Programmed Cellular Immunotherapies

Natural Killer Cell Franchise Update

November 10, 2018
Forward-Looking Statements

This presentation contains “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995, including statements regarding the Company's advancement of and plans related to the Company's product candidates and clinical studies, the therapeutic potential of the Company’s natural killer (NK) cell cancer immunotherapies, including FATE-NK100 and FT500, the Company’s regulatory strategy and advancement of its clinical studies, and the Company's plans for its intended clinical investigation of FATE-NK100 and FT500. These and any other forward-looking statements in this presentation are based on management’s current expectations of future events and are subject to a number of risks and uncertainties that could cause actual results to differ materially and adversely from those set forth in or implied by such forward-looking statements. These risks and uncertainties include, but are not limited to, the risk of cessation or delay of ongoing or planned development and clinical activities for a variety of reasons (including requirements that may be imposed by regulatory authorities on the initiation or conduct of clinical trials or to support regulatory approval, or on the manufacture of its product candidates, any adverse events or other results that may be observed during development, or difficulties in manufacturing or supplying the Company’s product candidates for clinical trials), the risk that results observed in prior preclinical studies of FATE-NK100 or FT500 may not be replicated in subsequent studies or ongoing or future clinical trials, and the risk that FATE-NK100 or FT500 may not produce therapeutic benefits or may cause other unanticipated adverse effects. These statements are also subject to other risks and uncertainties as further detailed in the Company's most recently filed periodic report, and subsequent periodic reports filed by the Company, under the Securities Exchange Act of 1934, as amended, any of which could cause actual results to differ materially from those contained in or implied by the forward-looking statements in this presentation. The Company is providing the information in this presentation as of the date hereof and does not undertake any obligation to update any forward-looking statements contained in this presentation unless required by applicable law.
Introduction

Scott Wolchko, President & CEO
Agenda

- Introduction – Scott Wolchko, President & CEO
- Adaptive Memory NK Cells – Jeffrey S. Miller, MD
- Translational Insights – Dan Shoemaker, PhD, Chief Scientific Officer
- Clinical Observations – Sarah A. Cooley, MD
- NK Cell Product Franchise – Bob Valamehr, PhD, Chief Development Officer
- Concluding Remarks – Scott Wolchko, President & CEO
## Cell-based Cancer Immunotherapy

*Therapeutic Vision for Long-Term Durable Responses*

<table>
<thead>
<tr>
<th>Intervention Strategy</th>
<th>Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Early</strong></td>
<td>• Differentiated safety profile</td>
</tr>
<tr>
<td></td>
<td>• Effective with well-tolerated regimens</td>
</tr>
<tr>
<td><strong>Often</strong></td>
<td>• Multi-dose, multi-cycle paradigm</td>
</tr>
<tr>
<td></td>
<td>• Cost-effective manufacture</td>
</tr>
<tr>
<td><strong>Combinations</strong></td>
<td>• Augment established agents’ MOA</td>
</tr>
<tr>
<td></td>
<td>• Deliver multiple complementary MOAs</td>
</tr>
</tbody>
</table>
Adaptive Memory NK Cells

A Potent Subset of Activated NK Cells with Unique Anti-Tumor Properties

Heightened Effector Function  Enhanced Persistence
Resistant to Immuno-regulatory Suppression
# FATE-NK100

**First-in-Human Phase 1 Clinical Trials**

<table>
<thead>
<tr>
<th>VOYAGE</th>
<th>APOLLO</th>
<th>DIMENSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>R/R AML</td>
<td>Recurrent Ovarian</td>
<td>Solid Tumors</td>
</tr>
<tr>
<td>NK100 Dose</td>
<td>Single</td>
<td>Single ¹</td>
</tr>
<tr>
<td>Route of Admin</td>
<td>IV</td>
<td>IP</td>
</tr>
<tr>
<td>Dose Levels</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Range (x10⁷/kg)</td>
<td>1, 3, 10</td>
<td>1, 3, 10</td>
</tr>
<tr>
<td>Conditioning</td>
<td>Lympho-D</td>
<td>Lympho-C2x2</td>
</tr>
<tr>
<td>Cy</td>
<td>60 mg/kg x 2d</td>
<td>300 mg/m2 x 2d</td>
</tr>
<tr>
<td>Flu</td>
<td>25 mg/m2 x 5d</td>
<td>25 mg/m2 x 2d</td>
</tr>
<tr>
<td>IL-2 Regimen</td>
<td>6MU sc x 3/w x 2w</td>
<td>6MU ip x 3/w x 2w</td>
</tr>
</tbody>
</table>

