TSCAN THERAPEUTICS

Unleash Immunity

Corporate Presentation
July 2021

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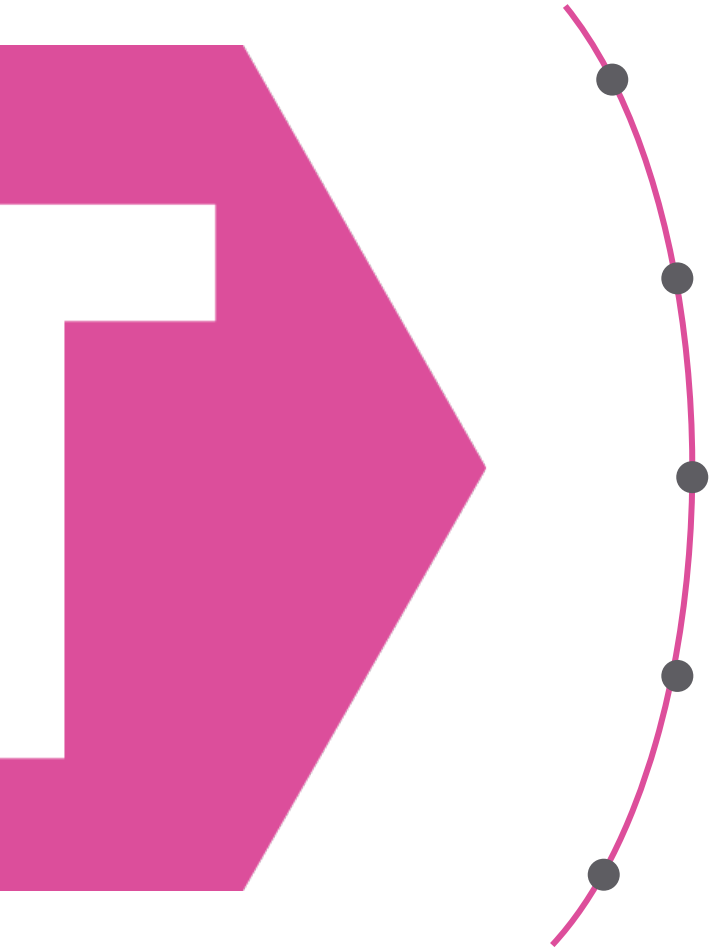
TScan highlights



Proprietary Target and TCR Discovery Platforms

- Enables ‘multiplexed’ TCR-T therapy

Robust Pipeline in Cancer

- Liquid tumor program – 2 INDs, Q4 2021
- Solid tumor program – 3 INDs, H2 2022; 1 IND, 2023

Non-Viral Cell Manufacturing

- Enables ‘enhanced’ T cell engineering

Strategic Partnerships

- Novel oncology target partnership with Novartis

Strong Investor Support

- $260M from RA Capital, Blackrock, Novartis and others

Our team

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Director, Corporate Development

ClearView Healthcare Partners · Yale University

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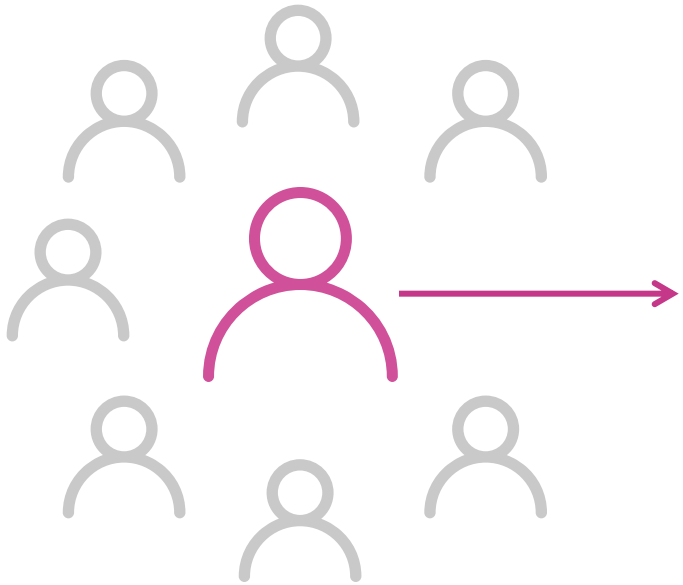
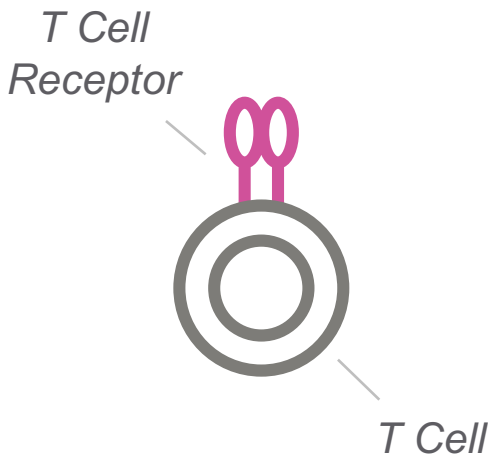
Learning from patients who are winning their fight against cancer…

Learning Treating



Patient actively responding to immunotherapy

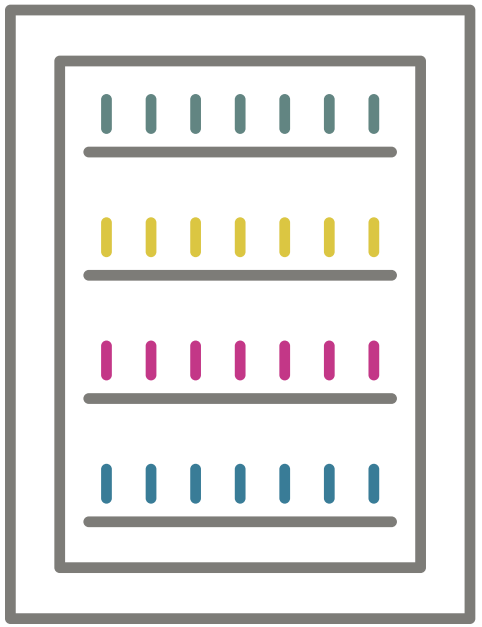


Anti-cancer T cells with **unknown targets**

TScan Technology

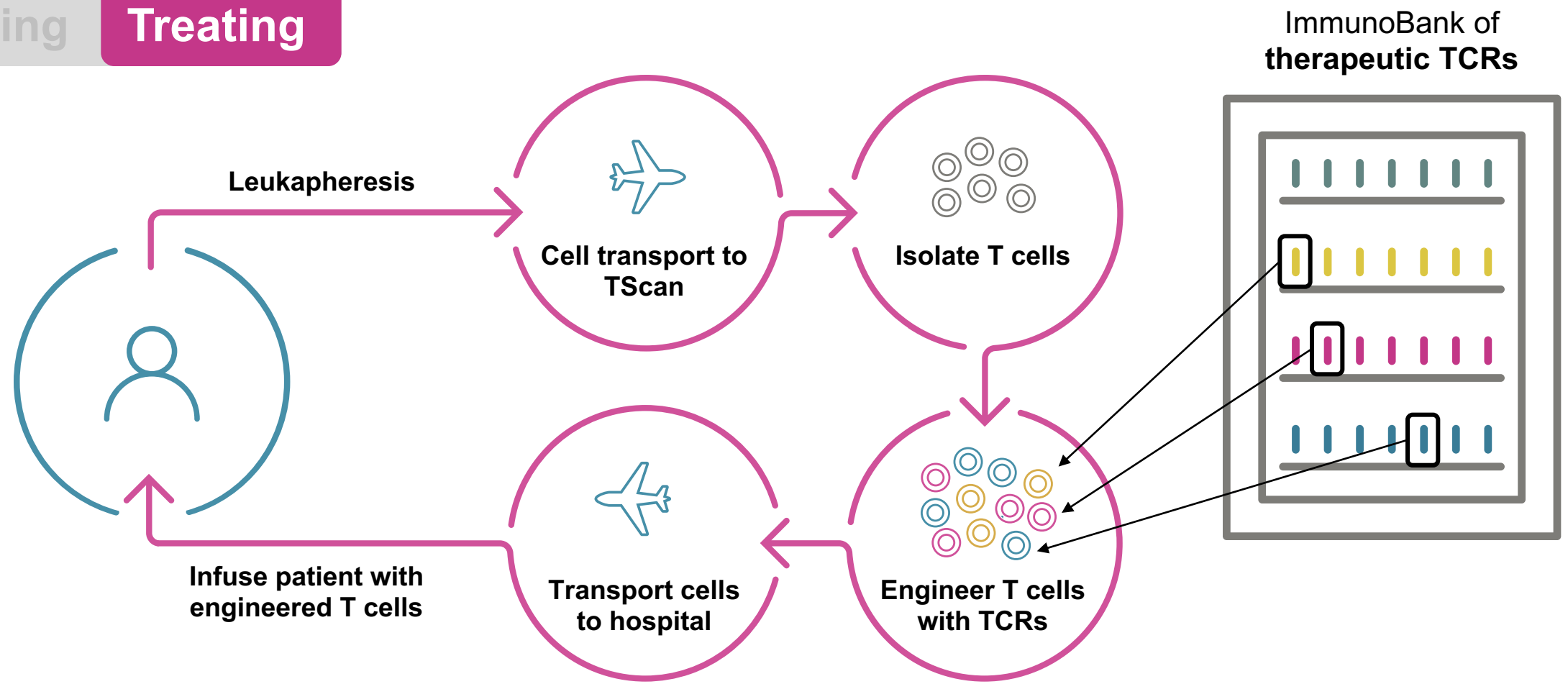
- IDs targets and therapeutic TCRs
- Clinically de-risk TCRs by IDing off-targets

