

GEAR THERAPEUTICS

AI-Powered Cell Therapies for Cancer

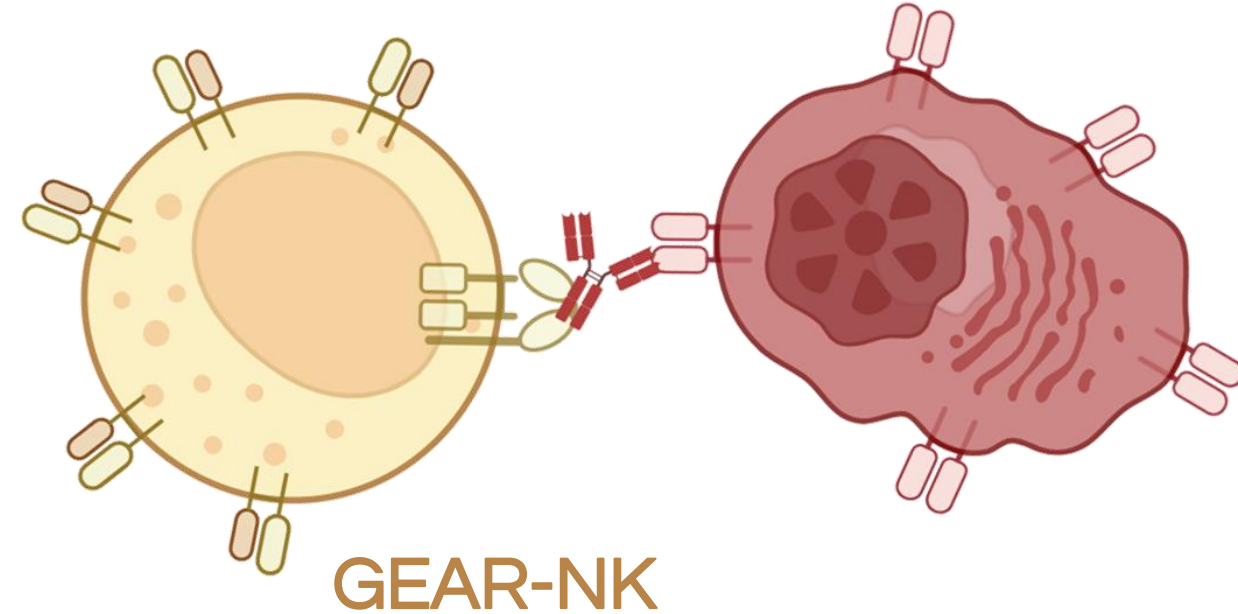
Company Overview – January 2025

About Us

We are a Pittsburgh, PA-based biotechnology company developing **next generation therapies and diagnostics** to improve outcomes for patients with hematological cancers.

Our Technology

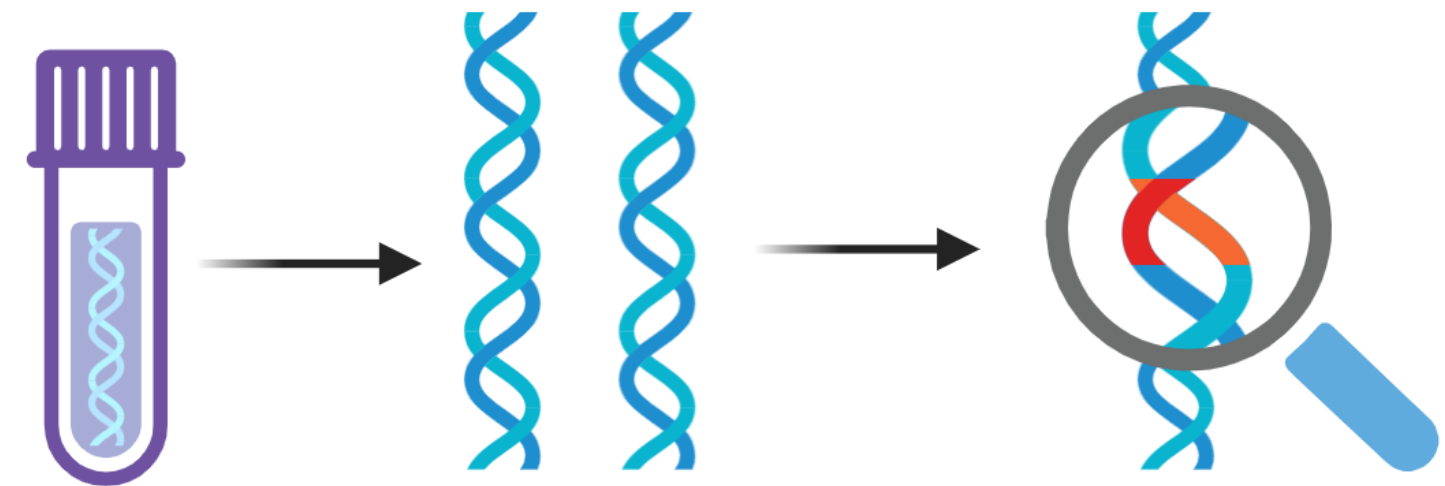
GEAR-NK Cells



AI-powered, genetically-enhanced
NK cells to augment efficacy of
therapeutic antibodies

✓ Effective & Safe ✓ Adaptable

CD38 Diagnostic Tool



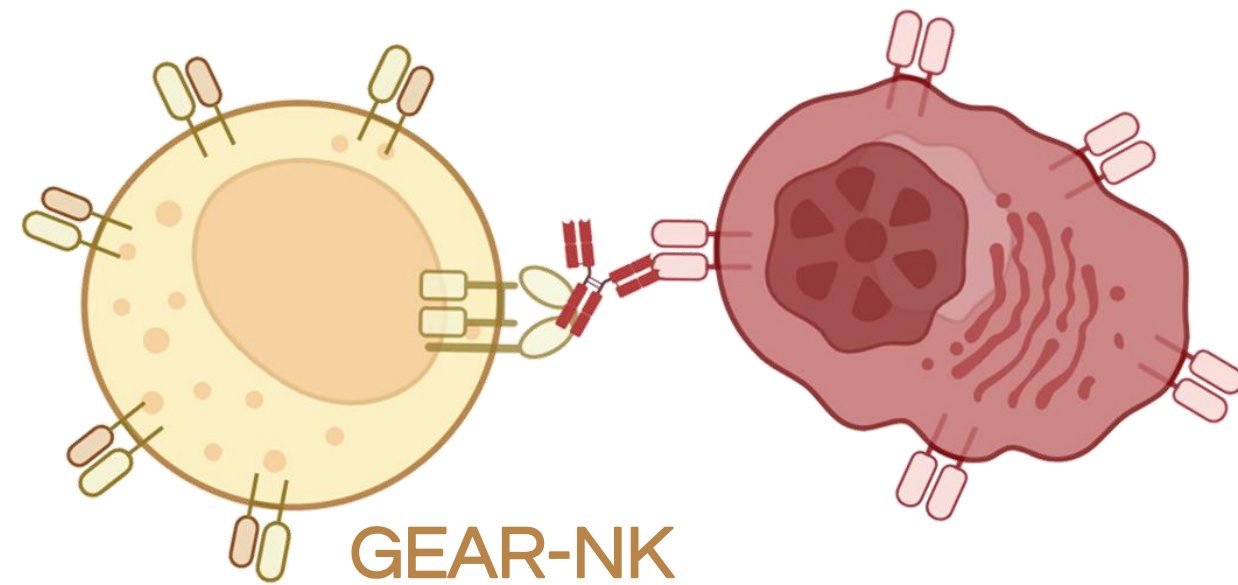
PCR-based genetic test to predict
patient response to CD38
monoclonal antibodies