¹ A second treatment cycle is optional for subjects with SD or better at Day 28 or Day 56
# FATE-NK100

**Clinical Objectives & Observations in Ongoing Dose-Escalation Stages**

<table>
<thead>
<tr>
<th>Objective</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demonstrate Unique Properties &amp; Functionality</td>
<td>NK100 has shown augmented biological properties and enhanced activity vs. original healthy donor’s and the patient’s NK cells</td>
</tr>
<tr>
<td>Establish Product Safety &amp; Well-Tolerated Regimen</td>
<td>No NK100-related DLTs, one NK100-related SAE (Grade 3) and no reports of CRS / neurotoxicity ¹</td>
</tr>
<tr>
<td>Observe Evidence of Activity in Heavily Pre-Treated Patients</td>
<td>7 of 14 subjects in ongoing dose-escalation demonstrated evidence of clinical activity ²</td>
</tr>
<tr>
<td>Gain First Look at Potential for Multi-Dosing Paradigm</td>
<td>Delivered second treatment cycle of FATE-NK100 to 3 subjects, showing NK cell persistence and tolerance</td>
</tr>
</tbody>
</table>

¹ As of October 22, 2018 data cutoff. Database is not locked and final data are subject to change.

² For VOYAGE, includes mLFS; for APOLLO and DIMENSION, includes best overall response of stable disease or better.
Adaptive Memory NK Cells

Jeffrey S. Miller, MD
Natural Killer Cells

Unique Properties as compared to T Cells

Advantages of NK Cells

- Proven clinical safety (no GvHD or CRS)
- Demonstrated allogeneic feasibility
- Same potent effector machinery as T cells
- Multi-faceted antigen recognition
- Chemokine / cytokine production to prime adaptive immunity
- Potential to recruit and alter homing of T cells

Adaptive NK Cells Frequency Correlates with Improved Survival

Cichocki & Miller, Leukemia 30:456, 2016
Adaptive Memory NK Cells

Introduction

Attributes Of Adaptive NK Cells

- Protect against relapse after HCT
  \[\text{Cichocki & Miller, Leukemia 30:456, 2016}\]
- Enhanced cytokine production
- Survive longer with properties of immune memory
- Mediate enhanced ADCC
- Decreased PD-1, TIGIT and NKG2A checkpoint expression
- Inherently resistant to immuno-regulatory suppression by MDSCs and T-regs
  \[\text{Sarhan and Miller, CR (2016) & CIR (2018)}\]

CMV-Induced Adaptive NK Cells
FATE-NK100: Preclinical Data
Augmented Biological Properties


Median fluorescence intensity (MFI)

- **CD57+**
- **Perforin**
- **Granzyme B**

Comparison:
- Pre-culture
- 7-day + IL-15
- 7-day + IL-15 + GSK3i (FATE-NK100)
FATE-NK100: Preclinical Data
Enhanced Cytokine Production In Vitro


- Overnight IL-15 Primed
- 7-day + IL-15
- 7-day + IL-15 + GSK3i (FATE-NK100)
Antibody Dependent Cellular Cytotoxicity (ADCC) Mediated by NK Cells

- Antibody binds to tumor target via Fab and to Fc receptor on NK cells (CD16) via Fc, initiating release of perforins / granzyme resulting in tumor cell death

- ADCC contributes to anti-tumor activity of many FDA-approved antibodies
  - Herceptin, Erbitux, Rituximab, Darzalex, etc.
ADCC: Clinical Proof-of-Concept
Enhanced ADCC Correlates with Improved Outcomes

Improved PFS with High Affinity CD16 Polymorphism

Herceptin
Metastatic Breast Cancer

NK Cells w/ High Affinity CD16
~10-15% of Population

NK Cells w/ Low Affinity CD16


Erbitux
Colorectal Cancer

PFS

Low Affinity

High Affinity

FATE-NK100: Preclinical Data
Enhanced ADCC In Vitro


- **A549 Lung**
- **SKOV-3 Ovarian**
- **PANC-1 Epithelioid**

**Graphs:**
- Normalized A549 count (% of A549 alive)
- Normalized SKOV3 count (% of SKOV3 alive)
- Normalized PANC1 count (% of PANC1 alive)

- **Target Cell**
- **Overnight IL-15 Primed + mAb**
- **7-day + IL-15 + mAb**
- **7-day + IL-15 + GSK3i (FATE-NK100) + mAb**
FATE-NK100: Preclinical Data
Augmented and Consistent ADCC In Vivo with Herceptin


