



**SENTI BIO**

**SENTI-202:**

Positive Preliminary Results in the Treatment of Relapsed/Refractory Hematologic Malignancies Including AML in Ongoing Phase 1 Trial (SENTI-202-101)



**April 28, 2025**

**Conference Call and Webcast**

NASDAQ: SNTI | [sentibio.com](https://sentibio.com)

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# Company Highlights

**Potential best-in-class Logic-Gated cell therapy** pipeline, initially targeting AML

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Scalable **off-the-shelf** manufacturing process streamlines treatment

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**Gene Circuits** platform provides blockbuster opportunity to **selectively and effectively target liquid and solid tumors while sparing healthy cells**

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Platform technology can be utilized with both NK and T cell therapies

## Lead program **SENTI-202**

First-in-Class Off-the-Shelf Logic-Gated Selective CD33 OR FLT3 NOT EMCN CAR NK Cell Therapy

- Demonstrated positive preliminary efficacy data in ongoing Phase 1 trial for treatment in R/R AML
- Dose finding completed, CR\* and durability data presented at AACR 2025 along with correlative data supporting Logic Gating mechanism of action

**Pipeline of NK and T cells for hard-to-treat cancers**

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Investment from Leading Healthcare Institutional Investors

**NEA**

Celadon  
Partners

leaps 

# Logic Gates in Cell Therapy

Enable CAR-NK / CAR-T Cells to Address Broad Liquid and Solid Tumor Applications

## Senti Bio's Logic Gate Approach



**SENTI-202 and Other Undisclosed Programs**

### Recognizes Multiple Antigen Targets

**OR Gate (aCAR)**  
Kill if you see Antigens CD33 or FLT3

**NOT Gate (iCAR)**  
Do Not Kill if you see Antigen EMCN even if you see CD33 or FLT3

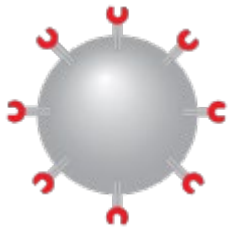
**Cancer Cells**

**KILL**

**Healthy Cells**

**PROTECT**  
(DO NOT KILL)

## Non-Logic Gate Approaches



**Commercially approved CAR T cell therapies**

### Recognize Single Antigen Target

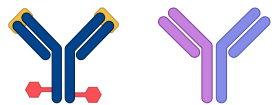
Single Antigen Target may be found on both cancer and healthy cells

**Cancer Cells**

**KILL**

**Healthy Cells**

**KILL**



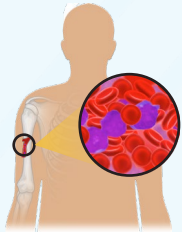
**Biologics (ADC/TCE)\***

# Acute Myeloid Leukemia (AML) Is an Aggressive Leukemia with Poor Prognosis

## AML Estimated Disease Burden

- 20,800 newly diagnosed AML patients in US every year<sup>1</sup>
  - ~60% patients experience relapse or death within 12 months<sup>2</sup>

## Relapsed/Refractory AML Patient Outcome



Median survival of 5.3 months<sup>3</sup>

5-year survival rate is 12.6%<sup>3</sup>

- Current standard of care responses<sup>4,5</sup>
  - CR rate ~15-25%
  - CR/CRh rate ~20-33%

