ALAUNOS™ THERAPEUTICS

Attacking Solid Tumors with Novel TCR-T Cell Therapies

September 2022

Forward Looking Statements

This presentation contains forward-looking statements as defined in the Private Securities Litigation Reform Act of 1995, as amended. Forward-looking statements are statements that are not historical facts, and in some cases can be identified by terms such as “may,” “will,” “could,” “expects,” “plans,” “anticipates,” “believes” or other words or terms of similar meaning. These statements include, but are not limited to, statements regarding the Alaunos Therapeutics, Inc.'s (”Alaunos" or "the Company") business and strategic plans, the Company's ability to raise capital, and the timing of the Company's research and development programs, including the anticipated dates for enrolling and dosing patients in the Company’s clinical trials. Although the management team of Alaunos believes that the expectations reflected in such forward-looking statements are reasonable, investors are cautioned that forward-looking information and statements are subject to various risks and uncertainties, many of which are difficult to predict and generally beyond the control of Alaunos, that could cause actual results and developments to differ materially from those expressed in, or implied or projected by, the forward-looking information and statements. These risks and uncertainties include, among other things, changes in the Company’s operating plans that may impact its cash expenditures; the uncertainties inherent in research and development, future clinical data and analysis, including whether any of Alaunos’ product candidates will advance further in the preclinical research or clinical trial process, including receiving clearance from the U.S. Food and Drug Administration or equivalent foreign regulatory agencies to conduct clinical trials and whether and when, if at all, they will receive final approval from the U.S. Food and Drug Administration or equivalent foreign regulatory agencies and for which indication; the strength and enforceability of Alaunos’ intellectual property rights; and competition from other pharmaceutical and biotechnology companies as well as risk factors discussed or identified in the public filings with the Securities and Exchange Commission made by Alaunos, including those risks and uncertainties listed in the most recent Form 10-Q and Form 10-K filed by Alaunos with the Securities and Exchange Commission. We are providing this information as of the date of this presentation, and Alaunos does not undertake any obligation to update or revise the information contained in this presentation whether as a result of new information, future events, or any other reason.

Shareholder Value Creation:
A Clinical Stage TCR-T Company Targeting Solid Tumors

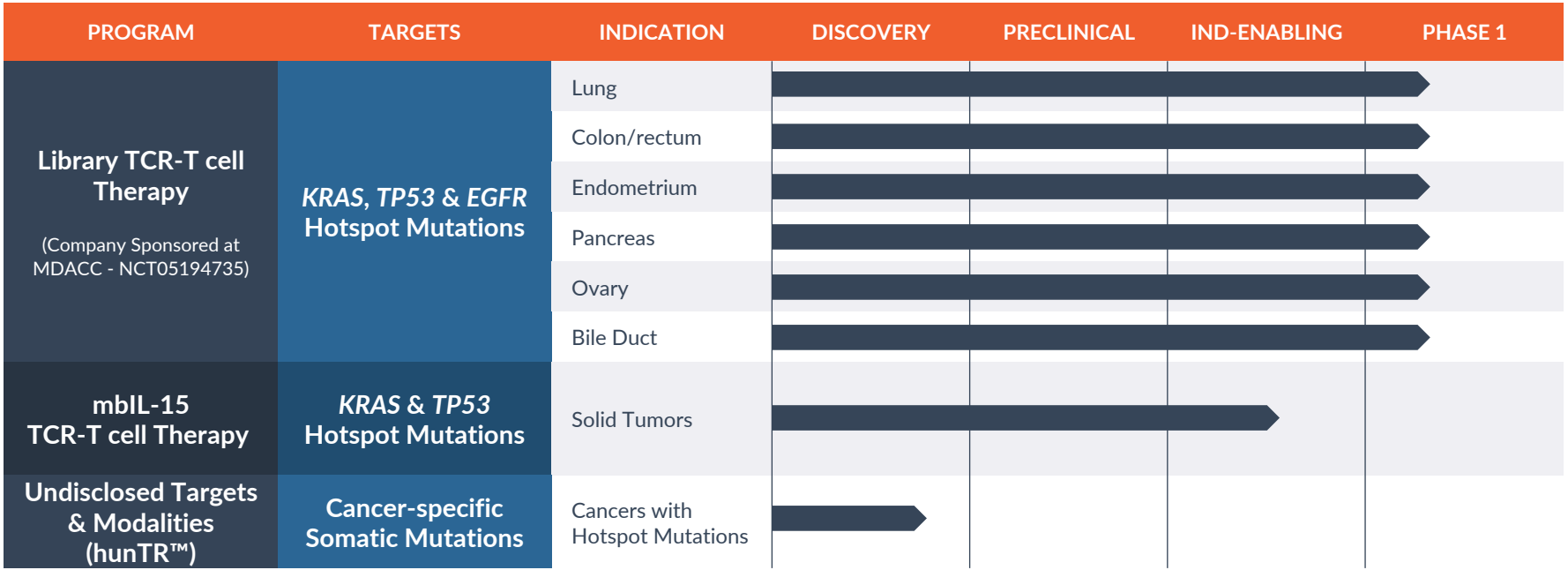
Weaponizing the immune system with powerful TCRs to treat solid tumors