✓ Accurate ✓ Simple & Powerful

GEAR-NK Cells

Overview of GEAR-NK

GEAR-NK Cells



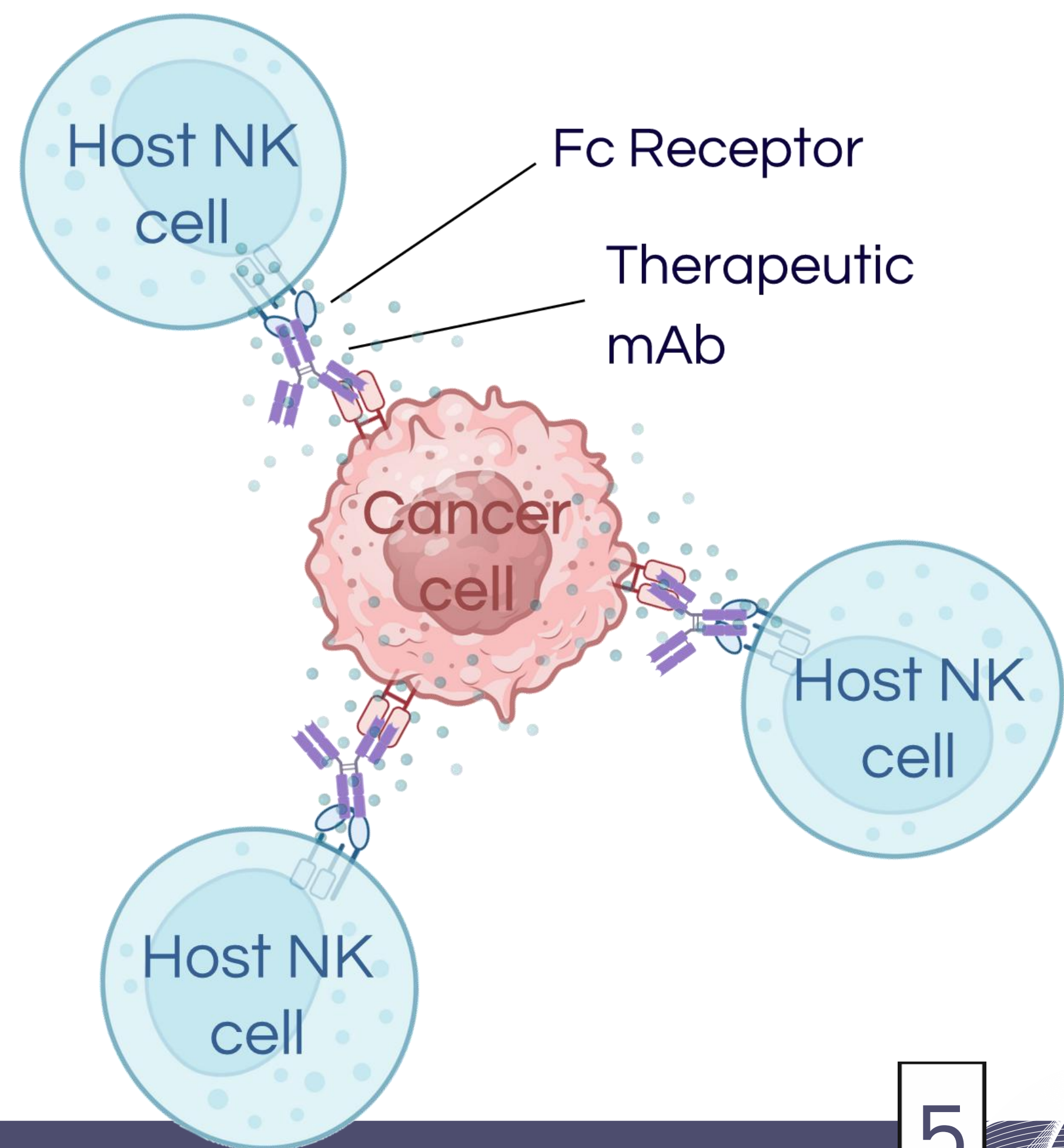
AI-powered, genetically-enhanced
NK cells to augment efficacy of
therapeutic antibodies

✓ Effective & Safe ✓ Adaptable

- ⚙️ Genetically engineered to avoid antibody-mediated “fratricide”
- ⚙️ Designed to boost anti-cancer activity of therapeutic monoclonal antibodies (mAbs)
- ⚙️ Primary focus initially is CD38-associated Multiple Myeloma

NK Cells Engage Therapeutic Antibodies

Endogenous NK cells cooperate with therapeutic antibodies to eliminate targets through **antibody-dependent cellular cytotoxicity (ADCC)**.

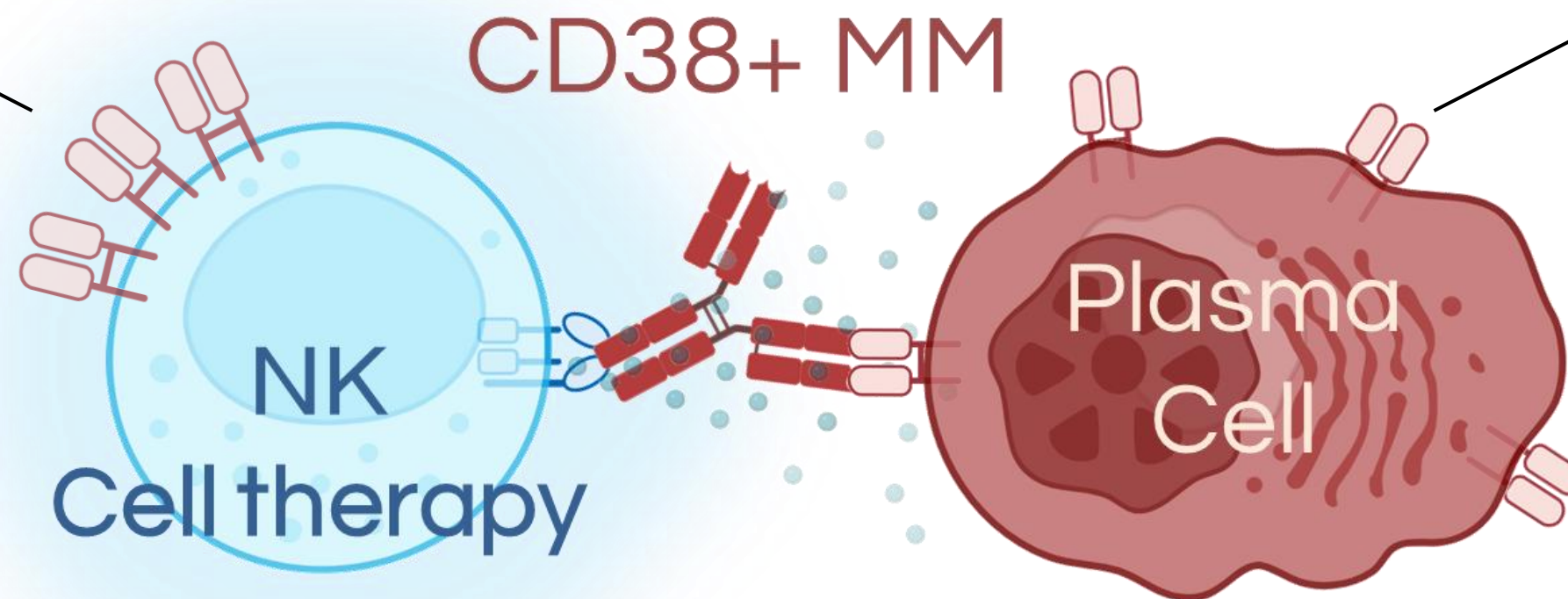


NK Cells Augment mAbs¹, but there is a problem...

