower COGs

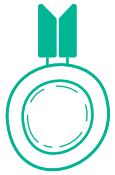
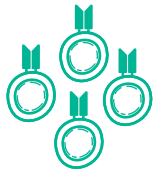
Phase 1 Process: 17 Days

DAY 1		DAY 2	DAY 6	DAY 9	DAY 14	DAY 17
Isolate PBMCs	Electro-porate	Activate T-cells	Expand T-cells	Enrich TCR-T cells	Expand TCR-T cells	Harvest & Freeze
						

Magnetic bead selection

Inefficient step: >90% loss of TCR-T cells

Commercial-ready Process: 12 Days

DAY 1		DAY 2	DAY 6	DAY 9	DAY 12
Isolate PBMCs	Electro-porate	Activate T-cells	Expand & Enrich TCR-T cells	Expand TCR-T cells	Harvest & Freeze
					

Drug selection

Highly efficient step: minimal loss of TCR-T cells

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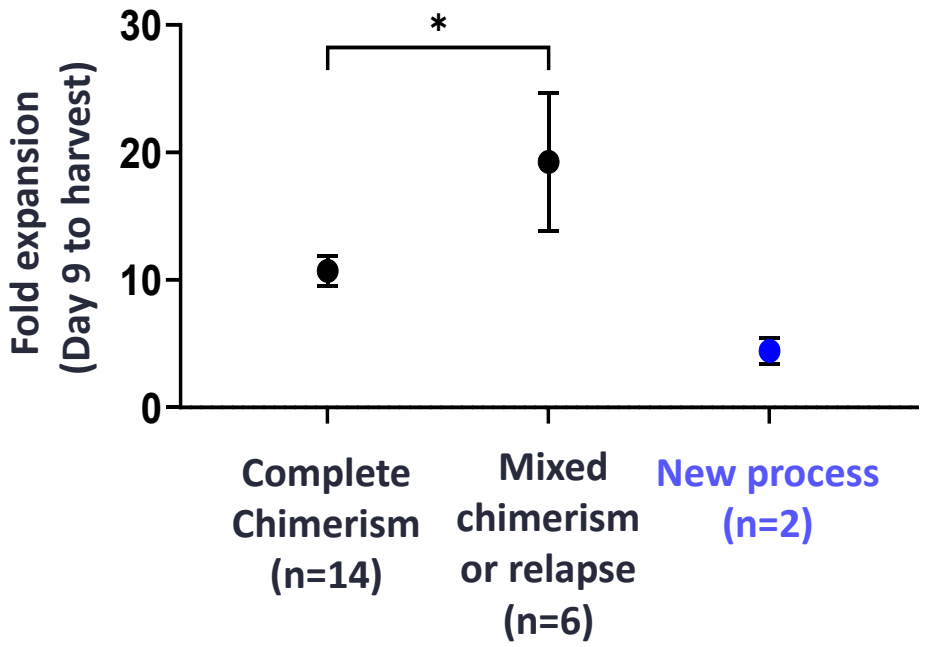
Commercial-ready manufacturing process requires less *ex vivo* T-cell expansion

- New commercial-ready process reduces manufacturing time by 5 days (12 days vs. 17 days)
- Clinical drug product manufactured using the new process shows a significant reduction in *ex vivo* expansion (from mean of 13-fold to 4-fold)



Symbols: mean +/- standard error; *p<0.05.

Heme Development Strategy

Targeting residual disease to prevent relapse in patients undergoing allogeneic HCT

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Pivotal trial design for TSC-101 uses a biologically-assigned control arm to support relapse-free survival as the primary endpoint