ImmunoBank of **therapeutic TCRs**

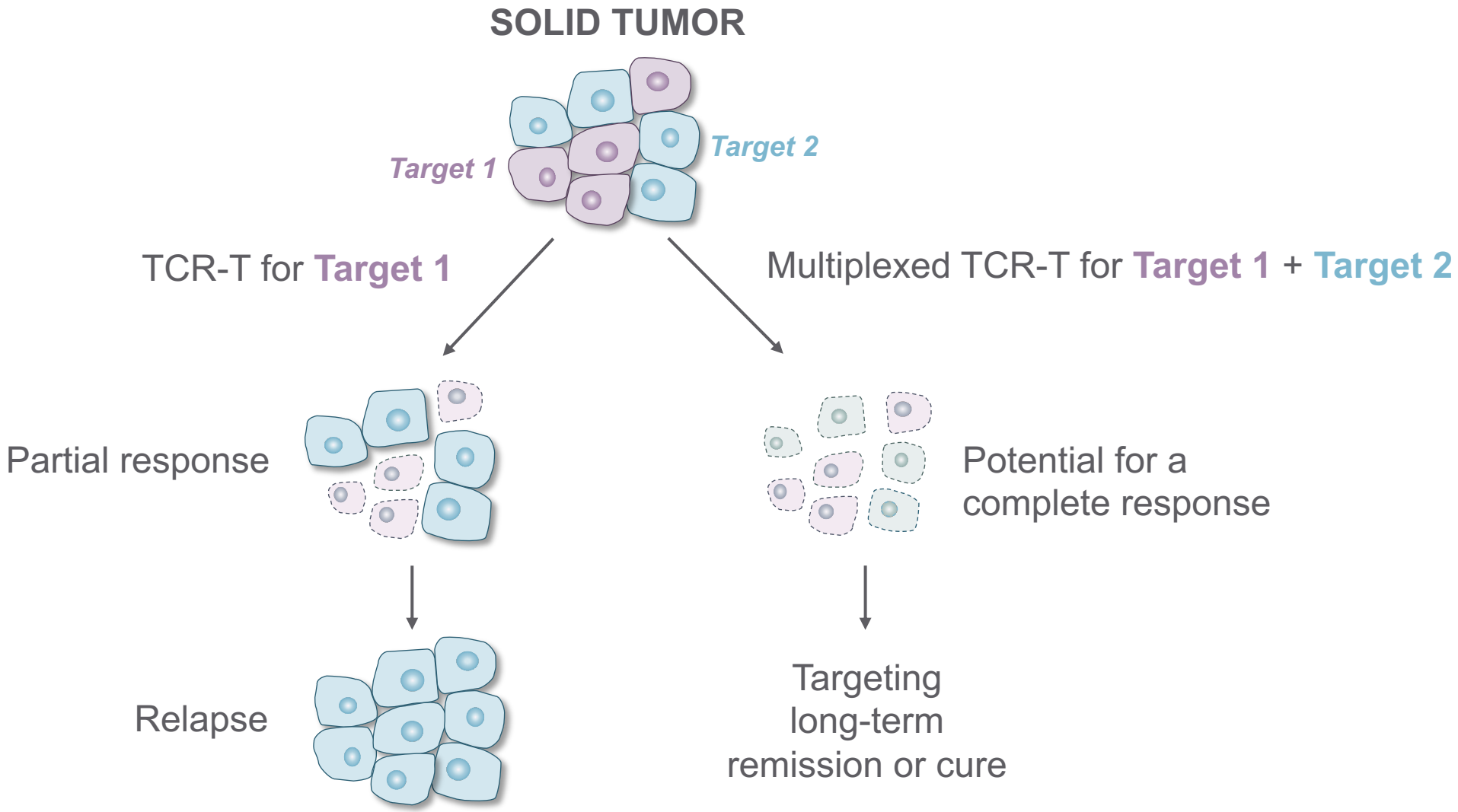


…to treat patients who are not

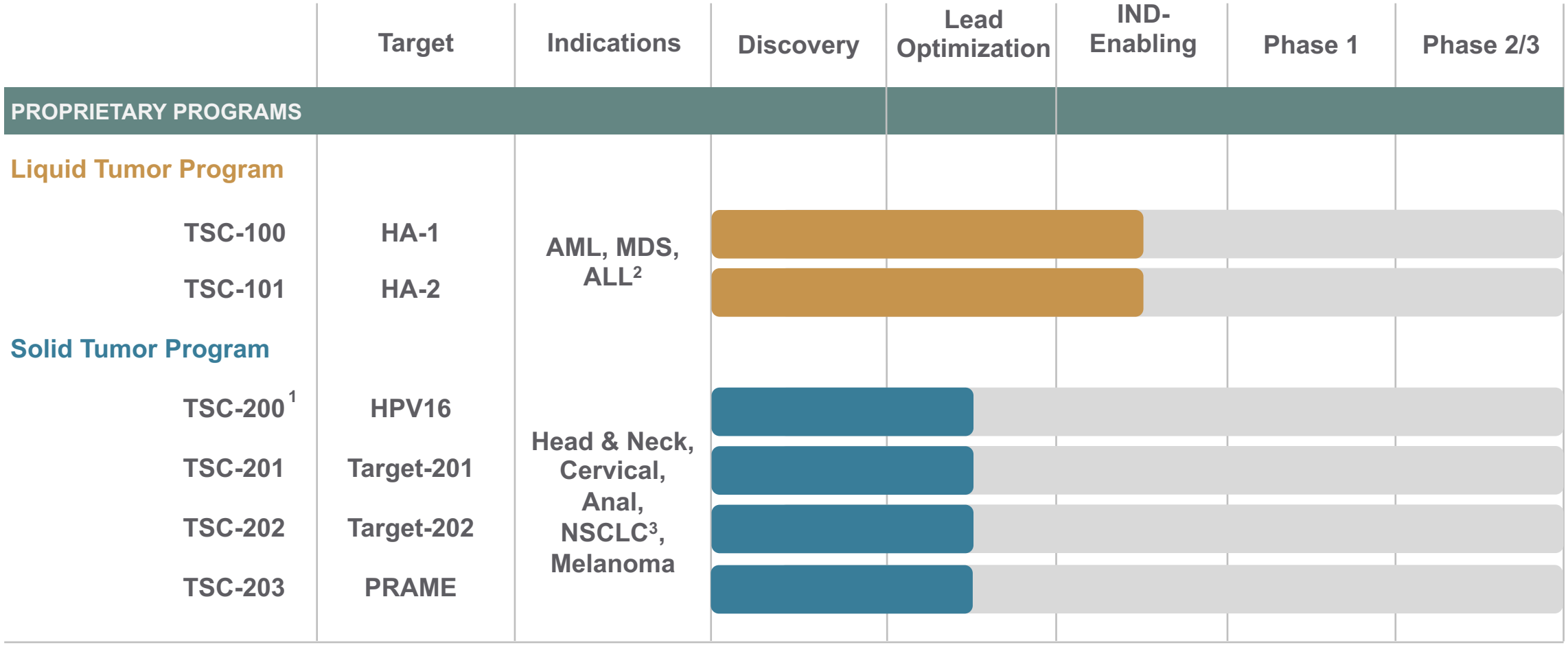
Learning **Treating**



Multiplexed TCR-T may overcome tumor heterogeneity



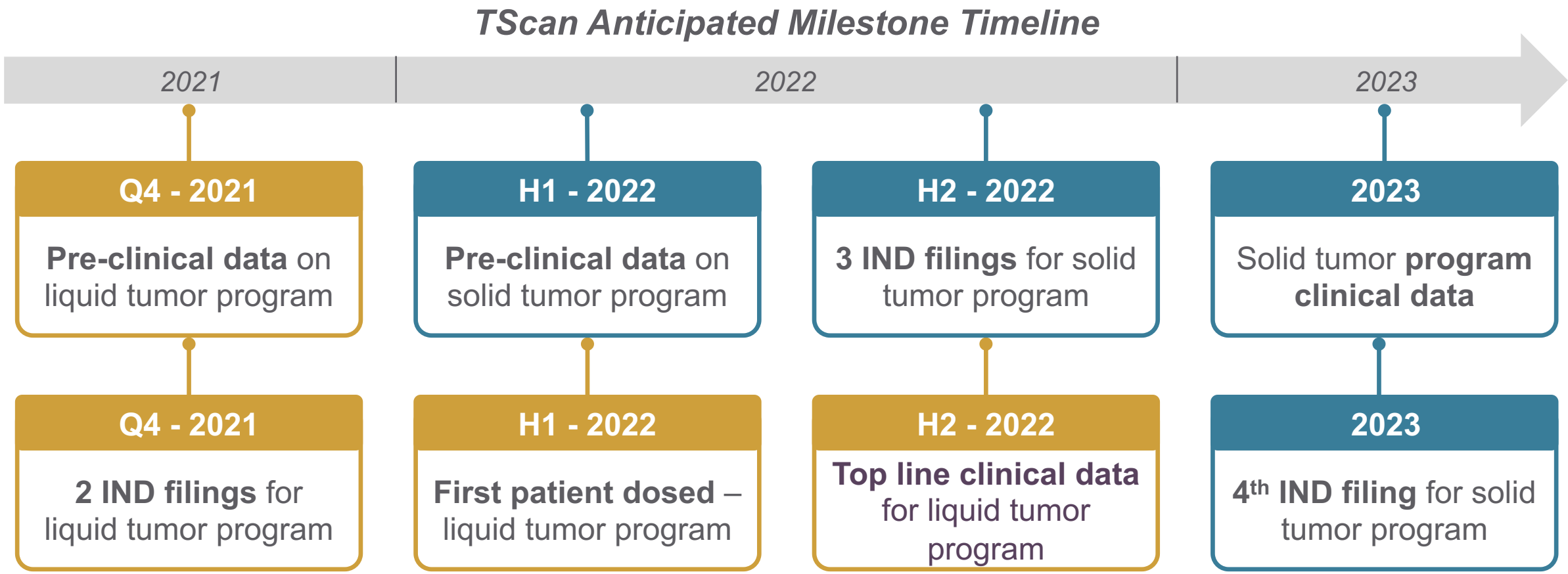
Proprietary TCR-T pipeline addresses liquid and solid tumors



Note: The TSC-200 product series is designed to be used in combination as part of a multiplexed TCR-T therapy, with treatment tailored to target expression in each patient tumor

[1] TSC-200 will only be developed in HPV-positive cancers, which include head & neck, cervical, and anal cancers
[2] AML: Acute myeloid leukemia; MDS: Myelodysplastic syndromes; ALL: Acute lymphocytic leukemia
[3] NSCLC: Non-small cell lung cancer

Broad pipeline drives multiple value-creating milestones



TScan Technology

TScan positioned to overcome solid tumor challenges using multiplexed TCR-T therapy

Most solid tumor patients do not respond to current therapies

Checkpoint / TIL therapy response limited to subset of patients

CAR-T efficacy limited to liquid tumors

TCR-T provides a potential solution for solid tumors but is limited by available targets

TScan's platforms overcome current challenges with multiplexed TCR-T

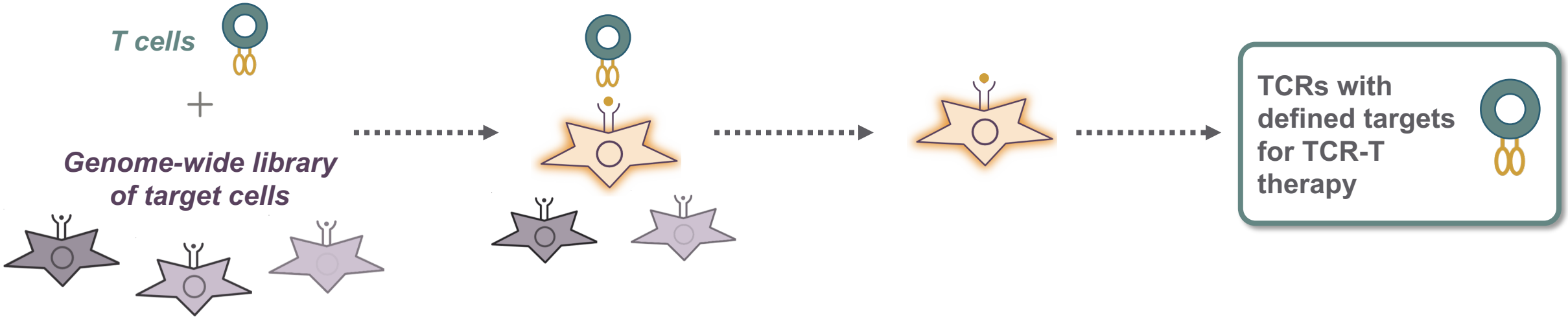
TCR-T can address majority of patients

TCR-T can infiltrate solid tumors

TScan platforms enable discovery of novel targets for multiplexed TCR-T

TargetScan – proprietary platform enables identification of the natural targets of TCRs for TCR-T therapy

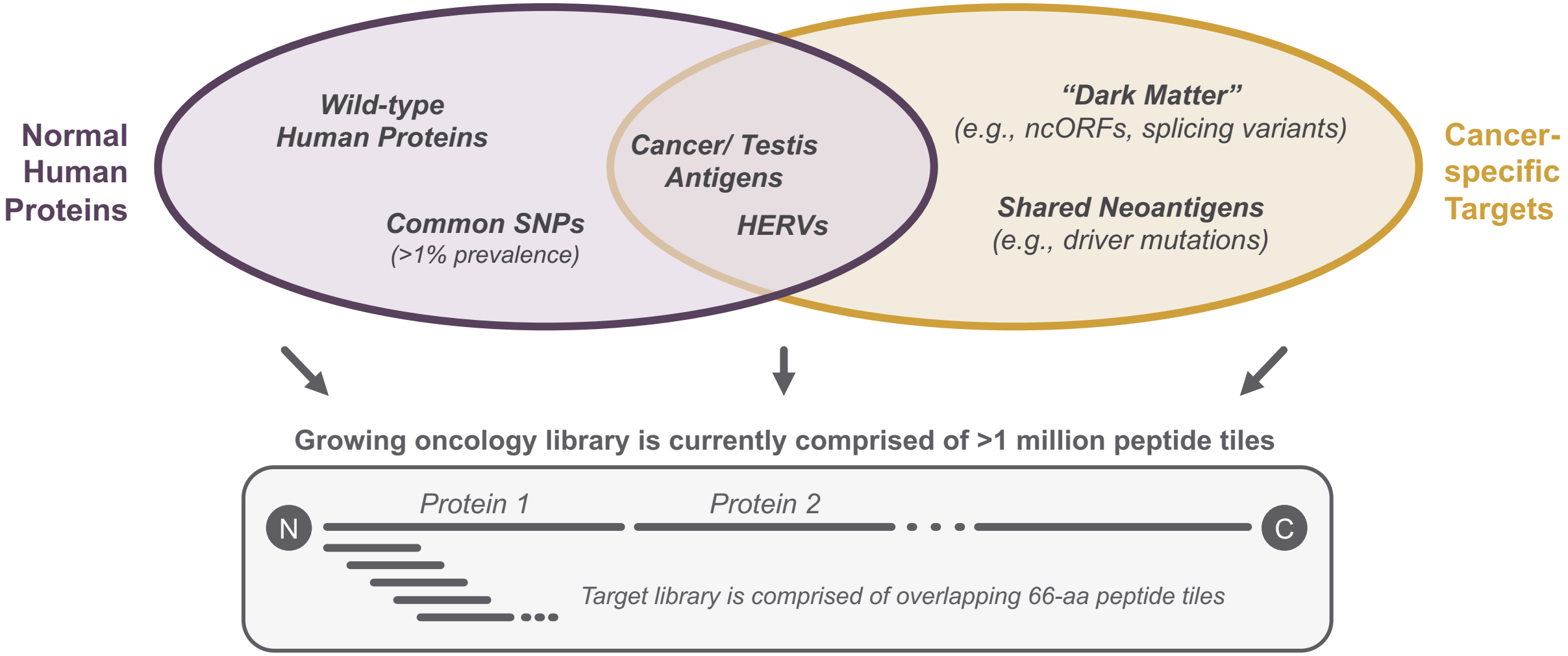
TargetScan Platform Overview



1. *T cells and target cells are **co-cultured***
2. *T cell engagement drives **target cell fluorescence***
3. *Fluorescent cells are **sorted out and DNA sequenced***
4. *Sequencing **reveals targets** of T cells / TCRs for clinical development*

