ALAUNOS™ THERAPEUTICS

Neoantigen-targeting TCR engineered cellular therapy for TP53, EGFR and RAS-mutant tumors

Hawaii Global Summit for Thoracic Malignancies

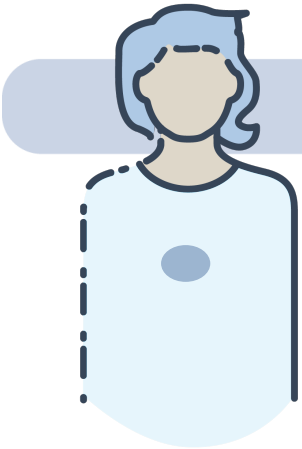
June 30, 2023

PRESENTED BY
Matthew Collinson-Pautz, PhD, Director Translational Sciences

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.

Differentiated Approach to Convert Natural T-Cell Responses into Mutation-Targeted TCR-T Cell Therapy in Solid Tumors



Patient with Driver Mutation (*EGFR, KRAS, TP53…)*

TCR Source

Natural TIL Response to Driver Mutation

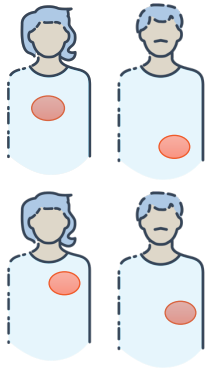
TCR Library

1. Isolate Reactive TCR to Driver Mutation
2. Make non-viral ***Sleeping Beauty*** TCR Transposon
3. Add to Library of "ready-to-go" TCR non-viral vectors

Manufacture

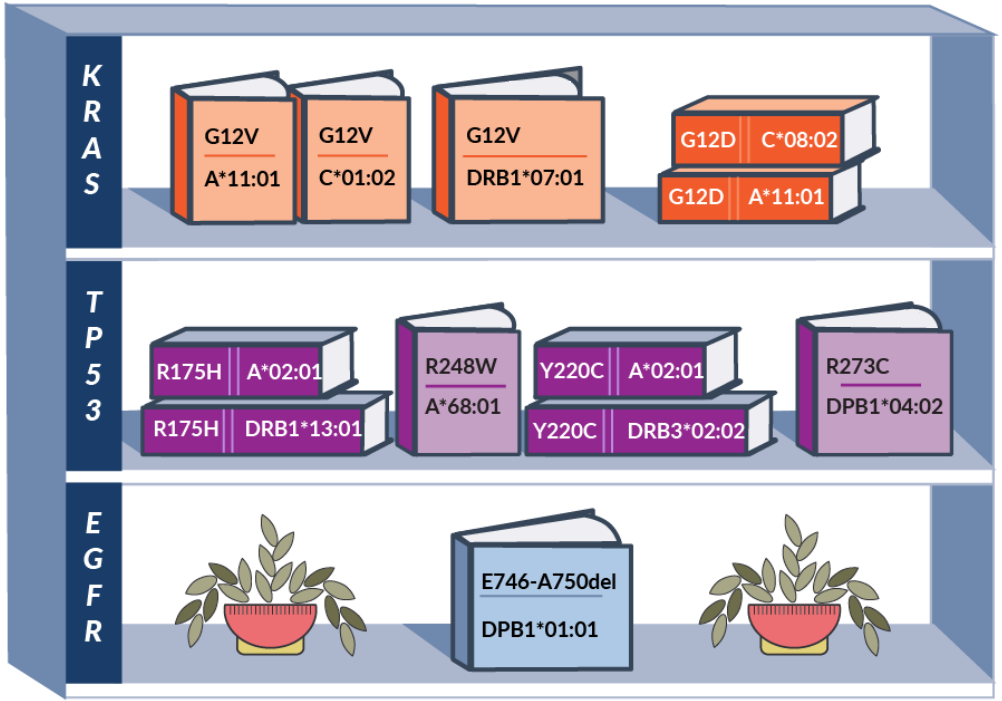
Autologous TCR-T Cells Reactive to Driver Mutation

