Utilizing novel camelid nanobody platform technology with target-directed immunotherapy for cancer

November 2022
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Investment Opportunity – Next Generation of NK Cell Engagers

Proprietary TriKE® Platform – Camelid Nanobodies
- TriKE® platform creates tri-specific NK cells engagers targeting multiple tumor types
- Camelid “nanobodies” – now known as “third generation antibodies”
- Smallest known functional antibody fragment particularly well suited for cancer therapeutics

NK Cell Engagers – Safer than T Cells
- Harness the natural killing power of NK cells with protein therapeutics – NOT NK cell therapy
- Induce activation of NK cells via CD16A and IL-15 while targeting well-known tumor antigens
- Offers a potentially safer alternative to T-cell related immunotherapy without CRS & neurotoxicity

POC Established and Broad Applicability
- GTB-3550 (targeting CD33) has shown POC data in Phase 1 with AML patients
- GTB-3650 will supplant 3550 as 2nd generation TriKE with several advantages
- TriKE’s targeting multiple tumor antigens including B7H3, HER2, CD33, PDL1

Multiple Catalysts
- 6+ pipeline assets in active preclinical development targeting both solid tumors and hematological malignancies
- Multiple INDs expected in 2023

Well-funded Experienced Leadership
- Management team with deep expertise in all stages of oncology drug development
- $20.8 MM in cash provides runway into 2023

1. Demaria, et.al. Eur J. of Immun; (2021)51:8; 1934
Natural Killer Cells

- Cytotoxic lymphocytes in the innate immune system
- Recognize and kill cancer cells
- Mediate antibody-dependent cellular cytotoxicity (ADCC) via the highly potent CD16 activating receptor

NK Cell Engagers

- TriKE® nanobody platform designed to activate endogenous NK cells to target specific cancer cells
- Potential for less toxicity than other cellular therapies such as CAR-T therapy
  - Less cytokine release syndrome (CRS)
  - Fewer neurological complications

Source: Levy R. Paths of Progress 2019, Natural Killer Cells: How the immune system’s first wave of defense may play a newfound role in cancer care; accessed: 6 September 2021
TriKE®: Tri-Specific Natural Killer (NK) Cell Engagers - A Modular Platform

Proprietary platform utilizing camelid nanobody technology designed to bridge NK cells to tumor cells while inducing NK cell activation and expansion at the site of the tumor to enhance killing

Tri-specific Modular Platform with Nanobody Technology

- **Anti-CD16 nanobody** – binds CD16 receptor on NK cells, triggering antibody directed cell-mediated cytotoxicity (ADCC)
- **IL-15** – crosslinker that binds IL-15/IL-2 receptor on NK cells to induce self-sustaining expansion and extended survival
- **Anti-TAA scFv** – scFv domain binds to various tumor-associated antigens on tumors

TriKE® Modular Platform Allows for Multiple Tumor-Associated Antigen Targeting

**Anti-Tumor Associated Antigen**
- Binds to well-known tumor-specific antigens
- Defines the specificity of each TriKE®
- Localizes NK cells at the site of the malignancy
- Utilizes scFv fragments for most TriKE® constructs
- Certain TriKE®'s utilize nanobodies for the α-TAA
TriKE® – NK Cell-Driven Serial Killing of AML Tumor Cells

- First-in-class modular immune oncology protein therapeutic platform technology – not a cell therapy
- Target-directed antibody-dependent cellular cytotoxicity (ADCC) killing
- Integrated CD16 and IL-15 driven activation of NK cells:
  - ADCC activation for enhanced serial killing of cancer cells
  - NK cell proliferation
  - NK cell persistence
- Minimizes toxicities such as cytokine release syndrome (CRS) resulting from hyperactivation of T cells
- Can be used to treat BOTH solid tumors and hematological cancers