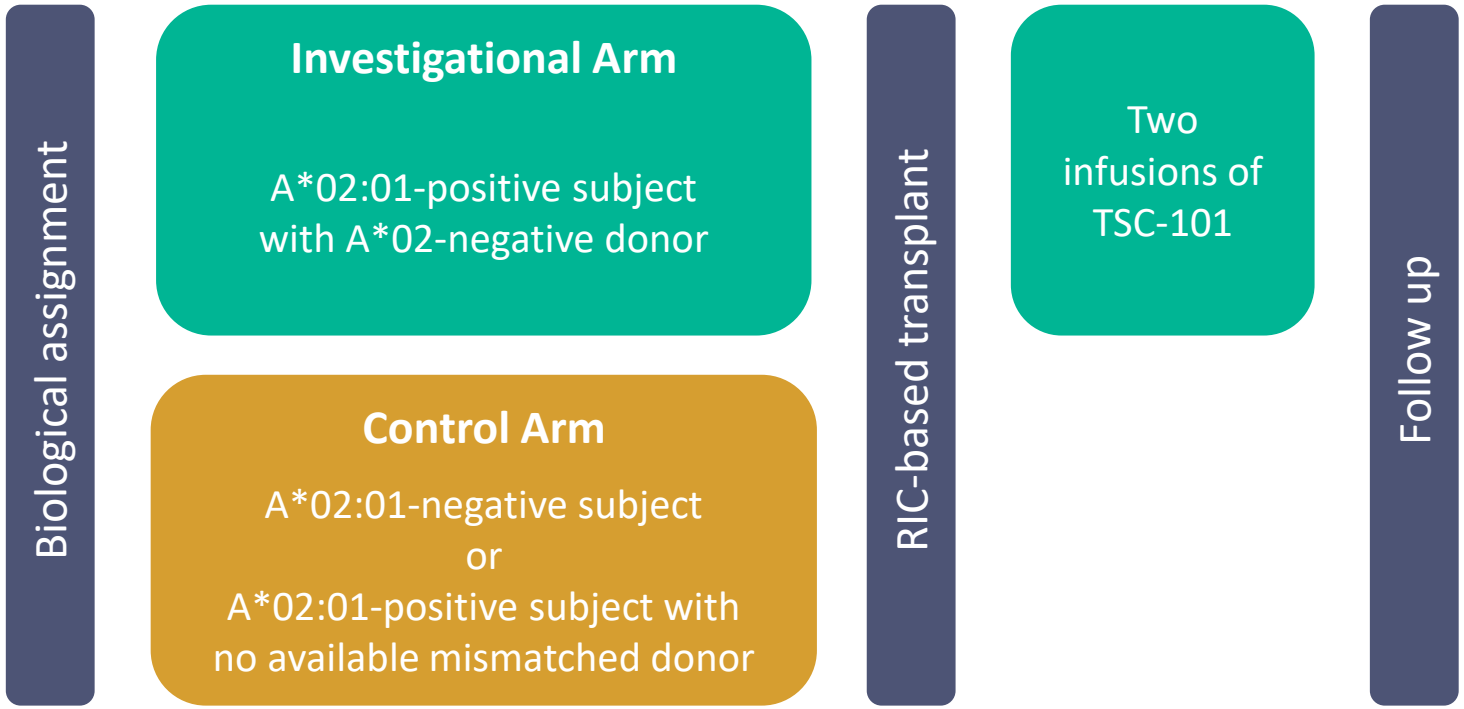
- Company has reached agreement with the FDA to use a pivotal trial design that mirrors the ALLOHA™ Phase 1 trial (NCT05473910)
- All patients that are eligible for TSC-101 will be assigned to the investigational arm

Study Population

- AML or MDS
- Age ≥ 18 years
- Undergoing first allo-HCT
- Eligible for reduced intensity conditioning (RIC)

Key Endpoints

- **Primary Endpoint**: RFS
- Key Secondary Endpoint: OS



AML: Acute myeloid leukemia; MDS: Myelodysplastic syndromes; Allo-HCT: Allogeneic hematopoietic cell transplantation; RIC: Reduced intensity conditioning; RFS: Relapse-free survival; OS: Overall survival

Commercial opportunity:

Clear unmet need with concentrated market and a broad range of expansion opportunities

