ALAUNOS™ THERAPEUTICS

Attacking Solid Tumors with Novel TCR-T Cell Therapies

July 2023

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.

Delivering the Promise:
Revolutionizing Solid Cancer Treatment with TCR-T

2022

Significant Accomplishments

First TCR-T objective clinical response in solid tumors

Doubled addressable market

Doubled manufacturing capacity

Validated hunTR®

2023

Anticipated Milestones

Phase 2 readiness

Expand TCR library to 15

File IND for mbIL-15 TCR-T

2024+

Building for the Future

Pivotal clinical trials

Combination therapies

Treat patients with multiple TCRs

Robust Solid Tumor Program Pipeline with Multiple Near-Term Inflection Points

PROGRAM	TARGETS	INDICATION	PRECLINICAL	IND-ENABLING	PHASE 1	PHASE 2
Library TCR-T Cell Therapy	***KRAS*** *G12D & G12V* ***TP53*** *R175H, R248W, R273C & Y220C* ***EGFR*** *E746-A750del*	Lung				
		Colon/Rectum				
		Endometrium				
		Pancreas				
		Ovary				
		Bile Duct				
mbIL-15 TCR-T Cell Therapy	***KRAS & TP53*** Mutations	Solid Tumors				
Multiplex TCR-T Cell Therapy	Multiple targets per patient	Solid Tumors				

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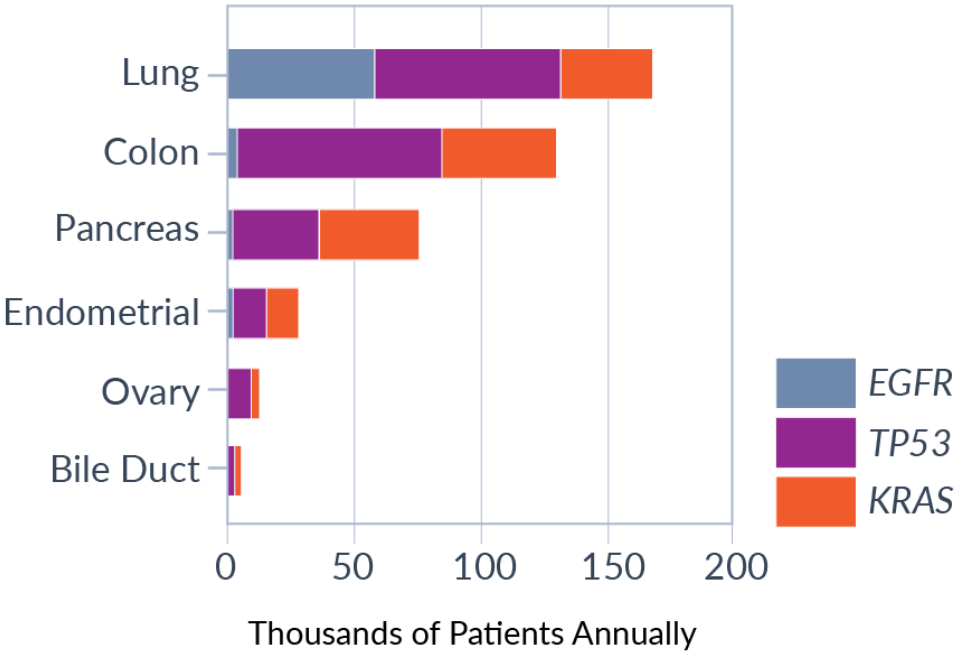
Driver Mutations are Ideal Targets for TCR-T Cells to Treat Solid Tumors

Target	Examples	Key Advantages	Key Disadvantages
Driver Mutations	**Mutated *EGFR*, *KRAS* or *TP53***	• **Drives cancer** • **Highly expressed targets** • **Not on normal tissue** • **Large addressable market**	• **Single targets**
Tumor Associated Antigens	NY-ESO-1, MAGE, PRAME, MART-1, gp100	• Overexpressed on multiple cancer types	• Small addressable market • Potential cross reactivity with normal tissues
Viral Antigens	HPV, EBV, HBV	• Not on normal tissues • Highly expressed target	• Limited to few cancers • Immune editing from chronic viral infection
Individualized Mutations	Mutations expressed by patient's cancer	• Treatment of multiple targets • Large addressable market	• Long time to treatment • Labor intensive • Inherent difference between patients

