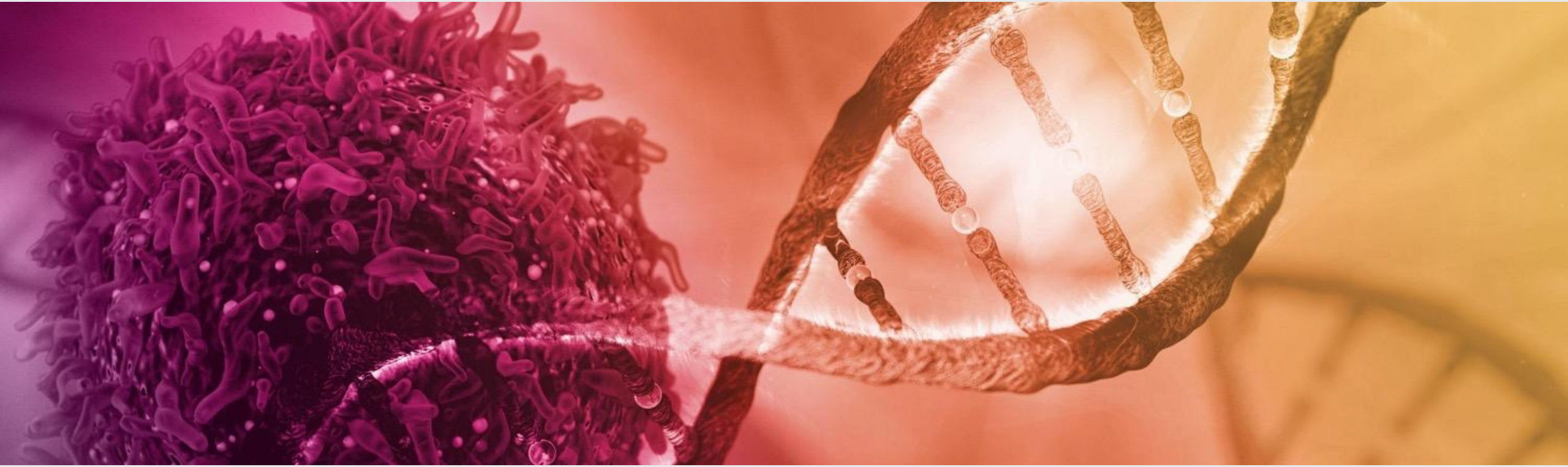


Achilles Therapeutics

Precision Cell Therapy Targeting All Tumor Cells

August 2023

Forward-Looking Statements

This presentation contains “forward-looking statements,” including statements regarding the proposed development plans and timelines for the Company’s product candidates and the success, cost and timing of its research activities and clinical trials. Forward-looking statements can generally be identified by the use of words such as “anticipate,” “believe,” “continue,” “could,” “estimate,” “expect,” “forecast,” “intend,” “may,” “plan,” “project,” “potential,” “seek,” “should,” “think,” “will,” “would” and similar expressions, or they may use future dates.

Such forward-looking statements involve known and unknown risks, uncertainties and other factors that may cause actual results to be materially different from any future results, performance or achievements expressed or implied by such statements. These and other risks which may impact management's expectations are described in greater detail under the heading "Risk Factors" in the Company's quarterly report or Annual Report on Form 20-F and in any subsequent periodic or current report that the Company files with the SEC.

All forward-looking statements reflect the Company's estimates only as of the date of this presentation (unless another date is indicated) and should not be relied upon as reflecting the Company's views, expectations or beliefs at any date subsequent to the date of this presentation.

Working to transform the treatment of solid tumors with precision T cell therapy

Company founded 2016

Nasdaq IPO: ACHL 2021

Early clinical proof of concept 2022

Clinical update Q4 2023

Global Headquarters
London, UK

Two active clinical programs with near-term clinical milestones

Emerging PoC for cNeT in NSCLC

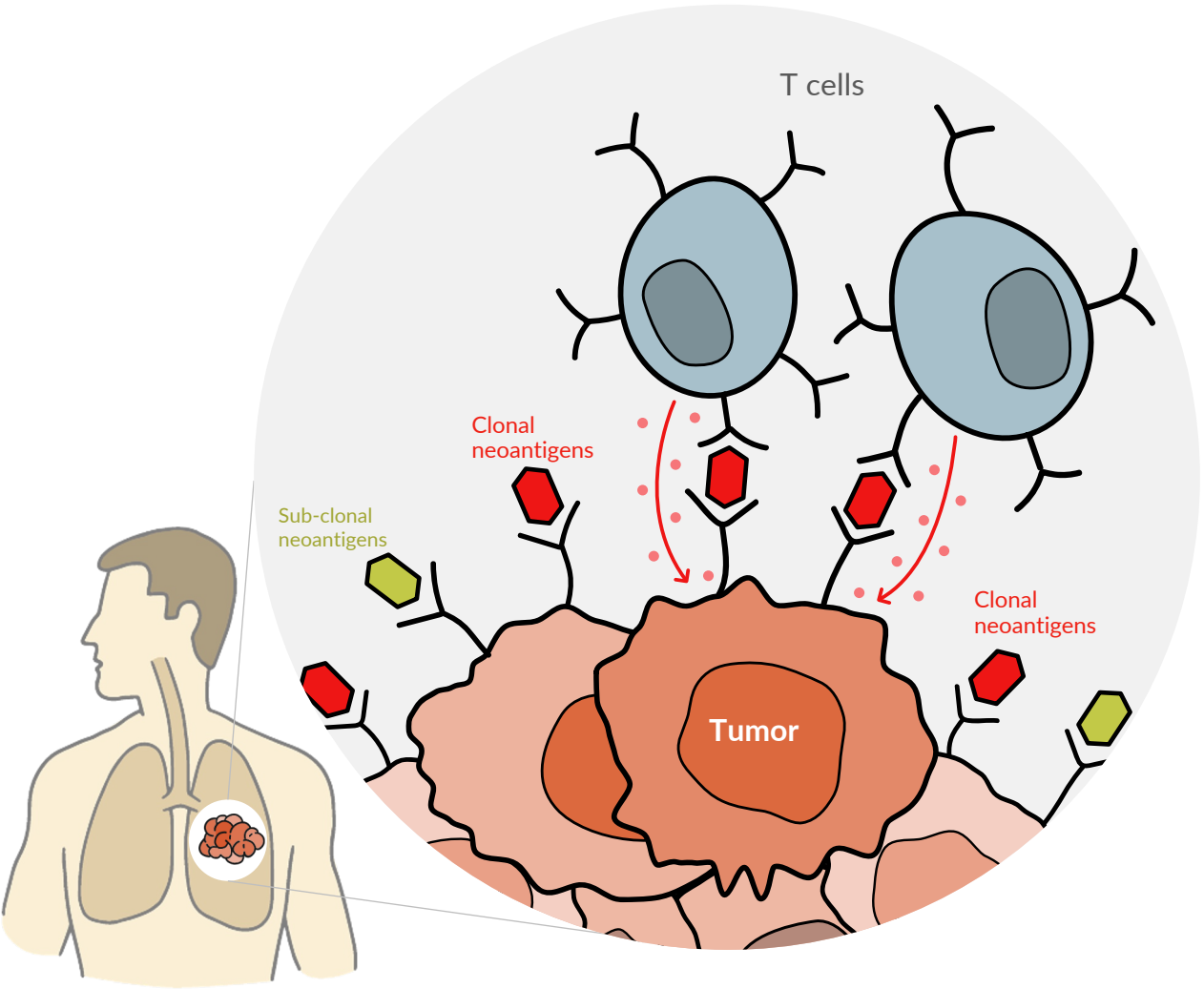
$144 M[1] cash supports operations through 2025

~200 employees

U.S. Headquarters
Philadelphia, PA

1. *As of June 30, 2023*

Targeting clonal neoantigens with patented technology, linking mechanism and potency



Clonal neoantigens: a novel and ideal cancer target

Only present on all cancer cells & absent from healthy tissue

World leading, patented capability to identify clonal neoantigens

Identifying the most potent and immunogenic targets

Quantify and characterize tumor-reactive T cells in the patient

Demonstrated target engagement supporting mechanism of action

Experienced leadership with decades in cell therapy drug development

Sergio Quezada
CSO

UCL · CANCER RESEARCH UK · Memorial Sloan Kettering Cancer Center

Karl Peggs
CMO

UCL · NIHR | National Institute for Health Research · Memorial Sloan Kettering Cancer Center