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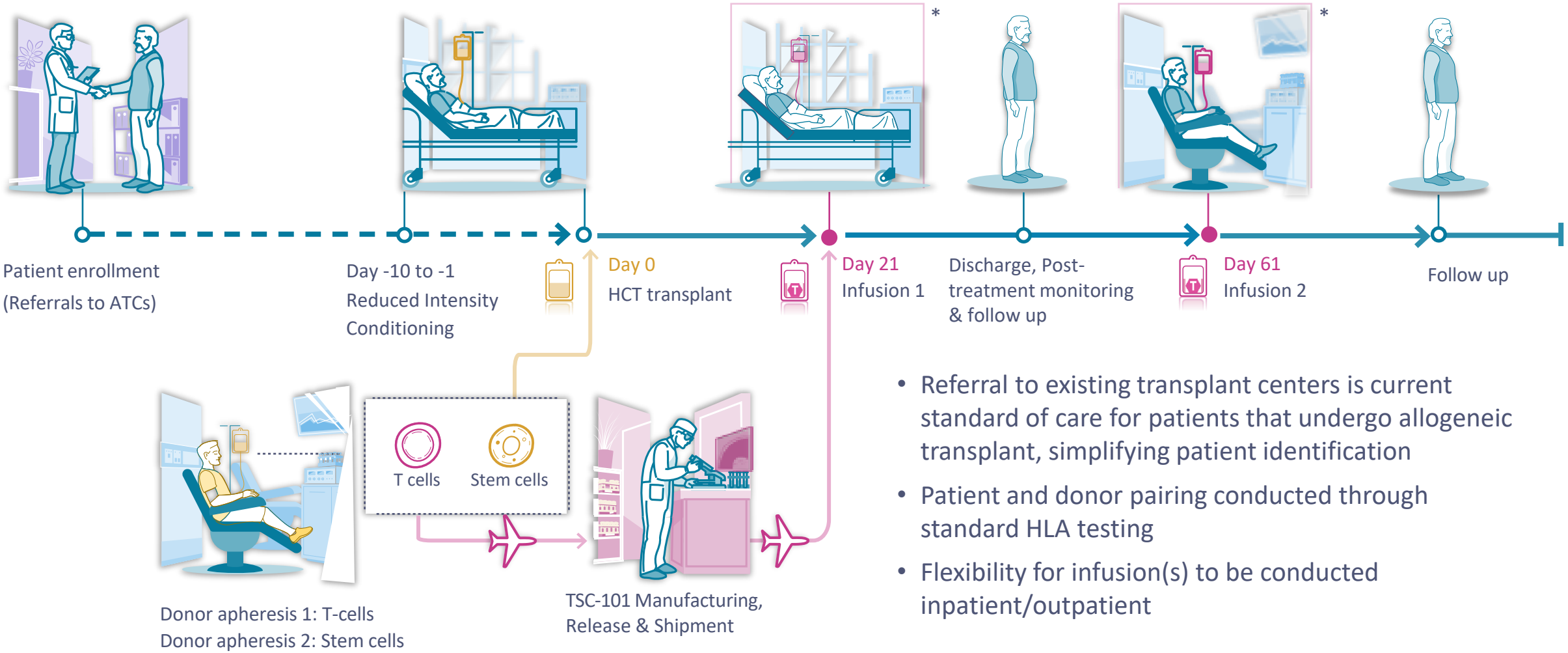
TSC-101 delivers a predictable, easily planned treatment journey



- Referral to existing transplant centers is current standard of care for patients that undergo allogeneic transplant, simplifying patient identification
- Patient and donor pairing conducted through standard HLA testing
- Flexibility for infusion(s) to be conducted inpatient/outpatient

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* Infusion 1 & 2 site of care (inpatient vs outpatient) determined by administering physician. Infusion 1 may be given upon engraftment and between days 14-35 post transplant, infusion 2 would be administered about 40 days after infusion 1.

TSC-101 is a first-in-class TCR-T therapy with an exciting commercial opportunity

Strong Value Proposition: TSC-101 has positive early efficacy & safety data, addressing a major unmet need in the post-transplant setting where no therapeutic agents are approved

Streamlined Commercial Operations

- TSC-101 is used with current SOC transplant
- Simplified patient identification
- HLA-defined patient eligibility through standard testing

Commercial-Ready Manufacturing

- Healthy donor T cells results in more consistent product
- Manufacturing can be completed prior to ideal infusion time
- Global CDMO engaged for scaled-up manufacturing

Market Access Planning Underway

- Favorable pricing corridor established
- Clear reimbursement pathway being mapped with payers
- Established patient access strategy to enable rapid uptake of TSC-101

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Sources: Simon Kucher pricing analysis; SOC = standard of care; HLA = human leukocyte antigens

TSC-101 could generate $1 billion+ annually at peak penetration in the U.S.