## Effective Anti-AML Therapies Need To:

1 Target heterogenous clones / leukemia stem cells (LSCs)<sup>6</sup>

To achieve deep / MRD negative CR

Leading to durable remissions / longer survival<sup>4,6</sup>

2 Selectively kill AML blasts and LSCs, and spare HSCs

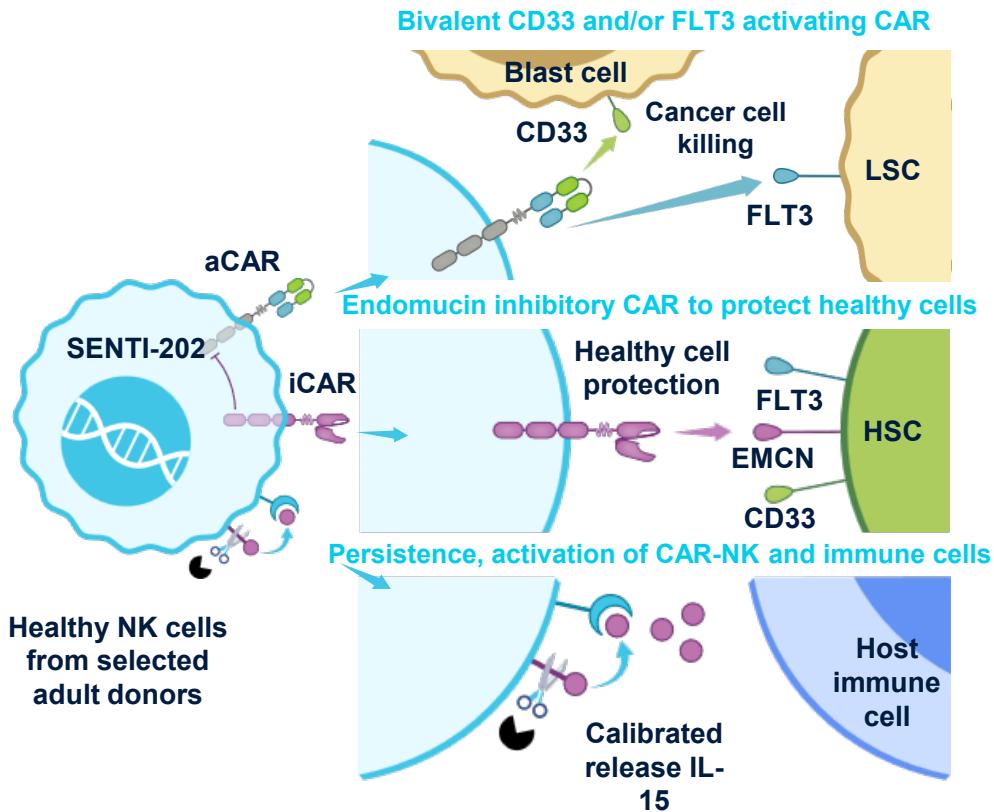
To support normal blood cell count recovery

Leading to improved prognosis / longer survival<sup>7</sup>



# SENTI-202:

## Intelligently Designed CAR-NK May Overcome Limitations of Current Therapies Against AML



### SENTI-202 Gene Circuit Design

- **OR Logic Gate “Kills”** leukemia blasts and LSCs via CD33 OR FLT3 activating CAR (aCAR)
  - CD33 and/or FLT3 expressed in ~95% of AML patients with CD33 being predominantly expressed on bulk blasts and FLT3 on LSCs
- **NOT Logic Gate “Protects”** healthy HSC/HSPCs from ‘off-tumor, on-target’ effects
  - Protection of HSC/HSPCs via Endomucin (EMCN) inhibitory CAR (iCAR), even when they express CD33 and/or FLT3
  - EMCN found predominantly on healthy HSC/HSPC surface, rarely on AML blasts
- **Calibrated release IL-15 “Enhances”** SENTI-202 and host immune cell activity and persistence

SENTI-202 is designed to selectively kill both AML blasts and LSCs while protecting healthy HSC/HSPCs using its novel CD33 OR FLT3 NOT EMCN Logic-Gated gene circuit

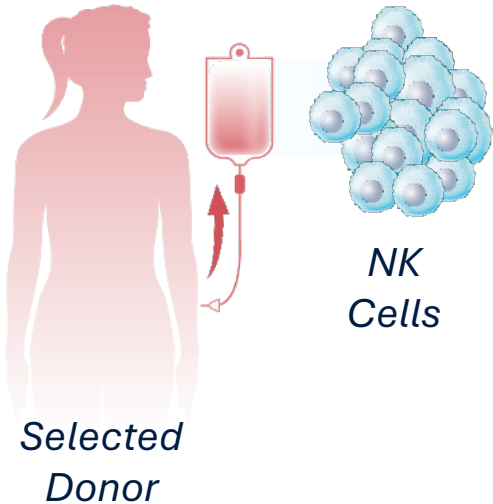
# SENTI-202 Scalable Manufacturing Process

