Off-the-Shelf Engineered iPSC-derived NK and T Cells for the Treatment of Cancer

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Changing the Game in Cell Therapy

Off-the-Shelf Cell Products to Eradicate Cancer

Multiplexed Engineering

Incorporate multiple mechanisms of action to eradicate cancer

Mass Production

Reliable manufacturing process with high yield at low cost per dose

Uniform Products

Consistent identity, purity and potency of cell products

Off-the-Shelf

Stable, cryopreserved for on-demand treatment and expanded patient reach

Treatment Paradigm

Flexible out-patient treatment strategies to drive deep responses

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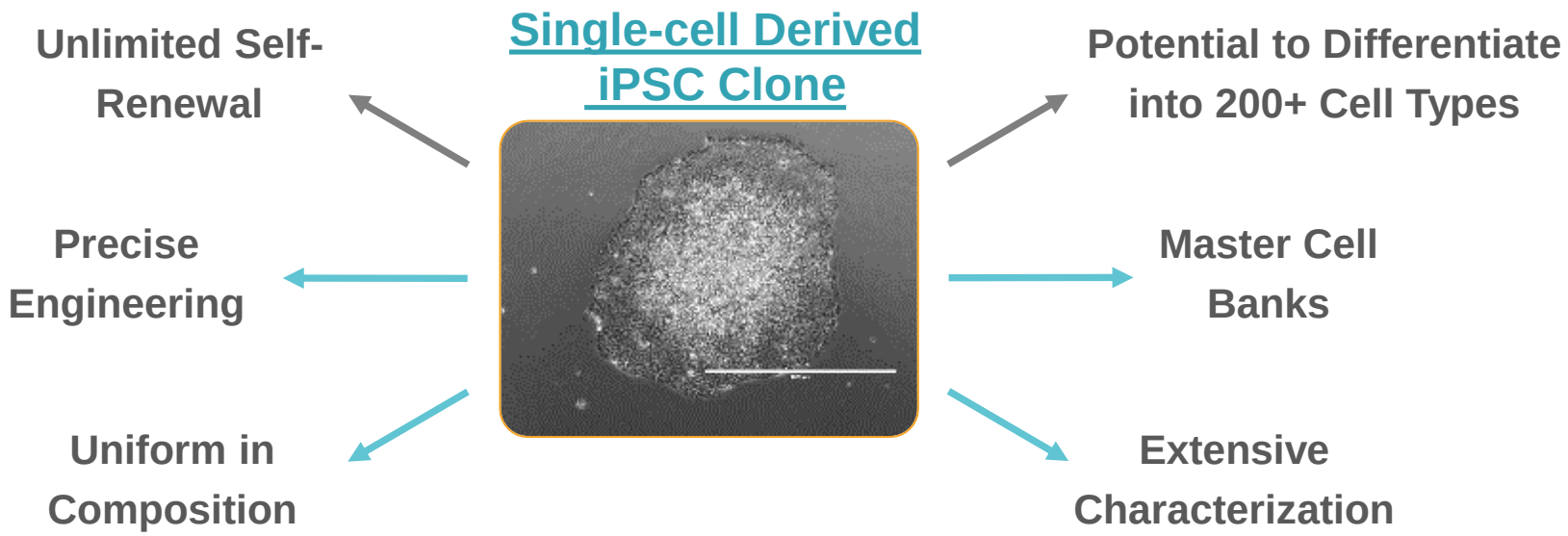
A Novel Starting Cell Source for Cell-based Immunotherapy

Renewable clonal starting material for the generation of homogenous cell products

Human Induced Pluripotent Stem Cells (iPSCs)

Transitioning from a heterogenous process to the cost-effective delivery of optimized cell products



Renewable Clonal Cell Line ---> Homogeneous Cell Products

Fate Therapeutics' iPSC product platform is supported by an IP portfolio of 300+ issued patents and 150+ pending patent applications