## TriKE® Nanobody Pipeline

<table>
<thead>
<tr>
<th>TriKE® Product Candidates</th>
<th>Approach</th>
<th>Target</th>
<th>Indication</th>
<th>Pre-Clinical</th>
<th>IND-Enabling/ GMP Manufacturing</th>
<th>Phase 1</th>
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<td>GTB-3550*</td>
<td>Monotherapy</td>
<td>CD33</td>
<td>Leukemia – AML, MDS</td>
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<td>GTB-3650 2nd Generation Camelid</td>
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<td>CD33</td>
<td>Leukemia – AML, MDS</td>
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<td>Combination with Chemotherapy</td>
<td>CD33</td>
<td>Leukemia – AML, MDS</td>
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<td>B-Cell Malignancies</td>
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<td>GTB-1050</td>
<td>Monotherapy &amp; Combination</td>
<td>HIV</td>
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<td>Undisclosed Candidates</td>
<td>Monotherapy &amp; Combination</td>
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<td>Solid &amp; Hematological Malignancies</td>
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</tbody>
</table>

* GTB-3550 supplanted by second generation nanobody GTB-3650
GTB-3550 for AML and MDS

First generation TriKE® provides POC for platform
GTB-3550 TriKE®: Established Proof of Concept in Phase 1

- First-in-class immune oncology therapy
- Target-directed NK cell ADCC killing of CD33+ hematological cancers
- Incorporates IL-15 within the TriKE® for enhanced NK cell proliferation and persistence
- Evaluated in a first-in-human Phase 1 clinical trial
- Will be supplanted by 2nd generation GTB-3650
GTB-3550 AML/MDS Phase 1 Study Design

Phase 1 (safety and dose finding)
- Six dose levels
- Escalation based on continual reassessment method; Cohorts of 2 subjects
- Day 28 (end of DLT assessment period)

Screening / enrollment:
≥ 50% CD33+ target cells with no SOC treatment options

- R/R AML
- HR MDS
 (> 2 prior lines)

Disease Re-assessment Day 28 – 42

Dose Level 1: 5 µg/kg/day (n=2)
Dose Level 2: 10 µg/kg/day (n=2)
Dose Level 3: 25 µg/kg/day (n=2)
Dose Level 4: 50 µg/kg/day (n=2)
Dose Level 5: 100 µg/kg/day (n=2)
Dose Level 6: 150 µg/kg/day (n=2)

Dose Level 1 - 5 µg/kg/day
Dose Level 2 - 10 µg/kg/day
Dose Level 3 - 25 µg/kg/day
Dose Level 4 - 50 µg/kg/day
Dose Level 5 - 100 µg/kg/day
Dose Level 6 - 150 µg/kg/day
(n=2)
(n=2)
(n=2)
(n=2)
(n=2)
(n=2)
GTB-3550 Activation of Endogenous NK Cells

Panel A: Increase in NK cell activation upon administration of GTB-3550 (n= 2 patients per dose)

Panel B: Increase in absolute number of NK cells during treatment (n= 2 patients per dose)

Source: Data on File, GT Biopharma, Inc.
GTB-3550 – Sustained Proliferation of NK Cells Without Sustained Stimulation of T Cells (CD4, CD8)

Proportion of Proliferating Cells at Day 15

Proportion of Proliferating Cells at Day 22

Source: Data on File, GT Biopharma, Inc.
GTB-3550 – No Loss of CD16 During Treatment

Data from Patient #11 treated with 150 µg/kg/day

Source: Data on File, GT Biopharma, Inc.
GTB-3550 Safety Profile: Well-Tolerated & Minimal Cytokine Release Syndrome (CRS)

**Panel A:** Dose equivalent of GTB-3550 compared to recombinant human IL-15

<table>
<thead>
<tr>
<th>Dose of GTB-3550 (µg/kg)</th>
<th>Fold Higher than MTD rhIL-15</th>
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<tbody>
<tr>
<td>5</td>
<td>0.54</td>
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<tr>
<td>10</td>
<td>1.08</td>
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<td>25</td>
<td>2.69</td>
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<td>50</td>
<td>5.38</td>
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<tr>
<td>100</td>
<td>10.75</td>
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<td>150</td>
<td>16.13</td>
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</table>