## Off-the-Shelf Allogeneic CAR-NK

### Scalable Process

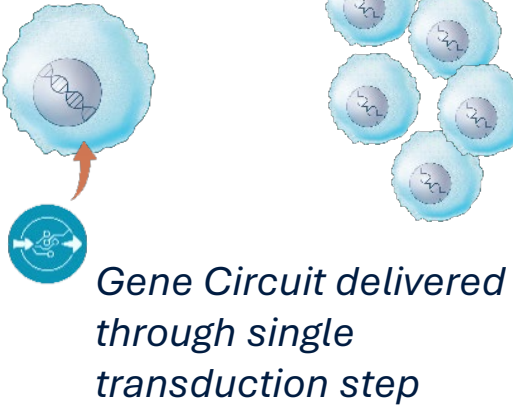
1

*Isolate from selected donors*



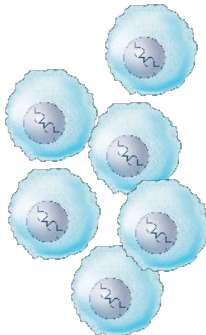
2

*Engineer*  
Gene Circuit  
Engineered CAR-NK cells



3

*Expand*



4

*Cryopreserve and Store*



NK cells isolated from peripheral blood of selected donors

NK cells efficiently engineered with Gene Circuits

High post-thaw potency

### SENTI-202

1

*Thaw and Infuse Off-the-Shelf*



Easy to thaw vials

Outpatient use potential

# SENTI-202 Phase 1 Trial (SENTI-202-101) Design

A multicenter, multinational, open-label study (NCT06325748)

## Key Eligibility Criteria

- ≥18 and <75 years
- ECOG 0-1
- R/R CD33 and/or FLT3 expressing heme malignancies
  - CD33+ by local assessment
- R/R AML (1-3 prior Rx)
- R/R MDS with increased blasts<sup>1</sup> (1-2 prior Rx)
- Must have received targeted agents if applicable mutations

## Study Design

“3+3”

Dose finding followed by  
AML, MDS and other  
expansion cohorts at RP2D

## Study Dosing

2 Dose Levels and 2  
schedules planned

Opening dose cohort  
anticipated to be  
biologically active

## Study Objectives

- Primary objective- safety and determination of MTD/RP2D
- DLT definition includes:
  - ≥ G3 non-hematologic toxicities
  - Prolonged G4 neutropenia /thrombocytopenia not due to underlying disease
- Other key objectives
  - Efficacy based on ELN 2022 criteria (AML)
  - MRD assessed per local standard of care
  - Pharmacokinetics (PK)
  - Pharmacodynamics (PDn) using CyTOF on serial BM samples

# SENTI-202 Phase 1 Trial (SENTI-202-101) Dosing Schema- Preliminary RP2D Identified

## SENTI-202 Dose Levels

Dose Level	CAR+ NK Cells/Dose
1	1 x 10 <sup>9</sup>
2	1.5 x 10 <sup>9</sup>

## Multi-Dose Cycle

### Lymphodepletion

Fludarabine/Cytarabine (Ara-C)

SCHEDULE I



SCHEDULE II



## Efficacy Assessment

Multiple cycles allowed to achieve optimal response

Opening Dose Cohort was Anticipated to be Biologically Active  
 Schedule I Dose Level 1, N = 3  
 No DLTs

Schedule I Dose Level 2, N = 3  
 No DLTs  
 Identified as preliminary RP2D based on totality of clinical data

Schedule II Dose Level 1, N = 3  
 No DLTs

# Study Enrolled a High-Risk R/R AML Population with Multiple Baseline Adverse Characteristics

Baseline Characteristics	Dose Level 1		Dose Level 2	All Patients N = 9
	Schedule I N = 3	Schedule II N = 3	Schedule I N = 3	
Age, yr, median (range)	64 (26,72)	41 (36, 67)	<b>63 (51, 69)</b>	63 (26, 72)
Male, n (%)	1 (33)	2 (67)	<b>3 (100)</b>	6 (67)
AML, n (%)	3 (100)	3 (100)	<b>3 (100)</b>	9 (100)
Years from AML diagnosis, median (range)	2.84 (0.5, 6.2)	0.49 (0.3, 0.8)	<b>0.94 (0.5, 1.0)</b>	0.75 (0.3, 6.2)
Adverse risk by ELN 2022, n (%)	2 (67)	2 (67)	<b>3 (100)</b>	7 (78)
Baseline bone marrow blasts, %, median (range)	20 (15, 69)	30 (18, 31)	<b>45 (10, 93)</b>	30 (10, 93)
Baseline platelet count < 50 x 10 <sup>9</sup> /L , n (%)	0 (0)	2 (67)	<b>2 (67)</b>	4 (44)

**preliminary  
RP2D**

- Median of <1 yr from diagnosis to trial entry across all patients and in preliminary RP2D cohort
- Majority of patients (all in preliminary RP2D cohort) with adverse risk genetics by ELN 2022 criteria