Alaunos Evaluating TCR-T Against the Most Frequently Mutated Genes in Solid Tumors: *KRAS, TP53, EGFR*



Nearly 2 million solid tumors cases diagnosed in United States annually

Limited approved drugs for these high value targets

These six indications represent ~600,000 new cases per year

Source: Most recent catalogue of Somatic Mutations in Cancer (COSMIC) database

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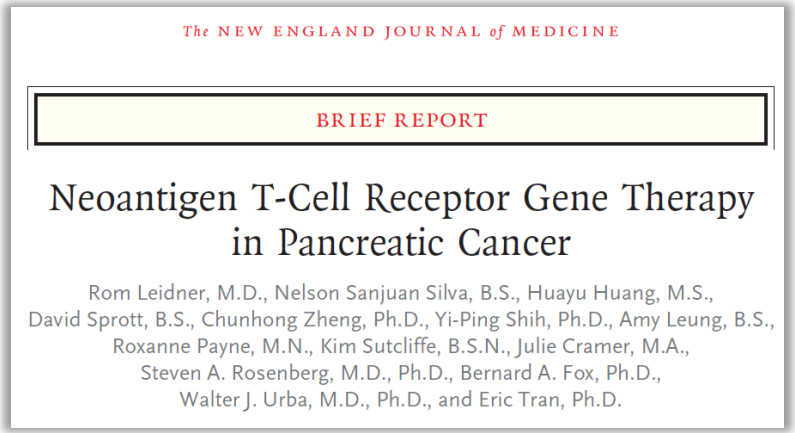
Confirmed Responses from Leading Academic Institutions Corroborate Targeting Driver Mutations with TCR-T Cells



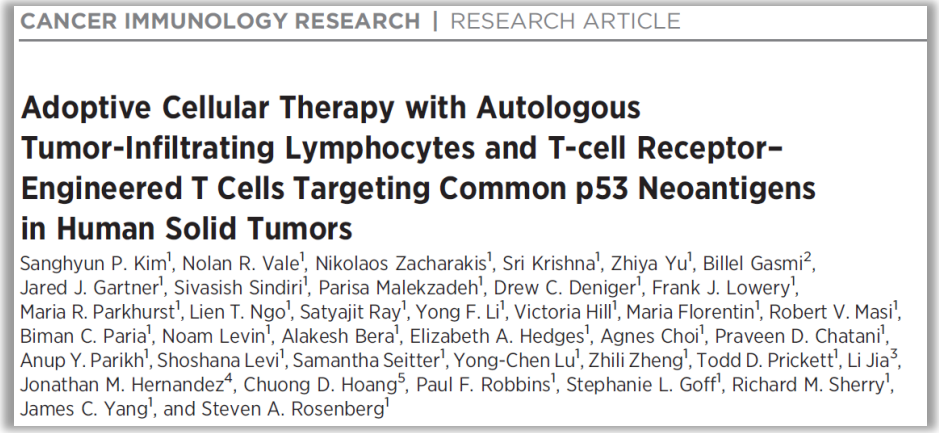
The NEW ENGLAND JOURNAL of MEDICINE

BRIEF REPORT

Neoantigen T-Cell Receptor Gene Therapy in Pancreatic Cancer

Rom Leidner, M.D., Nelson Sanjuan Silva, B.S., Huayu Huang, M.S., David Sprott, B.S., Chunhong Zheng, Ph.D., Yi-Ping Shih, Ph.D., Amy Leung, B.S., Roxanne Payne, M.N., Kim Sutcliffe, B.S.N., Julie Cramer, M.A., Steven A. Rosenberg, M.D., Ph.D., Bernard A. Fox, Ph.D., Walter J. Urba, M.D., Ph.D., and Eric Tran, Ph.D.