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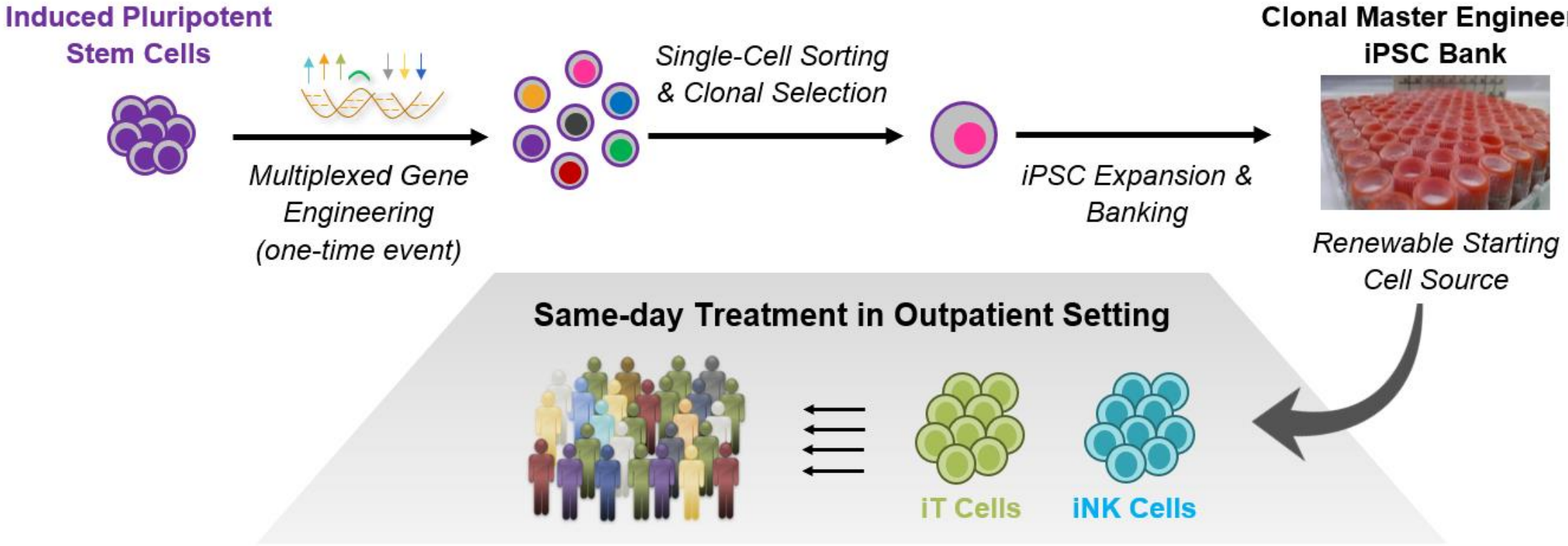
iPSC Product Platform

Disruptive Approach Enabling Mass Production of Universal NK Cell and T-Cell Products



- ✓ **Multiplex engineered**
- ✓ **Homogeneous product**
- ✓ **Mass production**
- ✓ **Off-the-shelf**

Multiple tumor-fighting mechanisms

High quality; consistent purity and activity

High yield; low cost per dose

On-demand; expanded patient reach

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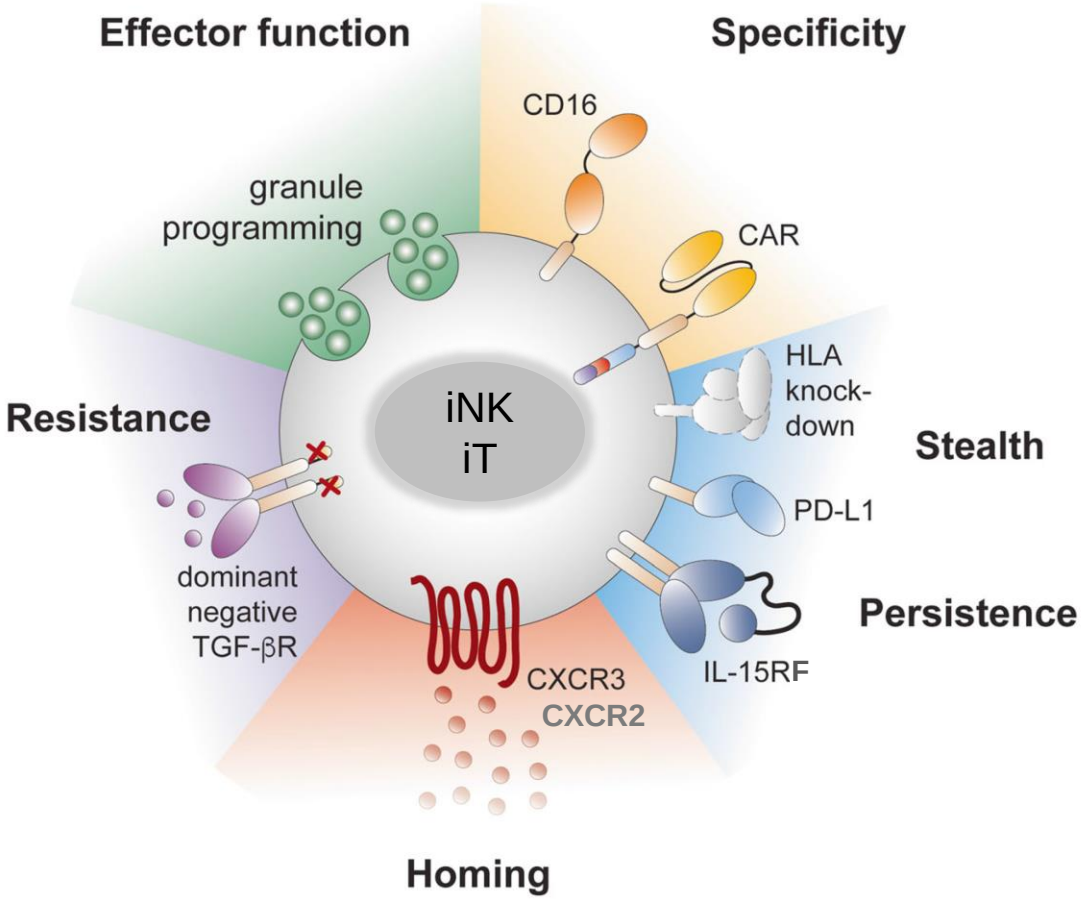
Creating novel multiplexed engineered iNK and iT cells with multi-antigen specificity to combat tumor heterogeneity and treatment resistance