TCR-T Cell Therapy



Multiple Patients with Driver Mutation

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
- 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
- Two-pronged library expansion strategy:
  1. Add more HLAs to existing mutations
  2. Add more mutations to KRAS, TP53, EGFR

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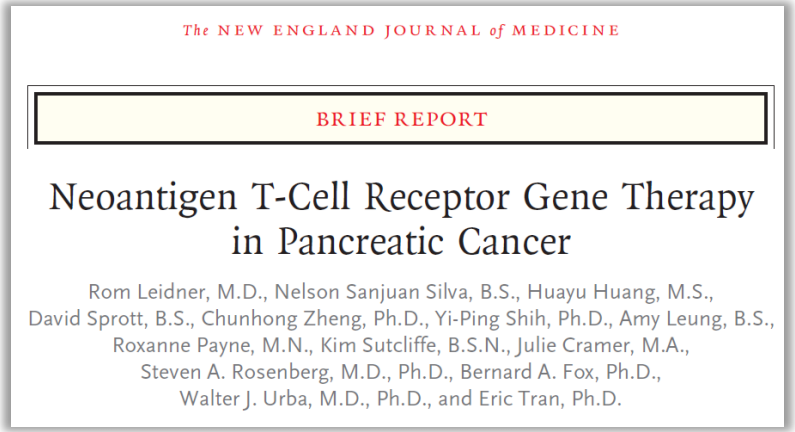
Confirmed Responses from Leading Academic Institutions Corroborate Targeting Driver Mutations with TCR-T Cells



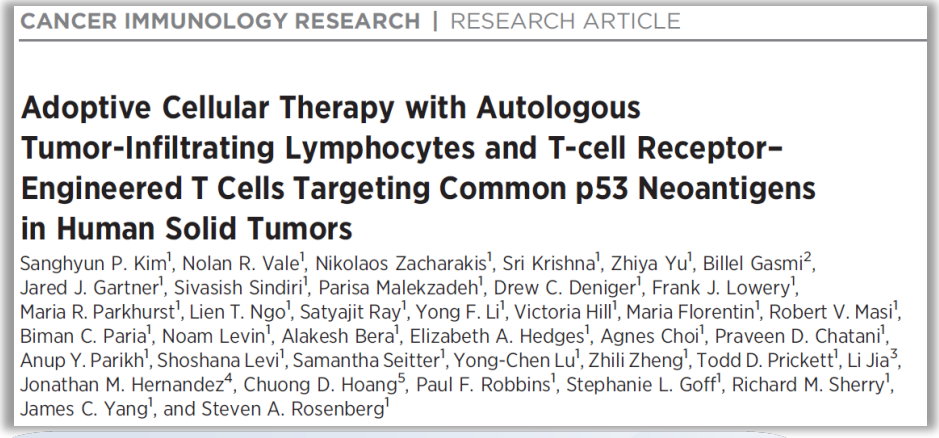
The NEW ENGLAND JOURNAL of MEDICINE

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

Phase 1

- Defines safety and dose with any TCR and any of six indications
- 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
- Expansion into other indications/TCRs during Phase 2 for lead candidates

First-in-Human Clinical Experience in Solid Tumors by TCR-T Cell Therapy with Manageable Safety and Evidence of Efficacy

SAFETY

Manageable safety profiles to date

Gr1 – 3 CRS observed (fever, hypoxia, hypotension)