Herceptin
Single Administration

O/N IL-15 NK + Herceptin
Single Administration

7D IL-15 NK + Herceptin
Single Administration

NK100 + Herceptin
Single Administration

Control = SKOV-3 Ovarian Tumor Cells
**FATE-NK100: Preclinical Data**

**Unique Biological Properties & Functionality**

- **Maturation during ex vivo expansion** (↑ CD57, ↑ KIR, ↑ NKG2A, ↓ TIGIT)
- **Enrichment of CD57^+ NKG2C^+ adaptive NK cells from CMV^+ donors.**
- **Tumor necrosis factor (TNF) and interferon (IFN)-γ production.**
- **Natural cytotoxicity against solid tumor targets**
- **Antibody-dependent cellular cytotoxicity against solid tumor targets**
- **Tumor control in a xenogeneic model of ovarian cancer**

**Ex Vivo Small Molecule Modulation**

- ↑ TNF
- ↑ IFN-γ
- ↑ Perforin
- ↑ Granzyme B
- ↑ T-BET
- ↑ ZEB2
- ↑ BLIMP-1
FATE-NK100: Clinical Manufacture

Robust Expansion & Production of a Pure Population of CD56+ NK Cells

CMV+ Donor

Apheresis → T & B Cell Depletion

FT1238 + Cytokine Feeder-free

7-Day Ex Vivo Modulation

NK mono NK mono NK mono NK mono

1.1x10^9 (Number of NK cells)

N = 15 (Voyage, Apollo, Dimension)

FATE-NK100

3.1x10^9 (Number of NK cells)
FATE-NK100: Clinical Manufacture

Comprised of Mature CD57+ NK Cells Expressing CD16 Fc Receptor

CD57+ NK Cells

CD16+ NK Cells

N = 15 (Voyage, Apollo, Dimension)
FATE-NK100: Clinical Manufacture

Enhanced Cytotoxicity as Compared to NK Cells from Original Healthy Donor

NK Cell Compartment of Original Healthy Donor

FATE-NK100

K562 \textit{In Vitro} Killing

\begin{figure}
\centering
\includegraphics[width=\textwidth]{k562_in_vitro_killing}
\end{figure}

Post-Depletion vs. FATE-NK100

\begin{itemize}
\item E : T = 0.25 : 1
\item E : T = 0.75 : 1
\item E : T = 2 : 1
\end{itemize}

\textit{N} = 10 (data not yet available for Dimension)
FATE-NK100: Clinical Research
Characterization of Patient Samples

- Chimerism
- Function
- Immunophenotyping
- Cytokine production

Biopsy
- Chimerism
- Infiltration
- Immune activity / modulation

Blood / Serum
FATE-NK100: Clinical Research

In Vivo Persistence of FATE-NK100

Day 7  Day 14  Day 21

VOYAGE
Lympho-D / IV Infusion

Peripheral Blood

% Chimerism by Flow

S = Subject
DL = Dose level

D14 – n/a

DL1  DL2

S1  S2  S3  S4

APOLLO
Lympho-C2x2 / IP Infusion

Ascites Fluid

% Chimerism by Flow

S = Subject
DL = Dose level
R = Dose 2

D21 – n/a

DL1  DL2  DL3

S1  S2  S2R  S3  S4

n/a
FATE-NK100: Clinical Research

Enhanced Phenotype and Function In Vivo vs. Patient NK Cells

**DIMENSION**
Lympho-C1x2 / IV Infusion

**Patient 007**
(DL3 Monotherapy)

**Flow Cytometry**
Label cells with HLA specific antibodies

**Peripheral blood sample**

**Dose 1 + 3 Days**

**CD56+ NK cells**

**HLA Type**

**Phenotype**
- CD57
  - Patient: 96.7
  - NK100: 96.0
- CD16
  - Patient: 48.6
  - NK100: 66.3

**Function**
- Ki67
  - Patient: 74.4
  - NK100: 9.76

**Day 7 In Vivo Persistence (Peripheral Blood) not detected in DIMENSION (N = 5)**
FATE-NK100: Clinical Research

In Vivo Assessment of a Second Dose of FATE-NK100

DIMENSION
Lympho-C1x2 / IV Infusion

Patient 007
(DL3 Monotherapy)