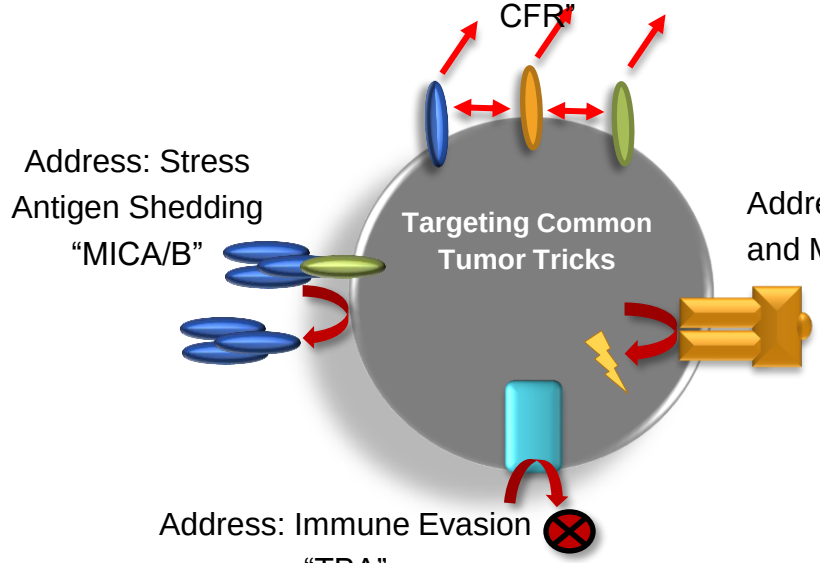
A Snapshot of our R&D Activities



Modified after Saetersmoen et al. Seminars in Immunopathology 2019

Multi-Antigen and Combinational Targeting of Cancer

Address: Antigen Escape, Surface Antigen Variability, Intracellular Antigens "CAR + hnCD16 + TCR + CD3/CD28 CFR"