Greater than 70% tumor reduction of metastatic pancreatic cancer six months after infusion of KRAS-G12D and HLA-C*08:02 reactive TCR-T cells



CANCER IMMUNOLOGY RESEARCH | RESEARCH ARTICLE

Adoptive Cellular Therapy with Autologous Tumor-Infiltrating Lymphocytes and T-cell Receptor–Engineered T Cells Targeting Common p53 Neoantigens in Human Solid Tumors

Sanghyun P. Kim[1], Nolan R. Vale[1], Nikolaos Zacharakis[1], Sri Krishna[1], Zhiya Yu[1], Billel Gasmi[2], Jared J. Gartner[1], Sivasish Sindiri[1], Parisa Malekzadeh[1], Drew C. Deniger[1], Frank J. Lowery[1], Maria R. Parkhurst[1], Lien T. Ngo[1], Satyajit Ray[1], Yong F. Li[1], Victoria Hill[1], Maria Florentin[1], Robert V. Masi[1], Biman C. Paria[1], Noam Levin[1], Alakesh Bera[1], Elizabeth A. Hedges[1], Agnes Choi[1], Praveen D. Chatani[1], Anup Y. Parikh[1], Shoshana Levi[1], Samantha Seitter[1], Yong-Chen Lu[1], Zhili Zheng[1], Todd D. Prickett[1], Li Jia[3], Jonathan M. Hernandez[4], Chuong D. Hoang[5], Paul F. Robbins[1], Stephanie L. Goff[1], Richard M. Sherry[1], James C. Yang[1], and Steven A. Rosenberg[1]

55% tumor reduction of metastatic breast cancer six months after infusion of TP53-R175H and HLA-A*02:01 reactive TCR-T cells

Alaunos is the only company in the clinic with these TCRs in its library

Sources: Leidner R et al. N Engl J Med. 2022 Jun 2;386(22):2112-2119. doi: 10.1056/NEJMoa2119662.
Kim SP et al. Cancer Immunol Res. 2022 Jun 24:OF1-OF15. doi: 10.1158/2326-6066.CIR-22-0040.

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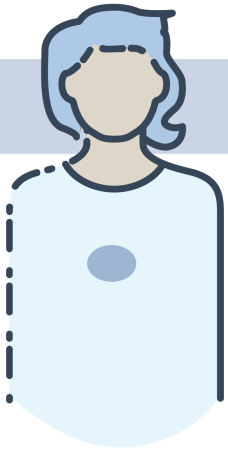
Differentiated Approach to Convert Natural T-Cell Responses into TCR-T Cell Therapy for a Broad Patient Population



Patient 1 with Target A

TCR Source

Natural TIL Response to Target A

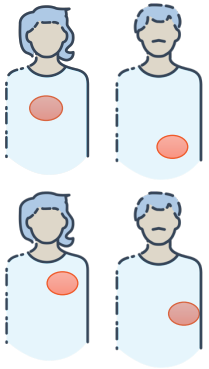
TCR Library

1. Isolate Reactive TCR to Target A
2. Make ***Sleeping Beauty*** TCR Transposon
3. Add to Library of Pre-Made TCRs

Manufacture

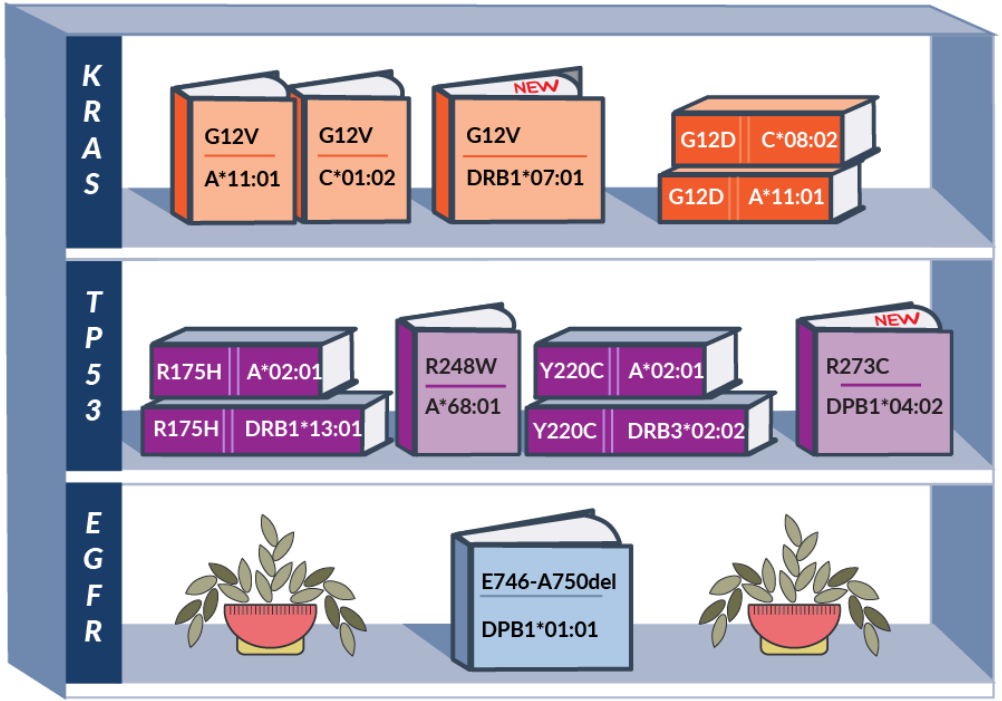
Autologous TCR-T Cells Reactive to Target A