Robert Coutts
CFO

KPMG · Syncona

Iraj Ali
CEO

Syncona · McKinsey&Company

Daniel Hood
General Counsel

Intercept · GILEAD

Shree Patel
EVP, Patient Supply Operations

Cell Medica

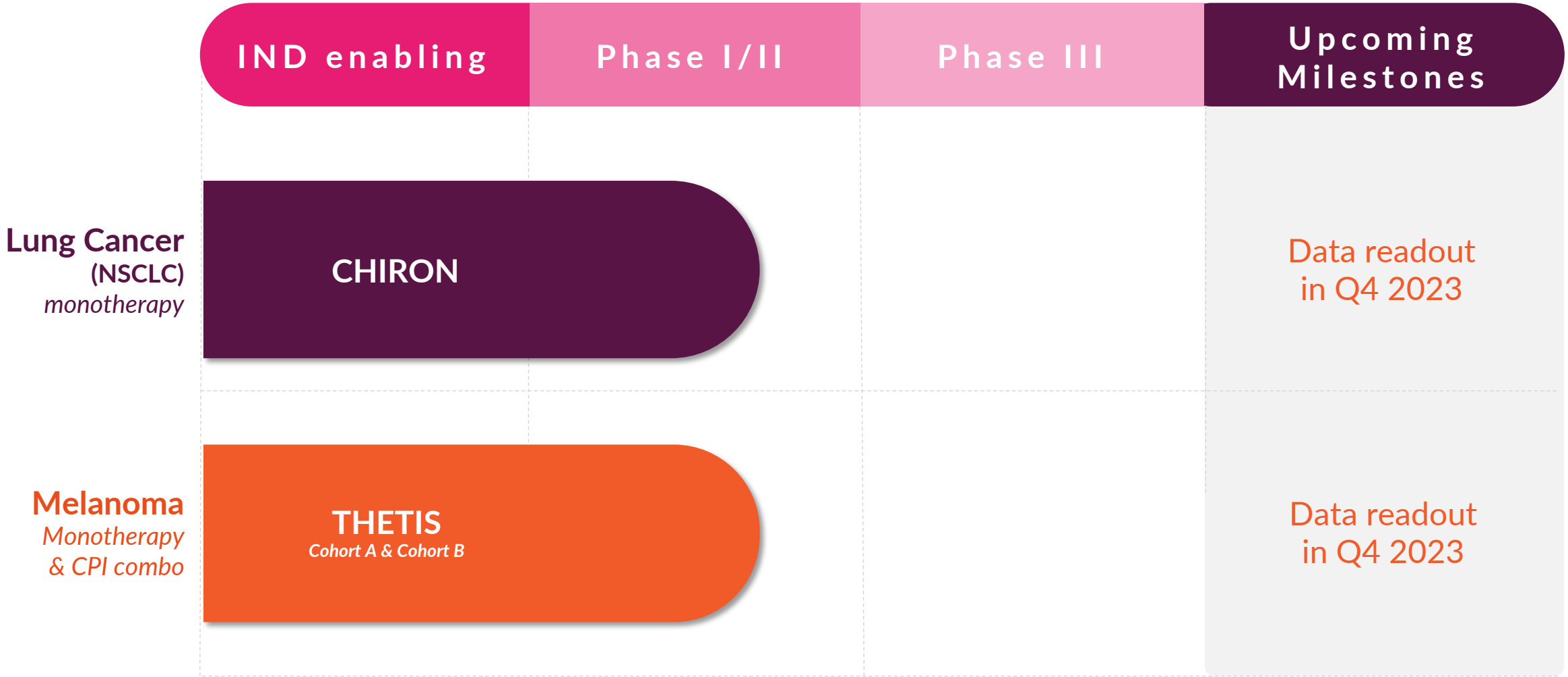
Jim Taylor
CBO

sosei HEPTARES · GSK

Ed Samuel
EVP, Technical Operations

Orchard therapeutics · COGNATE BIOSERVICES

Differentiated pipeline of precision T cell therapies across multiple solid tumors



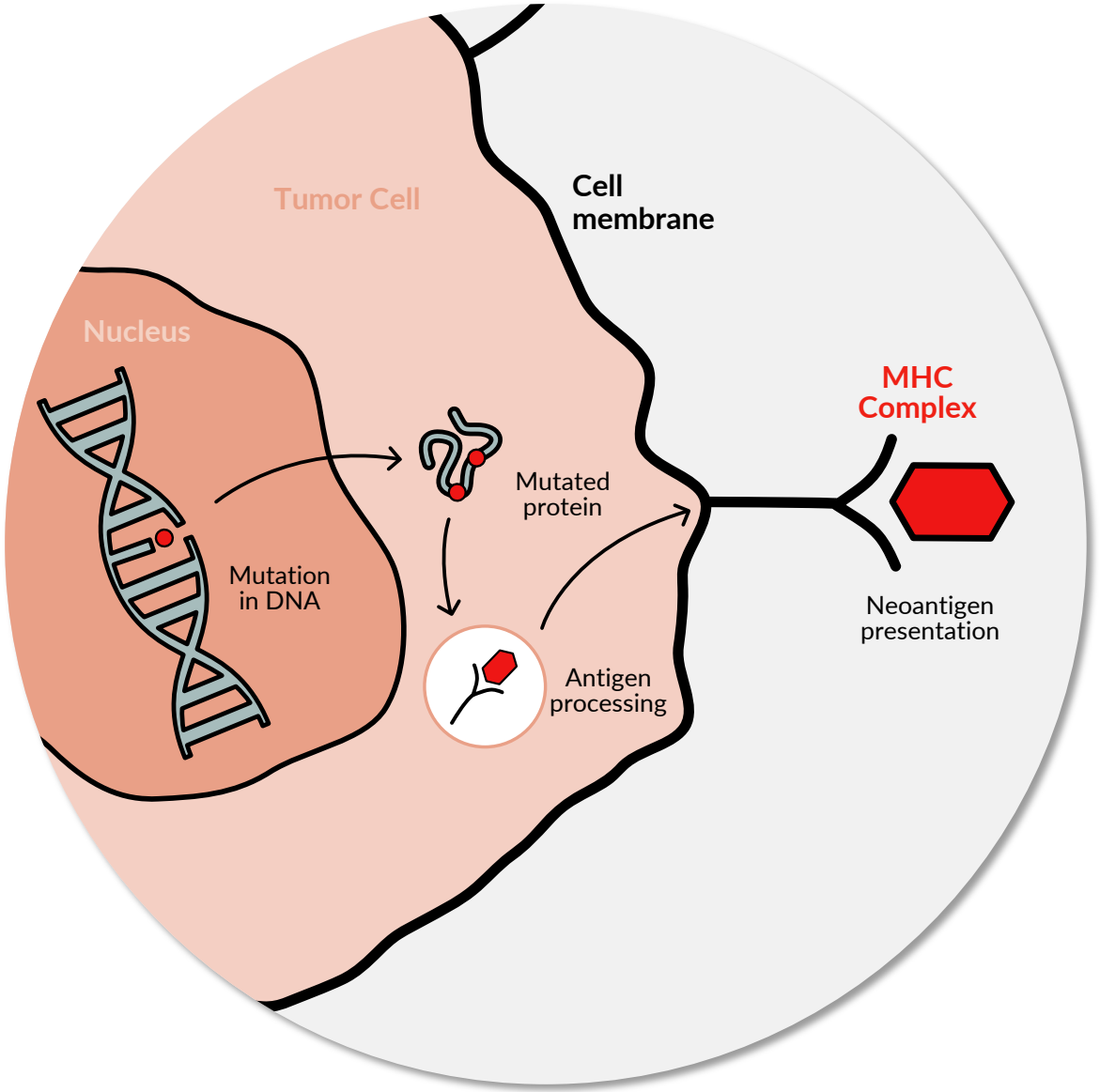
Cancer is driven by mutations to DNA which create targets for the immune system

DNA damage causes **genetic alterations** which can **lead to cancer**

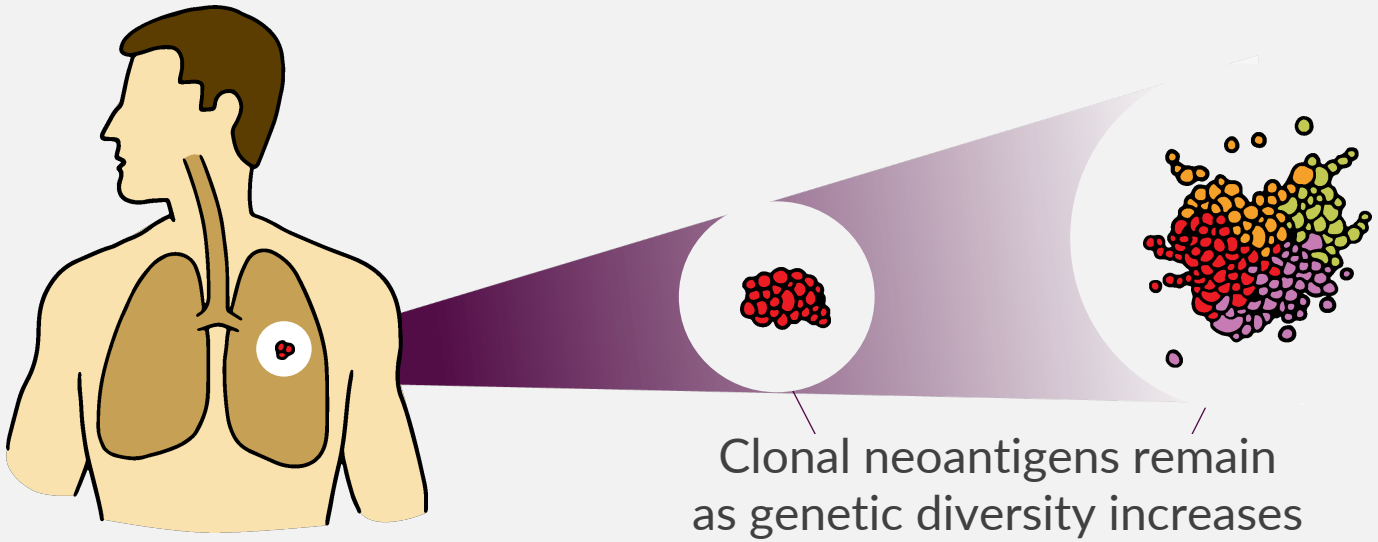
Mutated proteins from these **alterations** **create antigens**