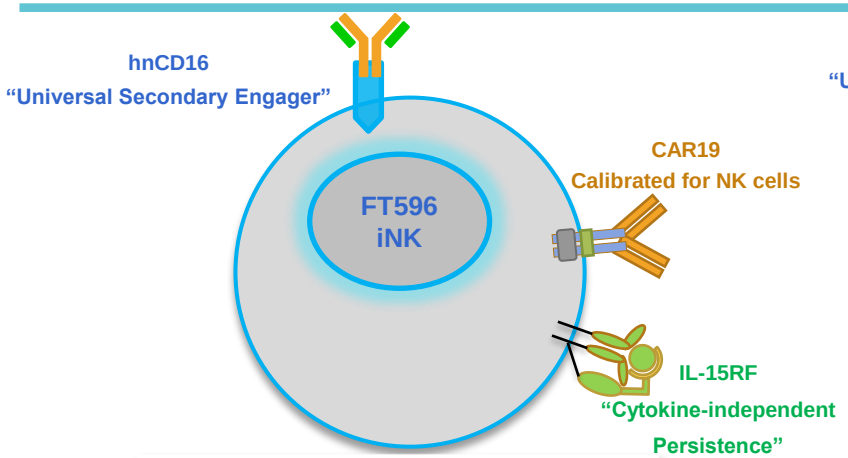


+

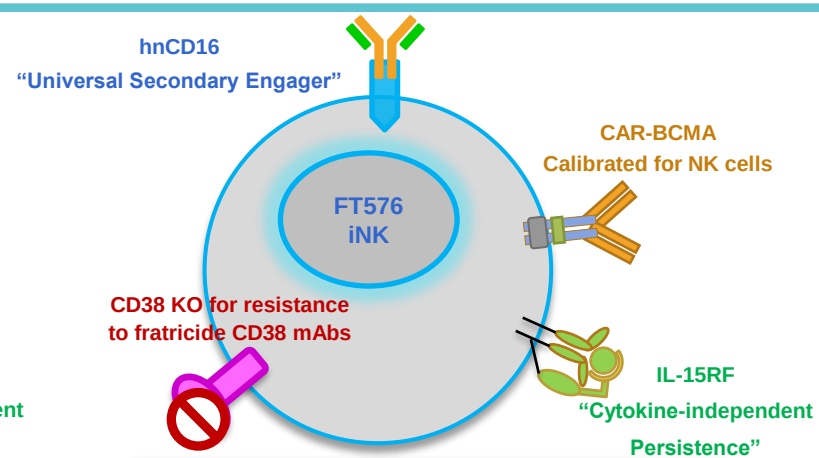
- ✓ **Therapeutic mAbs**
- ✓ **Checkpoint Blockade Therapy**
- ✓ **T and NK cell engagers**
- ✓ **Radiation Therapy**
- ✓ **Multiple Immune Cells**

Best-in-Class Off-the-Shelf CAR Product Candidates With Multi-Antigen Capacity

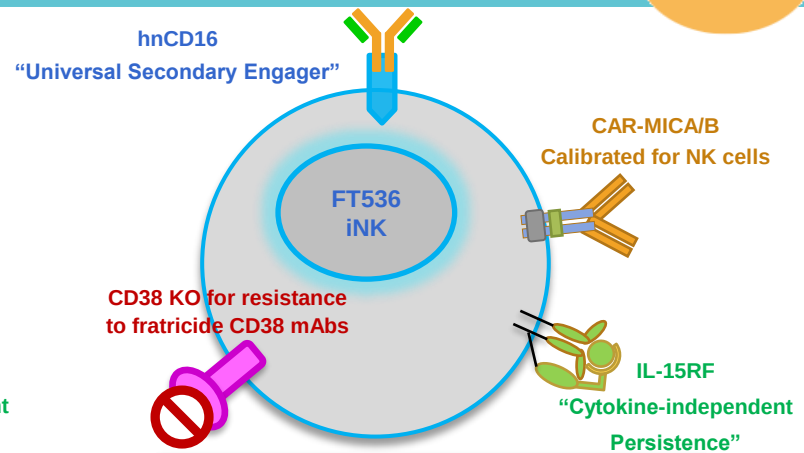
First wave of precisely engineered CAR-mediated effector cells derived from master iPSC lines



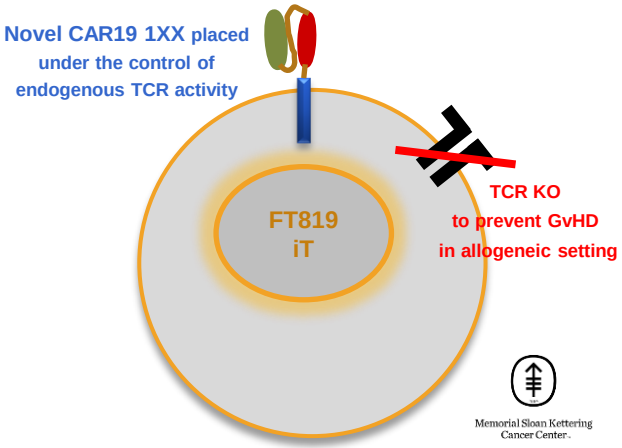
First-in-Class Off-the-Shelf
CAR19 NK cells for B cell Cancer
In Phase I Clinical Trial



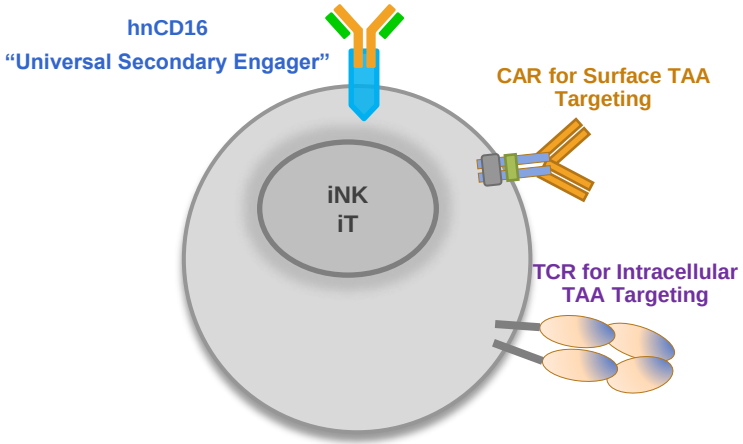
First-in-Class Off-the-Shelf
CAR_BCMA NK cells for MM
Cleared for Phase I Clinical Trial