**Panel B:** Systolic Blood Pressure

**Panel C:** O₂ Saturation

**Panel D:** Body Temperature

Source: Data on File, GT Biopharma, Inc.; Data cut: OnCore database July 26, 2021
## GTB-3550 First in Human Phase 1 Clinical Trial – Individual Results

<table>
<thead>
<tr>
<th>Subject</th>
<th>Dose level (µg/kg/d)</th>
<th>Disease and Prior Treatment History</th>
<th>Disease Characteristics Before GTB-3550 Therapy</th>
<th>Disease Characteristics After GTB-3550 Therapy</th>
<th>Response Post Cycle 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5</td>
<td>r/r AML. Triple Hit Lymphoma - 6 therapies: 1. R-EPOCHx6, 2. RICE x3, 3. XRT to abdominal lymphadenopathy, 4. NAM-NK Clinical Trial, 5. CAR-T, 6. anti-CD20 and Anti-CD3 monoclonal antibody clinical trial</td>
<td>Cellularity: 10%</td>
<td>Cellularity: 10 – 30%</td>
<td>Stable AML with improved platelet transfusion needs</td>
</tr>
<tr>
<td>3</td>
<td>10</td>
<td>r/r AML. AML - 3 therapies before TriKE: 1. Azacitidine, 2. Enasidenib, 3. Hydrea</td>
<td>Cellularity: 100%</td>
<td>Cellularity: 100%</td>
<td>Stable AML</td>
</tr>
<tr>
<td>5</td>
<td>25</td>
<td>Secondary AML, progressed from MDS.</td>
<td>Cellularity: 10 – 15%</td>
<td>Cellularity: 20%</td>
<td>Blast count reduction, improved platelet needs</td>
</tr>
<tr>
<td>6</td>
<td>25</td>
<td>r/r AML. 2 therapies before TriKE: 1. 7+3 with CR1 then relapse, 2. Azacitidine + Venetoclax</td>
<td>Cellularity: 10 – 20%</td>
<td>Cellularity: 10 – 20%</td>
<td>Mid blast increase</td>
</tr>
<tr>
<td>7</td>
<td>50</td>
<td>HR MDS. MDS - 3 therapies: 1. Decitabine, 2. Luspatercept, 3. Decitabine 10 day</td>
<td>Cellularity: 70 – 80%</td>
<td>Cellularity: 60%</td>
<td>Partial remission</td>
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<tr>
<td>8</td>
<td>50</td>
<td>HR MDS. MDS - 3 therapies before TriKE1. Azacitidine, 2. NMA DUCBT, CR1 for 7 years before relapse 3. Azacitidine – CR2 then relapse</td>
<td>Cellularity: 20%</td>
<td>Cellularity: 30%</td>
<td>Mid blast increase</td>
</tr>
<tr>
<td>9</td>
<td>100</td>
<td>High Grade MDS- 1. Azacitidine, 2. Decitabine, 3. 7+3, 4. Allo transplant with CR then relapse and progression to AML then no response to Decitabine + Venetoclax</td>
<td>Cellularity: 20%</td>
<td>Cellularity: 10 – 20%</td>
<td>Partial remission</td>
</tr>
<tr>
<td>12</td>
<td>150</td>
<td>r/r AML - 2 therapies: 1. FLAG-IDA + venetoclax, 2. Decitabine</td>
<td>Cellularity: 30 – 40%</td>
<td>Cellularity: 60%</td>
<td>Disease Progression</td>
</tr>
</tbody>
</table>

- Patient 5: 33% reduction in blast count
- Patient 7: 61.7% reduction in blast count
- Patient 9: 63.6% reduction in blast count
- Patient 11: 50% reduction in CD33+ blast count
GTB-3550 Rescues NK Cells and Increases Cancer Cell Killing
GTB-3550 Phase 1 Demonstrates Proof of Concept for CD33 TriKE® in AML/MDS