Targeting driver mutations using T cells genetically modified with proprietary non-viral *Sleeping Beauty* platform

Vision 2022 – Execution Mindset, Delivering Results

1. Phase 1/2 TCR-T Library Trial Enrolling; Confirmed Partial Response in First Patient (NSCLC); Now Treating at Dose Level 2
2. Clinical Library of 10 TCRs (*KRAS*, *TP53*, *EGFR*) Targeting Six Solid Tumor Indications
3. Utilizing Internal cGMP Manufacturing Facility For TCR-T Library Trial
4. Proprietary TCR Discovery Platform, hunTR™, Expanding and Advancing the Pipeline

TCR-T Platform with Multiple Solid Tumor Programs in Pipeline



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TCR-T is Superior to Other Cell Therapy Approaches for Solid Tumors

	TCR-T	CAR-T	TIL
Target Intracellular & Extracellular Antigens	✓		✓
Proven Efficacy in Solid Tumors	✓		✓
Defined Target Specificity	✓	✓	
Targets Somatic Neoantigens	✓		✓
Established Transposon-based Gene Transfer	✓	✓	

Table above not based on head-to-head trials

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A Differentiated TCR-T Program Targeting Solid Tumors

Targeting Hotspot Mutations

Hotspot mutations are ideal targets for defeating cancer

***Sleeping Beauty* Technology**

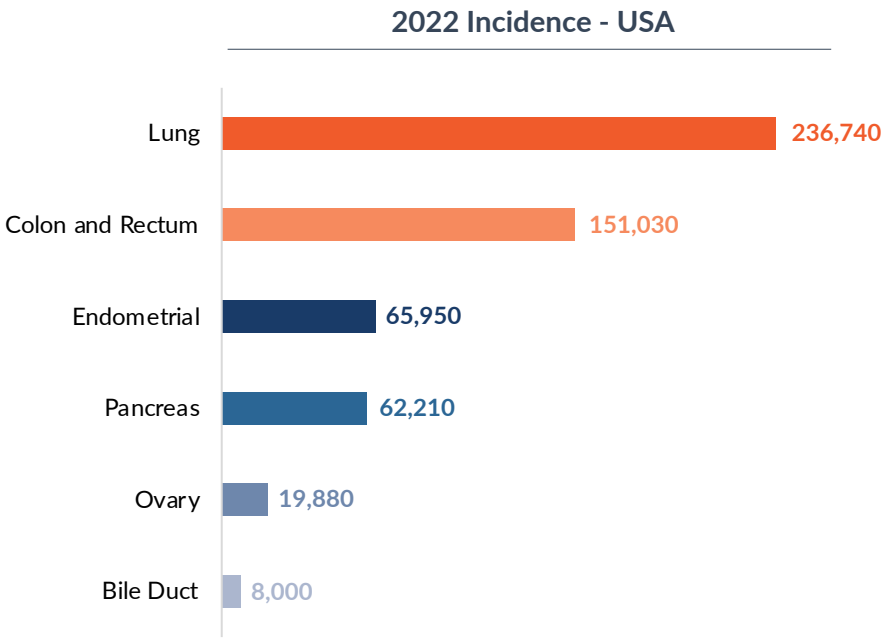
Non-viral transposition technology has favorable safety profile

Rapid, flexible & cost-effective manufacturing

hunTR™ Platform
(human neoantigen T cell Receptor)

Robust discovery engine enables expansion of TCR Library

Our TCR-T Cell Platform Targets Solid Tumors in Large Patient Populations with Unmet Clinical Need



- In the US, 92% of new cancer cases are solid tumors
- 4,804 patients are diagnosed every day with cancerous solid tumor
- 1,548 patients die every day from a solid tumor cancer

Source: https://www.cancer.org/research/cancer-facts-statistics/all-cancer-facts-figures/cancer-facts-figures-2022.html
https://www.cancer.org/cancer/bile-duct-cancer/about/key-statistics.html; CA CANCER J CLIN 2021;71:7–33