NK-mediated destruction of antibody-coated cells (ADCC)

NK Cells also express CD38

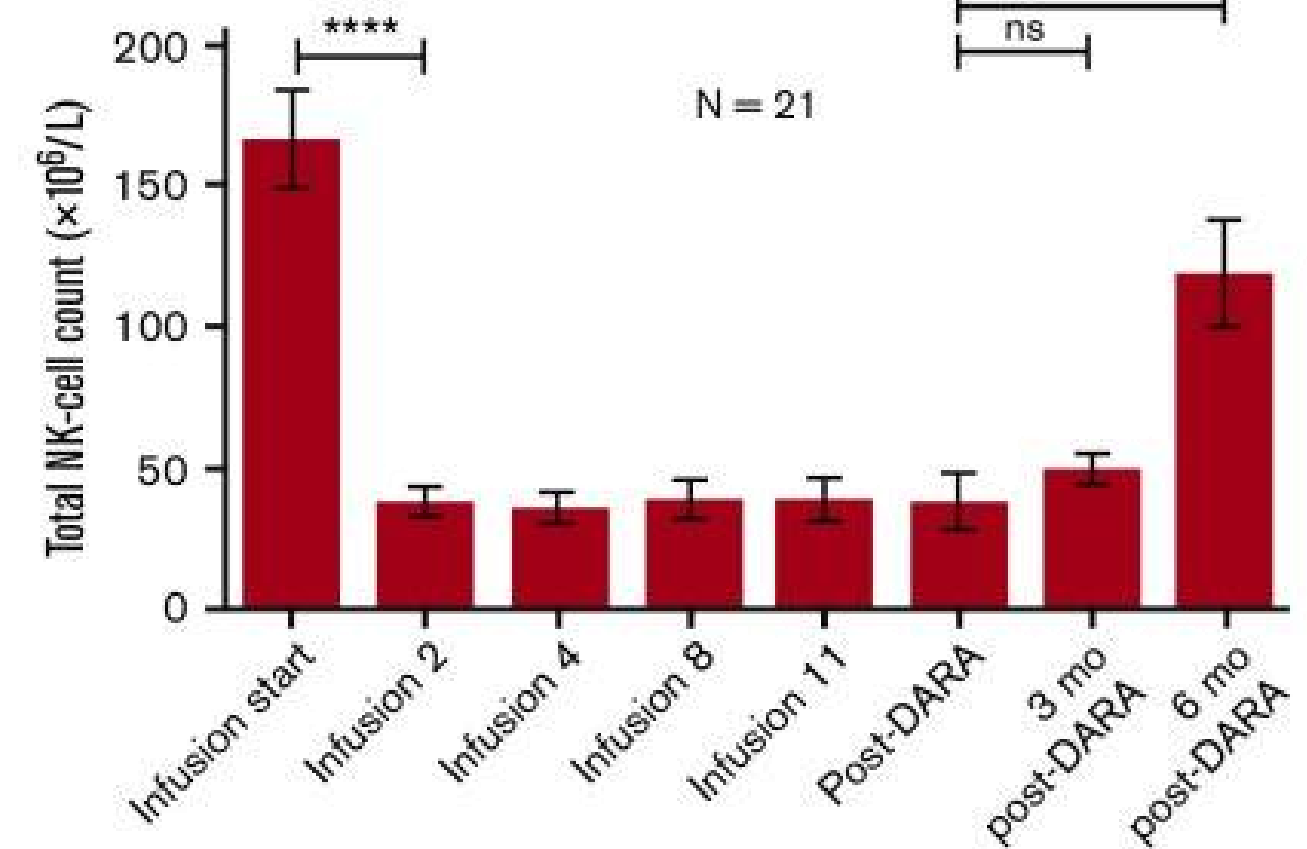
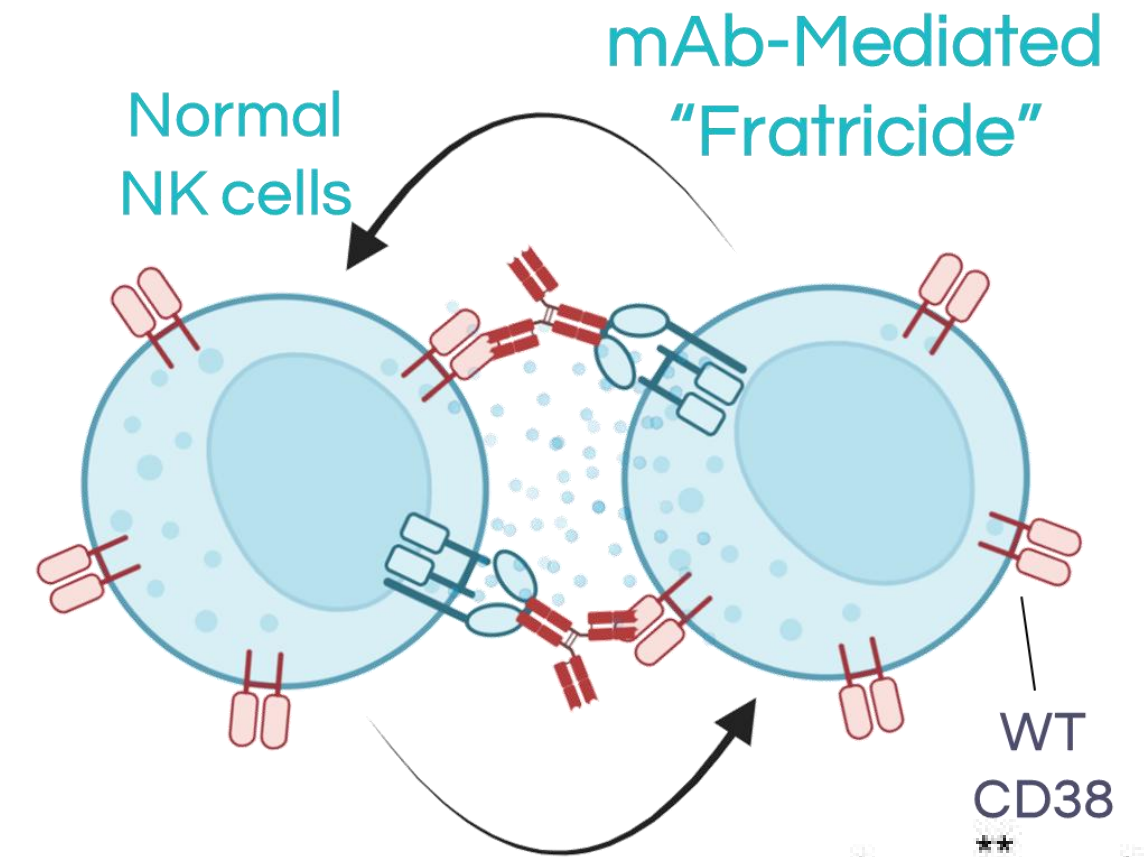
Many cancer cells express CD38



Fratricide Reduces NK Cell Numbers in Patients

⚙️ CD38 is expressed on healthy NK cells, so a CD38 antibody makes them target and kill each other, a phenomenon known as “fratricide”.

⚙️ This results in a dramatic and prolonged reduction of NK cells in patients².