Addressable U.S. Patient Population at Launch

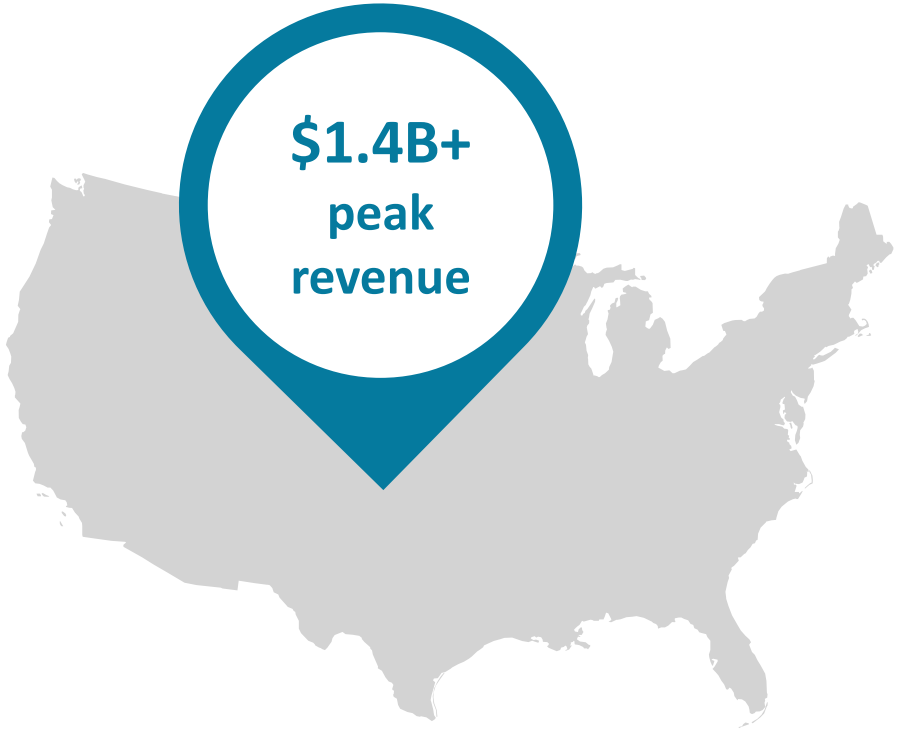
6,200 AML/MDS patients undergoing Allo HCT

2,600 HLA-A*02:01 positive patients (42%)

~2,100 with A*02-negative donor (80%)