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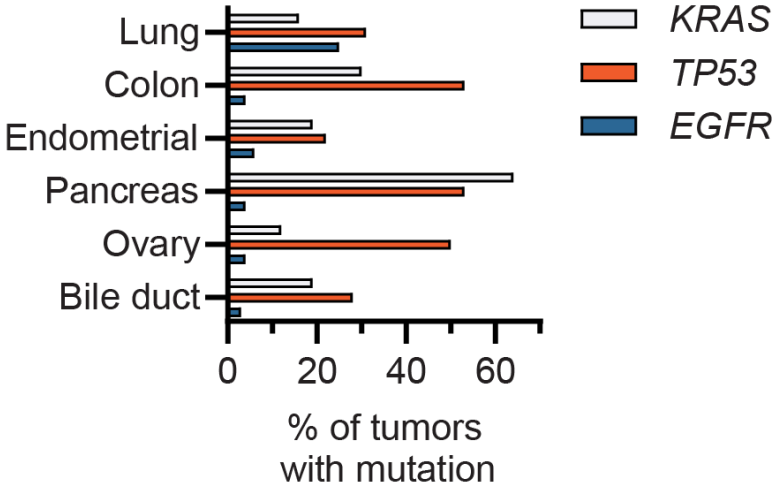
KRAS, *TP53*, *EGFR* Mutations are Commonly Expressed in Targeted Indications



- High frequency tumor targets, not expressed in normal tissues
- Killer TCR-T cells specific for the mutation without off-tumor toxicity
- Unmet clinical need for patients with solid tumors

Source: Catalogue of Somatic Mutations in Cancer (COSMIC) database https://cancer.sanger.ac.uk/cosmic

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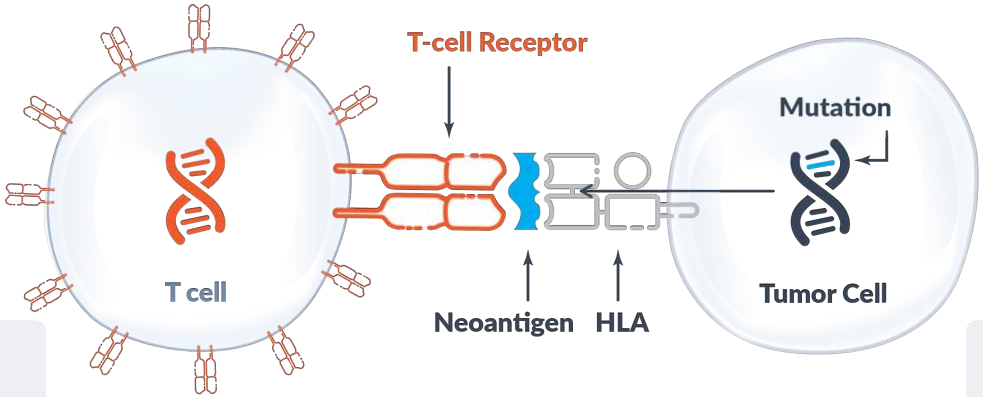
TCRs Can Give Patients' T Cells a New Ability to Recognize and Kill Tumor Cells with Common Mutations



T-cell Receptors

- Naturally occurring
- Highly specific
- Intracellular and extracellular targets

Neoantigens

- Derived from mutations
- Expressed by tumor, not in normal tissues
- Presented on the tumor surface by HLA

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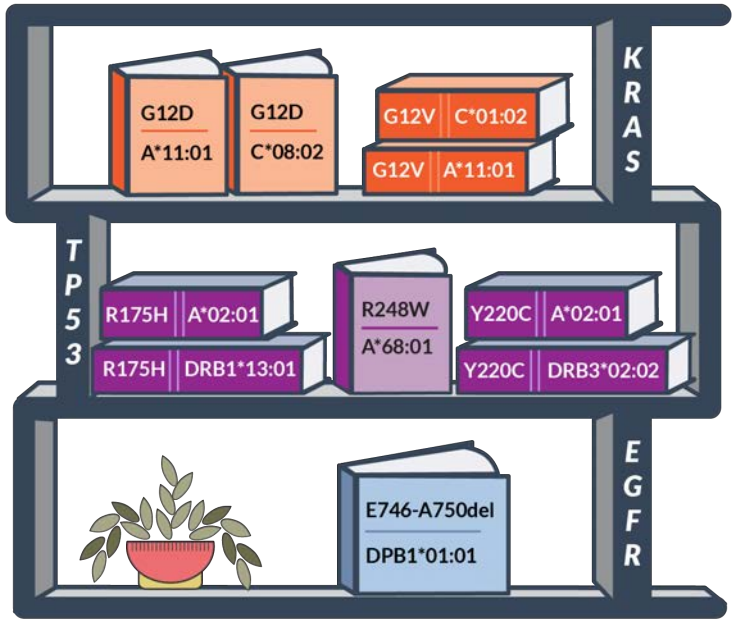
TCR Library Captures High Frequency Mutations and HLA Types