Flow Cytometry
Label cells with HLA specific antibodies

Dose 1 + 3 Days

CD56+ NK cells

Patient
NK100
17%

Day 63

FATE-NK100

Dose 2 + 3 Days

CD56+ NK cells

Patient
NK100
35%
FATE-NK100: Clinical Research

Dose 2 – Enhanced Phenotype and Function In Vivo vs. Patient NK Cells

**DIMENSION**
Lympho-C1x2 / IV Infusion

---

**FATE-NK100**

**Patient 007**
( DL3 Monotherapy)

**Peripheral blood sample**

**Flow Cytometry**

*Label cells with HLA specific antibodies*

---

**Dose 2 + 3 Days**

**CD56**^+** NK cells**

- **Phenotype**
  - **CD57**
  - **CD16**

- **Function**
  - **Ki67**

**Patient**

- **NK100**

- **35%**

**HLA Type**

- **CD57**: 90.2
- **CD16**: 97.0
- **Ki67**: 98.3

- **47.7**
- **82.3**
- **61.0**
FATE-NK100: Clinical Research
Cytokine Analysis Suggests No Evidence of Cytokine Release Syndrome

Cytokine changes associated with G3 CRS

Lee et al, BLOOD, 10 July 2014

N = 4 (including 2 subjects receiving 2nd treatment cycle of FATE-NK100)
FATE-NK100: Translational Insights

Key Observations

- **FATE-NK100 is highly purified NK cell product (>98% NK cells)**
  - Has enhanced cytotoxicity *in vitro* vs. NK cell compartment of original healthy CMV+ donor

- **Phenotype and function of FATE-NK100 is maintained *in vivo* post-infusion**
  - Exhibits differentiated phenotype and enhanced proliferation vs. NK cell compartment of patient

- **In vivo persistence of FATE-NK100 observed across all three studies**
  - 6 of 7 subjects assessed in VOYAGE and APOLLO demonstrated persistence ≥ 7 days

- **Second treatment cycle of FATE-NK100 demonstrated persistence with retained function**
  - Proof-of-concept for off-the-shelf, multi-dose NK cell treatment paradigm

- **Cytokine screen suggests no evidence of CRS including after second treatment cycle**
Clinical Observations
Sarah A. Cooley, MD
• 20,000 new AML cases / year in U.S.
  – Average age at diagnosis = 68
  – Overall 5-year survival = 27%

• Refractory disease following induction chemotherapy is common
  – CRs in 75% of patients <60 years old, but only 50% of patients >60 years old

• Relapse rates are high (60-70%) and treated with salvage chemotherapy
  – 10-15% achieve CR2 if early relapse (<12 months)
  – 40-60% of patients achieve CR2 if late relapse (>12 months)
  – IDH1 inhibitor ivosidenib approved with 25% CR (with DOR = 8 months), with 12% progressing to HCT

• Expect 10-15% CRs in r/r AML in first-in-human P1 study
VOYAGE Phase 1 Clinical Trial

Study Design: FATE-NK100 IV Monotherapy

**VOYAGE: Relapsed / Refractory AML**

- **Pre-Conditioning**
  - CY = 60 mg/kg x 2 days
  - FLU = 25 mg/m2 x 5 days
  - Lympho-depleting

- **DL 3** (n=10)
  - >3-10 x 10^7 / kg IV Monotherapy

- **DL 2** (n=1)
  - >1-3 x 10^7 / kg IV Monotherapy

- **DL 1** (n=1)
  - 1 x 10^7 / kg IV Monotherapy

- **Cytokine Support**
  - IL-2 6M IU sc x 6 doses / 2 weeks

*Single treatment cycle only*
VOYAGE Phase 1 Clinical Trial

Study Design: FATE-NK100 IV Monotherapy

Safety Assessment

DLT is defined as any treatment related toxicity meeting one of the following criteria within 28 days of the FATE-NK100 infusion:

- Any non-hematologic, non-infectious grade 4 or 5 events
- Grade 3 adverse event of > 48 hours duration in the following organ systems: cardiac; pulmonary; hepatic; renal; or CNS

Efficacy Assessment

- CR is defined as leukemia clearance at Day 42 (≤5% marrow blasts and no circulating peripheral blasts), recovery of neutrophils and platelets, and the absence of extramedullary disease.
- CRp is defined as leukemia clearance at Day 42 (≤5% marrow blasts and no circulating peripheral blasts), recovery of neutrophils, but with incomplete recovery of platelets.
## VOYAGE Phase 1 Clinical Trial