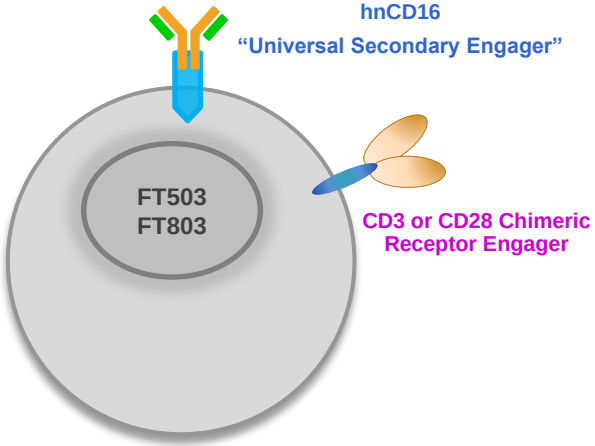
First-in-Class Off-the-Shelf
CAR_MICA/B NK cells for pan-Tumors
IND to be filed by YE 2021



First-in-Class Off-the-Shelf CAR19 T cells for B cell Cancer
In Phase I Clinical Trial



First-of-Kind Off-the-Shelf
CAR+TCR+hnCD16 NK or T cell



First-of-Kind Off-the-Shelf
Ultimate Engager NK or T cell

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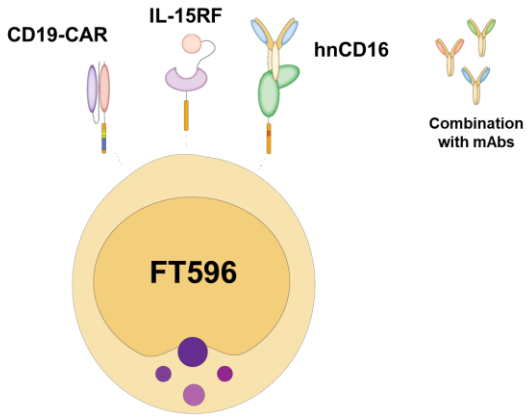
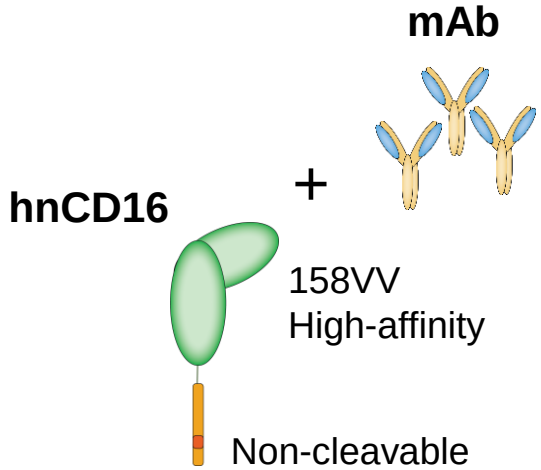
FT596: hnCD16 + CAR19 + IL15-RF iPSC-derived NK Cell Product Candidate

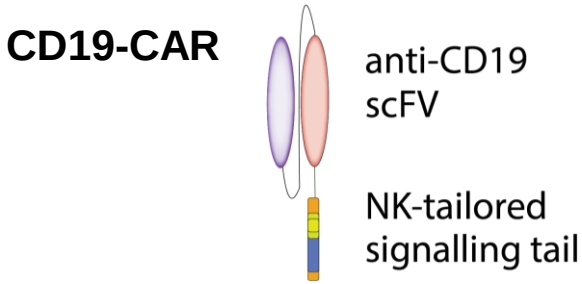
Novel Dual-antigen Targeting Strategy to Overcome Tumor Heterogeneity and Antigen Escape for a Durable Response in B cell Malignancies



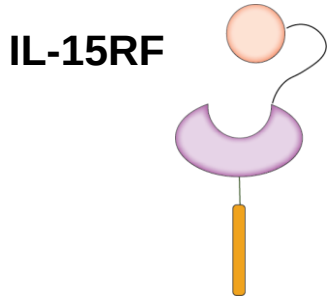
High-affinity Non-cleavable CD16 to Maximize ADCC