- Common HLAs are represented in our TCR library
- Certain mutations have more than one HLA restriction
- As more TCRs are added to our library, the addressable patient market size will further increase

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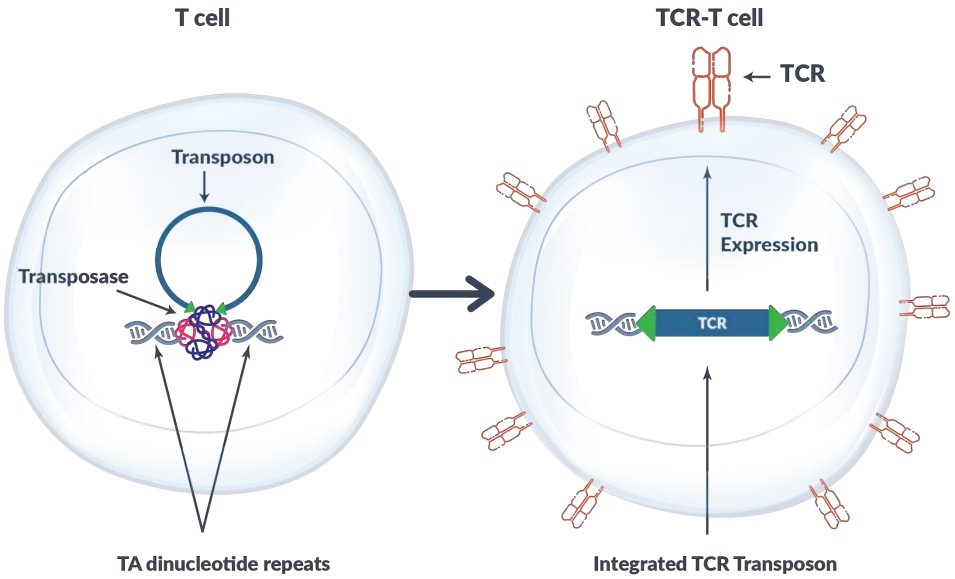
Non-viral *Sleeping Beauty* Platform for Manufacturing TCR-T Cells without the Complexity of Gene Editing



- Efficient integration without the complexity of gene editing or viral approaches
- Rapid, cost-effective manufacturing
- Flexible approach to add TCRs; attractive choice for library
- Platform can accommodate large transgene size
- Process scalable for clinical production

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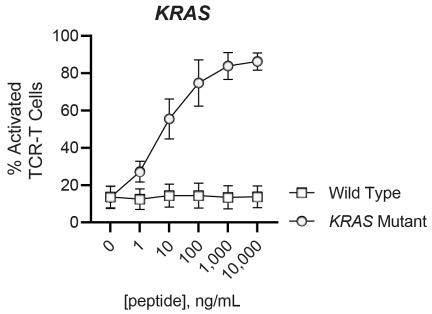
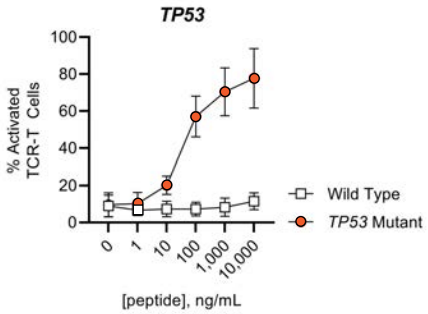
TCR-T Cells Recognize *KRAS*, *TP53*, *EGFR* Mutations and Kill Solid Tumor Cells

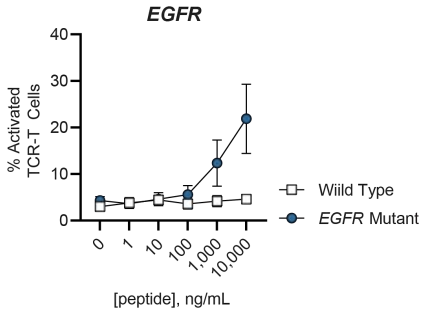
Powerful TCRs:
Naturally-occurring, high avidity TCRs recognize low levels of neoantigens

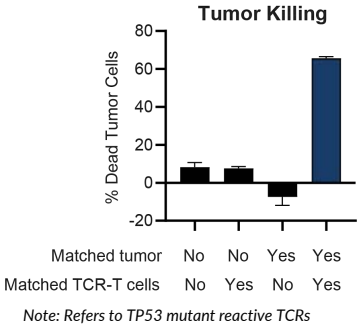
No off-target toxicity observed:
Specificity for the mutation with negligible recognition of the wild type sequences