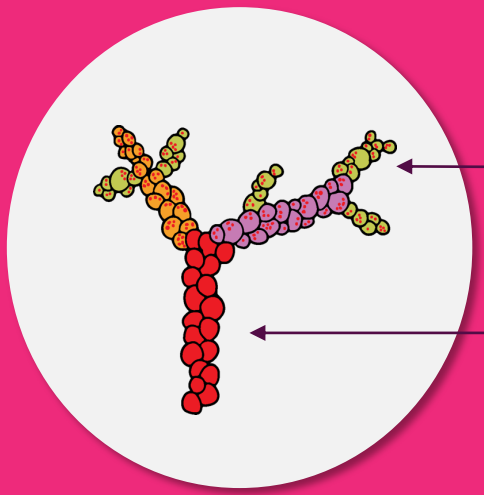
Neoantigens presented on cell surface via MHC molecules **recognized by T cells**

T cells will recognize neoantigens as foreign and **destroy the tumor cell**



The landmark TRACERx study demonstrated that clonal neoantigens are on all tumor cells





Tumors constantly **evolve** and acquire new **mutations**

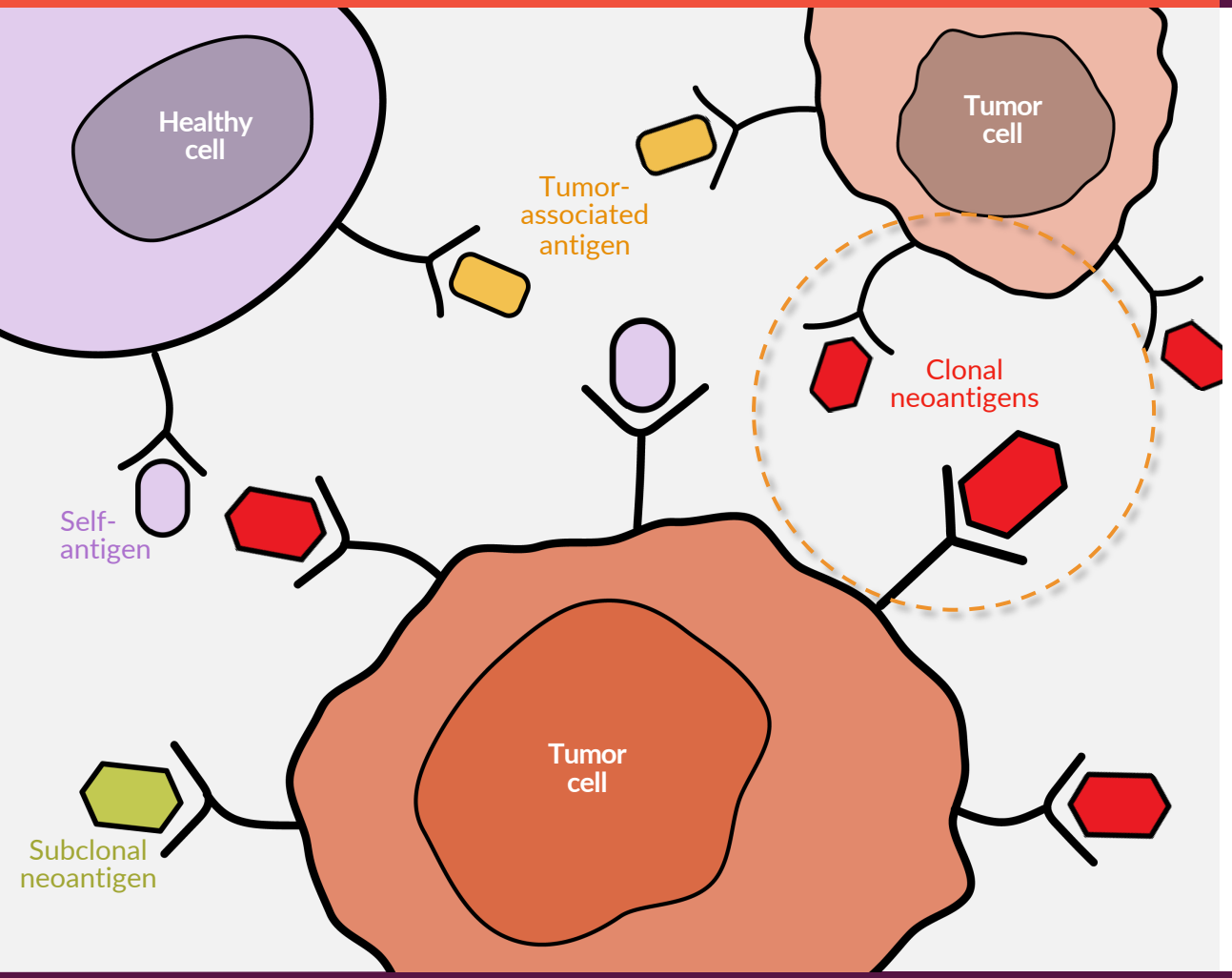
Original, clonal mutations passed down and **remain in all tumor cells**[1-4]

Achilles can **identify clonal mutations** for each patient & target multiple antigens **only on tumor cells**[2-4]

1. Gerlinger et al., NEJM, 2012
2. Jamal-Hanjani et al., Plos Biol, 2014
3. Jamal-Hanjani et al. NEJM,
4. Abbosh et al., Nature, 2017

Clinical evidence supports clonal neoantigens as the best targets to attack solid tumors

Clonals are the only known targets present on all tumor cells & absent from healthy tissue



Multiple clinical modalities validate neoantigens but only clonals drive overall survival

Neoantigen-reactive T cells correlated with **improved outcomes** for **CPI and TIL** therapy[1-3]

Only clonal neoantigens are correlated with **overall survival** in **checkpoint (CPI) therapy**[4-7]

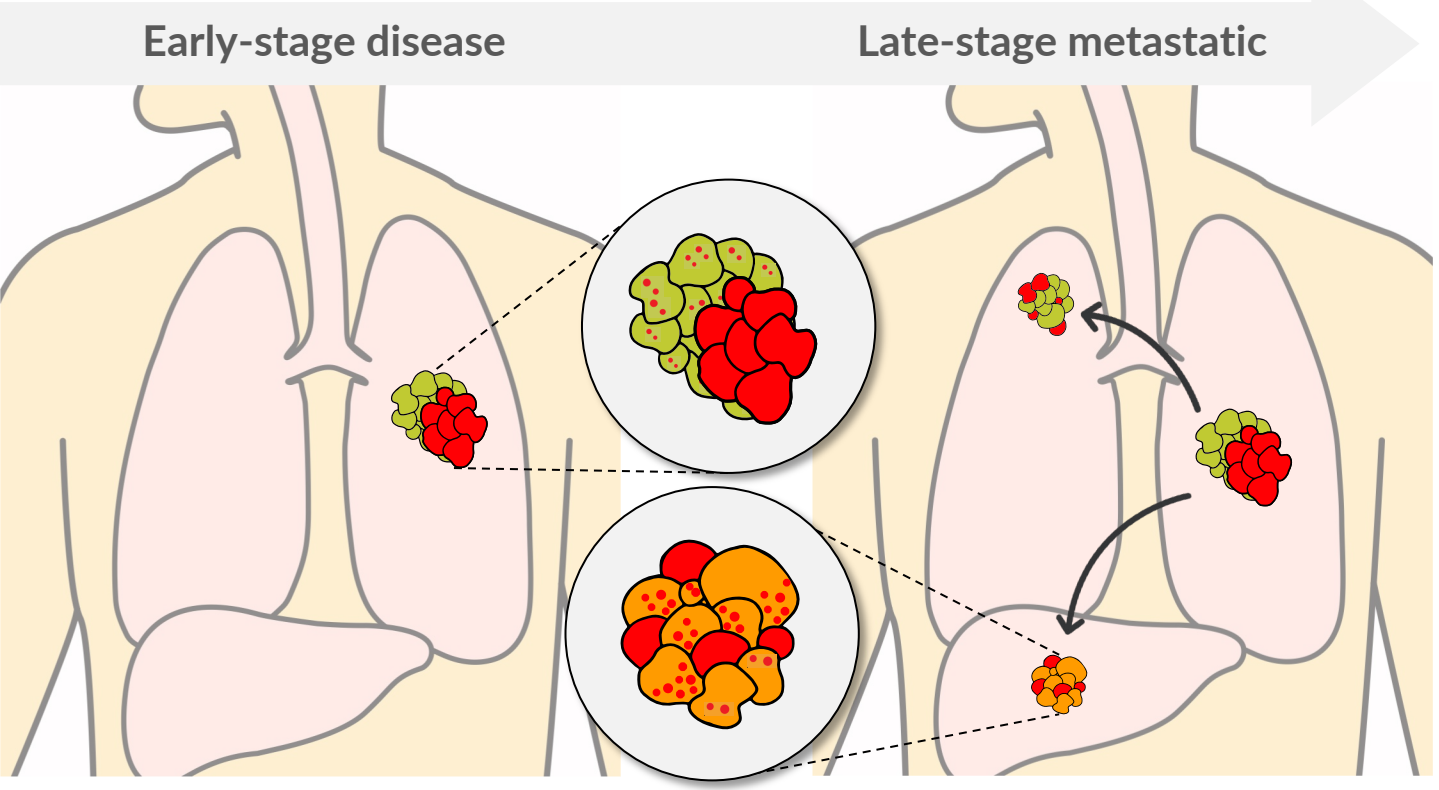
Presence of subclonal neoantigens can be **detrimental to** the activity of **CPI**[8]

mRNA vaccines targeting neoantigens clinically validated showing **recurrence-free survival benefit** vs anti-PD-1 alone[7]