# Study Subjects had Received Multiple Prior Therapies

Prior Therapy	Dose Level 1		Dose Level 2	All Patients N = 9
	Schedule I N = 3	Schedule II N = 3	Schedule I N = 3	
Number of prior lines, median (range)	1 (1,1)	2 (1, 2)	<b>2 (2, 3)</b>	2 (1,3)
Chemotherapy, n(%)	3 (100)	3 (100)	<b>3 (100)</b>	9 (100)
Fludarabine and/or Ara-C, n (%)	3 (100)	3 (100)	<b>3 (100)</b>	9 (100)
Anthracycline, n (%)	3 (100)	2 (67)	<b>3 (100)</b>	8 (89)
Venetoclax, n (%)	1 (33)	3 (100)	<b>3 (100)</b>	7 (78)
Hypo-methylating Agents, n (%)	2 (67)	3 (100)	<b>3 (100)</b>	8 (89)
FLT3/IDH2 targeted therapy, n (%)	1 (33)	1 (33)	<b>1 (33)</b>	3 (33)
Bone marrow transplant, n (%)	1 (33)	0 (0)	<b>1 (33)</b>	2 (22)
Primary refractory*, n (%)	1 (33)	2 (67)	<b>2 (67)</b>	5 (56)

preliminary  
**RP2D**

- Median of 2 lines before study entry overall and in preliminary RP2D cohort
- All patients with previous chemotherapy exposure including fludarabine and/or cytarabine (4 received both) and majority with previous venetoclax exposure

# Patients Received a Median of 2 Cycles of SENTI-202 Therapy

Exposure	Dose Level 1		Dose Level 2	All Patients N = 9
	Schedule I N = 3	Schedule II N = 3	Schedule I N = 3	
Number of SENTI-202 treatment cycles, median (range)	2 (1, 2)	2 (1, 2)	<b>2 (1, 2)</b>	2 (1, 2)
Subjects continuing treatment as of data-cut, n (%)	0	2 (67)	<b>0</b>	2 (22)
Subjects discontinuing treatment, n (%)	3 (100)	1 (33)	<b>3 (100)</b>	7 (78)
Adverse Event	0	0	<b>0</b>	0
Achieved Optimal Response (cCR)	2 (67)	0	<b>2 (67)</b>	4 (44)
Disease Progression/ Stable Disease	1 (33)	1 (33)	<b>1 (33)</b>	3 (33)

preliminary  
**RP2D**

- Median of 2 cycles across dose cohorts
- Majority of patients discontinued SENTI-202 after achieving cCR with none discontinuing due to adverse event

# Preliminary Safety Data Indicate that SENTI-202 is Well Tolerated

Any Grade 3-4* AEs Regardless of Relationship	Dose Level 1		Dose Level 2	All Patients N = 9
	Schedule I N = 3	Schedule II N = 3	Schedule I N = 3	
Any Grade ≥ 3 AEs, n (%)	3 (100)	3 (100)	<b>3 (100) ^</b>	9 (100)
Febrile Neutropenia	1 (33)	1 (33)	<b>2 (67) ^</b>	4 (44)
Platelet Count Decreased	2 (67)	0	<b>2 (67) ^</b>	4 (44)
Anemia	1 (33)	1 (33)	<b>0</b>	2 (22)
Abdominal Pain	1 (33)	1 (33)	<b>0</b>	2 (22)
*No Grade 5 AEs, ^ 1 patient with G3 febrile neutropenia and G4 platelet count decreased assessed as possibly related to SENTI-202				

preliminary  
**RP2D**

## SENTI-202 was well tolerated

- In general, G3-4 AEs on study were hematologic, unrelated to SENTI-202 and consistent with R/R AML patients receiving LD
- No single type of SAE reported in > 1 patient
- No significant difference in AE profile across dose cohorts



# SENTI-202 Related AEs Were Low Grade and Manageable with Standard of Care

Patient # (Dose Cohort)	Event Term (Grade)	Onset from SENTI-202 Dose (days)	Duration (days)
001-0004, (1)	Chills, G1	0	1
	Pyrexia, G1	0	1
008-005, (1)	Pyrexia, G1	0	5
	Hypotension, G1	3	1
102-007, (prelim. RP2D)	Pyrexia, G1	1	1
	Hypoxia, G2	1	1

- 3 pts experienced G1 pyrexia with either hypotension or hypoxia in 1 each, typically within 1 day of SENTI-202 dosing that were reported as Cytokine Release Syndrome (CRS)
  - Events resolved rapidly with standard of care; None were serious
- Likely represent delayed infusion reactions described with NK cell therapies
- No other AEs or DLTs reported on study