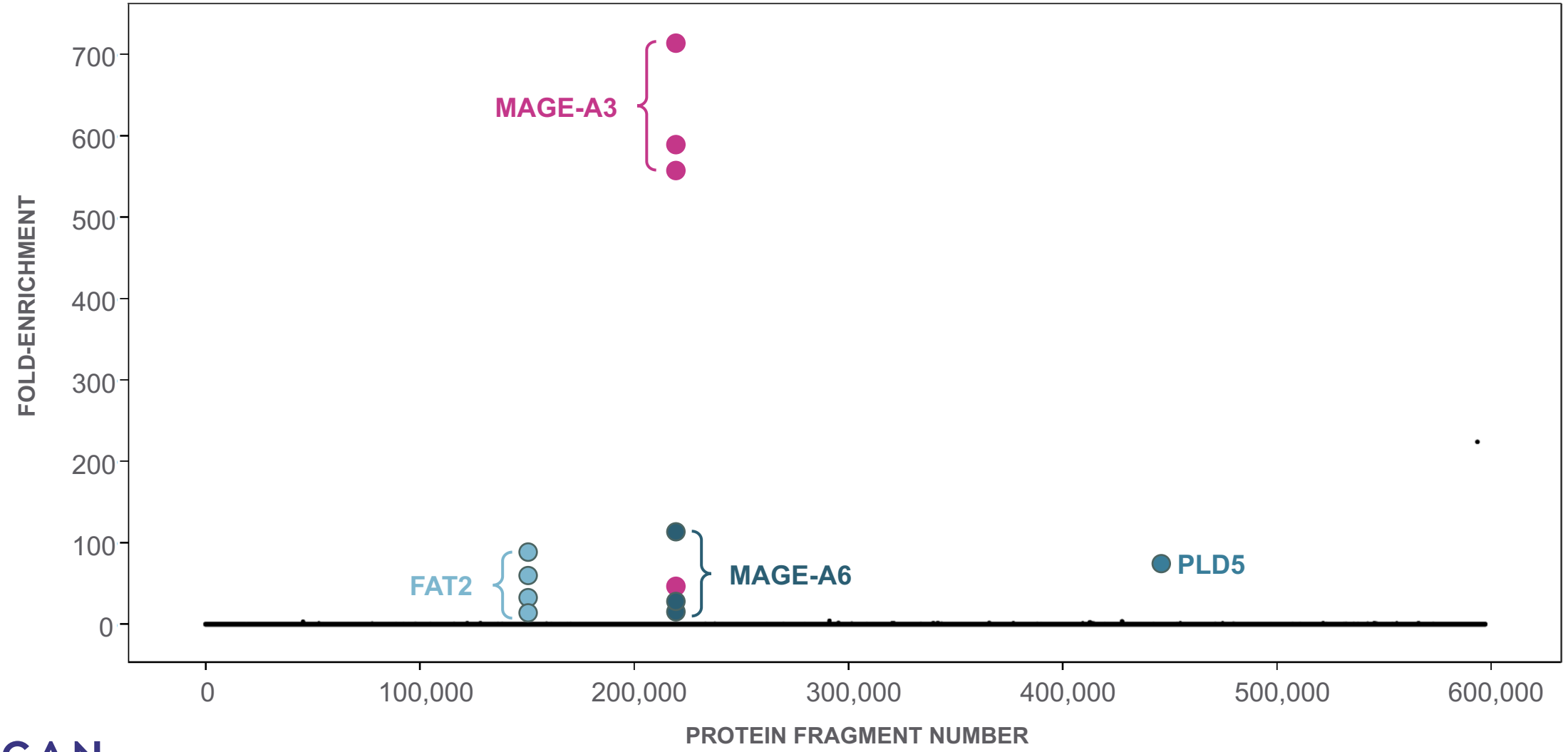
Proprietary library enables discovery of diverse TCR-T targets

Example TScan Oncology Library – *Version 3.0*



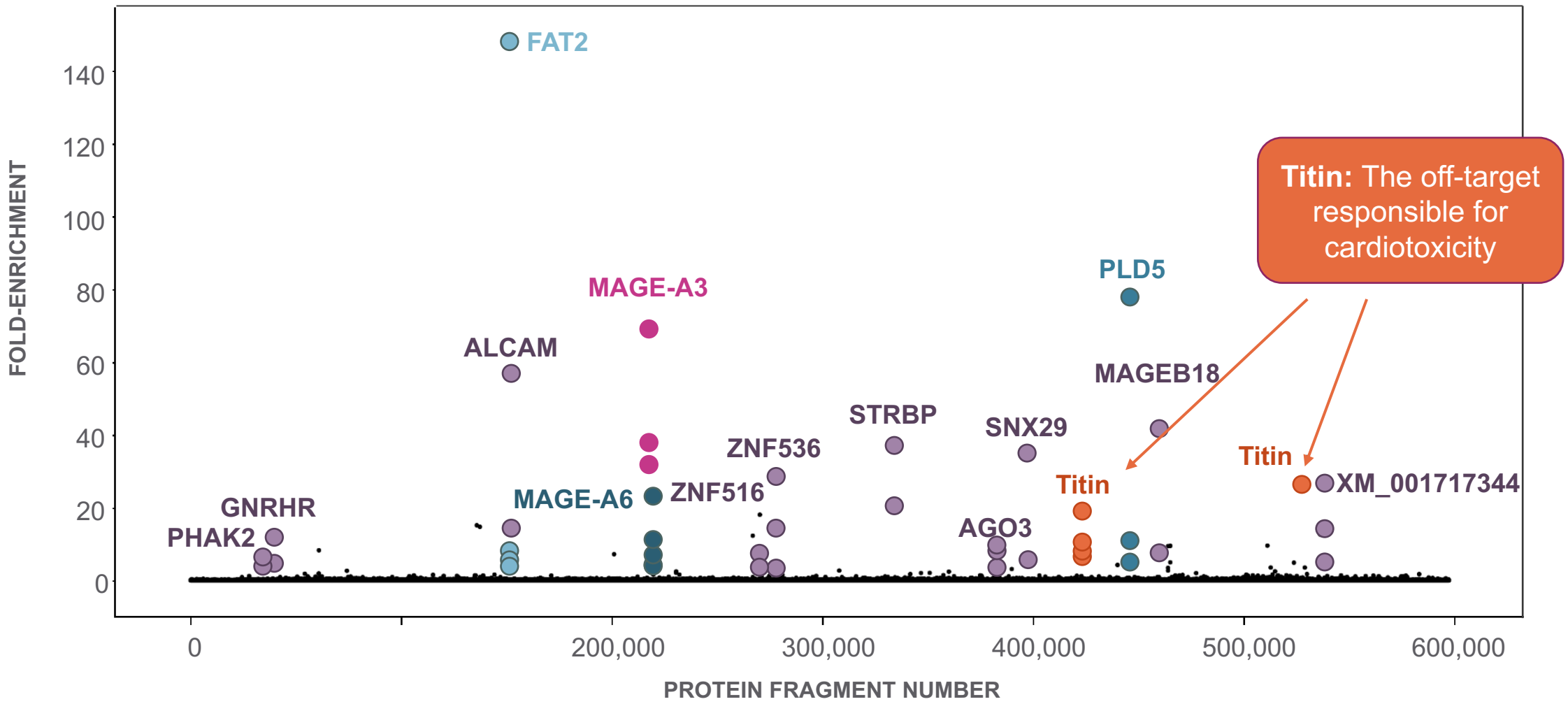
TargetScan clearly identifies the targets of TCRs

*Genome-wide screen of a **TCR known to recognize MAGE-A3***

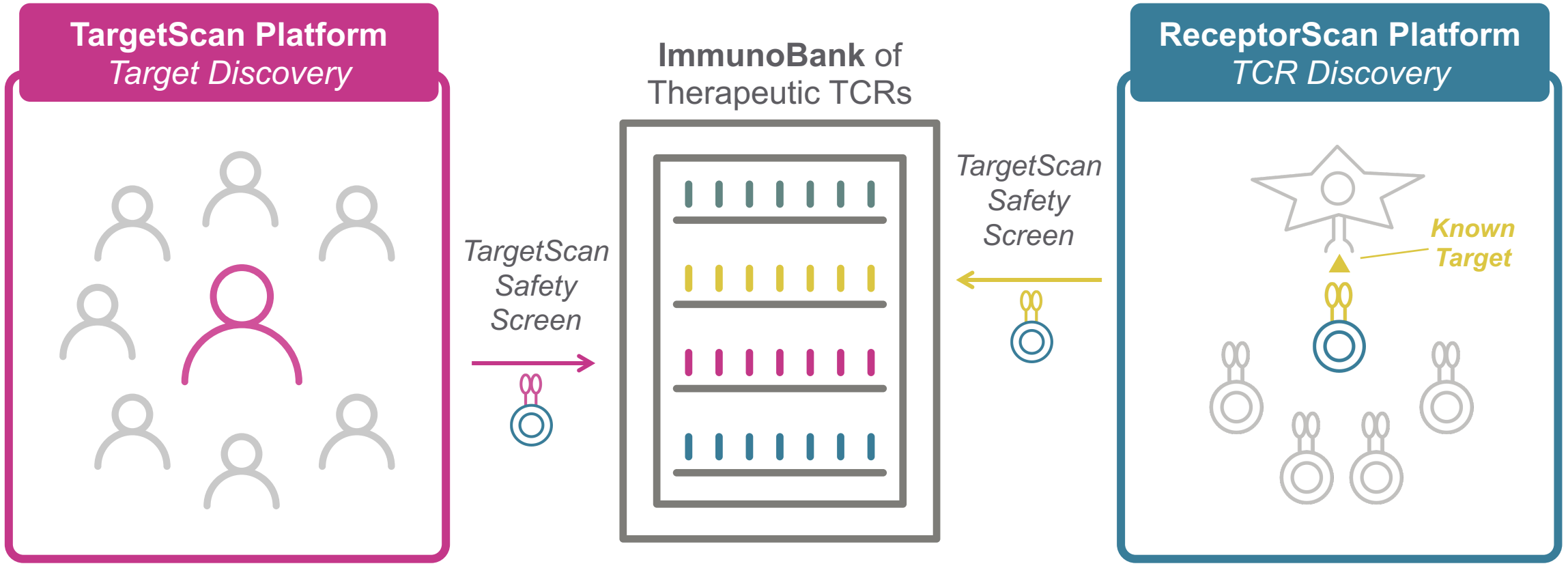


TargetScan identifies clinically relevant off-targets

*Genome-wide screen of **affinity-enhanced MAGE-A3 TCR***



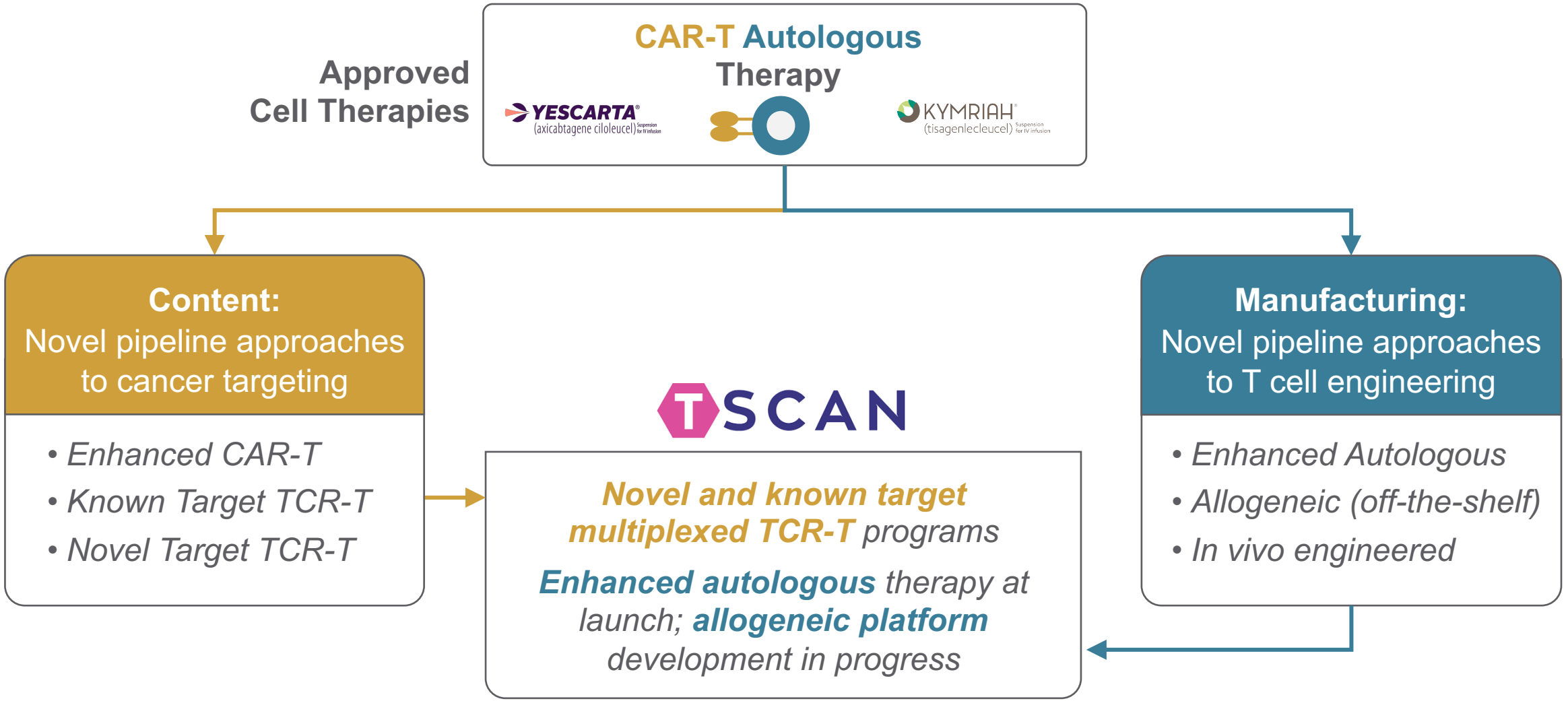
Leveraging TargetScan and ReceptorScan platforms to build a bank of therapeutic TCRs