1. *Litchfield et al. Cell 2021*
2. *Lauss et al. Nat Commun. 2017 Nov 23;8(1):1738*
3. *Kristensen et al. J Clin Invest. 2022 Jan 18;132(2):e150535*
4. *Rizvi et al. 2015 Cancer Immuno 348(6230):124-8*
5. *McGranahan et al. 2016 Science 351:1463-1469*
6. *Litchfield et al. Cell 2021*
7. *https://clinicaltrials.gov/ct2/show/NCT03897881*
8. *Wolf et al. Cell 2019*

TRACERx is a unique asset that enables Achilles' neoantigen identification capability

815 patients enrolled with early stage to advanced NSCLC and followed over several years



Biopsies taken over five years tracking disease progression

Genetic analysis confirms clonal neoantigens are conserved at all tumor sites

TRACERx

Largest longitudinal real-world patient data set of its kind[1-4]

Extensive sequencing data (>4,000 biopsy samples) **identify clonal neoantigens** at **primary and metastatic sites**[1-4]

Clonal neoantigens identified by specific sequence "signatures" using **patent protected** PELEUS platform

1. Jamal-Hanjani et al., Plos Biol, 2014
2. Jamal-Hanjani et al. NEJM, 2017
3. Abbosh et al., Nature, 2017
4. Rosenthal et al., Nature, 2019

PELEUS™: A patent protected world-leading AI-platform for identifying the most potent and immunogenic targets

Superior clonal calling using multi-region analysis proven to overcome limitations of traditional VAF based methods[1]

Selecting most immunogenic targets with AI using our proprietary, validated "neoRanker" tool; identifies >70% of all T cell reactivities in just 30 antigens

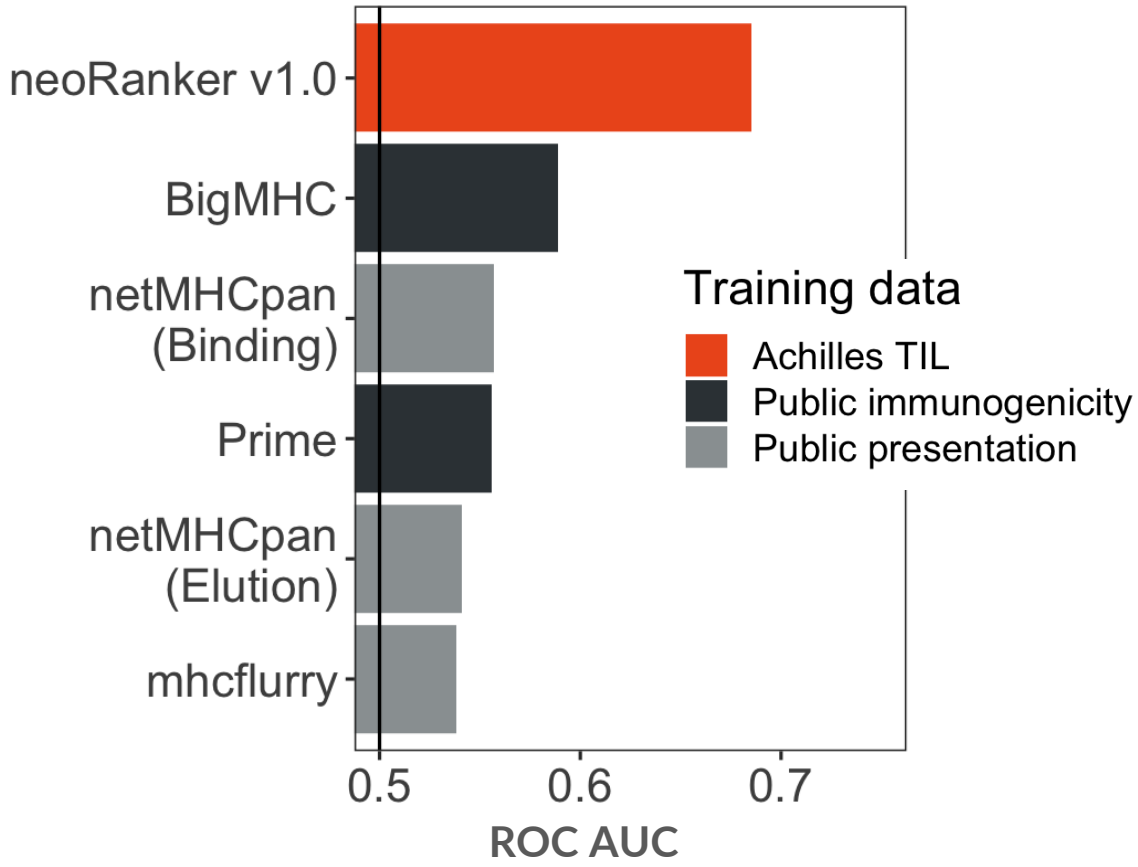
Mitigates immune evasion[2] prioritizing antigens not impacted by immune evasion mechanisms (i.e. loss of HLA heterozygosity)

1. Jamal-Hanjani et al 2017
2. McGranahan et al 2017

Achilles neoRanker immunogenicity predictions outperform existing deep-learning tools

Immunogenicity ranking benchmark

Validation dataset of TIL derived *bona fide* neoantigen T cell reactivities
(patients = 21, true positives = 166)



High quality source data

Unique training dataset is proprietary while other tools rely on limited public databases ranking ability

At least **twice as good as the next best** state-of-the-art deep learning models[1]

Only v1.0 - Significant potential for further improvements

1. Achilles' calculated Receiver Operating Characteristic area under the curve (ROC AUC)

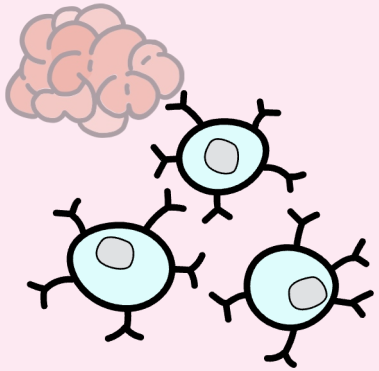
Clonal neoantigens can be targeted with a range of therapeutic modalities

Current Achilles approach

Alternative modalities

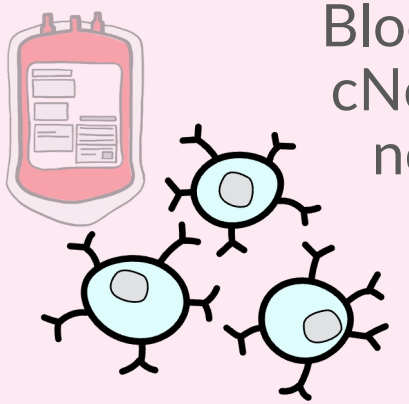
TIL-based cNeT

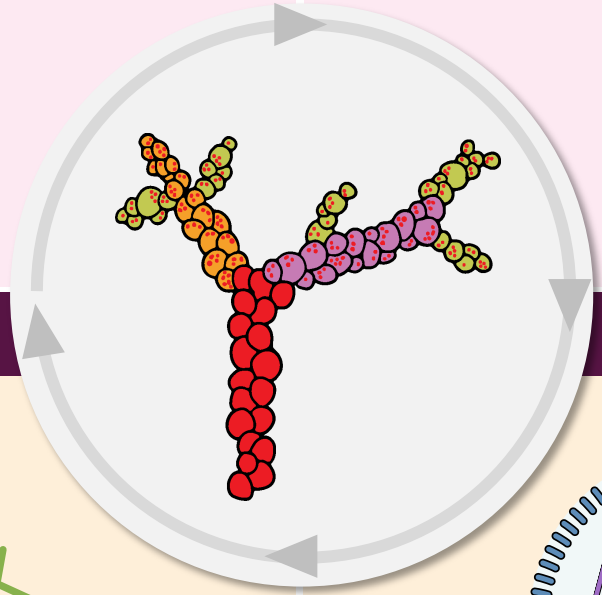
Clinically validated across multiple solid tumor settings



Blood-based cNeT

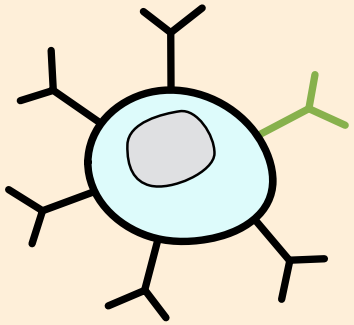
Blood as source of cNeT, without the need for surgery