TCR-T Cell Therapy



Multiple Patients with Target A

Industry Leading TCR Library Captures Both High Frequency Mutations and HLA Types



- In over 700 patients screened, 15% match rate to a TCR in our library
- Two-pronged library expansion strategy:
  1. Add more HLAs to existing mutations
  2. Add more mutations to KRAS, TP53, EGFR
- Our TCR library contains mutations from genes that are known to drive cancer and are highly expressed by tumors
- Mutations in our library are among the most frequent and most mutated genes in solid tumors
- HLAs that present our mutations are prevalent in the United States

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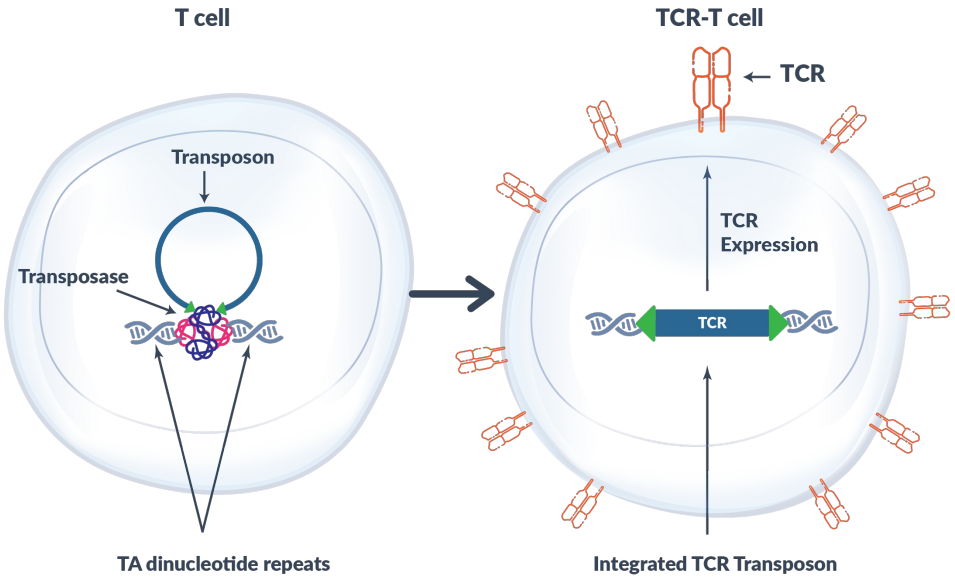
Non-viral *Sleeping Beauty* Platform Ideal for Manufacturing TCR-T Cells without Complexity of Gene Editing



- Efficient, essentially random integration without 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
- Expected to be scalable for commercialization