Lymphodepletion-related lymphopenia, neutropenia, thrombocytopenia

Anemia requiring transfusion

No ICANS, No DLTs

PERSISTENCE

Persisting TCR-T cells (20%-30%) in blood in the absence of IL-2

Evidence of potential T-cell activation post-infusion

TCR-T cells trafficking to tumor

EFFICACY

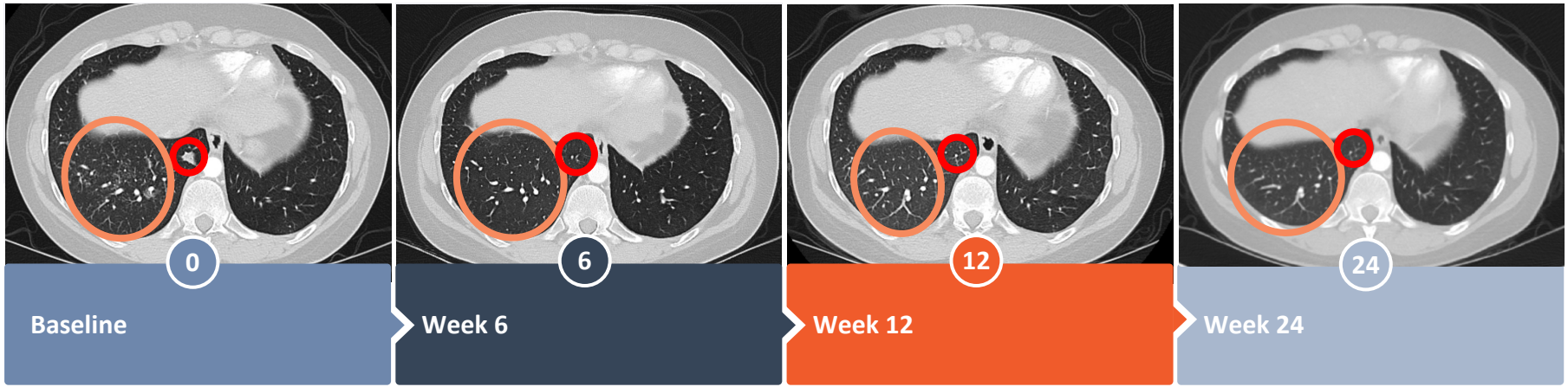
First TCR-T cell response in checkpoint inhibitor refractory NSCLC (>50% reduction)

Six-month progression-free survival in Patient 1 (NSCLC) with Partial Response

Best overall responses in Patient 2 (CRC) and Patient 3 (PDAC), Stable Disease and Progressive Disease

CRS – Cytokine Release Syndrome, DLT – Dose limiting toxicity, ICANS - Immune effector cell-associated neurotoxicity syndrome
Clinical trial update: Morelli MP et al. Abstract #2547 ASCO Annual Conference 2023

Patient 1 Showed Confirmed Partial Response of KRAS-G12D Mutant Lung Adenocarcinoma with 6 Month PFS



- 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 off-study after six-month progression-free survival

Red circles represent target lesions, orange circles represent non-measurable disease
Patient 1 case report presented: Negrao MV et al. CRI-ENCI-AACR International Cancer Immunotherapy Conference 2022

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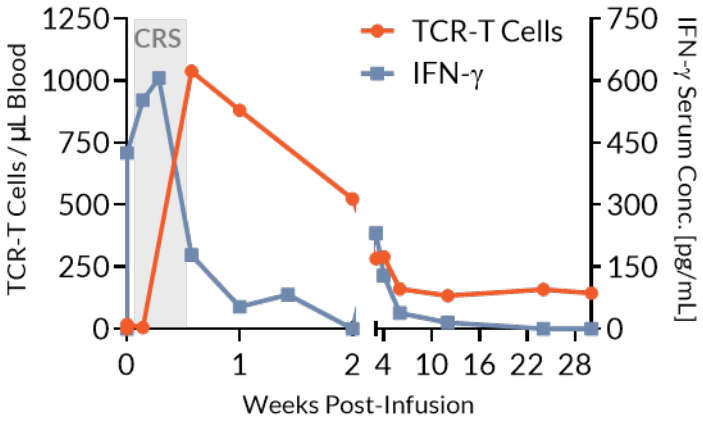
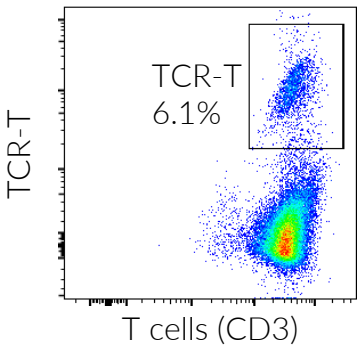
TCR-T Cells Persist in Blood and Traffic to Tumor Microenvironment