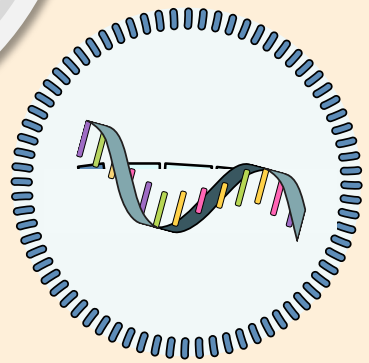
TCR-therapy

T cells engineered with receptors that target shared neoantigens



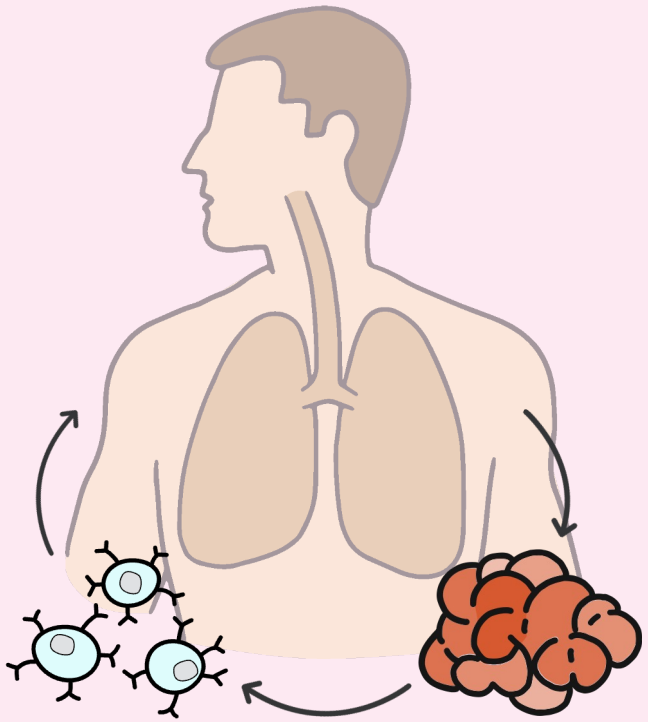
Clonal neoantigen vaccines

mRNA vaccines using highly immunogenic clonal neoantigens to improve efficacy



Compelling clinical data support TIL-based approaches, but a significant opportunity remains

TIL: impressive clinical responses seen in multiple late-stage settings



- 31% ORR TIL monoTx in PD-1 refractory **melanoma** (n=153)[1]
- 21% ORR TIL monoTx in PD-1 refractory **NSCLC** (n=28)[2]
- 44% ORR TIL monoTx in pre-treated **cervical cancer** (n=27)[3]

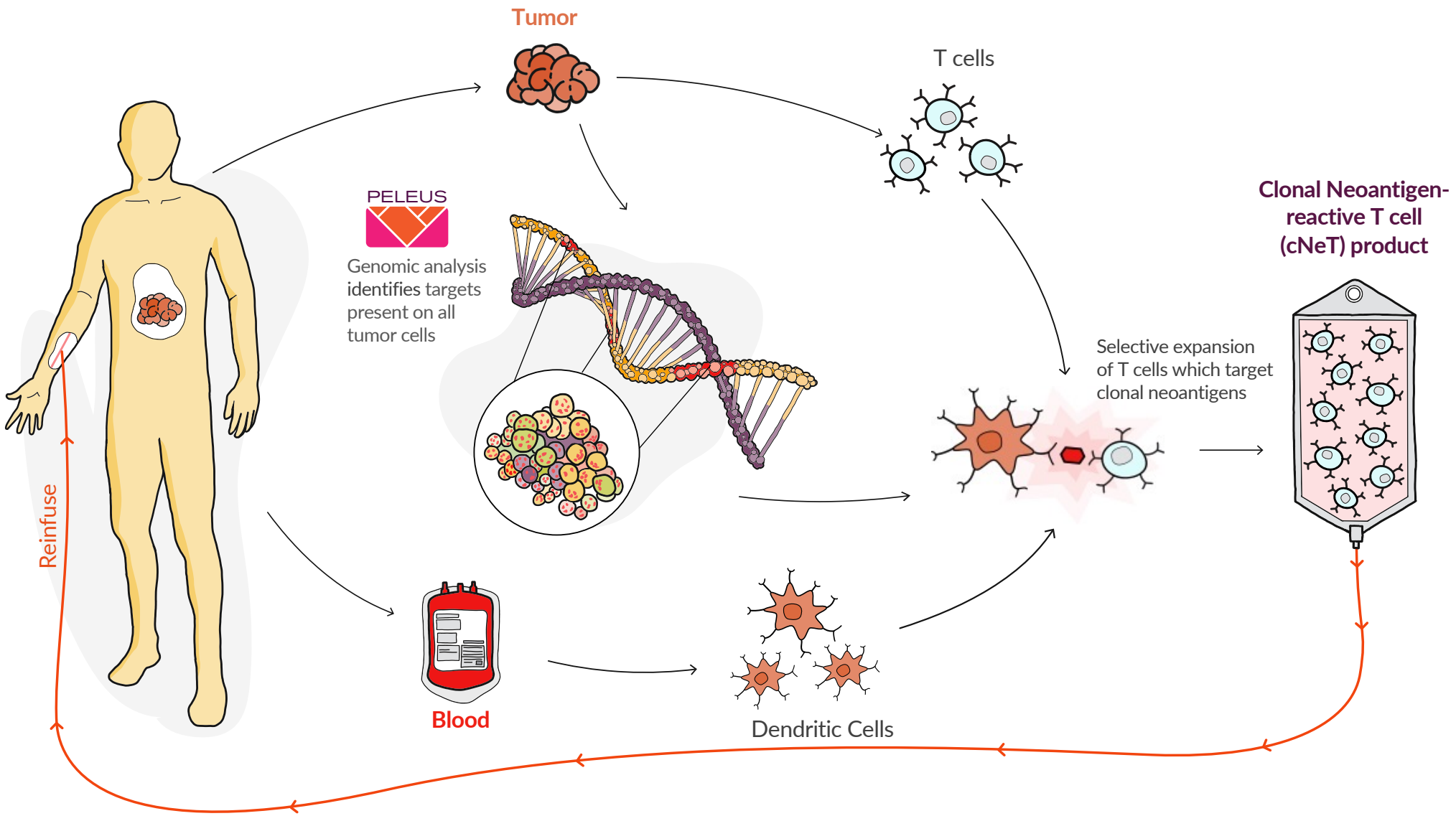
Standard **TIL therapy uses non-specific expansion with no control** or ability to quantify the final active component in the cell product

cNeT aim to **improve on traditional TIL** therapy by prospectively targeting clonal neoantigens to create a **more potent, tumor-reactive product**

[1] *Chesney et al. Journal for ImmunoTherapy of Cancer 2022;10:e005755;* [2] *IOVANCE Cohort 3B*
[3] *IOVANCE ASCO abstract May 2019*

Achilles process delivers precision clonal neoantigen targeting T cell therapy (cNeT)

Cutting edge personalized genomics and machine learning enable targeting of all cancer cells



Two studies open in advanced NSCLC and melanoma

CHIRON
Advanced NSCLC

Monotherapy

- Advanced unresectable or metastatic Stage III-Stage IV NSCLC
- Never-smokers and EGFR/ALK/Ros-1 mut excluded
- Open-label
- n = up to 40
- Option to open Cohort B in combination with a PD-1 inhibitor

Evaluating safety, tolerability and activity (RECIST) and biomarkers of clinical activity

Ongoing in UK, Europe and US

THETIS
Melanoma

Cohort A – Monotherapy

- Recurrent or metastatic malignant melanoma (n = up to 40); Open-label
- Acral, uveal and mucosal melanoma excluded

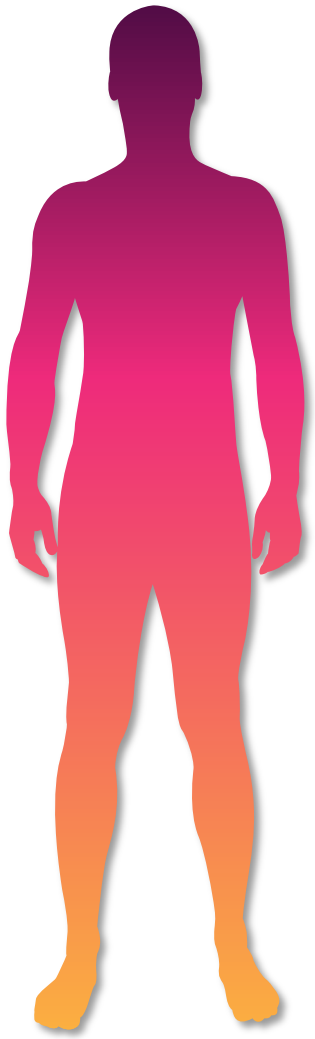
Cohort B – Combination with PD-1 inhibitor (nivolumab)