Casneuf, et al., Blood Adv. 2017 Oct

The Problem

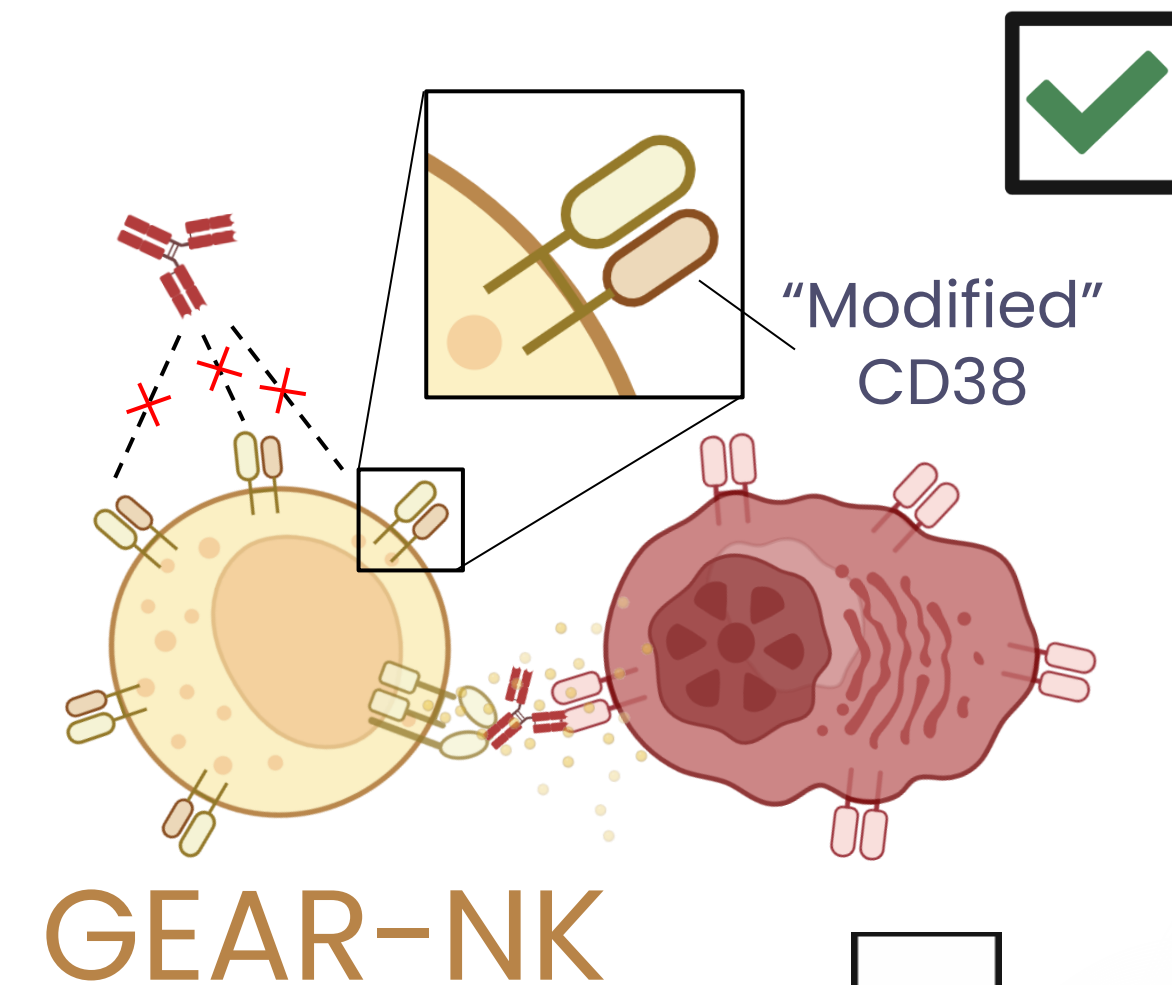
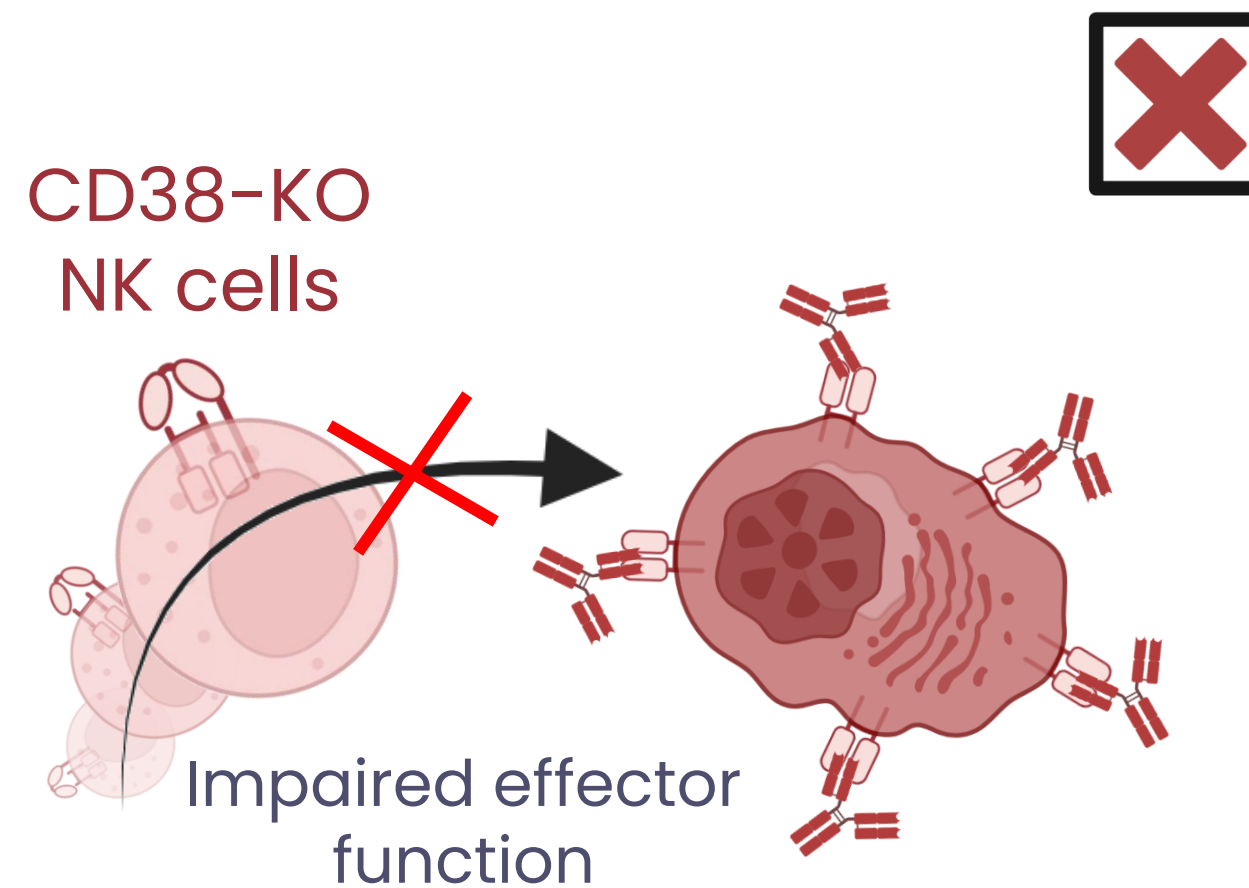
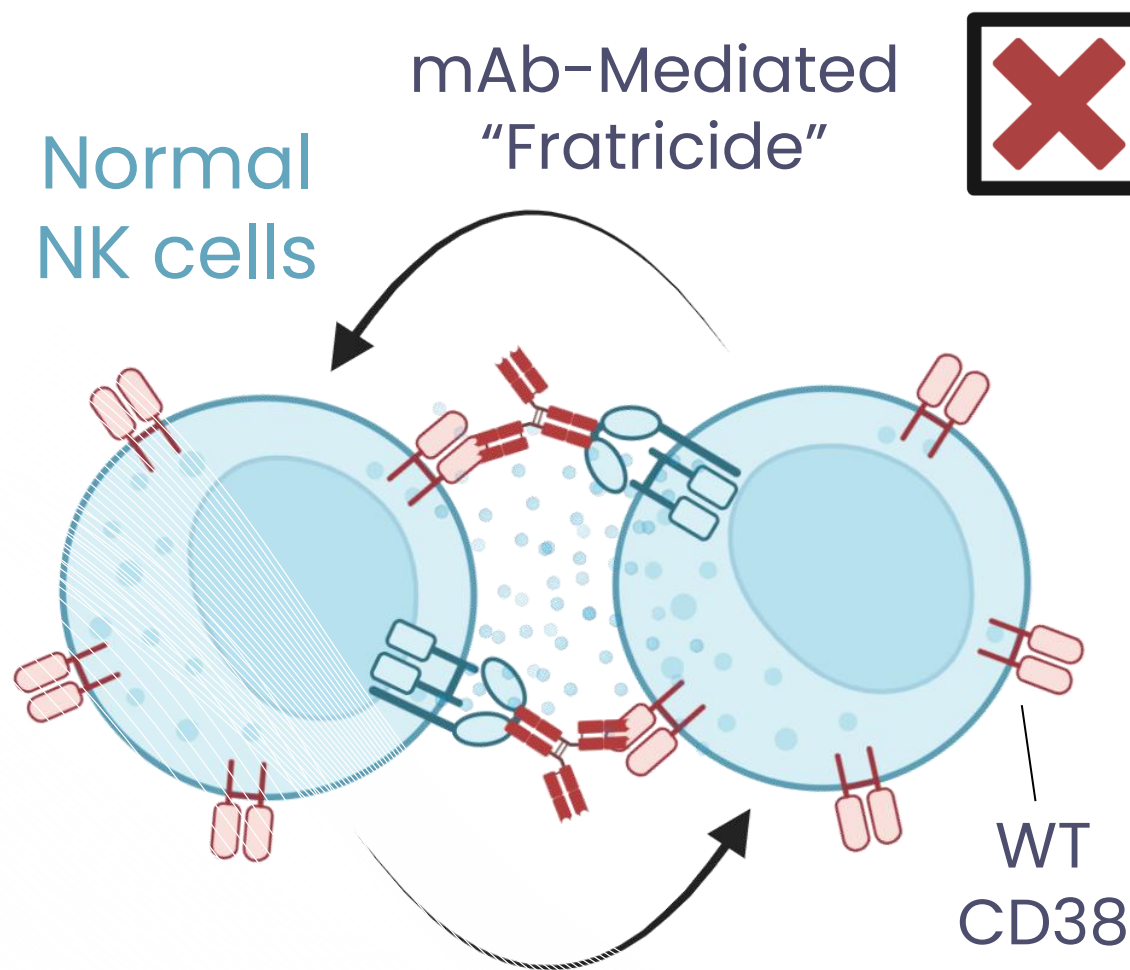
- CD38 is expressed on healthy NK cells, so a CD38 antibody makes them target and kill each other².
- This is called “fratricide”, and it is known to severely hinder mAb activity³.