### Dose-Escalation Clinical Data: FATE-NK100 IV Monotherapy

<table>
<thead>
<tr>
<th>Dose Level</th>
<th>Age / Sex</th>
<th>History / Most Recent Therapy &amp; Outcome</th>
<th>% Blasts in Bone Marrow (Day 14)</th>
<th>NK100-related SAEs</th>
<th>Best Overall Response</th>
<th>Days on Study / Day 42 CR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>67 / M</td>
<td>AML complex cytogenetics PIF after 7+3, MEC, decitabine</td>
<td>48%</td>
<td>None</td>
<td>PD</td>
<td>23 / No</td>
</tr>
<tr>
<td>2</td>
<td>62 / F</td>
<td>AML relapsed post-HiDAC Refractory to Clo/Cytarabine Refractory to ALT803-NK</td>
<td>Not detected</td>
<td>None</td>
<td>mLFS</td>
<td>32 / No</td>
</tr>
<tr>
<td>2</td>
<td>69 / M</td>
<td>AML complex cytogenetics, TP53 PIF after 7+3, ME</td>
<td>Not detected</td>
<td>None</td>
<td>mLFS</td>
<td>41 / No</td>
</tr>
<tr>
<td>2</td>
<td>53 / M</td>
<td>MDS/AML complex cytogenetics PIF after 7+3, MEC</td>
<td>Not detected</td>
<td>None</td>
<td>mLFS</td>
<td>Ongoing (Day 124) / No</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Two additional subjects to be enrolled; if no DLT, advance to DL3 (n=10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

mLFS = morphologic leukemia-free state

- Excludes first subject in DL1 (not evaluable).
- Subject experienced DLT of acute renal failure not related to FATE-NK100.
- mLFS with dysmegakaryopoiesis.

Data as reported by University of Minnesota. Final data are subject to change.
FATE-NK100
Recurrent Ovarian Cancer

• 22,000 new cases / year and 14,270 deaths / year in the U.S.
  – Median age at diagnosis = 63
  – 61% diagnosed with advanced disease
  – Overall 5-year survival = 44% (27% with distant spread)

• Recurrence in most patients occurs within 12-18 months
  – If within 6 months, life expectancy is only 3-9 months

• Salvage therapy options have ORR 10-35% with PFS <8 months
  – Olaparib (PARP inhibitor) for platinum-resistant disease failing 3 lines (RR = 31%, PFS = 7 months)
  – Prior NK clinical experience: 4/14 (29%) PR with Time-to-Progression = 2 months
 Patients with stable disease or better at Day 28 may be considered for second treatment cycle on an individual basis.
Safety Assessment

DLT is defined as any treatment emergent toxicity at least possibly related to FATE-NK100 or IL-2 meeting one of the following criteria within 28 days (14 days for ascites) of FATE-NK100 infusion:

• Grade 3 organ toxicity (cardiac, gastrointestinal, hepatic, pulmonary, renal/genitourinary, or neurologic) not pre-existing and lasting more than 72 hours.

• Any non-hematologic grade 4 toxicity

• Anemia or thrombocytopenia ≥ Grade 3, or neutropenia ≥ Grade 4, that persist at Day 28 despite use of growth factor support

• Any grade 3 or greater abdominal pain lasting more than three consecutive days and not controlled by standard analgesics

• Grade 3 or greater ascites within 14 days after FATE-NK100 administration in patients who had no ascites or Grade 1 ascites at enrollment and is not attributable to disease progression.

Efficacy Assessment

Assess the objective response rate (ORR) of this treatment at 28 days post-infusion.
## APOLLO Phase 1 Clinical Trial

### Dose-Escalation Clinical Data: FATE-NK100 IP Monotherapy

<table>
<thead>
<tr>
<th>Dose Level</th>
<th>Age / Sex</th>
<th>Prior Lines / Most Recent Therapy &amp; Outcome</th>
<th>NK100-related SAEs</th>
<th>Best Overall Response</th>
<th>Days on Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>64 / F</td>
<td>Prior Lines = 4 Topotecan – PD</td>
<td>None</td>
<td>PD</td>
<td>35</td>
</tr>
<tr>
<td>2 *</td>
<td>71 / F</td>
<td>Prior Lines = 5 PARP inhibitor (12 cycles) – PD</td>
<td>Grade 3 (abdominal pain)</td>
<td>SD w/ decrease splenic mass</td>
<td>196</td>
</tr>
<tr>
<td>2 a</td>
<td>68 / F</td>
<td>Prior Lines = 1 Carboplatin / Taxol (7 cycles) – PD</td>
<td>None</td>
<td>PD</td>
<td>33</td>
</tr>
<tr>
<td>3</td>
<td>65 / F</td>
<td>Prior Lines = 6 Topotecan – PD</td>
<td>None</td>
<td>PD</td>
<td>35</td>
</tr>
<tr>
<td>3</td>
<td>Dose Escalation and Dose Expansion (n=10)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Subject was treated with a second dose of FATE-NK100 on Day 50. PD was reported on Day 187.

* FATE-NK100 dose failed to meet DL3, and subject was included in DL2.