CAR Optimized for NK Cell Biology



Engineered IL-15 Receptor Fusion for Cytokine Support



Designed to promote survival, proliferation and anti-tumor activity

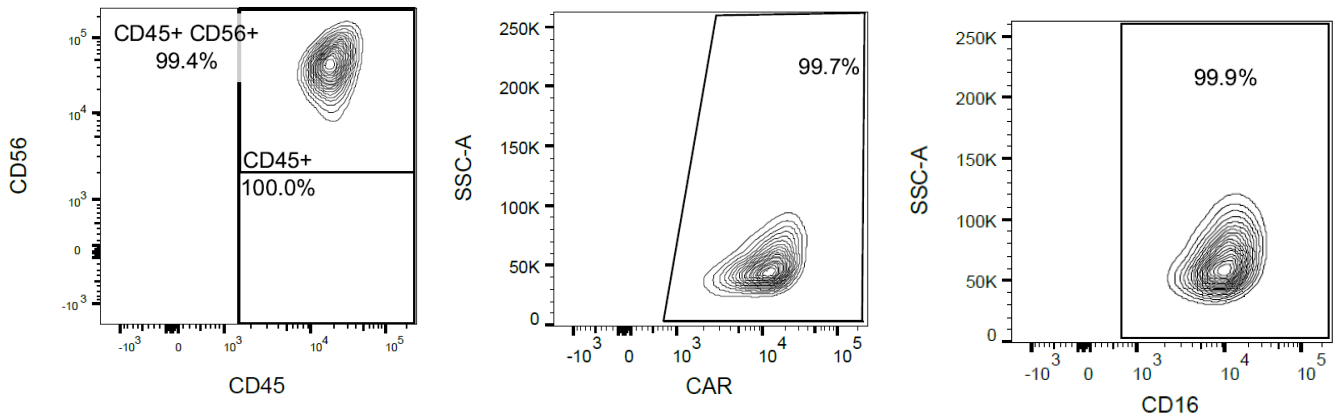
Engineered to be complete, consisting of both IL15 and IL15 receptor for maximum activity

Stem Cell Reports 2014; Plos One 2016; Cell Stem Cell 2018; Blood 2020; Science Translational Medicine 2021; Cell Stem Cell 2021

FT596: hnCD16 + CAR19 + IL15-RF iPSC-derived NK Cell Product Candidate

Novel Dual-antigen Targeting Strategy to Overcome Tumor Heterogeneity and Antigen Escape

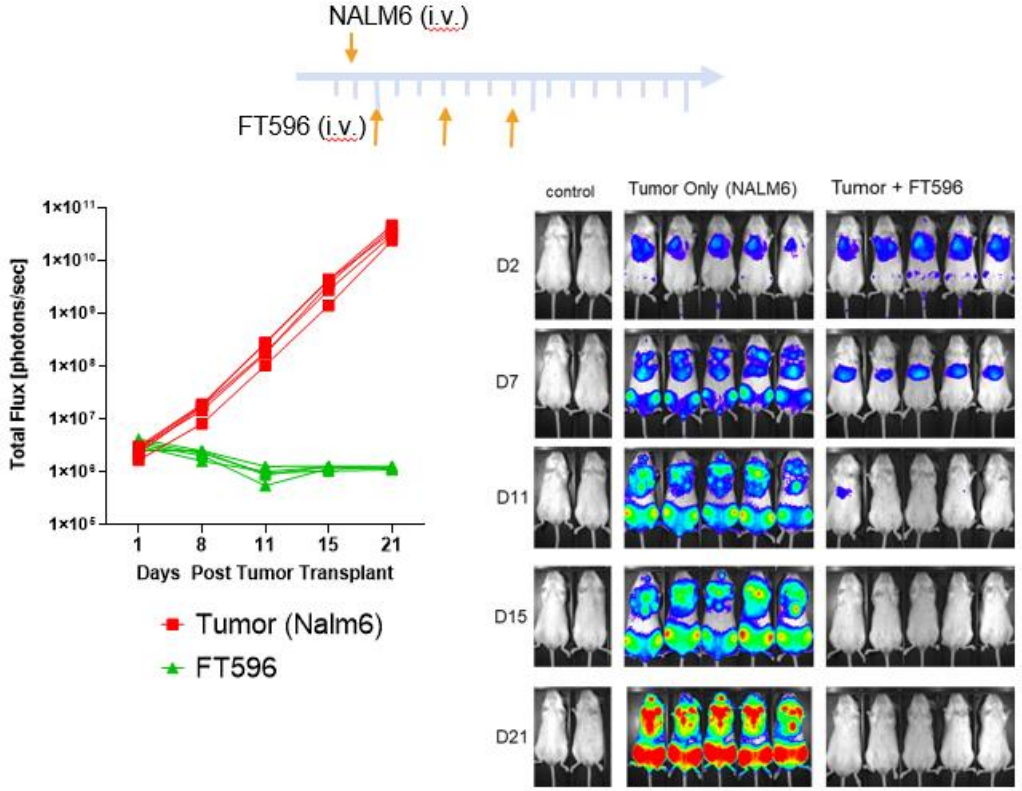
Clonal iPSC MCB → Mass production of uniformly-engineered, well-characterized, cryopreserved, off-the-shelf drug product enabling on-demand treatment and broad patient accessibility



The manufacturing process is robust – over 1 trillion iPSC-derived NK cells can be produced from a single vial of banked starting material which can be further increased with implementation of larger-scale processes.