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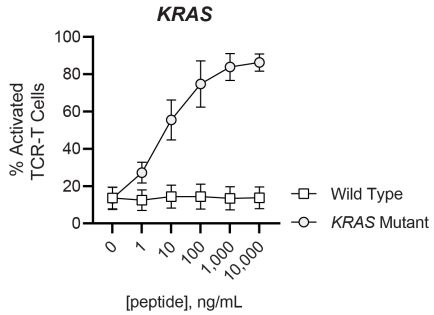
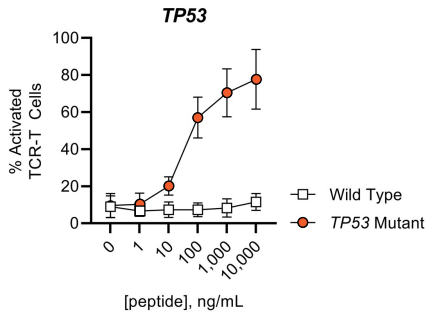
TCR-T Cells Recognize *KRAS*, *TP53*, *EGFR* Mutations and Kill Solid Tumor Cells

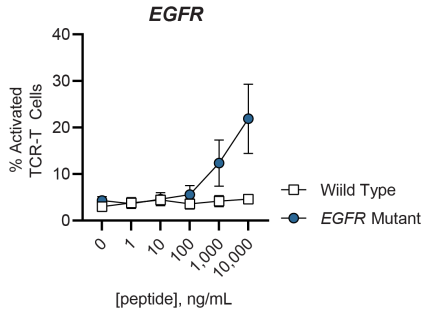
Powerful TCRs:
Naturally-occurring, high avidity TCRs recognize low levels of neoantigens

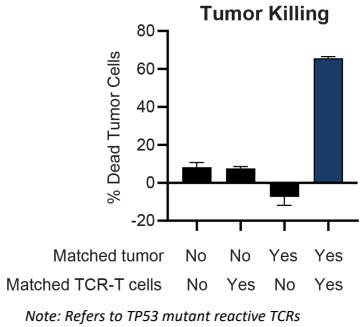
No off-target toxicity observed:
Specificity for the mutation with negligible recognition of wild type sequences

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









Note: Refers to TP53 mutant reactive TCRs

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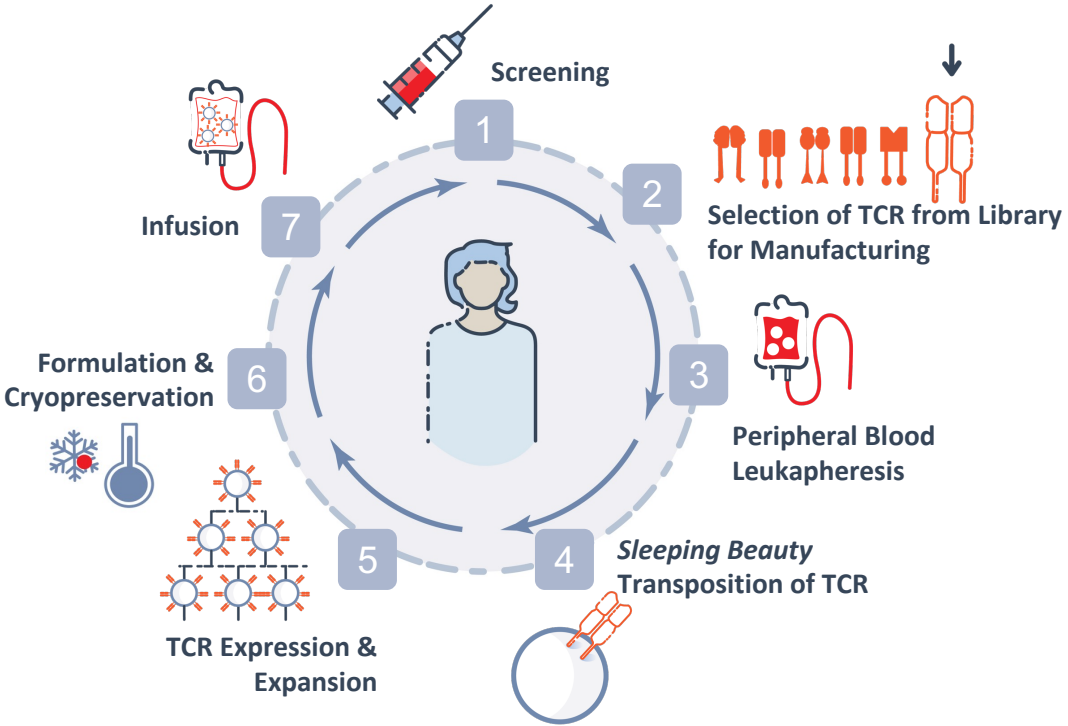
TCR-T Cell Products are Manufactured with a TCR Matched to Each Patient's Tumor Mutation and HLA Type