Discovery of **novel TCR/Target pairs** from immunotherapy responders

Discovery of novel TCRs for **validated targets**

Novel TCR content and innovative manufacturing platform



Clinical Programs:
Liquid Tumor Program

Liquid tumor program is designed to meet a high unmet need

Who Liquid tumor indications where HCT will remain standard of care

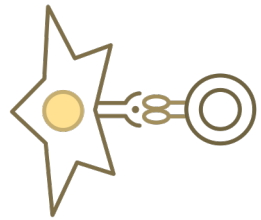
Why Up to 50% of patients may relapse following transplant

When All HCT patients will be eligible for TSC-100 following transplant

Acute Myeloid Leukemia *(AML)*

Myelodysplastic Syndrome *(MDS)*

Acute Lymphocytic Leukemia *(ALL)*



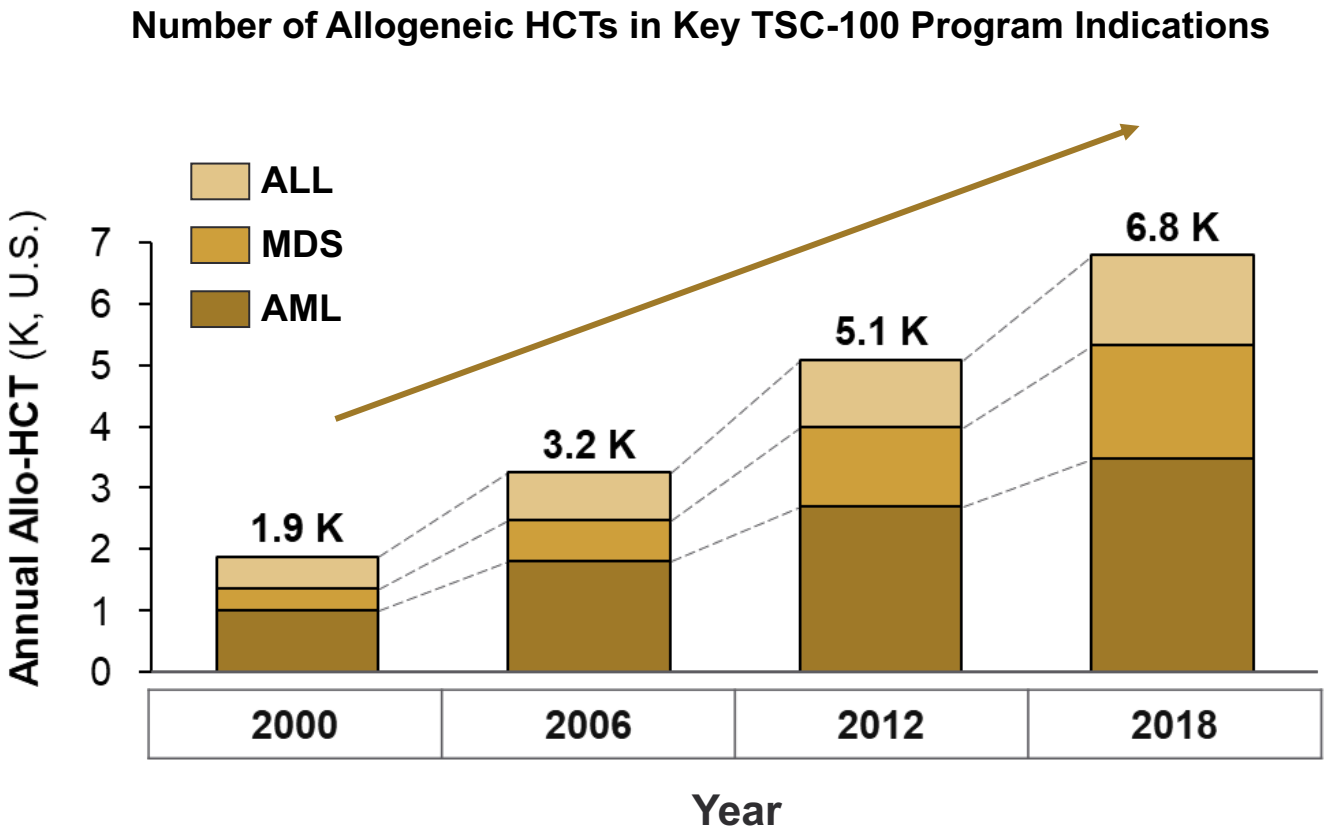
Non-B cell hematologic malignancies are ***ineligible for CAR-T therapy***

Relapsing patients experience high mortality *– vast majority will die within 1 year*

TScan ***uniquely positioned to target prevention of relapse*** *– competitor focus on treating relapse*

*For patients who meet HLA and target genetic requirements

Liquid tumor program addresses a large and growing market



~7K patients currently receive allo-HCT in key indications in the U.S. and would be candidates for the TSC-100 program

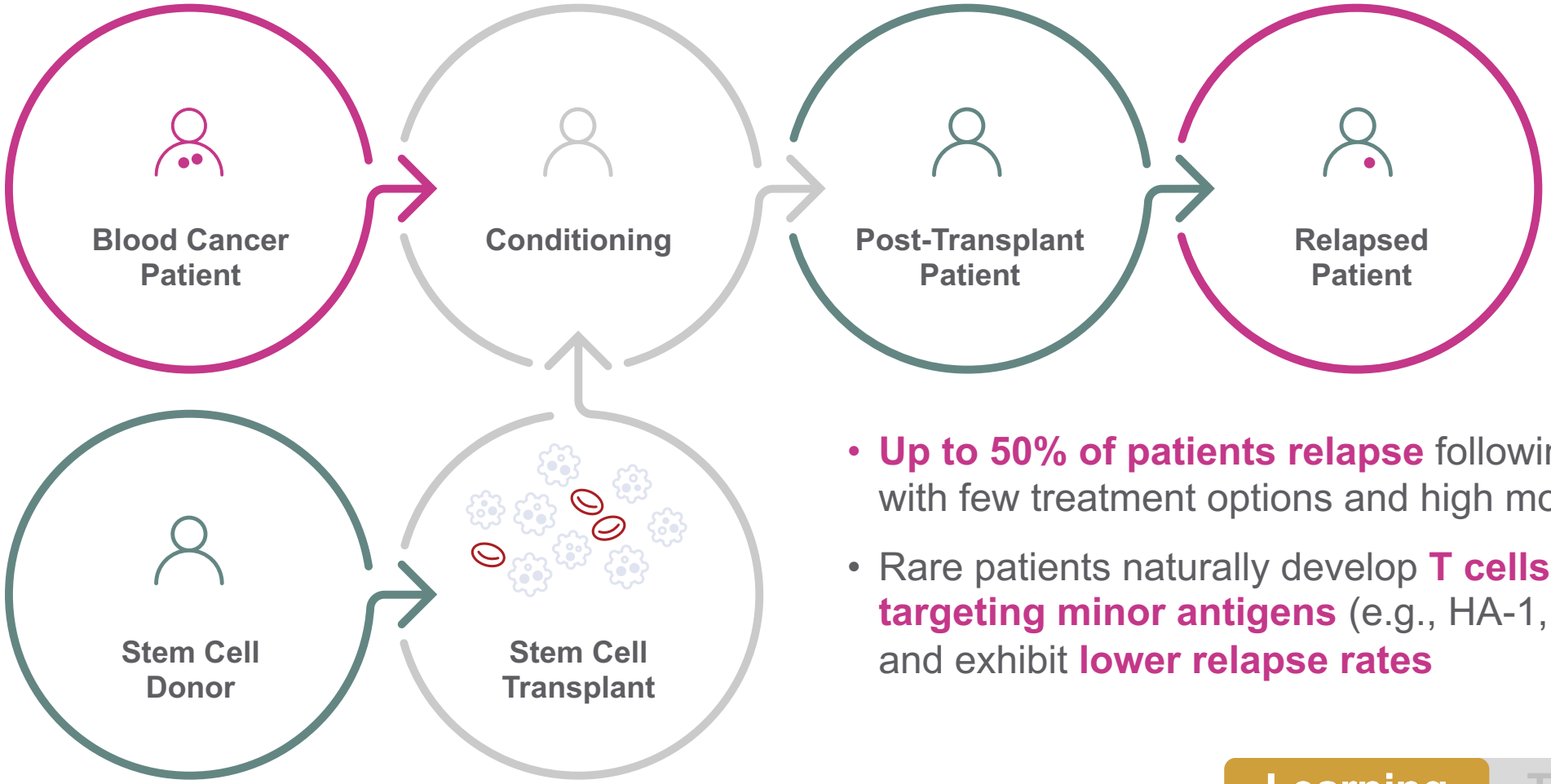
~40% of patients would be eligible for TSC-100 and TSC-101

HCT use has been increasing *for the treatment of priority hematologic malignancies (e.g., AML, MDS, ALL)*

The TSC-100 program is designed to address a ***large, growing pool of addressable patients*** *in key indications*

Source: Center for International Blood and Marrow Transplant Research (CIBMTR).

Lead program designed to prevent relapse following stem cell transplant (SCT)



- **Up to 50% of patients relapse** following SCT, with few treatment options and high mortality
- Rare patients naturally develop **T cells targeting minor antigens** (e.g., HA-1, HA-2), and exhibit **lower relapse rates**

Learning Treating

Engineering donor T cells to eliminate residual leukemia cells, preventing patient relapse and risk of death

TSC-100 Design:

HA-1⁺ & HLA-A*02:01⁺ patient

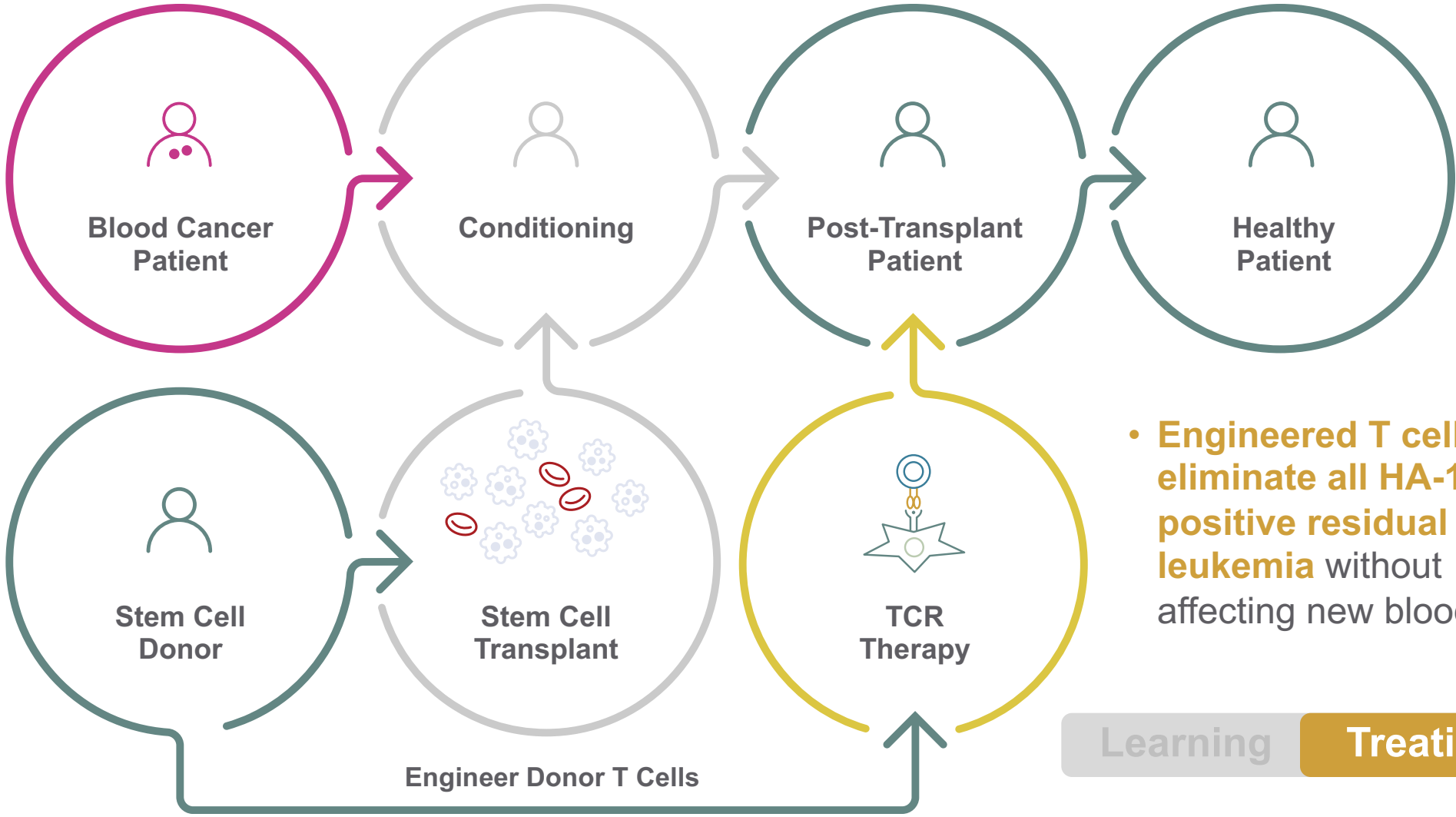
*HA-1⁺ target peptide is presented by HLA-A*02:01*