- GTB-3550 induces reproducible NK cell proliferation, activation and persistence in all patients at all dose levels with minimal clinically significant toxicity

- Minimal CRS resulting from hyperactivation of patient’s T-cell population at doses 5–150 µg/kg/day
  - Fever (Grade 1 CRS) observed in Subject #12 (150 µg/kg/day); resolved upon acetaminophen treatment

- No loss in CD16 expression on patient’s NK cells

- GTB-3550 significantly reduced CD 33+ bone marrow blast levels by 33.3%, 61.7%, 63.6%, 50% in Patient 5 (25 µg/kg/day), Patient 7 (50 µg/kg/day), Patient 9 (100 µg/kg/day), and Patient 11 (150 µg/kg/day), respectively

- After the end of infusion, GTB-3550 & IL-15 concentrations declined rapidly with overall geometric mean terminal phase elimination half-life (T1/2) of 2.2 and 2.52 hours, respectively
2nd Generation TriKE’s

Utilize camelid nanobody technology
Advantages of Camelid Antibodies – Nanobodies in 2\textsuperscript{nd} Generation TriKE’s®

- Camelidae family of mammals include llamas, camels, and alpacas
- Camelid antibody is made up of only 2 heavy chains
  - Heavy chain IgG (hcIgG)
  - Do not contain the CH1 region
  - Retain an antigen binding domain – \( V_{H}H \) region
- \( V_{H}H \) are known as single domain antibodies or nanobodies
  - Contain only the \( V_{H}H \) region from the camelid antibody
- 2\textsuperscript{nd} Generation TriKE’s utilize nanobodies
- Advantages over 1\textsuperscript{st} Generation TriKE’s (GTB-3550) include:
  - Improved potency and enhanced binding affinity
  - Commercial manufacturing capabilities through Cytovance
  - Proprietary molecule wholly owned by GT Biopharma
  - Similar preclinical safety profile

Second Generation TriKE® (Camelid) Superior In-Vivo in AML Model

Second Generation TriKE® (Camelid – CAM1615HER2) Highly Effective Against HER2+ Tumors

Second Generation B7H3 (GTB-5550) TriKE® Induces NK Cell Killing Against Head and Neck Squamous Cell Carcinoma

Source: Khaw M et al. 2022, GTB-5550 (cam16-IL15-camB7H3) Tri-specific Killer Engager (TriKE®) Drives NK Cell Activation and ADCC against Head and Neck Squamous Cell Carcinomas, AACR 2022, Abstract 3435

best tumor kill
Second Generation (GTB-5550) B7H3 TriKE® Enhances NK Cell Killing Against Multiple Myeloma

Source: Merino AM et al. A Tri-specific Killer Engager (TriKE®) against B7-H3 enhances NK mediated killing in multiple myeloma, EBMT 2022
Cam16-IL15-camB7H3 TriKE® Enables NK Cell Therapies More Effective

Competitive Advantage in Solid Tumor Cancers

PC-3 Prostate Cancer Cells

PC-3 Cells

iPSC NK Cells

iPSC NK Cells + IL-15

iPSC NK Cells + B7H3 (IL-15) TriKE®

PC3 48 Hour Cultures

Targets + iNK + IL-15

Targets + iNK + B7H3 (IL-15) TriKE®

24hrs

48hrs

72hrs


Jeffrey Miller, Nicholas Zorko, Behive Kodal, Zachary Davis, Alexander Lenvik, Todd Lenvik, Daniel Vallera, Svetlana Gaidarova, Alejandro Garcia, Tom Lee, Ryan Bjordahl, Bahram Valamehr, Frank Cichocki, Martin Felices. University of Minnesota, Minneapolis, MN USA; Fate Therapeutics, Inc., San Diego, CA, USA
Anti-tumor activity of FT538 iADAPT cells against resistant GBM partially rescued by increased dose and B7H3 targeting