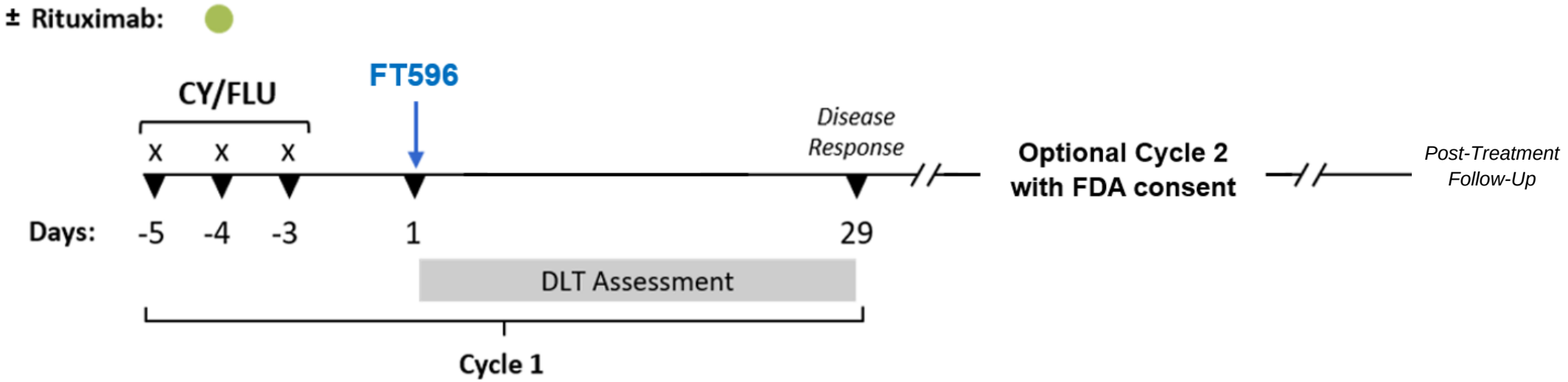
Durable CAR-mediated Cytotoxicity

Leukemia xenograft NSG immunodeficient mouse model



FT596-101: B-Cell Lymphoma as Monotherapy and in Combination with Rituximab

Phase 1 Study Design – Single-Dose, Single-Cycle Treatment



Cyclophosphamide: 500 mg/m² IV x 3 days Fludarabine: 30 mg/m² IV x 3 days Rituximab: 1 dose at 375 mg/m² IV per cycle

<u>Regimen A</u> – Monotherapy <u>Regimen B1</u> – Rituximab Combination

- Relapsed / refractory B-cell lymphoma
- Eligibility allows for prior CD19-targeted CAR T-cell therapy
- Single-dose, single-cycle dose escalation: 30M, 90M, 300M, 900M cells per dose ± mAb
- ***No mandatory hospitalization***: may be administered in outpatient setting

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FT596-101: Interim Phase 1 Data

1-Dose, 1-Cycle Response Rates Inclusive of Prior Auto CAR19 T-cell Therapy

FT596 Interim Phase 1 Data – 1 dose x 1 cycle						
Cycle 1, Day 29 Response	**n=10 (mono)**		**n=10 (combo)**		**n=20 (total)**	
TCD I – 1 x 30M	1/3 (33%)	0 CR	0/3 (0%)	0 CR	**1/6 (17%)**	**0 CR**
TCD II – 1 x 90M	3/4 (75%)	2 CR	2/4 (50%)	2 CR	**5/8 (63%)**	**4 CR**
TCD III – 1 x 300M	3/3 (100%)	1 CR	2/3 (67%)	2 CR	**5/6 (83%)**	**3 CR**
≥ 90M FT596 Cells	**n=7 (mono)**		**n=7 (combo)**		**n=14 (total)**	
OR – CD19 CAR T Naïve	6/6 (100%)	3 CR	2/4 (50%)	2 CR	**8/10 (80%)**	**5 CR**
OR – Prior CD19 CAR T	0/1 (0)%)	0 CR	2/3 (67%)	2 CR	**2/4 (50%)**	**2 CR**
Total	6/7 (86%)	3 CR	4/7 (57%)	4 CR	**10/14 (71%)**	**7 CR**