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Universal, In-House Manufacturing Platform Delivers High Quality TCR-T Cell Products

	Patient 1	Patient 2	Patient 3
Mutation	KRAS-G12D	TP53-R175H	KRAS-G12V
Indication	Lung	Colorectal	Pancreatic
Dose Level	One	Two	Two
Viability	97%	93%	93%
Total TCR-T Cells	9 Billion	64 Billion	58 Billion
CD3+ Purity	99.7%	99.7%	99.1%
TCR+	95%	92%	91%

Ongoing Process Optimization

- Automation and closed process steps to increase throughput
- Reduction in overall manufacturing days and cost
- Improving the long-term viability of the commercial process

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

Phase 1

- Defines safety and dose with any TCR and any indication
- Enrolling in one of three dose cohorts: 5, 40 and 100 billion TCR-T cells

Phase 2

- Defines efficacy at recommended dose with any TCR in library
- Each cancer type will be a distinct cohort

Pivotal

- Selected indications and selected TCRs with efficacy in Phase 2
- IND can start while Phase 2 continues for other indications/TCRs

Vision for Commercial Product

- Multiple TCRs for use in multiple cancer types
- Early guidance from FDA supports our approach

First-in-Human Confirmed Response in Solid Tumors by *Sleeping Beauty* TCR-T Cell Therapy

SAFETY

Manageable safety profiles in first two dose levels

No DLTs

No ICANs

PERSISTENCE

Persisting TCR-T cells (20%-30%) in blood

TCR-T cells trafficking to tumor

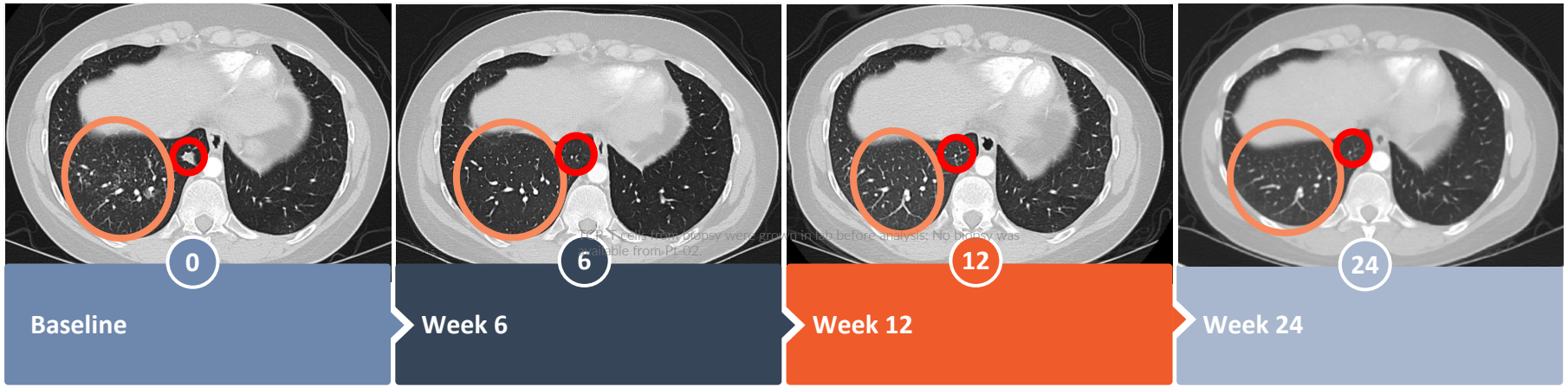
Maintenance of mutation and HLA post-treatment

EFFICACY

First TCR-T cell response in checkpoint inhibitor refractory NSCLC (>50% reduction)

Six-month progression-free survival comparable to approved KRAS drug

Patient 1 Showed Durable, Complete Resolution of NSCLC Lesion Through Six Months



- Patient 1 had multiple lines of prior therapy and was refractory to checkpoint inhibitors
- Treated with 9 billion TCR-T cells (dose level 1) targeting KRAS-G12D and HLA-A*11:01 with manageable safety profile
- Confirmed partial response; patient is now off-study after six-month progression-free survival