Day 0
1.5x10^6 or 3x10^6 FTi538 iNK cells

Tumor engraftment
(1x10^5 MGG4 – Refractory Target)

Day 7
Monitor survival

MGG4

Vehicle n=6
1.5x10^6 or 3x10^6 FTi538 iNK cells

iNK

3M FTi538 iNK cells n=6

Days after implantation

Percent survival

Resistance partial overcome with Increased dose

FT538 iNK cells 1.5 M
FT538 iNK cells 3 M

Resistance partially overcome by second signal to CD16 against B7H3

Vehicle
CD16/B7-H3 engager
FT538 iNK cells 1.5 M
FT538 + CD16/B7H3 engager

Competitive Advantages

Competition & Recent M&A
Advantage – Simultaneous Co-Stimulation of CD16 and IL-15

The anti-CD16 component of the TriKE binds FcR\(\gamma\)III with high affinity compared to ADCC mediated strategies that bind with low affinity.

CD16 +/- other receptor engagement does not result in proliferation of T-cells contributing to CRS.

IL-15 provides NK cell specific proliferation with less bystander activity and has a greater safety profile than cytokine therapy.

TriKE can be targeted to heme malignancies, solid tumors and infectious diseases.

- NK cell engager/antibody therapeutic strategies designed to engage CD16, NKG2D, or NKp30
- None of them co-stimulate CD16 and IL-15 simultaneously
- NK cell therapy
- Significantly more expensive
- Could be used in combination with TriKEs
Recent M&A and BD Deals Highlight Value of NK Cell Engagers and Immuno-Oncology

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<td>Single Molecule Preclinical License Deal</td>
<td>Company Acquisition</td>
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| Key Deal Terms | • $96M upfront  
• $5B in additional milestones | • $60M upfront  
• $2B in future milestones | • $1 billion upfront  
• $225M in milestones | • $300M cash upfront  
• Undisclosed milestones  
• 20% royalties |
| Technology / Mechanism | Redirected Optimized Cell Killing (ROCK®) platform to generate both NK cell and T cell-engaging antibodies | ROCK® platform generates tetravalent, bispecific antibodies as innate cell engagers (ICE®) customized to target specific domains on hematologic and solid tumor cells. | Portfolio of T cell engagers using XTEN technology; lead asset AMX-818 in preclinicals | NK-cell Engager; DF7001 is a TriNKET designed to activate and direct NK and cytotoxic T cell killing of cancer cells |
| Rationale | Allowed Roche access to Affimed platform to explore range of engager constructs for multiple oncology applications | Grants Roivant a license to the preclinical molecule AFM32 | Combine Amunix’s complementary molecules with Sanofi’s immuno-oncology portfolio | Enhance Gilead’s portfolio with complementary MOAs and scientific rationale for combination opportunities |
Experienced Management Team With Deep Immuno-Oncology Experience

Proven record in biotech, pharma, product development, financing

Michael Breen, LL.B  
Executive Chairman and  
Interim, Chief Executive Officer

Gregory Berk, MD  
President R&D and Chief  
Medical Officer

Manu Ohri, CPA, MBA  
Chief Financial Officer

Jeffrey Miller, MD  
Chief Scientific Officer,  
Consultant

Gavin Choy, PharmD, MBA  
Chief, Clinical Development  
Officer

Stacy Herb, MPH, MBA  
SVP, Portfolio Management

Irene Figari  
Head, Regulatory Affairs

BNP PARIBAS  
INSINGER & BEAUFORT  
CLYDE & CO

celularity  
intellikine  
Abraxis Bioscience  
Well Cornell Medicine

TOUGHBUILT  
COMVERSE  
Deloitte

University of Minnesota

CrystalGenomics  
apollomics  
Celgene  
Genentech  
CETUS