VL**H**DDLLEA

HA-1⁻ or HLA-A*02:01⁻ donor

*HA-1⁻ target peptide is not presented by HLA-A*02:01*

VL**R**DDLLEA



- **Engineered T cells eliminate all HA-1-positive residual leukemia** without affecting new blood cells

Learning **Treating**

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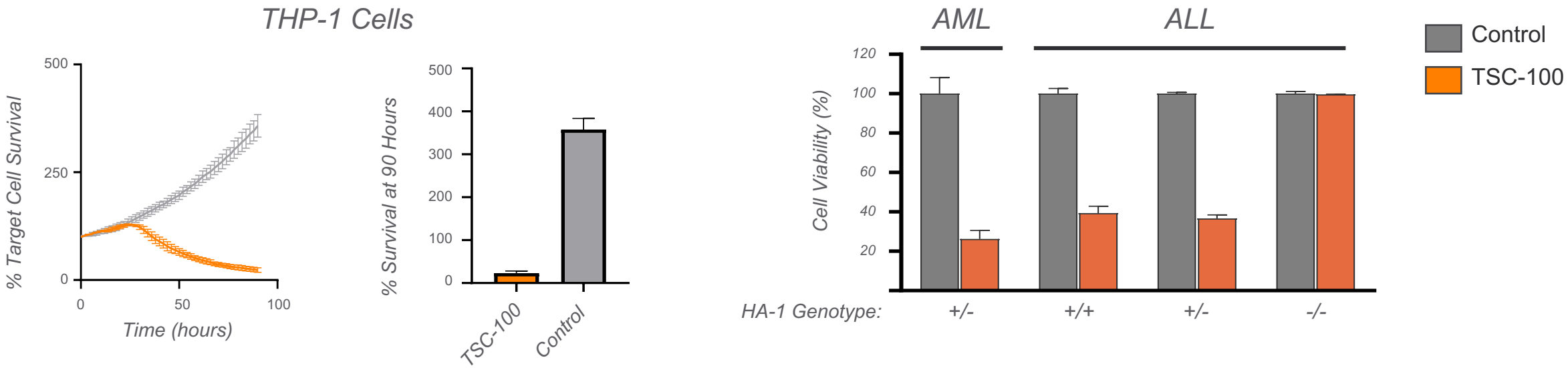
TSC-100 displays strong HA-1-specific cytotoxicity *in vitro*

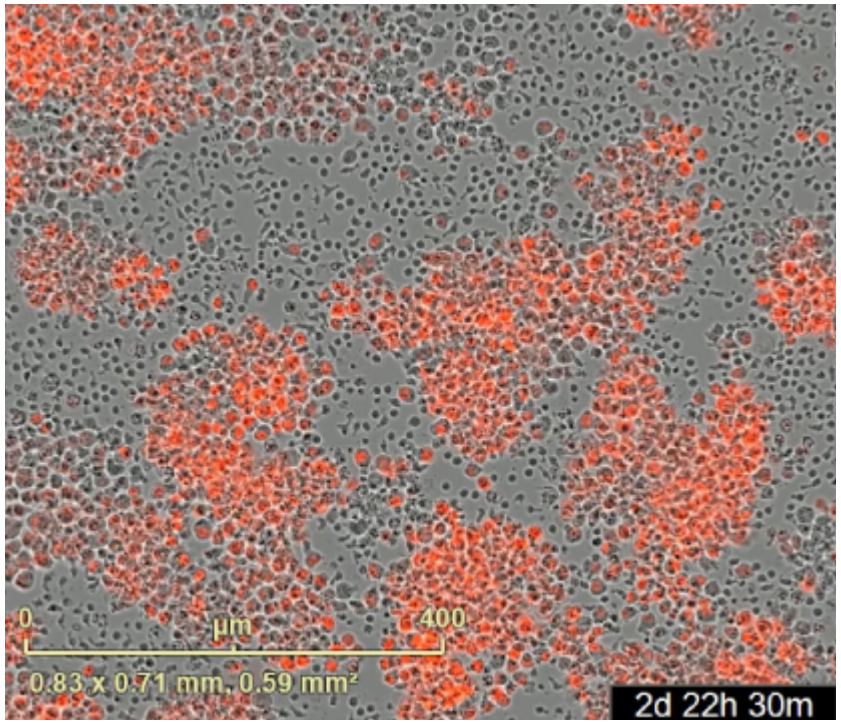
Example Cytotoxicity Data



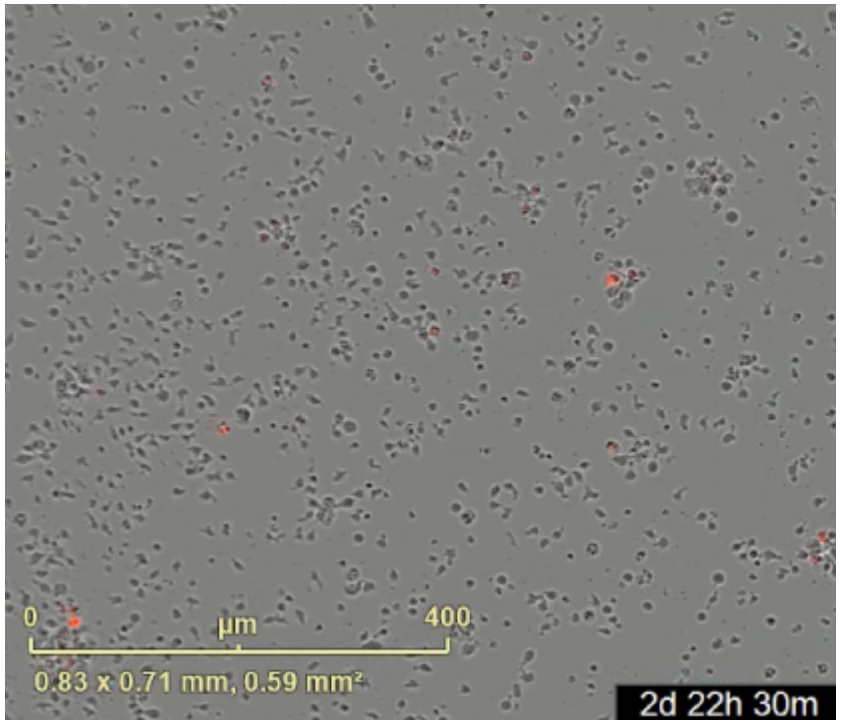
TSC-100 exhibits robust activity via cytotoxicity assays, cytokine production (e.g., IFNg, granzyme B), and T cell proliferation

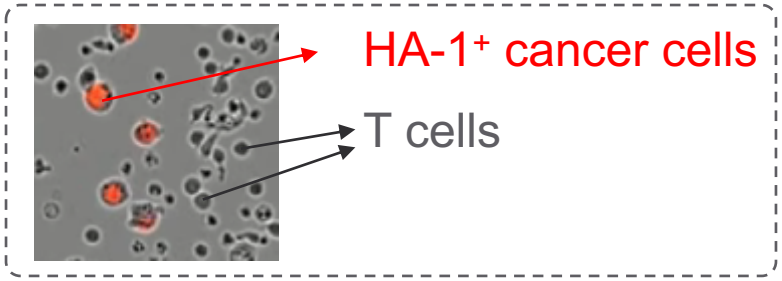
Illustrative video of *in vitro* studies showing the potential of TSC-100 to reduce HA-1-positive cancer cells

Non engineered T cells

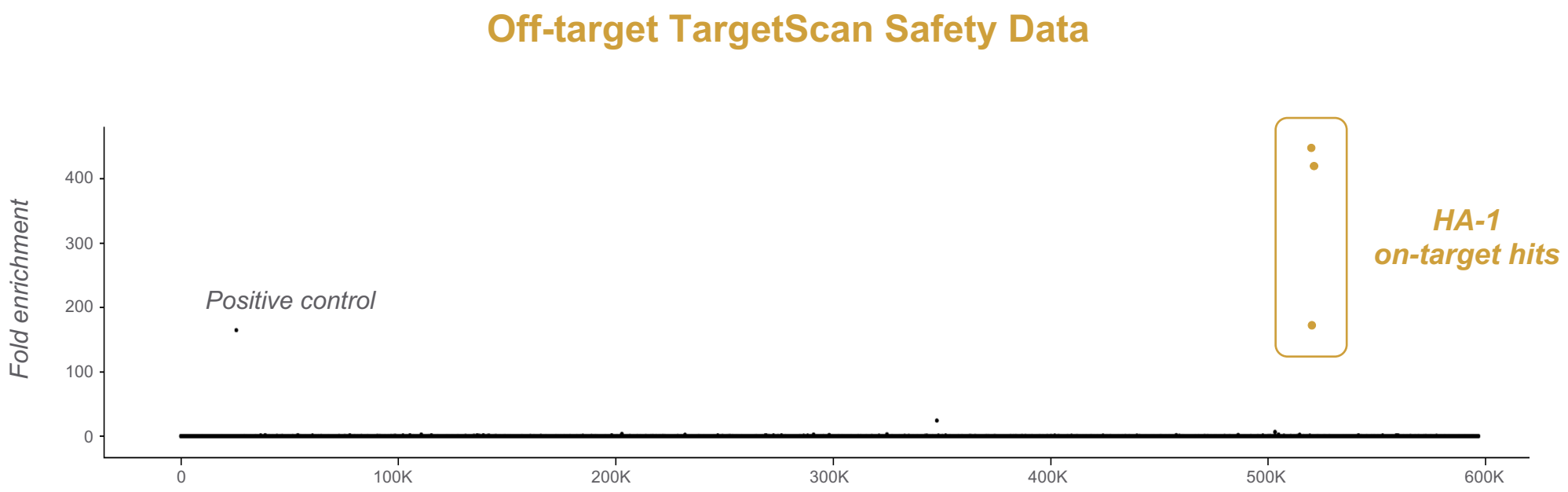


TSC-100





TSC-100 shows enhanced potential safety based on TargetScan safety screen



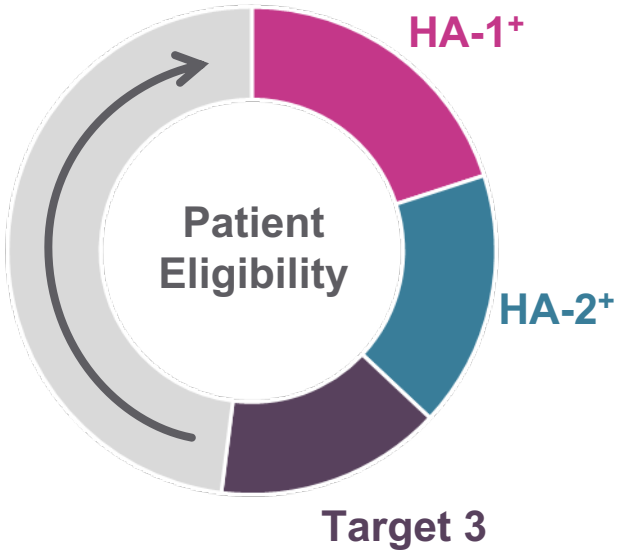
- TargetScan revealed **no significant off-targets** for the TSC-100 TCR
- TSC-100 demonstrated no cross-reactivity or alloreactivity

Multi-target program provides comprehensive solution for patients following SCT

Eligible Patients

Diagnostic Tests

- HLA type
- Genotype (HA-1, HA-2, Target 3)