Tumor killing:
Recognition of tumor cells that express mutation and HLA









Note: Refers to TP53 mutant reactive TCRs

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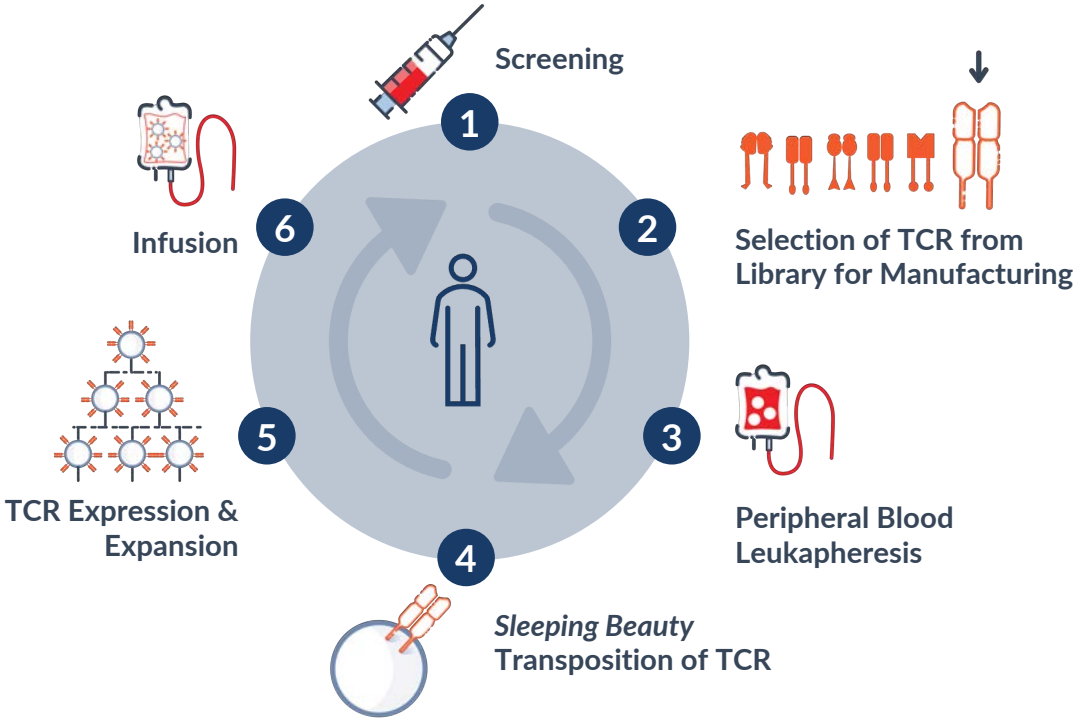
Each Autologous TCR-T Cell Product is Manufactured with a TCR Matched for the Patient's Mutation and HLA Type



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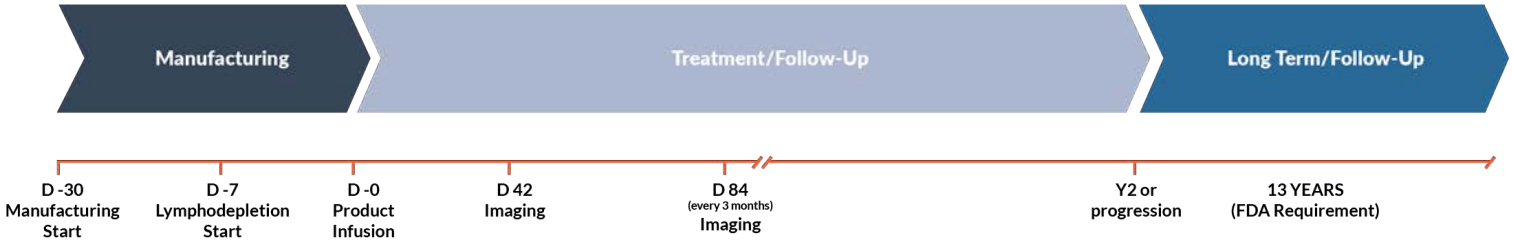
Actively Enrolling First-in-Human TCR-T Clinical Trial with Innovative Library Approach



- Trial enrolling patients where a TCR matching a neoantigen / HLA pairing is available in our TCR-T library
- Phase I is a prospective, open-label, dose-escalation study of TCR-T cells in patients with progressive or recurrent solid tumors where standard therapy has failed to control disease
- Bayesian optimal interval design (BOIN) with accelerated dose escalation
- Enrolling in one of three dose cohorts: $5x10^9$, $4x10^{10}$, $1x10^{11}$

Phase I Objectives:

- Define dose limiting toxicity (DLT) and the maximum tolerated dose (MTD) or recommended phase II dose (RP2D)
- Evaluate the feasibility of TCR-T cell drug product manufacturing

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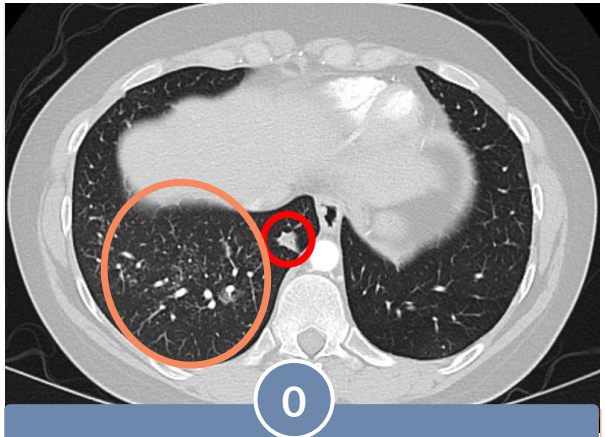
Confirmed Partial Response in Patient #1 Following Treatment with *Sleeping Beauty* TCR-T Cells

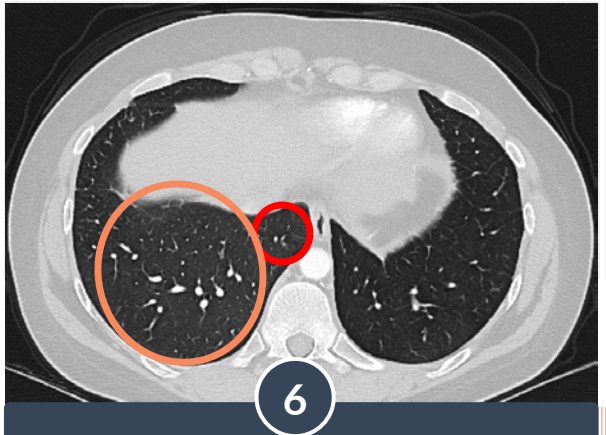
Patient #1	
Indication	Checkpoint inhibitor and chemotherapy refractory NSCLC
TCR Library Match	KRAS G12D mutation and HLA-A*11:01
Dose Level	Treated at dose level 1 with 9 billion TCR-T cells
Safety	Manageable safety profile with no dose limiting toxicities observed
Persistence	TCR-T cell persistence greater than 22% of total T cells and ongoing at three months post infusion

Patient #1: Complete Resolution of Right Lower Lobe Target Lesion



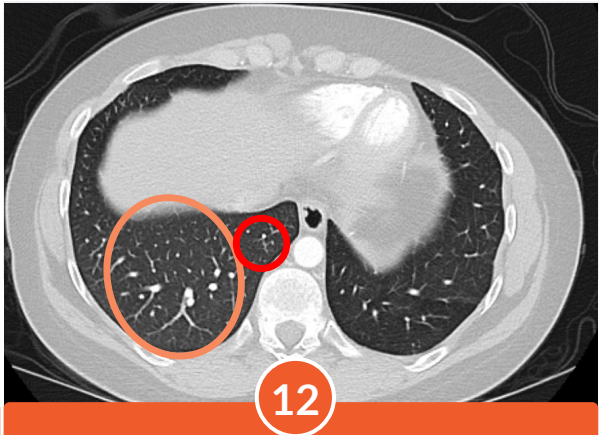
0

Baseline
1.3 cm



6

Week 6
0.0 cm

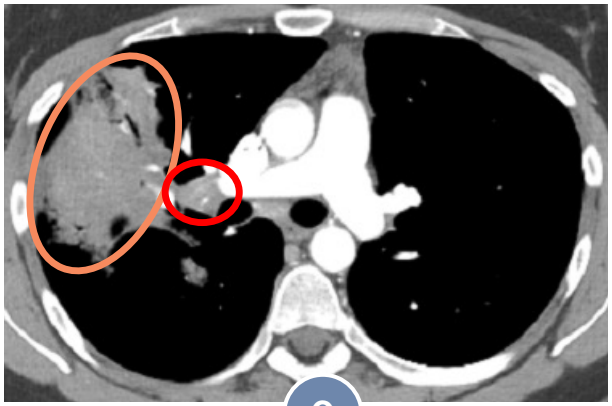


12

Week 12
0.0 cm

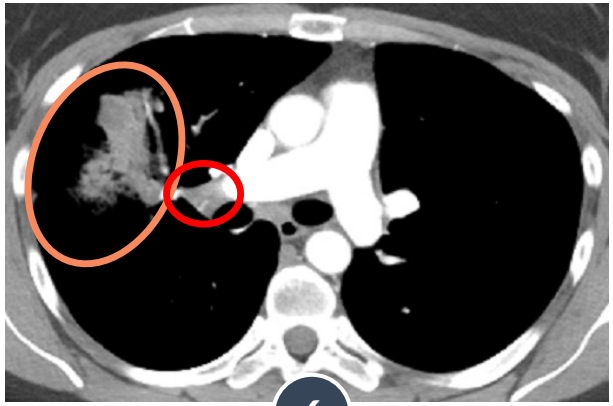
Note: Red circle represents target lesion