Data as reported by University of Minnesota. Final data are subject to change.
APOLLO Phase 1 Clinical Trial
Second Treatment Cycle Demonstrates Persistence

16186-UMN-002

Dose 1 (Day 0) vs Dose 2 (Day 50)

Days Post-Infusion

% NK100 Chimerism

FATE-NK100

Ascites wash
APOLLO Phase 1 Clinical Trial
Dose 2 – Enhanced Functionality vs. Patient NK Cells

16186-UMN-002 – Dose 2

Degranulation (CD107a)

Cytokine Production (IFN-γ)

Days Post-Infusion

Days Post-Infusion

Percent CD107a+ NK cells

Percent IFN-γ+ NK cells

FATE-NK100

Patient NK Cells
DIMENSION Phase 1 Clinical Trial
Advanced Solid Tumors

• DIMENSION is investigating FATE-NK100 as a monotherapy and in combination with trastuzumab or cetuximab in subjects with advanced solid tumors that have failed approved therapies

• Populations:
  o Monotherapy: any advanced solid tumor, “all-comer”
  o + cetuximab: any advanced EGFR1+ solid tumor
    ▪ Colorectal cancer and head and neck squamous cell cancer must have failed cetuximab
  o + trastuzumab: any advanced HER2+ solid tumor
    ▪ Gastric cancer must have failed trastuzumab
    ▪ Breast cancer must have failed trastuzumab and either pertuzumab or ado-trastuzumab

First Combination of Donor-derived NK Cell Therapy with Tumor-Targeting Monoclonal Antibody Therapy for Solid Tumors
DIMENSION Phase 1 Clinical Trial

Study Design: Dose-Escalation FATE-NK100 IV Monotherapy + mAb Combination

<table>
<thead>
<tr>
<th>Pre-Conditioning</th>
<th>Lympho-conditioning</th>
<th>DIMENSION: Advanced Solid Tumors</th>
<th>Cytokine Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>CY = 300 mg/m2 x 1 days</td>
<td>DL 3</td>
<td>&gt;3-10 x 10^7 / kg IP</td>
<td>N=3+3</td>
</tr>
<tr>
<td>FLU = 25 mg/m2 x 2 days</td>
<td>DL 2</td>
<td>&gt;1-3 x 10^7 / kg IP</td>
<td>N=3+3</td>
</tr>
<tr>
<td></td>
<td>DL 1</td>
<td>1 x 10^7 / kg IP</td>
<td>N=3+3</td>
</tr>
<tr>
<td></td>
<td>DL -1</td>
<td>1 x 10^6 / kg IP</td>
<td>N=3+3</td>
</tr>
</tbody>
</table>

Patients with stable disease or better at Day 28 may be considered for second treatment cycle on an individual basis

mAb administration = Day -2 and Day 8
Safety Assessment

DLT is defined as any treatment-related toxicity meeting one of the following criteria within 28 days of the FATE-NK100 infusion:

- Any non-hematologic AE Grade ≥ 4.
- Any non-hematologic AE Grade 3 of >48 hours duration.
- Anemia or thrombocytopenia ≥ Grade 3, or neutropenia ≥ Grade 4, that persists at Day 29 despite use of growth factor support.

Efficacy Assessment

Assess the objective-response rate (ORR) defined as the proportion of patients who achieve partial response (PR) or complete response (CR) for target lesions per RECIST 1.1 at any time on study.
### DIMENSION Phase 1 Clinical Trial

**Dose-Escalation Clinical Data: FATE-NK100 IV Monotherapy**

<table>
<thead>
<tr>
<th>Dose Level</th>
<th>Age / Sex</th>
<th>Diagnosis</th>
<th>Prior Lines / Most Recent Therapy &amp; Outcome</th>
<th>NK100-related SAEs</th>
<th>Best Overall Response / % Change - Target Lesion</th>
<th>Days on Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>59 / M</td>
<td>Head &amp; Neck</td>
<td>Prior Lines = 4 Experimental (virus) – PD</td>
<td>None</td>
<td>PD / 1% (non-target PD)</td>
<td>43</td>
</tr>
<tr>
<td>2</td>
<td>36 / F</td>
<td>Sinonasal</td>
<td>Prior Lines = 4 Tazemetostat – PD</td>
<td>None</td>
<td>SD / 0%</td>
<td>60</td>
</tr>
<tr>
<td>3 *</td>
<td>66 / F</td>
<td>Uterine</td>
<td>Prior Lines = 2 Docetaxel (Taxotere) / Carboplatin – PD</td>
<td>None</td>
<td>SD / 0%</td>
<td>149#</td>
</tr>
<tr>
<td>3 *</td>
<td>54 / F</td>
<td>Colorectal</td>
<td>Prior Lines = 3 5-FU / Bevacizumab / Irinotecan – PD</td>
<td>None</td>
<td>SD / +18% (non-target PR)</td>
<td>94#</td>
</tr>
<tr>
<td>3</td>
<td>30 / M</td>
<td>Cardio-Esophageal Junction Adenocarcinoma</td>
<td>Prior Lines = 3 Idasanutin – PD</td>
<td>None</td>
<td>PD / +24%</td>
<td>34</td>
</tr>
<tr>
<td>3</td>
<td>58 / F</td>
<td>Renal</td>
<td>Prior Lines = 2 Carboplatin / Etoposide – Mixed Response</td>
<td></td>
<td>Pending</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>52 / M</td>
<td>Melanoma</td>
<td>Prior Lines = 3 Pembrolizumab – n/a</td>
<td></td>
<td>Pending</td>
<td></td>
</tr>
</tbody>
</table>