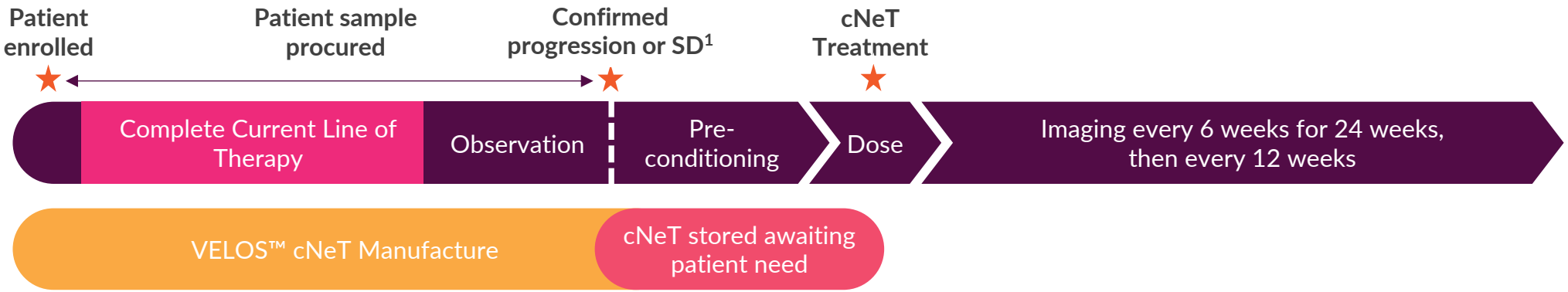
- n = up to 20 checkpoint refractory patients; Open-label
- CPI dosed 7-13 days prior to cNeT and restarted day 14 post-cNeT

Evaluating safety, tolerability and activity (RECIST) and biomarkers of clinical activity

Ongoing in UK and Europe, expanding to US

cNeT therapies will be readily delivered within standard treatment pathways





Manufacturing

Manufactured and cryopreserved for infusion

Tolerable pre-conditioning

Lower, more tolerable pre-conditioning (cy/flu)

Low IL-2

Lower dose IL-2 vs existing TIL therapies

1. Begin treatment process with confirmed stable disease or progression per site protocol

cNeT were generally well tolerated in the fourteen patients treated in CHIRON & THETIS

Heavily pretreated patients with advanced cancer

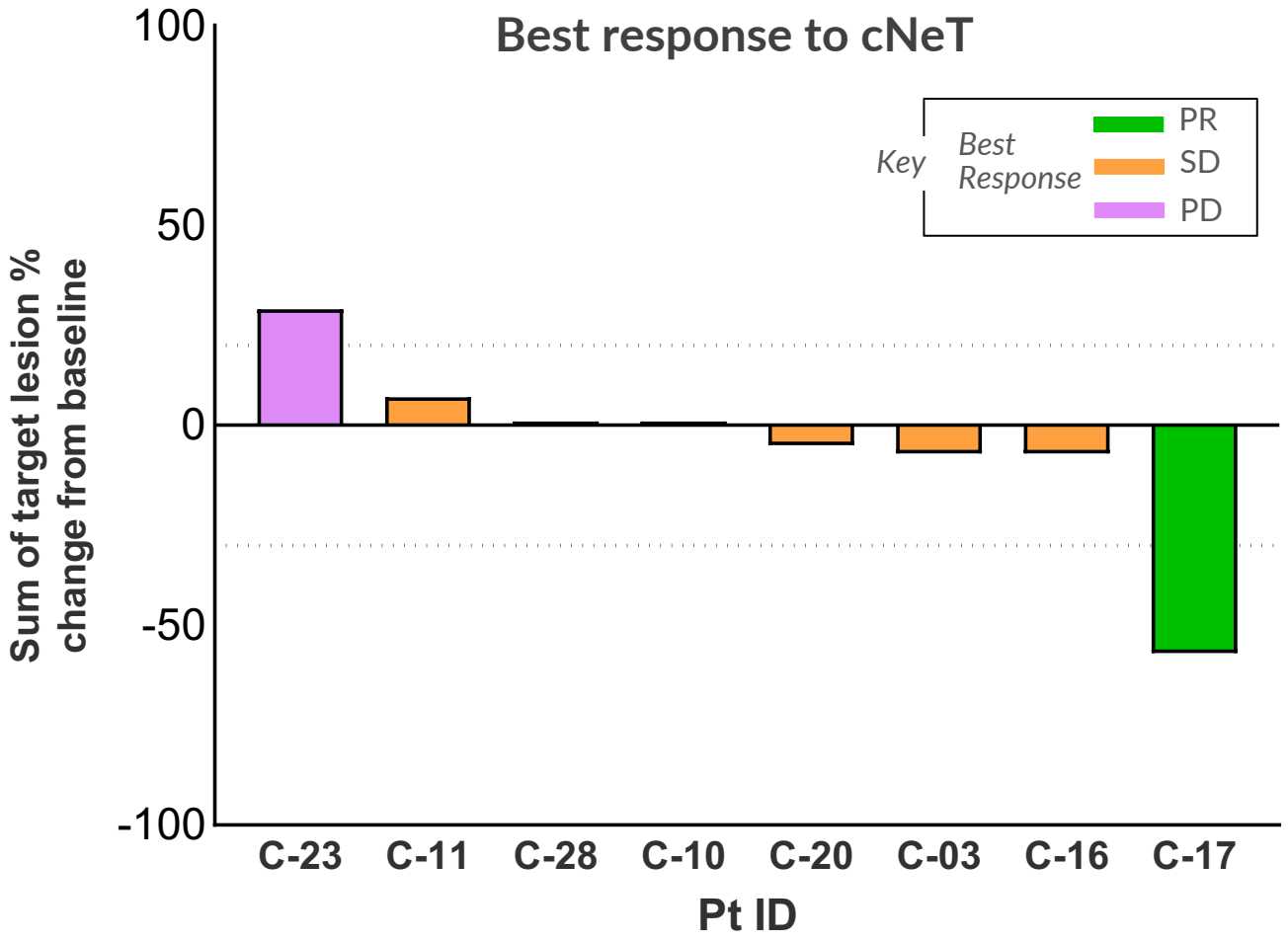
- Eight advanced unresectable or metastatic NSCLC patients (CHIRON)
- Six relapsed/refractory melanoma patients (THETIS)
- Two median lines of prior therapy, all patients refractory to checkpoint inhibitor (CPI)
- All patients had progressive disease at time of lymphodepletion
- Process improvements delivering median cNeT dose of 78M (n=3 dosed patients)

cNeT tolerability profile[1]

- Tolerability similar to standard TIL
- No new cNeT-related SAEs or dose-limiting toxicities since last report (ESMO 2022)
- Lower dose lymphodepletion and lower dose IL-2 well tolerated
  - 124/130 (95%) scheduled IL-2 doses delivered
- Lymphopenia and neutropenia the most common AEs

1. Safety data cut-off on September 7th 2022, at which point 13 of the 14 pts had been dosed

8 CHIRON (NSCLC) patients dosed with Best Response of PR and SD[1]



Early proof-of-concept demonstrated in NSCLC

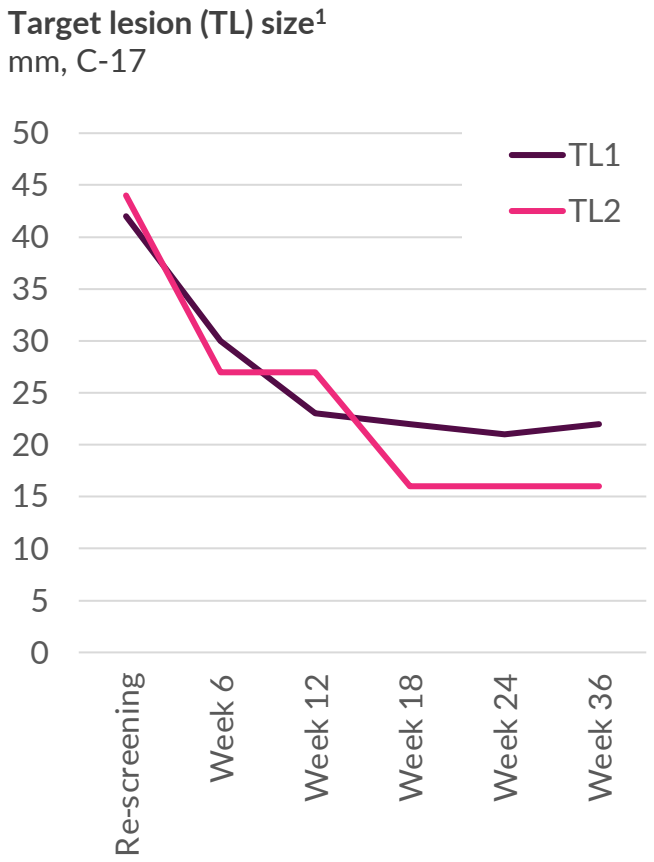
- Disease control at >12 weeks observed in 5 of 7 evaluable patients (71%), including one PR (>36 weeks)
- 4 of 7 (57%) out to >18 weeks