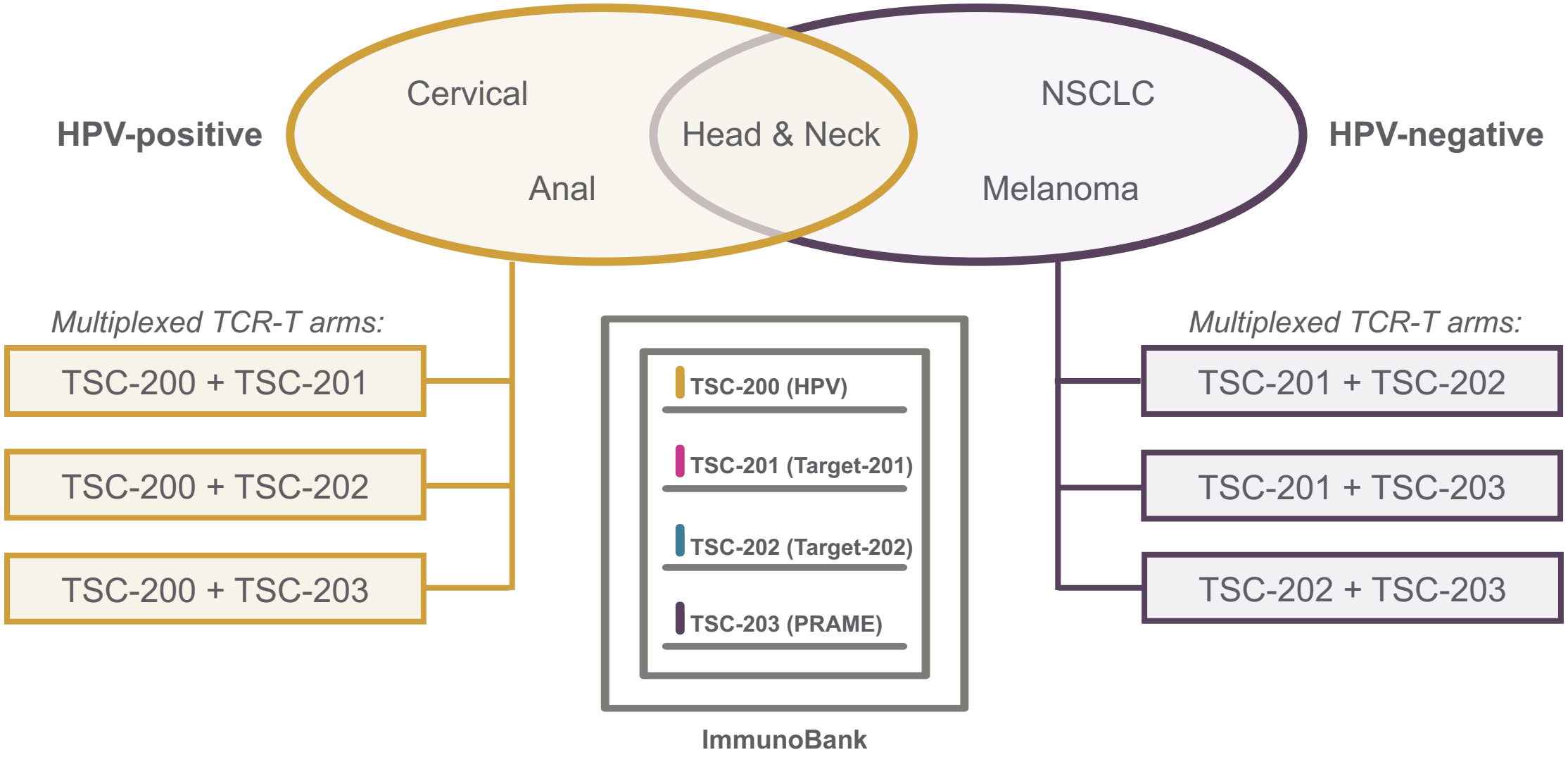
Clinical Trial Patient Cohorts

- HA-1+, HLA-A*02:01
- HA-2+, HLA-A*02:01
- HA-1+ & HA-2+, HLA-A*02:01
- Target 3, HLA-B*07:02

Additional arms may be opened sequentially

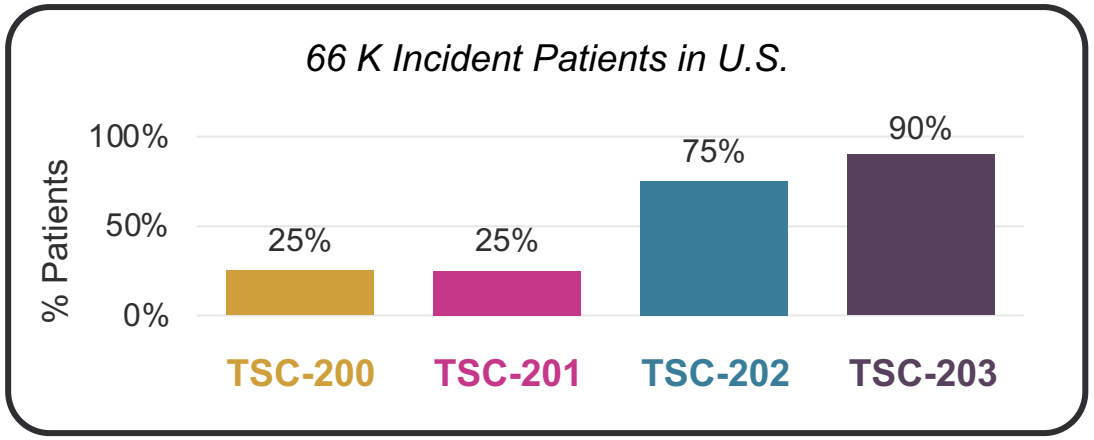
Clinical Programs:
Solid Tumor Program

Solid tumor program targets HPV+ and HPV- tumors

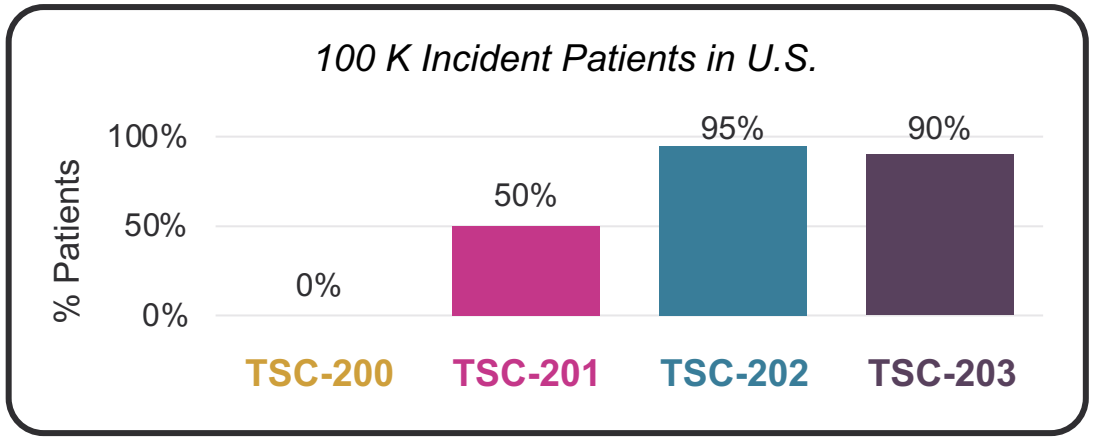


Initial targets are expressed in overlapping cancer indications, enabling multiplexed TCR-T therapy

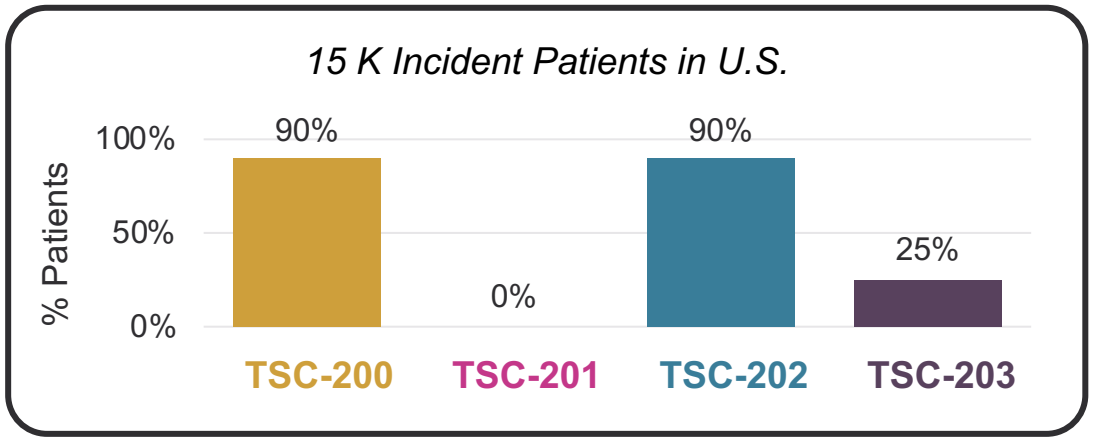
Head & Neck



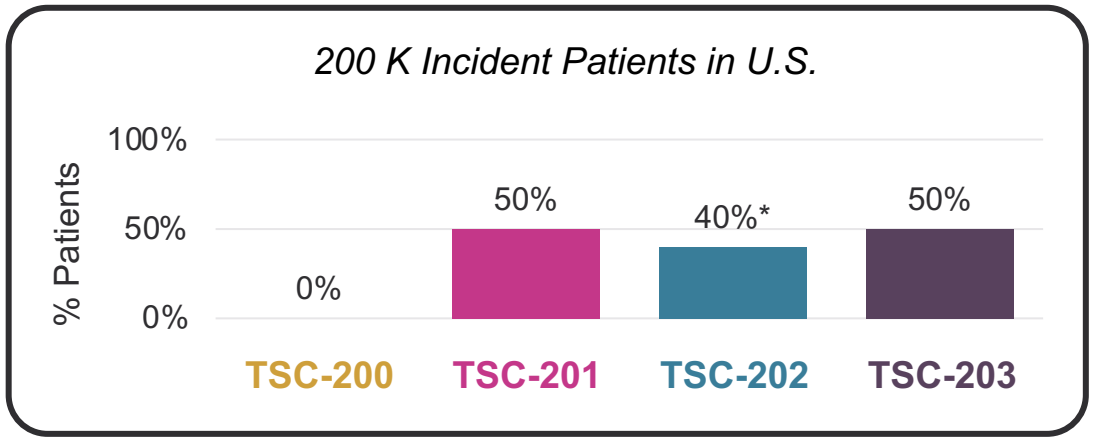
Melanoma



Cervical



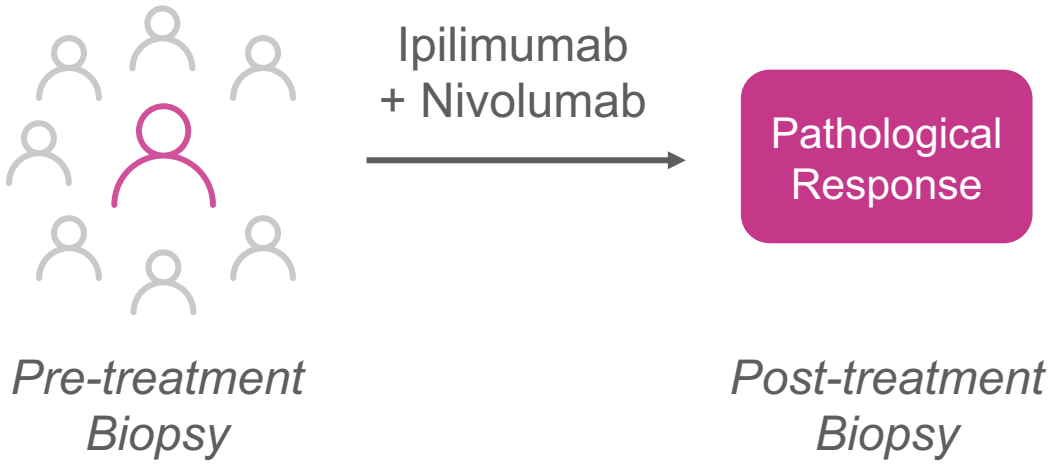
NSCLC



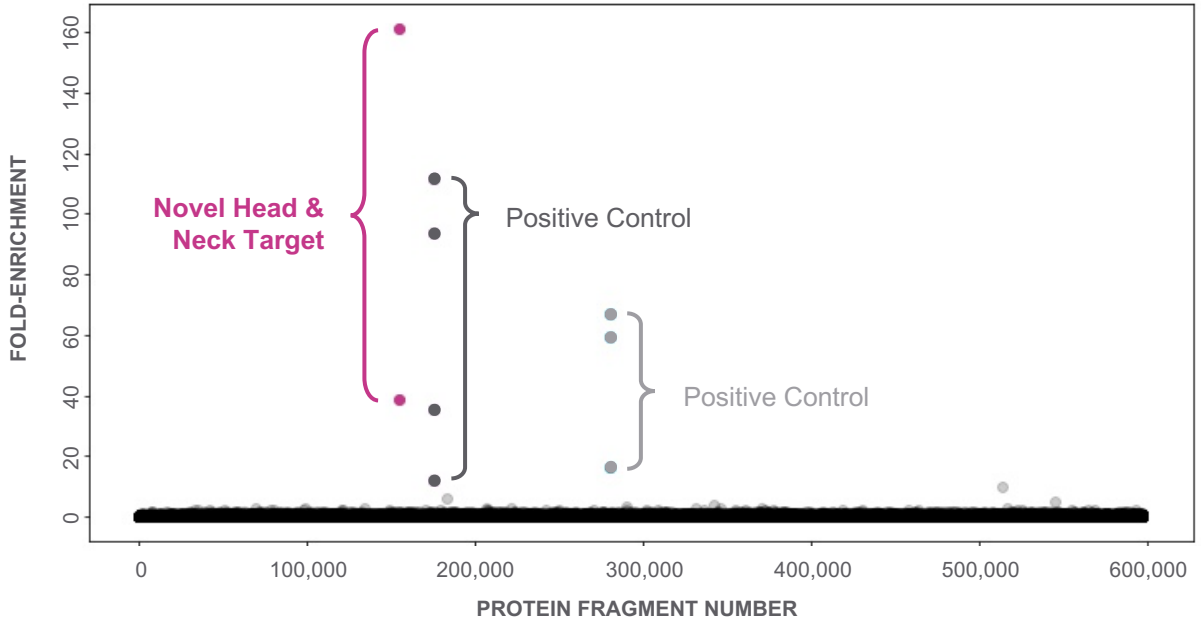
*Denotes broad lung cancer expression.