* Subject was treated with a second dose of FATE-NK100
# Ongoing

As of October 22, 2018 data cutoff. Database is not locked and final data are subject to change.
DIMENSION Phase 1 Clinical Trial

Case Study I: Clinical Observations

• 66 y/o female with platinum-resistant uterine cancer

• Received two prior lines of therapy
  o Paclitaxel / Carboplatin – Not evaluable
  o Docetaxel (Taxotere) / Carboplatin – PD

• Treated with FATE-NK100 at DL3 (monotherapy); received a second dose on Day 63
  o No FATE-NK100 related SAEs or AEs
  o No evidence of CRS

• Best RECIST response: SD
  o Days on study = 149 (ongoing)
## DIMENSION Phase 1 Clinical Trial

### Dose-Escalation Clinical Data: FATE-NK100 IV Combination with mAb

<table>
<thead>
<tr>
<th>Dose Level / mAb</th>
<th>Age / Sex</th>
<th>Diagnosis</th>
<th>Prior Lines / Most Recent Therapy &amp; Outcome</th>
<th>NK100-related SAEs</th>
<th>Best Overall Response / % Change – Target Lesion</th>
<th>Days on Study</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1 cetuximab</td>
<td>53 / F</td>
<td>Colorectal</td>
<td>Prior Lines = 4</td>
<td>None</td>
<td>PD / 38%</td>
<td>34</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Trifluridine / Tipiracil – PD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 cetuximab</td>
<td>72 / M</td>
<td>Urothelial</td>
<td>Prior Lines = 5</td>
<td>None</td>
<td>PD / 82%</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Carboplatin / Gemcitabine – PD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 cetuximab</td>
<td>72 / F</td>
<td>Endometrial</td>
<td>Prior Lines = 2</td>
<td></td>
<td>Pending</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Carboplatin / Paclitaxel – PD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 cetuximab</td>
<td>61 / M</td>
<td>NSCLC</td>
<td>Prior Lines = 6</td>
<td></td>
<td>Pending</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Docetaxel / Ramucircumab – PD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-1 trastuzumab</td>
<td>75 / F</td>
<td>Recurrent Gastric</td>
<td>Prior Lines = 5</td>
<td></td>
<td>Pending</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Trastuzumab Emtansine – PD</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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# FATE-NK100

## Summary of Key Safety & Clinical Data Across Dose-Escalation

<table>
<thead>
<tr>
<th></th>
<th>FATE-NK100 Related</th>
<th>Symptoms of CRS / Neurotoxicity</th>
<th>Clinical Activity $^1$ $^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DLTs</td>
<td>SAEs</td>
<td></td>
</tr>
<tr>
<td>VOYAGE</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>APOLO</td>
<td>None</td>
<td>Grade 3 (1)</td>
<td>None</td>
</tr>
<tr>
<td>DIMENSION</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monotherapy</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Cetuximab</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>Trastuzumab</td>
<td></td>
<td>Pending</td>
<td></td>
</tr>
</tbody>
</table>

1. For VOYAGE, includes mLFS; for APOLO and DIMENSION, includes best overall response of stable disease or better.
2. Excludes DL-1 for DIMENSION combination with mAb.