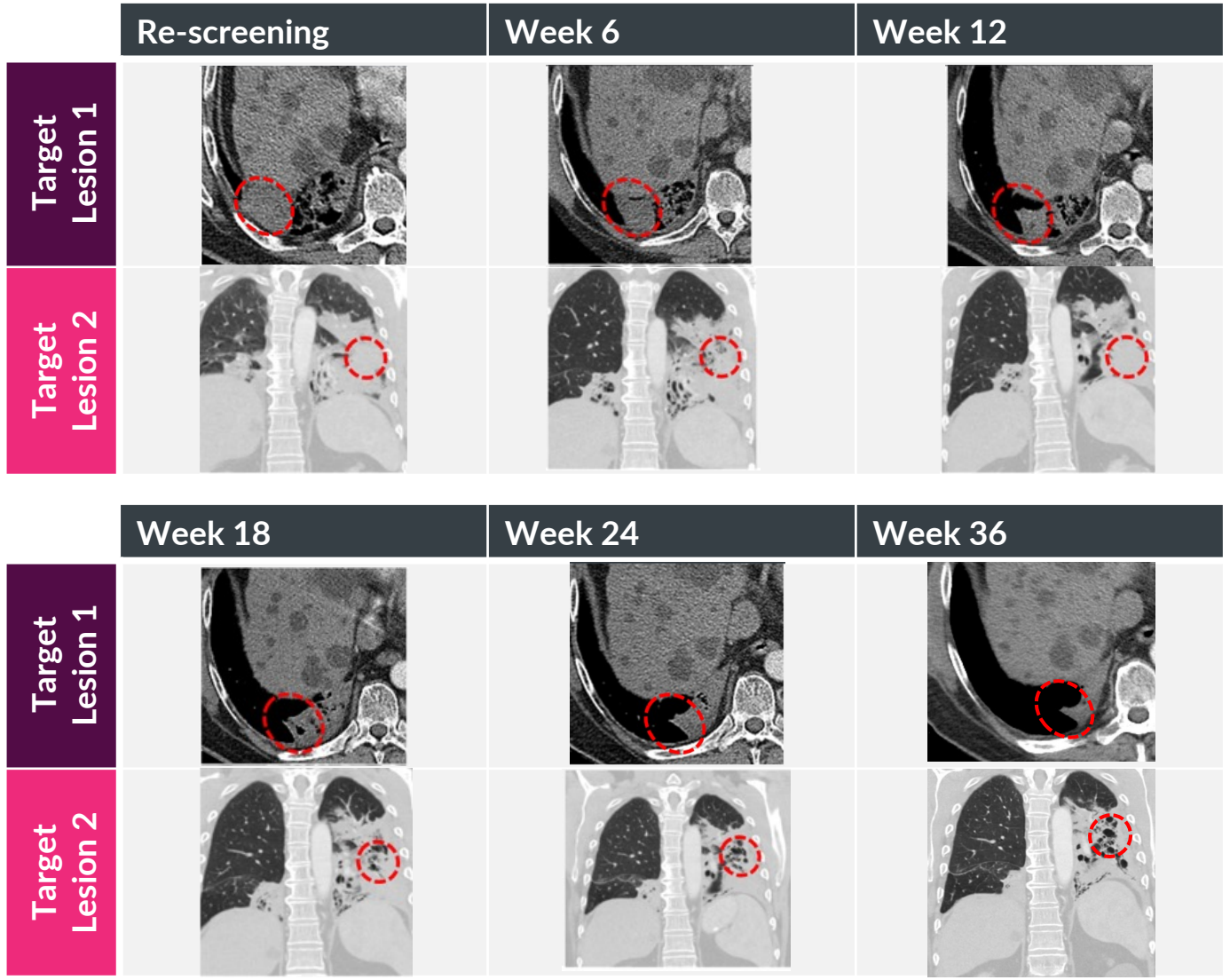
PR and SD with lower dose lymphodepletion and IL-2

- Supports potential for wider applicability of cNeT, including in an ambulatory setting

1. *As reported at ESMO IO 2022*

Patient C-17: 56% reduction in total target lesion size vs. baseline at week 36



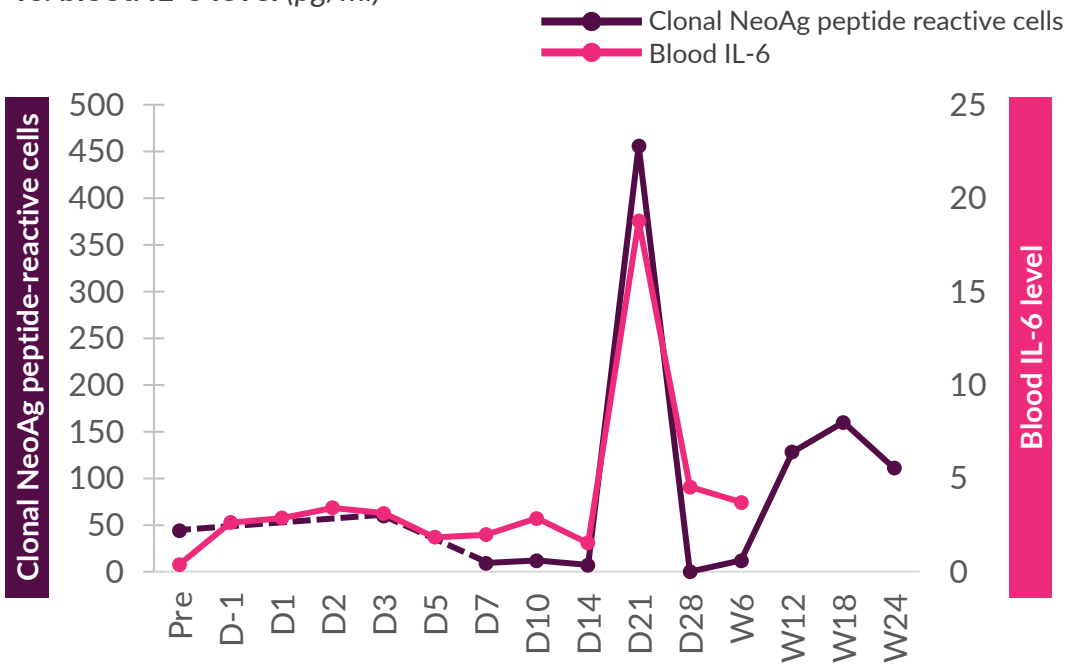


Total target lesion reduction of 56% at week 36, with a 64% reduction in Target Lesion 2

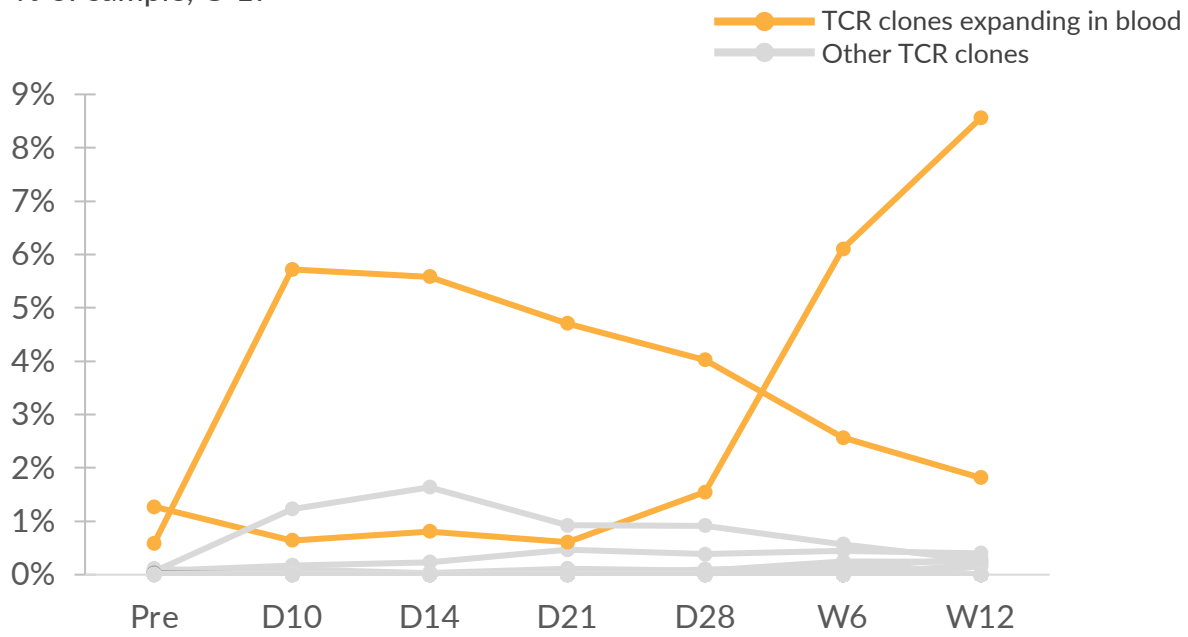
1. Site-reported lesion size
NB C-17 known to have polycystic liver disease

Patient C-17: cNeTs expand and persist beyond week 12 coincident with tumor regression

Clonal neoantigen peptide-reactive cells in blood *(normalized spot count)* **vs. blood IL-6 level** *(pg/ml)*