TargetScan identifies targets of clinically-active TCRs from immunotherapy-responsive patients

Focus on patients with exceptional responses to immunotherapy

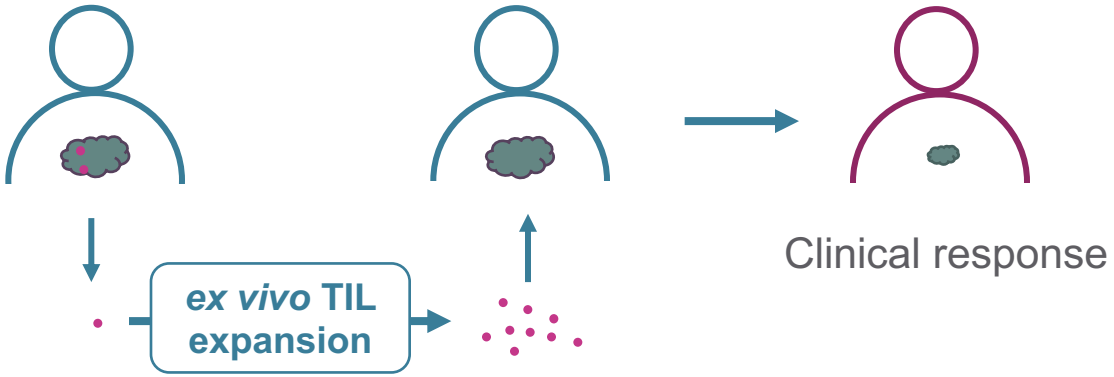


Expanded T cell clones screened with TargetScan to identify novel targets / TCRs

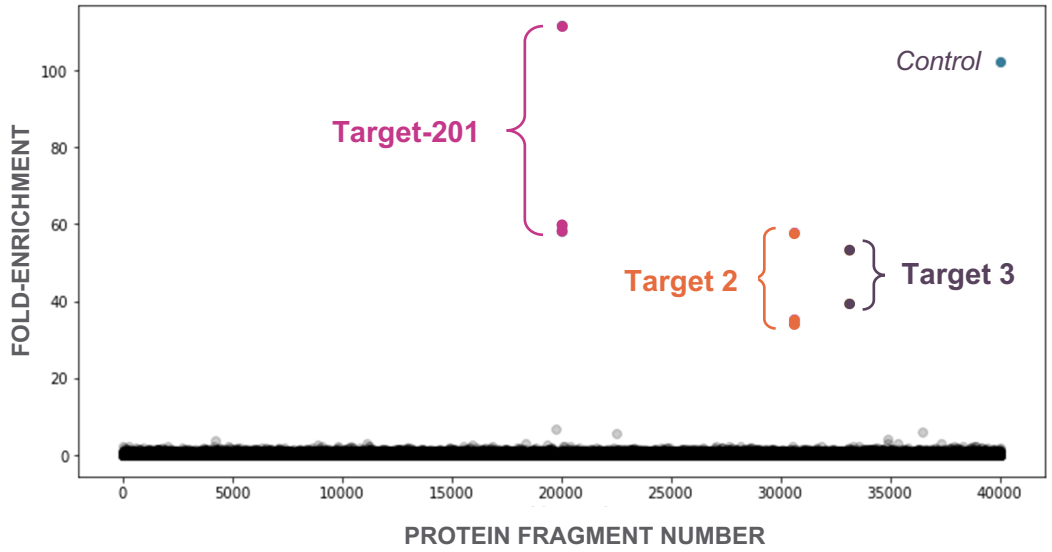


TIL therapy-responsive patients provide another valuable source of clinically-active TCRs

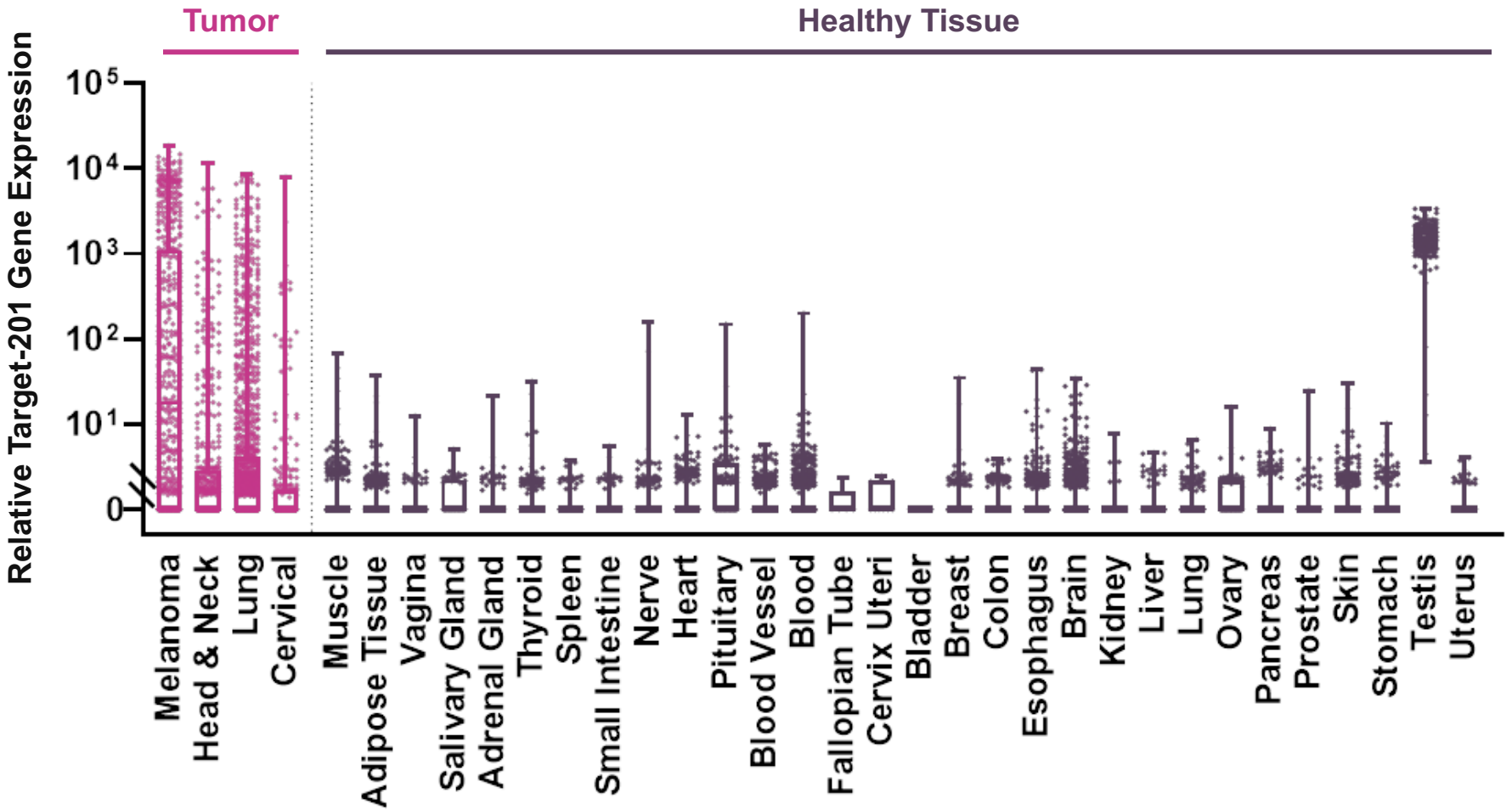
Melanoma Patients Receiving TIL Therapy



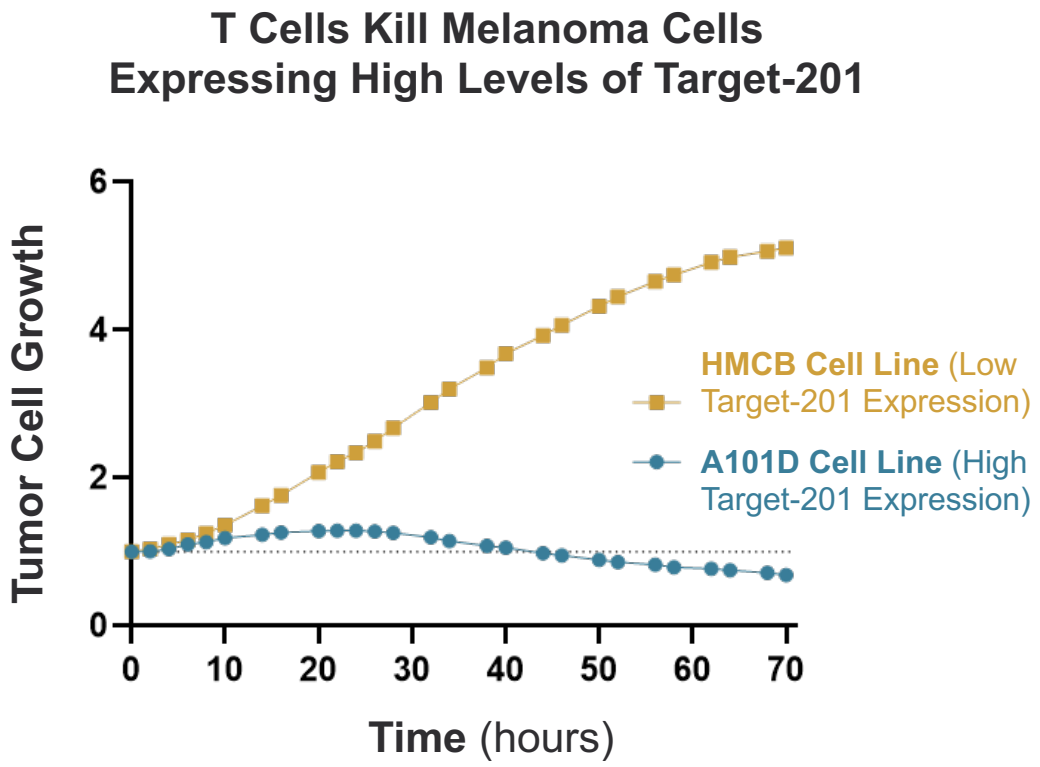
Three Novel Cancer/Testis Antigen Targets Identified from TIL-Responsive Patients

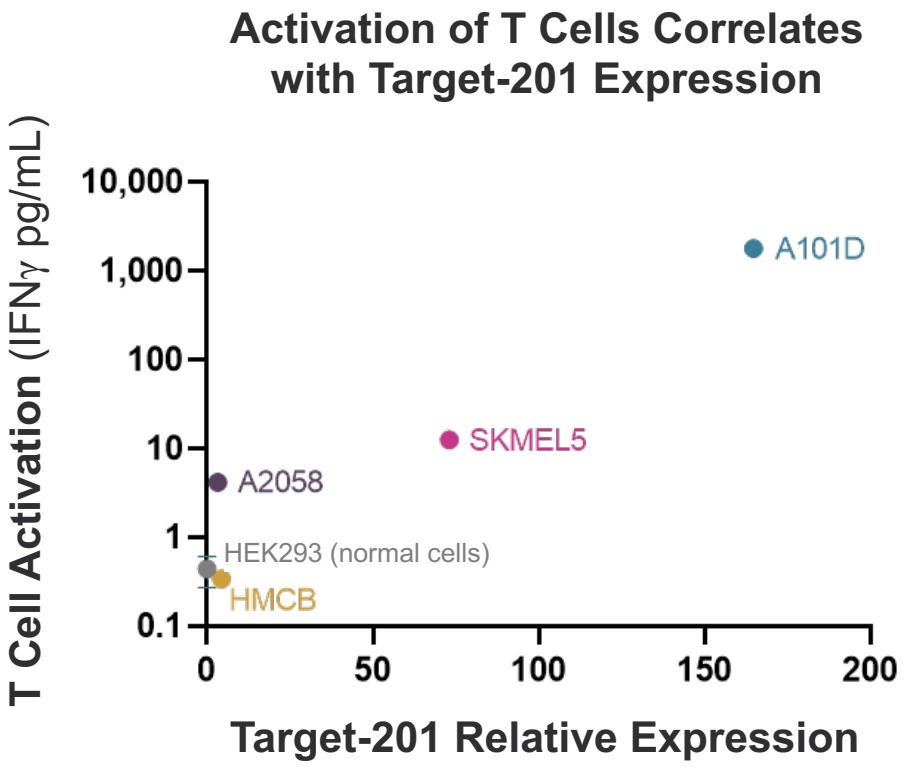


Target-201 is a cancer/testis antigen expressed in various cancers but not healthy tissue



Target-201 TCR kills melanoma cells that naturally express Target-201 in preclinical studies





Discovery process is yielding a diverse and growing Immunobank of TCR-T candidates

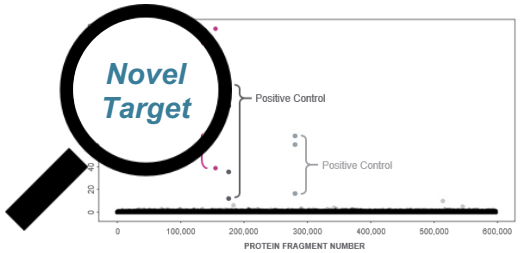
Clinical Responders Recruited

Clinically responsive immunotherapy patients studied, including TIL & checkpoint inhibitor tx