Dose-dependent responses with 10 of 14 patients achieving OR (71%), with 7 achieving CR (50%), following single-dose, single-cycle treatment schedule with ≥ 90M FT596 cells

aCAR19 = autologous CD19-targetetd CAR T-cell therapy; **CR** = complete response; **M** = million; **OR** = objective response; **TCD** = total cell dose
Interim FT596 Phase 1 results are as of June 25, 2021 data cutoff date. Response assessment for 3 patients was entered into database subsequent to data cutoff.
Interim FT596 Phase 1 results are inclusive of patients having received prior CD19-targeted CAR T-cell therapy
Day 29 protocol-defined response assessment per Lugano Classification

Summary: Prospects for Off-the-Shelf Multi-Antigen Targeting Cellular Therapy

Off-the-Shelf + Novel Targeting Strategies

Single iPSC Clone

(Engineered) Single Pluripotent Stem Cell

- *Renewable*
- *Potential to differentiate into 200+ cell types*

Expansion & Banking

Unlimited Supply of Clonal Master iPSC Lines

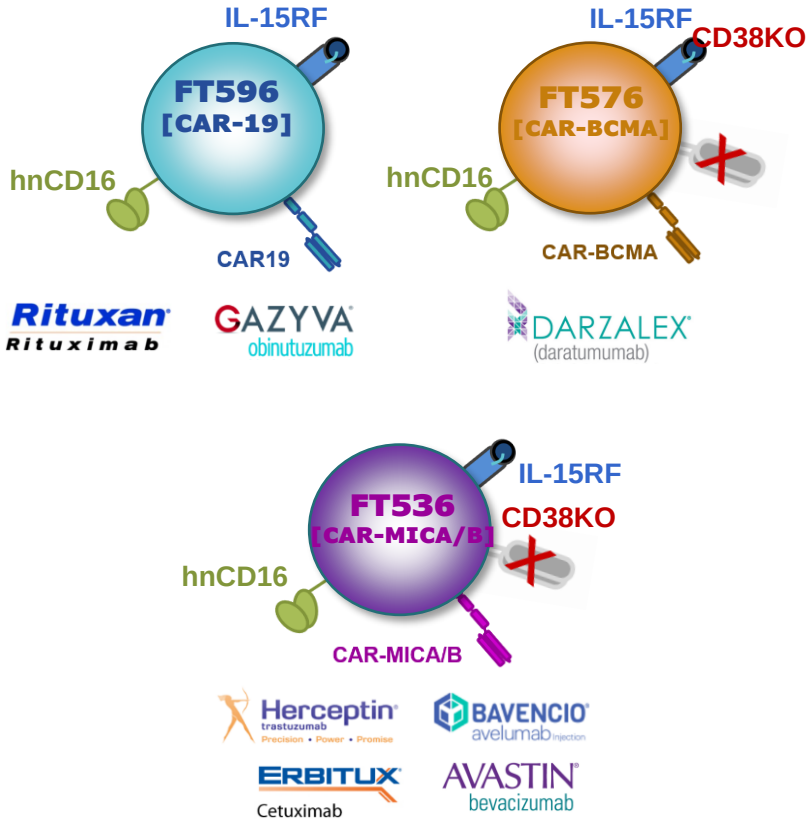
Master Cell Bank → Working Cell Banks | Working Cell Banks | Working Cell Banks

Differentiation & Expansion

Thousands of Clonally-derived Doses of Cell Products

T Cell | NK Cell

Off-the-Shelf
Homogeneous | Multi-Dosing
(Engineered) Cell Products



"to eliminate cancer"

"to reach more patients in need"

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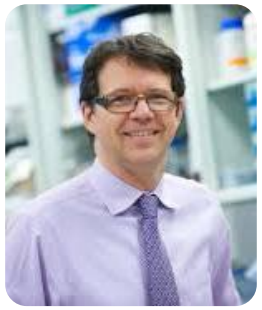
Acknowledgements

Key Collaborators & Collaboration Sites

Memorial Sloan Kettering Cancer Center



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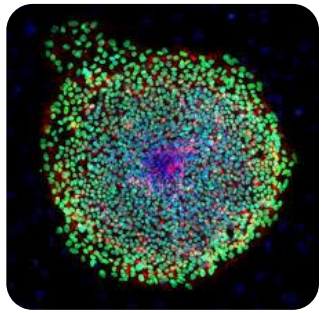
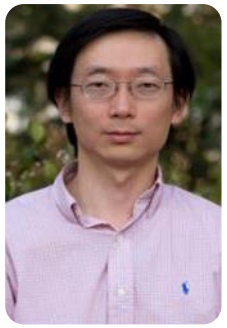
The Fantastic People of Fate Therapeutics



*** R&D @ Fate ***

Key Scientific Founders

Rudolf Jaenisch MD



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Patients, Families and Treatment Sites

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