Patient #1: Reduction of Right Hilar Lymph Node



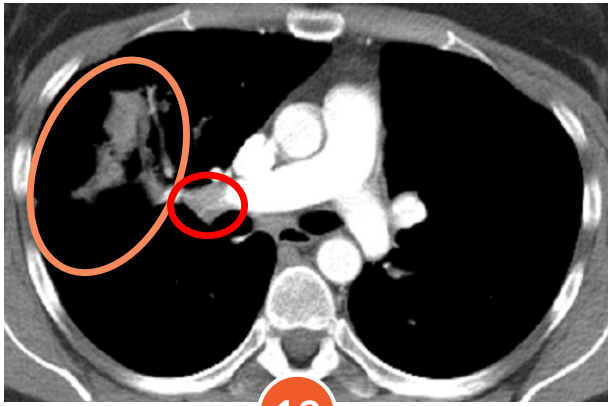
0

Baseline
1.5 cm



6

Week 6
1.1 cm

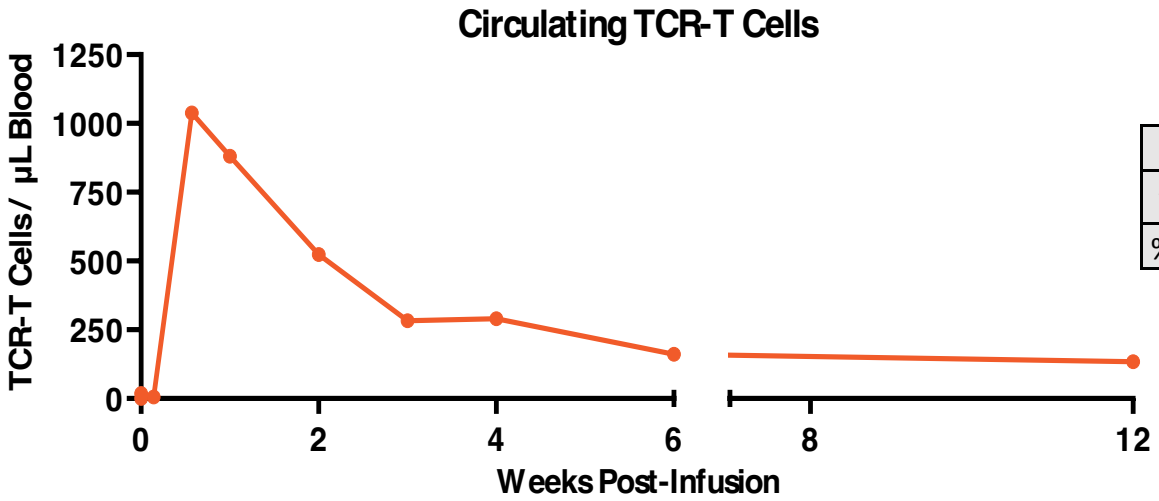


12

Week 12
1.0 cm

Note: Red circle represents target lesion

Patient #1: TCR-T Cells Exhibited Rapid Expansion and Ongoing Persistence at Week 12



	Day 4	Week 12
TCR-T Cells/µL	1,038	134
TCR-T Copies/µg	$5x10^5$	$2.5x10^4$
% TCR-T+ of CD3+	98.4%	22.5%