Novel Targets Identified

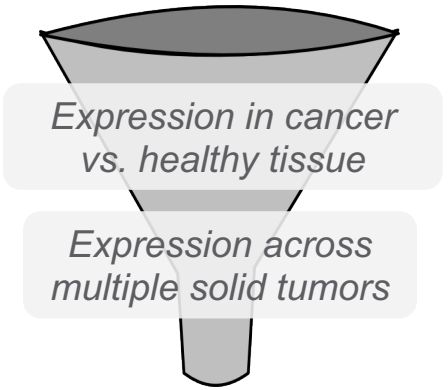
300+ TCRs screened via TargetScan

Over 40 novel targets identified to date



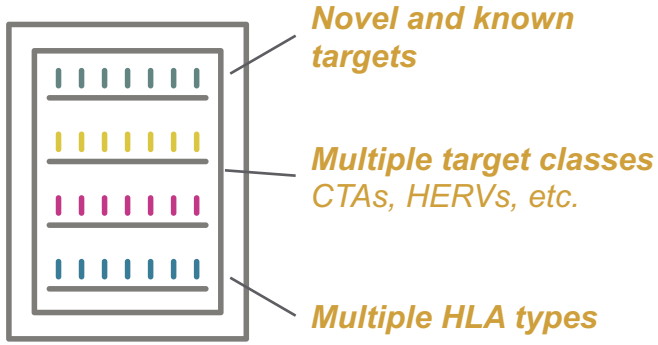
Priority Targets Selected

Priority targets identified based on specific criteria, including:

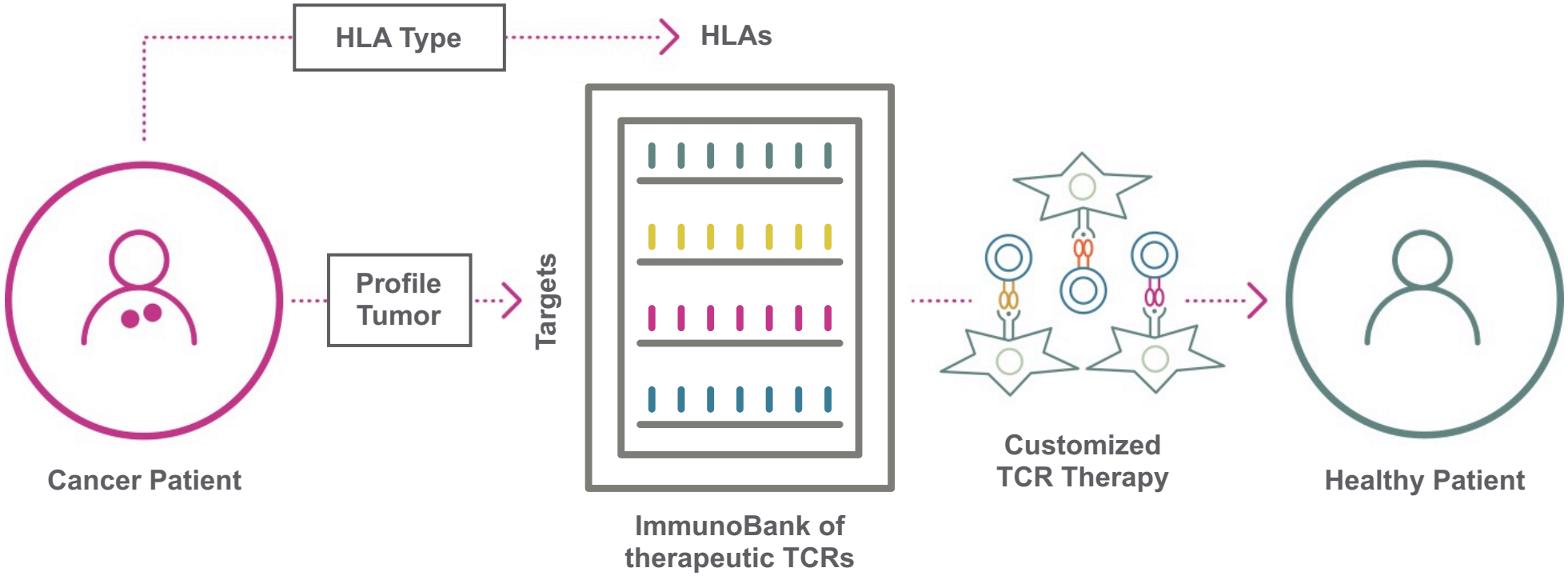


Progression of Targets to Clinic

Priority targets are being **moved into ImmunoBank** for multiplexed TCR-T



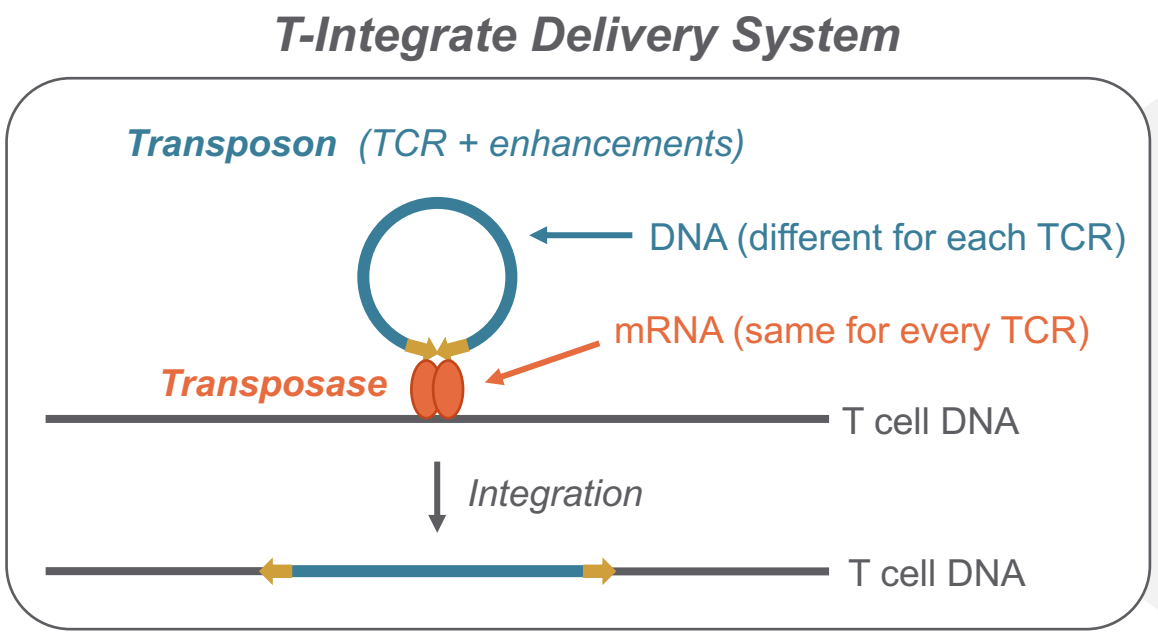
ImmunoBank of TCRs may provide customized, off-the-shelf, multiplexed TCR-T



Multiplexed TCR-T may **overcome both tumor heterogeneity and resistance due to target loss**

Manufacturing

Non-viral delivery overcomes constraints of lentivirus - Enables TCR-T multiplexing and T cell enhancements



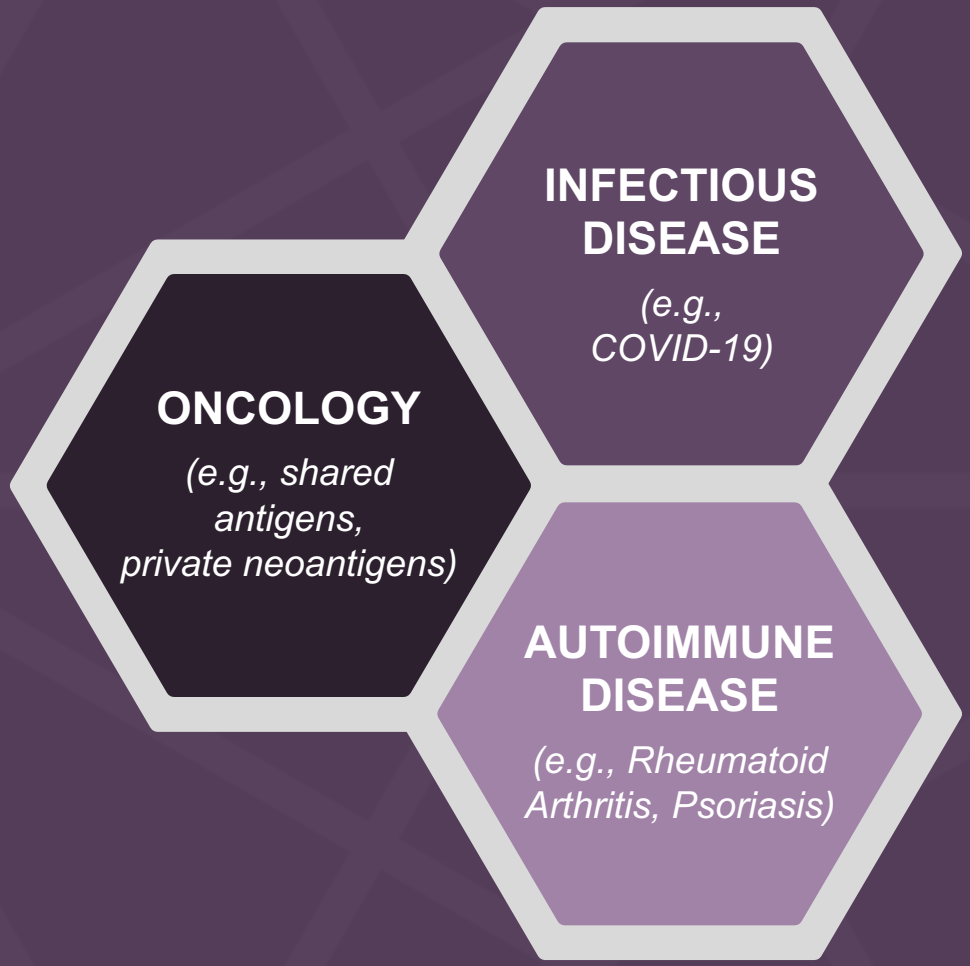
Advantages of T-Integrate over lentivirus:

- Greater cargo size enables delivery of T cell functional enhancements
- Rapid process development
- Cost-effective manufacturing

Internal manufacturing expected to facilitate progress to clinic

- 7,000 square foot **GMP production facility** with QC labs and GMP warehouse
  - **Internal manufacturing team** with extensive cell therapy experience
- Expected to **fully support multiple clinical programs** through phase 2 clinical trials

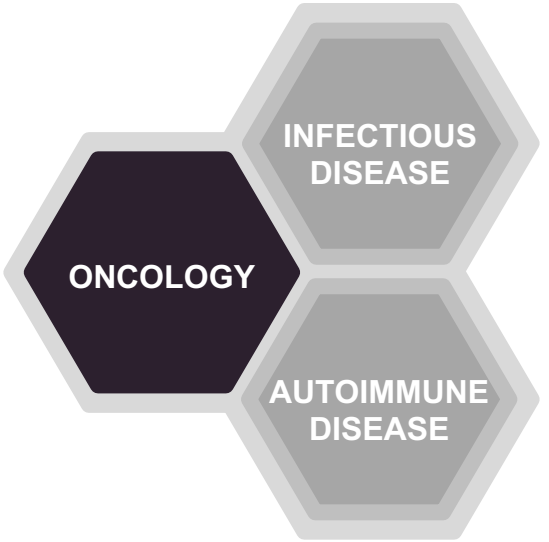
Building Corporate Value Through Partnerships



Strategic Novartis partnership builds value in oncology

Partnership with Novartis leveraging TargetScan to **discover novel shared targets in solid tumors**

- Identifying novel targets and TCRs from patients actively responding to immunotherapy in a select solid tumor indication
- Novartis has the option to license and develop TCRs for up to three novel targets and rights of first negotiation for certain additional TCRs. TScan keeps all additional targets/TCRs not licensed by Novartis
- Payments to TScan include:
  - $20M upfront plus up to $10M in research reimbursement
  - Development and commercial milestones
  - Tiered royalties

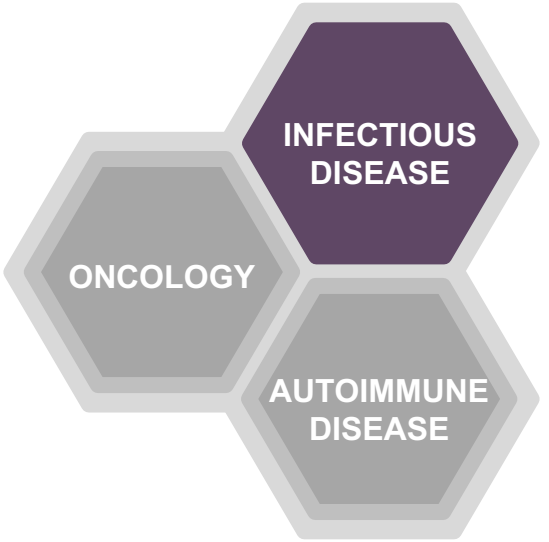


NOVARTIS

TargetScan identified COVID-19 T cell targets – Developing next generation vaccines, diagnostics with partners

Using blood from recovering COVID-19 patients, TargetScan found:

- A shared set of targets largely located **outside the spike protein**
- **Little cross-reactivity** with other 'common cold' coronaviruses
- Results **published in Immunity** in October 2020



TScan has signed ***diagnostic and therapeutic partnerships*** as well as early-stage collaborations for COVID-19

QIAGEN

Summary

Proprietary target discovery technology identifies novel targets for TCR-T therapy and de-risks development of clinical candidates

TCR-T company with liquid tumor program (IND expected in 2021) and solid tumor program (IND expected in 2022)

Building additional corporate value via strategic partnerships, including recent target discovery partnership with Novartis

Supported by top investors, with $260M in equity funding