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Limitations of Patient- and Donor-derived Adoptive Cell Therapy

Heterogeneity of Healthy Related Donor Cells

Blood Composition

Heterogeneity of Engineering

CAR Targeted into TRAC Locus using CRISPR

CD57 / NKG2C NK Cell Compartment

Eyquem et al Nature 2017
Our iPSC Product Platform

Off-the-Shelf Cell Products Derived From Clonal Master iPSC Lines

- Consistent, homogeneous and reliable product forms
- Unprecedented scalability
- Does not require patient-sourced cells
- Off-the-shelf production of cells
- Multi-dosed enabling

Addresses Critical Limitations of Patient-Sourced Cellular Therapies

Induced Pluripotent Stem Cells

Precise Multi-Gene Engineering

Master iPSC Line

Renewable Engineered Pluripotent Cell Line

Directed Hematopoietic Lineage Differentiation

Unlimited Access to Engineered Hematopoietic Progenitor Cells

Off-the-Shelf | Homogeneous | Cell Products

iT Cells

iNK Cells

iCD34+ Cells

Cost-effective
FT500 Universal, Off-the-Shelf NK Cell Product

Combination with Checkpoint Blockade Therapy

**Multi-faceted Functionality to Augment CPB Therapy**

- Activating Receptors to Seek and Eliminate Stressed Cells Independent of a Single Unique Antigen
- Inhibitory Receptors “Check” NK Cell Activation, Prevent Cytotoxicity Towards Healthy Cells
- Unlike T cells, NK cells do not elicit GvHD
- Secretion of proinflammatory cytokines and chemokines to recruit and activate the adaptive immune system

**3-D Ovarian Cancer Tumor Model**

IND Submitted
FT516 Universal, Off-the-Shelf hnCD16 NK Cell Product

Enhanced ADCC for Combination with Monoclonal Antibody Therapy

Engineered High-affinity, Non-cleavable CD16 Fc Receptor

FT516

hnCD16

FDA-approved
Monoclonal Antibodies

Bi- / Tri- Specific
Engagers

Planned IND Submission
for YE18

Enhanced In Vivo Survival
FT538 Universal, Off-the-Shelf hnCD16 / CD38- NK Cell Product
Enhanced ADCC with Elimination of Fratricide for Daratumumab Combo

Engineered hnCD16 Fc Receptor + CD38 Knock-Out

Augmented In Vitro Serial Killing

Combination with Daratumumab for Myeloma
FT519 Universal, Off-the-Shelf hnCD16 / CAR19 NK Cell Product

Dual-Targeting for Antigen Escape

Engineered hnCD16 Fc Receptor + CAR19

- Potent CAR tailor made for NK cell anti-tumor efficacy
- hnCD16 to multi-node targeting and to mitigate antigen escape
- IL15/R to enable NK cell persistence without the need for cytokine support

Complementary Mechanisms for Antigen Escape

CD19+ Leukemic Cells

CD19- Leukemic Cells

Planned IND Submission for Mid-2019
Coming Soon…ASH Annual Meeting

FATE Investor Event: Friday, November 30

** Jeffrey S. Miller, MD  
** Dan Kaufman, MD PhD  
** Michel Sadelain, MD PhD  

**FT500** iPSC-Derived NK Cells and **Anti-PD1 Antibody Synergize** to Enhance T-Cell Cytokine and Cytolytic Responses Against Multiple Tumors

**FT519** Off-the-Shelf Natural Killer Cells with Multi-Functional Engineering Using a Novel **Anti-CD19 Chimeric Antigen Receptor** Combined with Stabilized CD16 and IL15 Expression to Enhance Directed Anti-Tumor Activity

**FT538** CD38 Deficient, CD16 Engineered NK Cells Exhibit Enhanced Antibody Dependent Cellular Cytotoxicity without NK Cell Fratricide to Augment Anti-Myeloma Immunity in Combination with Daratumumab

**FT819** Pluripotent Cell-Derived Off-the-Shelf TCR-Less **CAR-Targeted Cytotoxic T Cell Therapeutic** for the Allogeneic Treatment of B Cell Malignancies
Concluding Remarks
Scott Wolchko, President & CEO
NK Cell Franchise
FATE-NK100 to FT500 Series

- **Therapeutic strategy: early, often, combinations**
  - Supported by current safety and clinical activity observations with FATE-NK100

- **Significant learnings from FATE-NK100 clinical trials are accruing to franchise**
  - Gaining valuable insights: conditioning, immune response, multi-dosing, tumor types
  - Developing key relationships with top medical investigators and clinical sites

- **Off-the-shelf, iPSC-derived NK cell paradigm is disruptive**
  - Plan to advance FATE-NK100 based on compelling clinical responses observed in dose-expansion
  - FT500 and FT516 have the potential to step into the FATE-NK100 clinical footprint

- **Completed adventitious agents testing of iPSC Master Cell Bank for FT500 as requested by FDA**
  - **No** adventitious agents were detected in *in vivo* and *in vitro* testing
  - Response to FDA has been submitted