2.1k addressable U.S. patients at launch

Requires transplant with reduced intensity conditioning and haplo/MMUD donor

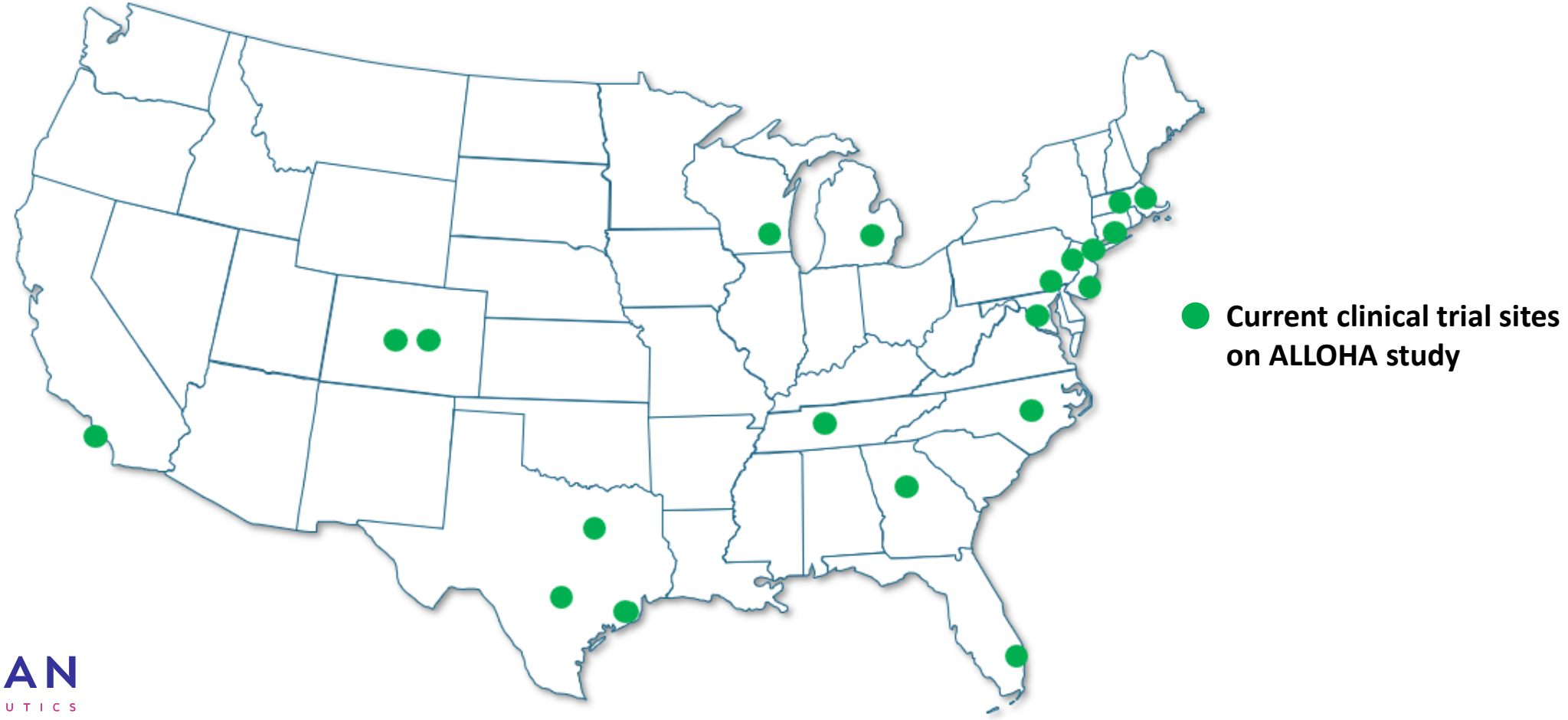


Price benchmarked to current cell therapies

Sources: CIBMTR, analyses from NMDP, allelefrequencies.net; Note: Addressable patient estimates account for HLA-eligibility (e.g., 42% HLA-A*02:01+ in the U.S.), ability to identify an appropriate haploidentical and/or MMUD donor, and future preference for RIC over MAC and use of haplo/MMUD transplants over MUD to enable TSC-101 eligibility. MUD: matched unrelated donor; MMUD: mismatched unrelated donor.

Current clinical trial sites include large transplant centers and provide broad geographical coverage

- Phase 1 currently includes 20 sites
- Adding up to 10 additional sites for the pivotal study
- Anticipate ~40 commercial sites at launch



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

	TSC-101	TSC-102-A0301	TSC-102-A0101	TSC-102-A2402	
HLA restriction:	**A*02:01**	**A*03:01**	**A*01:01**	**A*24:02**	**HLA Total**
U.S.	2.1k (42%)	1.1k (22%)	1.2k (24%)	800 (17%)	3.9k (~78%)
EU	3.9k (47%)	1.8k (25%)	2.0k (26%)	1.4k (19%)	6.8k (~83%)
APAC	1.5k (19%)	550 (7%)	1.1k (14%)	3.0k (37%)	4.0k (~50%)
Global Total	7.7k	3.5k	4.3k	5.2k	15.1k

TSC-101 targets ~45% of US and EU populations

Addition of HLA-A*03:01 and HLA-A*01:01 products expands U.S. and EU markets

Addition of an HLA-A*24:02 program unlocks broader APAC market

Sources: Allelefrequencies.net; Note: Patients can be positive for multiple HLA types.

Expansion opportunities for the program provide a way to reach about 20k AML and MDS patients in North America, Europe, and APAC

Capturing an expanding treatment landscape:

Expansion driven by launch of products for additional HLA types.* Plan to file INDs for TSC-102-A0301 and TSC-102-A0101 in 1Q 2026

Additional patient populations (e.g., relapse refractory patients, other indications) may become addressable with a proven safe and effective relapse prevention strategy

Source: SEER, CIBMTR, EBMT, APBMT, ClearView analysis
* Additional HLA types include A*03:01, A*01:01, and A*24:02

Heme Program Progress and Anticipated Milestones

- Reached agreement with FDA on pivotal trial design
- Transferred commercial-ready manufacturing process to external CDMO
- Two-year relapse data from initial TSC-101 patients **Dec 2025**
- File INDs for TSC-102-A0301 and TSC-102-A0101 **Q1 2026**
- Launch pivotal study for TSC-101 in **Q2 2026**

Q&A