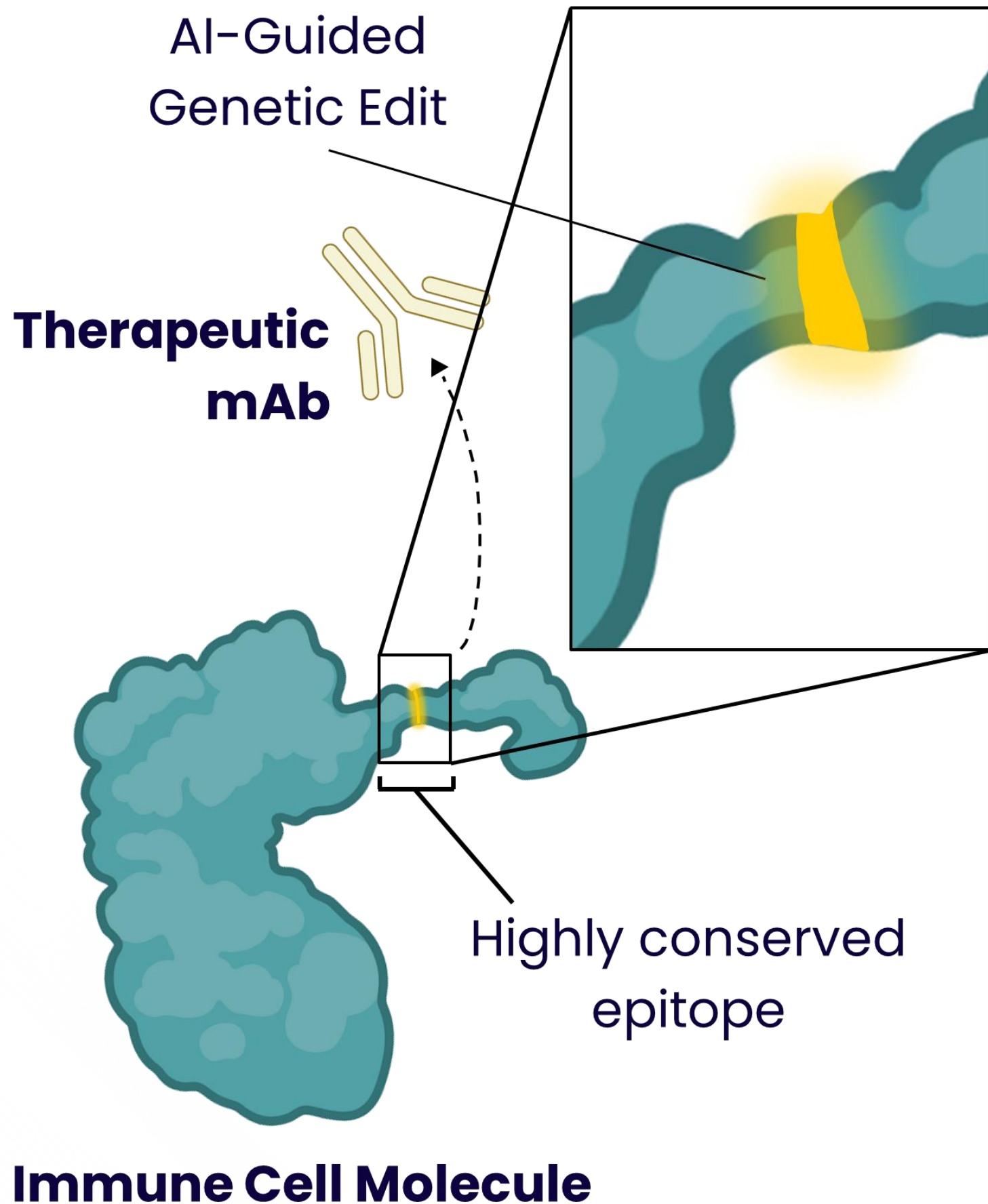
Gen. I Approach

- Some have attempted to simply KO CD38 from NK cells to avoid fratricide.
- This limits fratricide but CD38 deletion significantly impairs NK cell function *in vivo*^{4,5}.

Our Novel Solution

- At GEAR we precisely modify CD38 so the function is not disrupted, but the mAb can't bind.
- This allows our GEAR-NK cells to avoid fratricide while maintaining full effector function.