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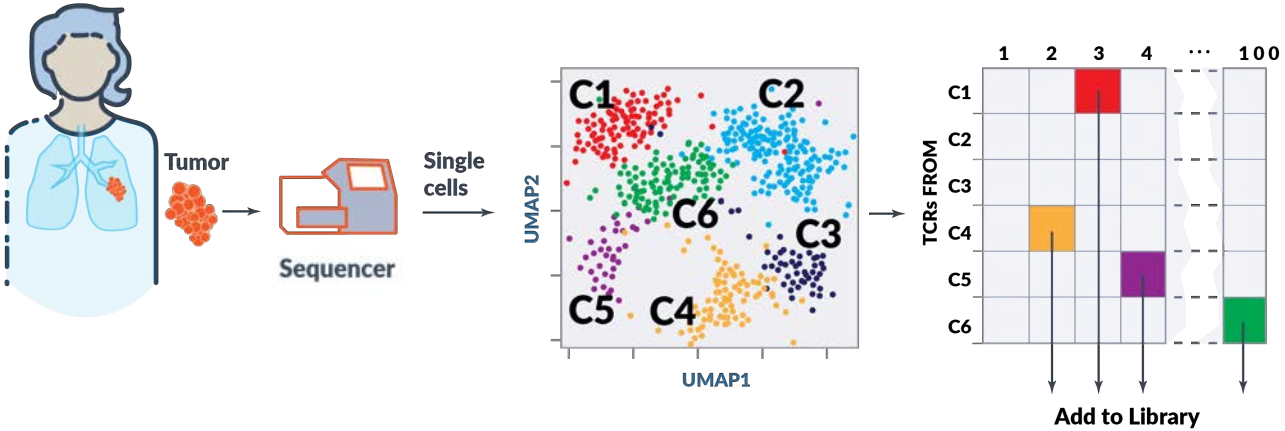
Promising Data Demonstrates Potential of TCR-T Cell Therapy in Solid Tumors

Patient	Dose (TCR-T Cells)	Best Response	Time on Trial
1	9 Billion	Partial Response	5 months and ongoing
2	64 Billion	Stable Disease	3 months

- First report of successful TCR-T cell therapy using non-viral *Sleeping Beauty* system for solid tumors
- Proof of concept of manufacturing TCR-T targeting *KRAS* and *TP53*
- Phase I enrollment ongoing at dose level 2 for patients with advanced solid tumors

hunTR™ Program Rapidly Expands TCR Library Targeting Hotspot Mutations



- Focus on neoantigens, particularly those arising from hotspot mutations
- Empirical screening of TCRs from CD4+ and CD8+ T cells directly from tumor
- High-throughput TCR screening

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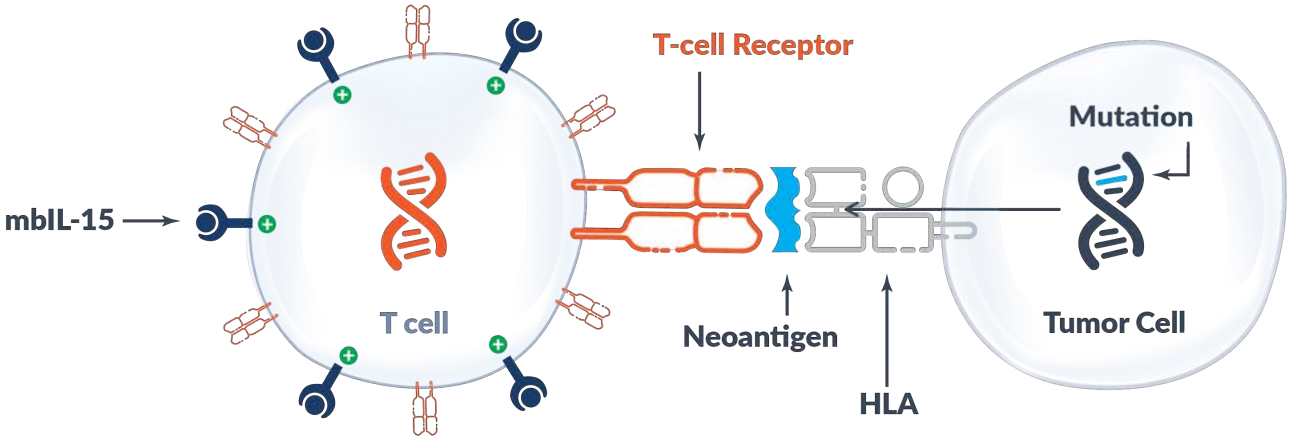
mbIL-15 Improves the Persistence and Anti-tumor Activity of TCR-T cells in the Tumor Microenvironment (TME)



- Pro-survival signaling limits negative signals from the TME
- Stem-cell memory mbIL-15 TCR-T cells regenerate TCR-T cells
- Limit effects of HLA loss by supporting TILs and NK cells
- Potential for TCR-T cell therapy without lymphodepletion

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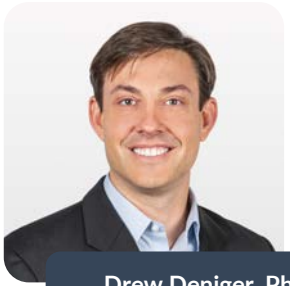
Experienced Management Team

Kevin S. Boyle, Sr.
Chief Executive Officer

Melinda Lackey
SVP Legal



Drew Deniger, PhD
VP Research & Development

Abhishek Srivastava, PhD
VP Research & Development

Mike Wong
VP Finance

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