Red circles represent target lesions, orange circles represent non-measurable disease

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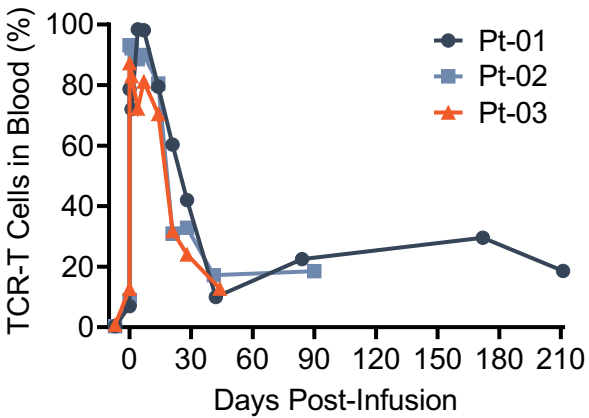
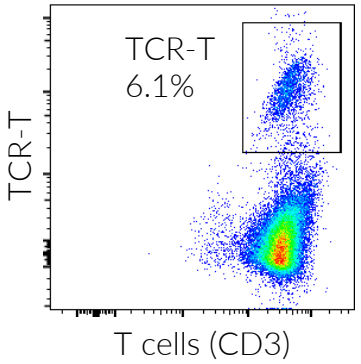
TCR-T Cells Persist in Blood and Traffic to Tumor Microenvironment

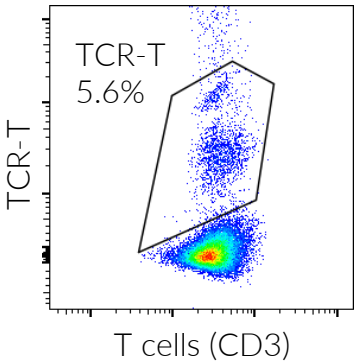
TCR-T Cell Expansion and Persistence in Blood



Patient 1:
Seven-Month Tumor Biopsy



Patient 3:
Six-Week Tumor Biopsy



- TCR-T cells were detected in peripheral blood at last follow-up
- Tumor trafficking up to seven months after infusion observed

TCR-T cells from biopsy were grown in lab before analysis. No biopsy was available from Pt-02.

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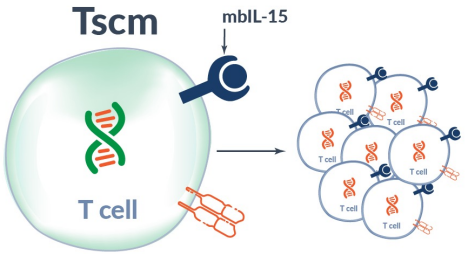
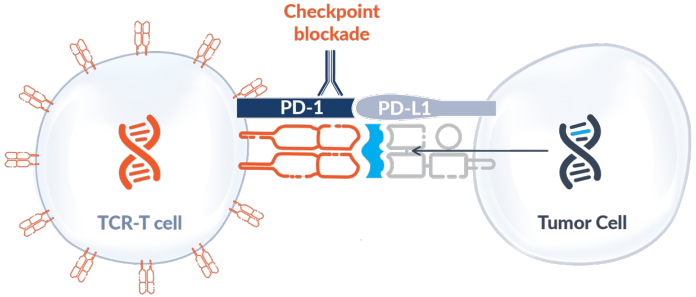
Next-Generation TCR-T Efforts Aim to Deepen Clinical Responses

Augmenting TCR-T Survival via Co-Expression of mbIL-15



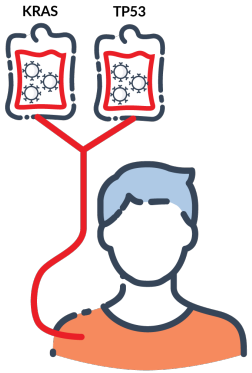
Regeneration of effector TCR-T cells in the tumor