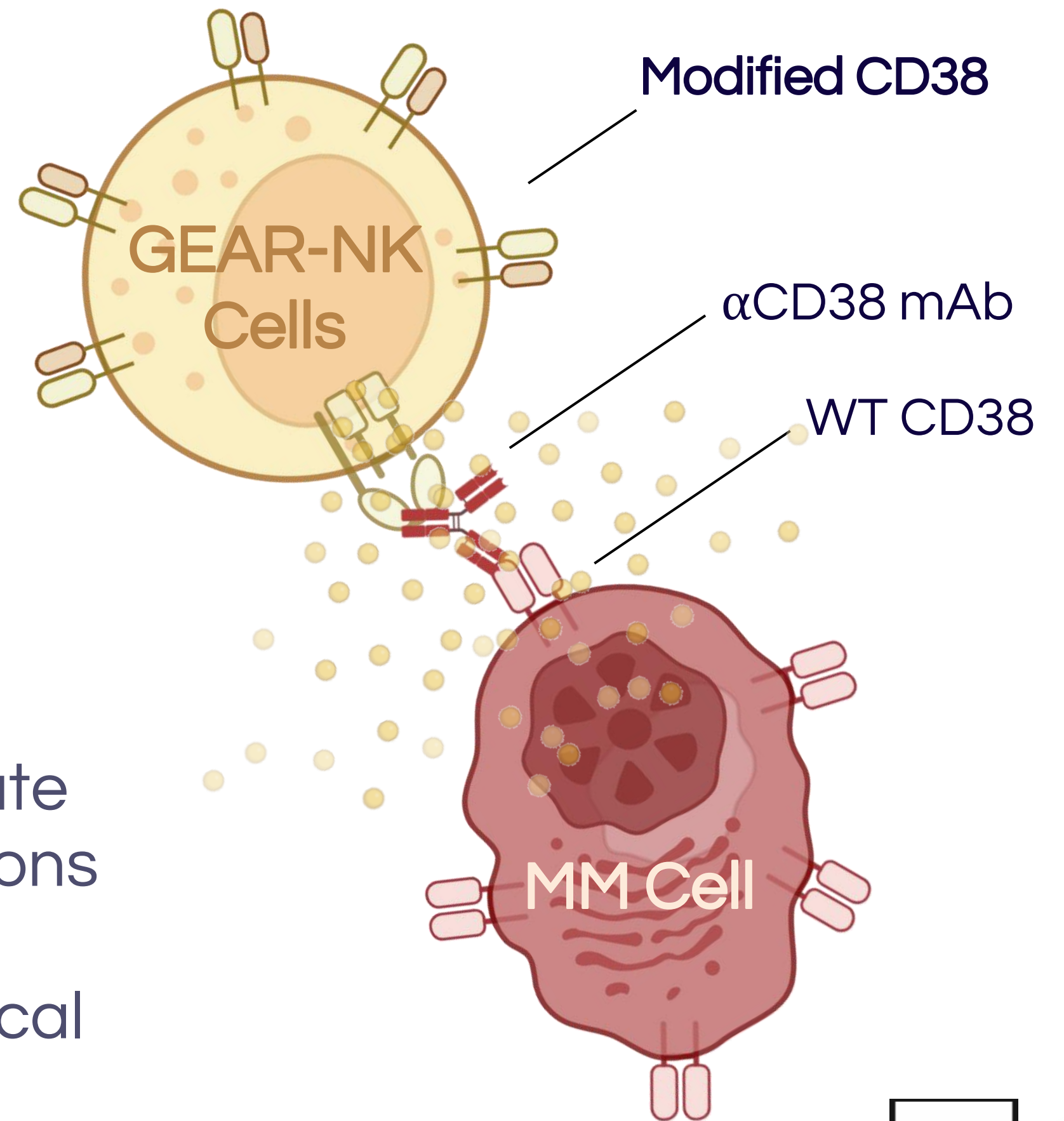
GEAR Therapeutics' Novel Solution

AI-Powered Gene Editing

- ⚙️ AI-Guided, CRISPR-mediated base editing platform
- ⚙️ Disrupts mAb binding epitope while retaining enzymatic function
- ⚙️ Versatile technology that can be leveraged against several indications

CD38-Positive Multiple Myeloma

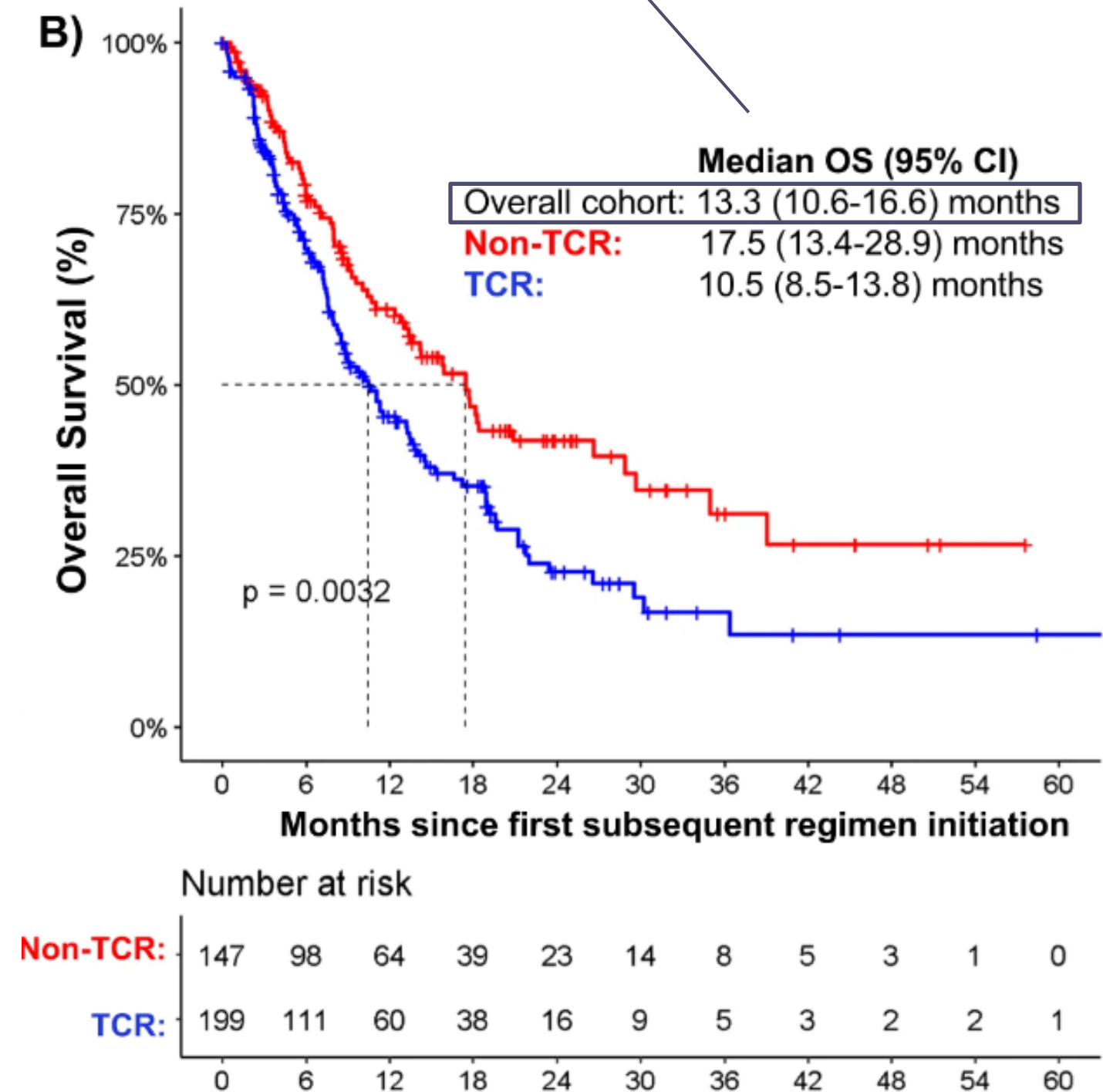
- ⚙ Multiple myeloma is the first cancer indication
- ⚙ GEAR platform can be used to generate other GEAR-NK cells for other indications
- ⚙ Great potential in multiple hematological indications including autoimmunity



Unmet Medical Need in r/r MM

- ⚙️ 160,000 diagnoses globally with a 66% mortality rate⁶.
- ⚙️ Median OS for α CD38 mAb-refractory patients is ~13 months⁶
- ⚙️ Combination with CD38-GEAR-NK will greatly improve patient outcomes