TCR-T Cell Expansion and Persistence in Blood
Patient 1



Seven-month Tumor Biopsy
Patient 1



- TCR-T cells expanded and were detectable in peripheral blood at last follow-up
- Elevated Th1 effector cytokines during TCR-T expansion phase
- Tumor trafficking seven months after infusion observed

(Left) CRS – Cytokine release syndrome. Patient 1 experienced self-limiting Grade 2 CRS following TCR-T administration.
(Right) TCR-T cells from biopsy taken at seven months post-infusion from Patient 1 were grown in lab before analysis

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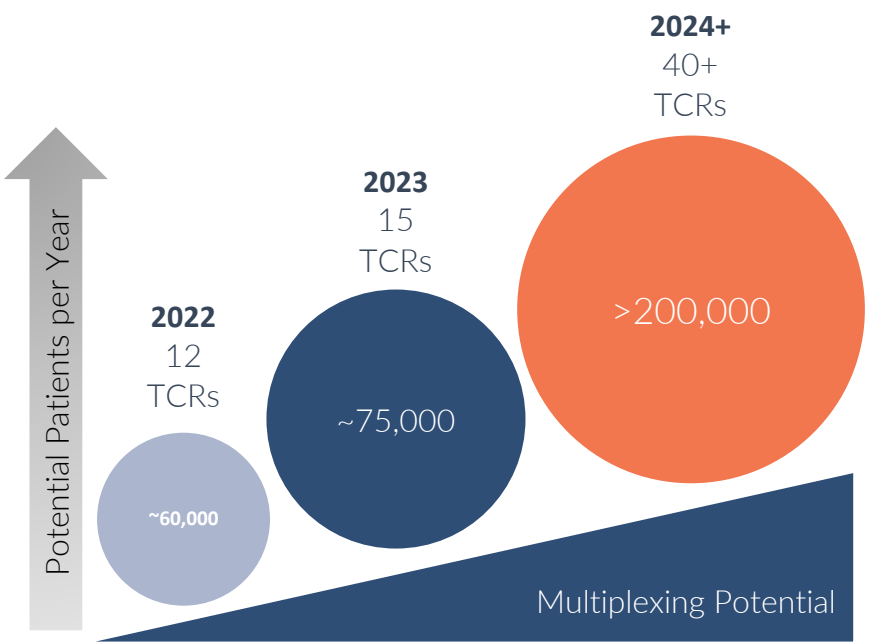
hunTR® Expands TCR Library, Extends Patient Reach and Enables Multiplexed TCR-T Cell Therapy



- 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

Gu G. et al. hunTR: A hyperplex platform for the discovery of neoantigen-reactive T-cell receptors. SITC Annual Conference 2022

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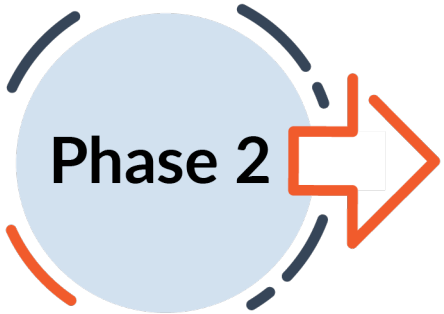
Driving Towards The Future of Mutation-Targeted TCR-T Cell Therapy For Solid Tumors

Designed to Target Tumors Their Root

Evidence of Efficacy with TCR-T Targeting Mutations



Advancing TCR-T Library Trial to Phase 2

hunTR®
Expand TCR Library to Reach More Patients

Data-Driven Discovery to Target the Most Tumors

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Thank You

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Phase 1/2 TCR-T Clinical Trial NCT05194735