Detection of T cell receptors from the product
% of sample, C-17

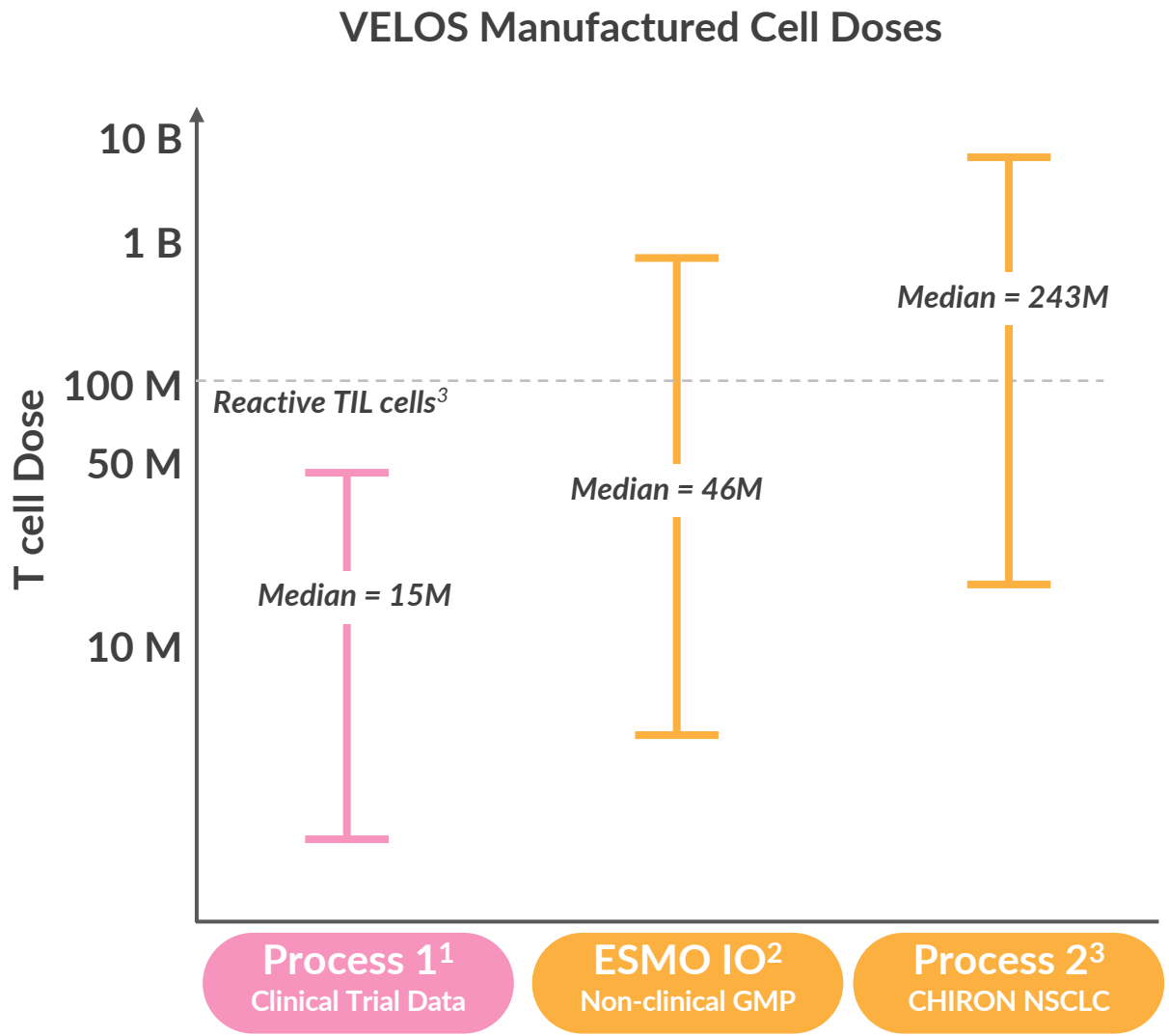


Clonal neoantigen reactive T cells detected in blood-post dosing, with peak at Day 21 – coincident with peak in serum cytokine associated with T cell activity (IL-6)

T cell clones that are clonal neoantigen-specific are identified expanding in the patient beyond 12 weeks and to a greater extent than other patients

VELOS™ manufacturing process delivering median 280M cNeT to NSCLC patients in 2023

	Process 1	Process 2
Pre-Expansion	T cells are harvested from the tumor	Optimized upfront TIL extraction + cytokines boost for tumor-reactive cell harvest
Expansion	Dendritic cells loaded with clonal peptides activate and drive cNeT expansion	Optimized DC-driven co-culture followed by short T cell boost increases final cNeT dose



1. SITC 2021 Poster 543
2. ESMO IO 2021 Poster 58P
3. CHIRON doses manufactured in 2023 as of 4 July 2023.

Durable clinical benefit and encouraging safety and tolerability data with cNeT therapy[1]

Lymphodepletion & IL-2 well tolerated

- Lower dose lymphodepletion and IL-2 and 95% of IL-2 doses well tolerated
- Supports potential for wider applicability of cNeT, including in an ambulatory setting

Early PoC in NSCLC

- Disease control >12 weeks in 71% patients, including one PR (>36 weeks)
- Potential for deep, durable clinical responses with reduced lymphodepletion and IL-2

cNeT Driving Anti-tumor Activity

- Engraftment & cytokine profiles supportive of cNeT driving anti-tumor activity
- Active cNeT peak expansion at day 21 coincides with peak in IL-6 (marker of activity

Clinical data

- Clinical and translational updates for 15-20 new patients in Q4 2023
- NSCLC (CHIRON) monotherapy and melanoma (THETIS) monotherapy and in combination with check-point inhibitor (anti-PD-1)

1. *As reported at ESMO IO 2022*

Efficient scale-up of GMP manufacturing to align with clinical and commercial need

Flexible manufacturing allows efficient alignment of scale-up

GMP facilities at Royal Free Hospital in London and Catapult site in Stevenage, UK support global clinical trial manufacturing

Identified and initiated tech transfer to CDMO in Philadelphia, USA, in preparation for expansion

Design work complete for GMP modular facility to support late-stage clinical and commercial supply

Focus for CHIRON and THETIS data readouts in 2023

Clinical	Dose & deliver data from 15-20 additional patients with cNeT monotherapy (lung & melanoma) and CPI combo (melanoma)
	Drive additional confirmed responses in CHIRON and THETIS patients with higher cNeT doses
Translational	Leverage world-class translational science platform to define actionable cNeT features of response
Process	Continue PELEUS™ and process development to optimize dose and identify new sources of clonal neoantigens

Clinical-stage precision targeting for solid tumors using clonal neoantigen-reactive T cells (cNeT)

Targeting clonal neoantigens: a novel class of cancer target present on all tumor cells

We have developed a proprietary patent protected AI platform (PELEUS®) that is validated on real world patient data (TRACERx) and which can be used to identify personal clonal neoantigens

Controlled precision therapy

Scientific platform that can quantify, characterize and track tumor reactive T cells, target engagement and mechanism of action

Emerging PoC for cNeT in NSCLC

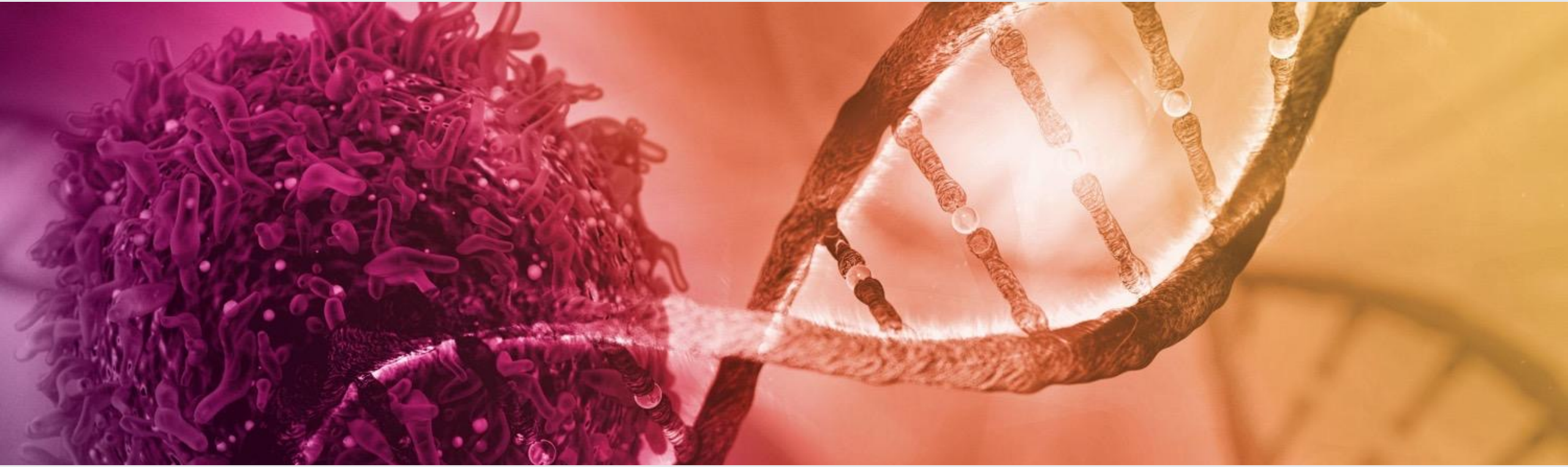
Durable disease control achieved with cNeT monotherapy, 71% (5/7) NSCLC patients (including 1 PR and 4 SDs) with encouraging safety and tolerability

Near-term clinical milestones

Clinical and translational updates in 2023: 15-20 new patients across NSCLC (CHIRON) monotherapy and melanoma (THETIS) monotherapy and in combination with check-point inhibitor (anti-PD-1)

Strong cash position supports all planned operations through 2025

Cash runway of $144M as of June 30, 2023



Achilles Therapeutics

AI-Powered Precision Cell Therapy Targeting All Tumor Cells

August 2023