Median OS for α CD38 mAb-refractory patients is 13.3 months



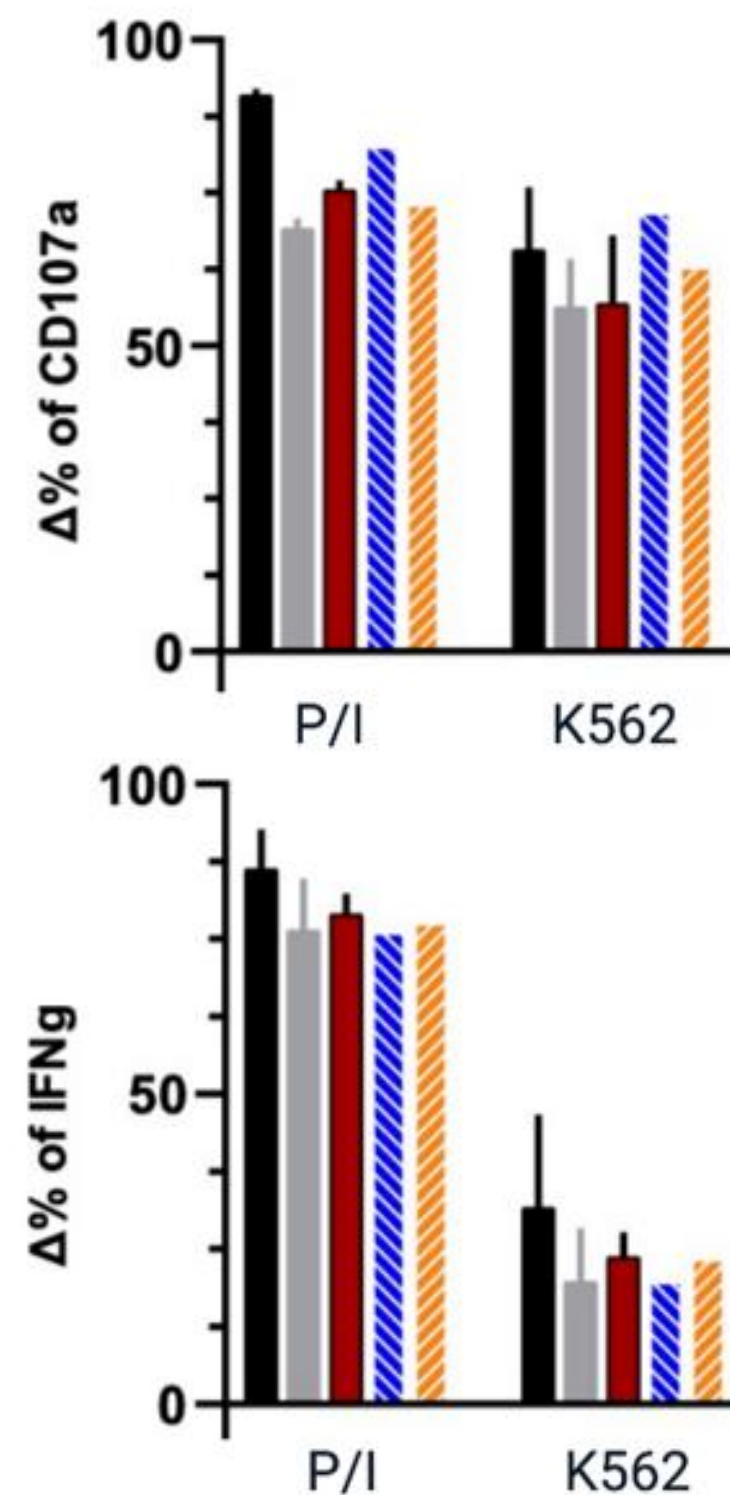
Visram et al., Blood Cancer J. 2023⁶

CD38-GEAR-NK Cells Are Functional

⚙️ Compared to WT (black bars), CD38-edited GEAR NK cells (blue and yellow bars) displayed no significant reduction in:

- cytotoxicity (top)
- release of IFN-g (bottom).

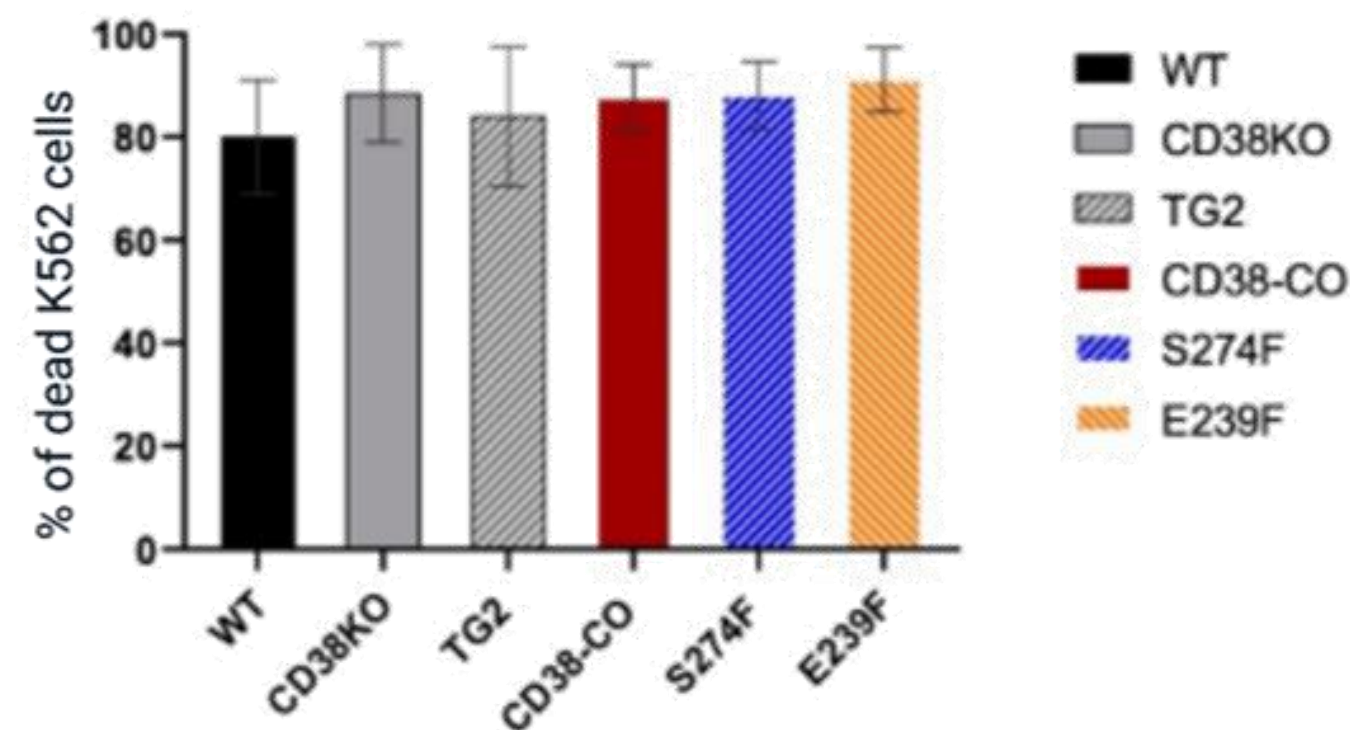
Activation of NK92 Cells w/ Various GEAR-NK Edits



CD38-GEAR-NK Cells Are Functional

⚙️ CD38-edited GEAR NK cells (**blue** and **yellow** bars) displayed >80% killing of K562 cells (CML) cells - outperforming WT NK cells (black bars)

In vitro cell killing assay
against K562 cells



Our Superior Cell Source

Pooled-Donor UCB-Derived CD34+ Stem Cells

⚙️ Proven Safety in Multiple Clinical Trials

⚙️ Umbilical Cord blood is:

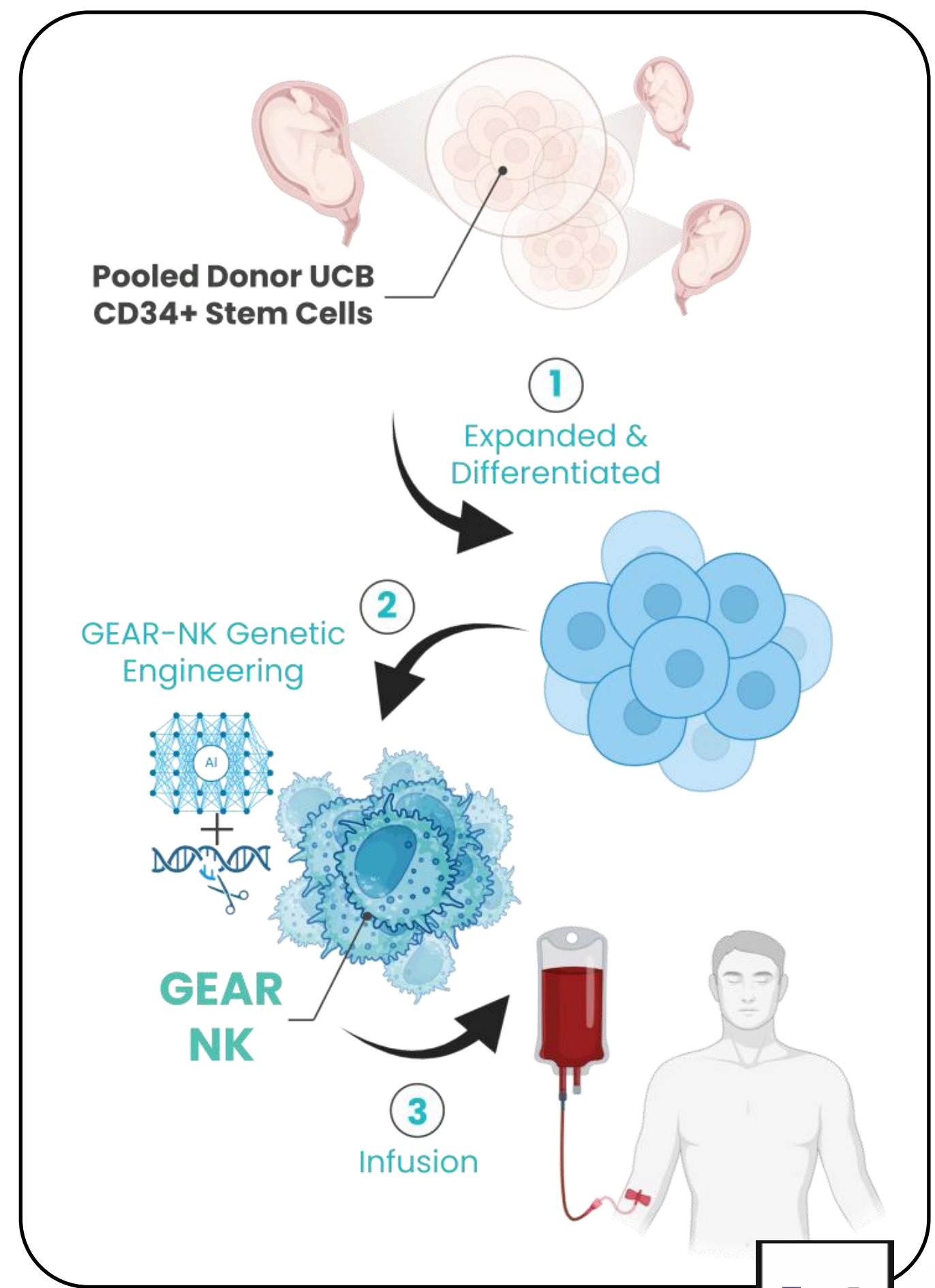
✅ Young & Healthy

✅ Plentiful & Cost-Effective

✅ Safe & Powerful

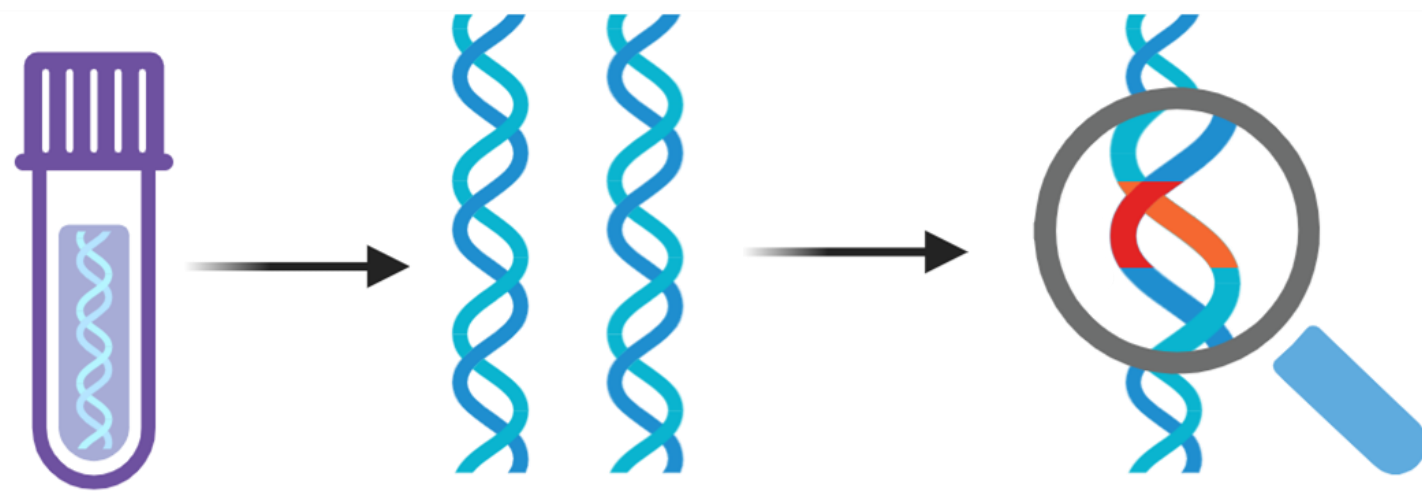
✅ No Need for HLA Matching

✅ Truly Universal



CD38 Diagnostic Tool

CD38 Diagnostic Tool



PCR-based genetic test to predict patient response to CD38 monoclonal antibodies

✓ Accurate ✓ Simple & Powerful

Overview of CD38 Diagnostic

- ⚙️ *In vitro* screening tool to be used prior to initiation of mAb therapy.
- ⚙️ Quick and easy DNA test that delivers accurate, meaningful insights.
- ⚙️ Enables more cost-effective, data-driven medical decisions
- ⚙️ Potential to expand to a wide array of mAb therapies.

CD38 Diagnostic Tool

- ⚙️ The In Vitro Diagnostics market size was approx. USD 29.95 billion in 2024 and is projected to be approx. USD 41.84 billion by 2034
- ⚙️ The focus on **early disease detection** will continue to incentivize healthcare organizations to expand their use.
- ⚙️ **Technological Advancements** – Rapid innovation, integration of artificial intelligence and automation will continue to grow and revolutionize the market

CD38-Targeting Monoclonals



\$9.7B USD in 2023[†]

- 22% increase from 2022[†]
- Projected to hit \$14.7B by 2030



\$412M USD in 2023[†]

- 37% increase from 2022

Scientists Behind GEAR



Evren Alici MD, PhD

Head of the Gene and Cell Therapy Group, Division of Hematology, Department of Medicine, **Karolinska Institutet**, Karolinska University Hospital, Stockholm



***Hans-Gustaf Ljunggren,
MD, PhD***

Former Dean of Research, Karolinska Institutet and founder of the Center for Infectious Medicine, Department of Medicine, **Karolinska Institutet**, Karolinska University Hospital, Stockholm



Arnika K. Wagner, PhD

Assistant Professor, Department of Medicine, **Karolinska Institutet**, Karolinska University Hospital, Stockholm

Management Team



Dave Mehalick
Chief Executive Officer

30 years of diverse business experience in healthcare, information technology and finance including consulting, capital markets, private equity, and investments



Brian Cogley
Chief Financial Officer

15 + years of corporate financial experience in life sciences, pharmaceuticals, and financial services, expertise in asset management, and investments

**Through a Management Services Agreement with Coeptis Therapeutics, we will have access to their management team at a significantly reduced cost

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