Combine TCR-T and Immune Checkpoint Inhibitors



Reinvigorate TCR-T cells in the tumor microenvironment

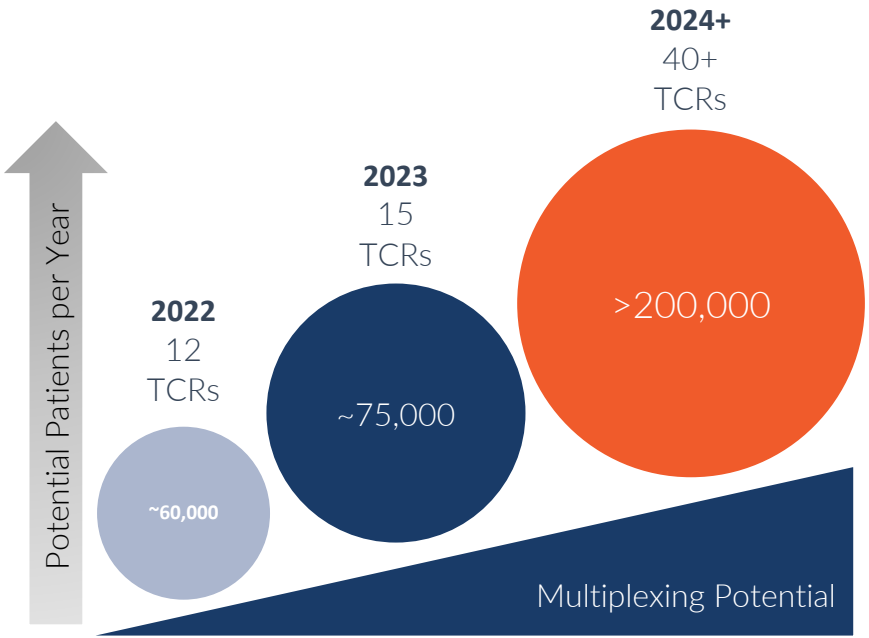
Multiple TCRs Infused into the Same Patient



Attack multiple targets on the tumor to potentially synergize TCR-T

ALAUNOS™ THERAPEUTICS

hunTR® Expands TCR Library, Increases Addressable Market and Enables Multiplexed TCR-T Cell Therapy



- Add new HLAs to existing mutations and add more key mutations within ***EGFR***, ***KRAS***, ***TP53***
- Matching data from clinical efforts inform which HLA/mutation combinations to prioritize
- ***Sleeping Beauty*** expected to allow for cost-effective and efficient expansion of TCR library for clinic
- Expect out-licensing opportunities of selected proprietary TCRs

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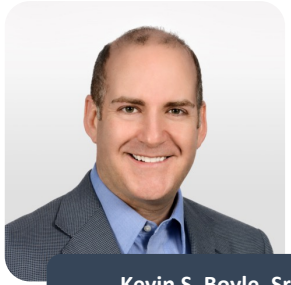
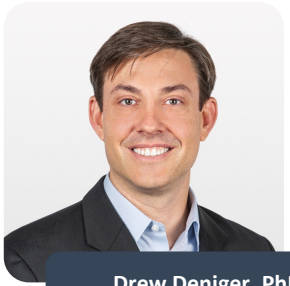
Experienced Management Team



Kevin S. Boyle, Sr.
Chief Executive Officer

Melinda Lackey
SVP Legal

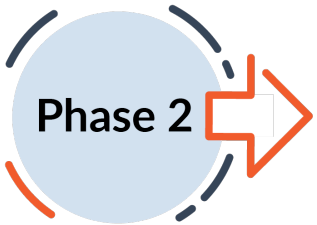


Drew Deniger, PhD
VP Research & Development

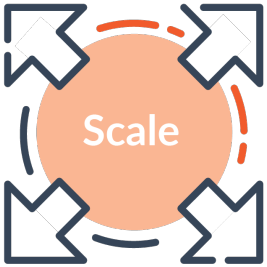
Abhishek Srivastava, PhD
VP Technical Operations

Mike Wong
VP Finance

2023 Milestones Designed to Cement Our Leadership Position in TCR-T Cell Therapy for the Treatment of Solid Tumors



Advance TCR-T Library trial to Phase 2



Optimize manufacturing process towards commercial scalability

New IND for mbIL-15 TCR-T

Expand TCR Library to 15 TCRs

Translational assessment-driven next-gen TCR-T

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