# Responses Observed Across All Dose Cohorts

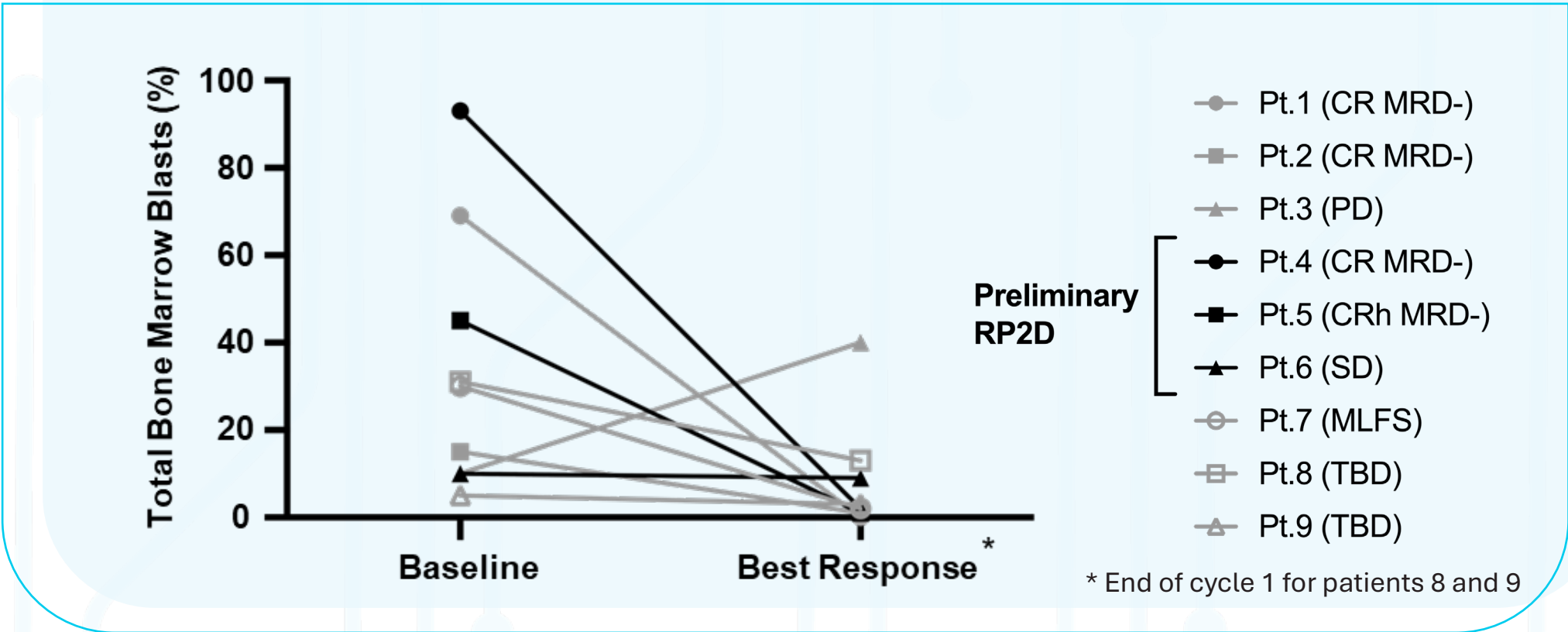
Best Overall Response on Study, n (%)	Dose Level 1		Dose Level 2	All Patients N = 7*
	Schedule I N = 3	Schedule II N = 1*	Schedule I N = 3	
Overall Response Rate (ORR)	2 (67)	1 (100)	2 (67)	5 (71)
composite CR Rate (cCR)^	2 (67)	0	2 (67)	4 (57)
Negative MRD Status in cCR Patients	2/2 (100)	N/A	2/2 (100)	4/4 (100)
Response Category, n(%)				
CR	2 (100)	0	1 (33)	3 (43)
CRh	0	0	1 (33)	1 (14)
MLFS	0	1 (100)	0	1 (14)
SD	0	0	1 (33)	1 (14)
PD	1 (33)	0	0	1 (14)
*Two patients continuing into second Cycle after achieving SD with blast reduction from 31% to 13% and 5% to 3% respectively are excluded from best overall response assessment; ^CR + CRh + CRi				

preliminary  
RP2D

## AML Response

- 5 of 7 patients overall achieved ORR
- 2/3 and 4/7 patients achieved cCR respectively in preliminary RP2D cohort and all patients
- 4/4 cCR patients were MRD-
- All cCR responses are ongoing as of data-cut with median duration of response not reached

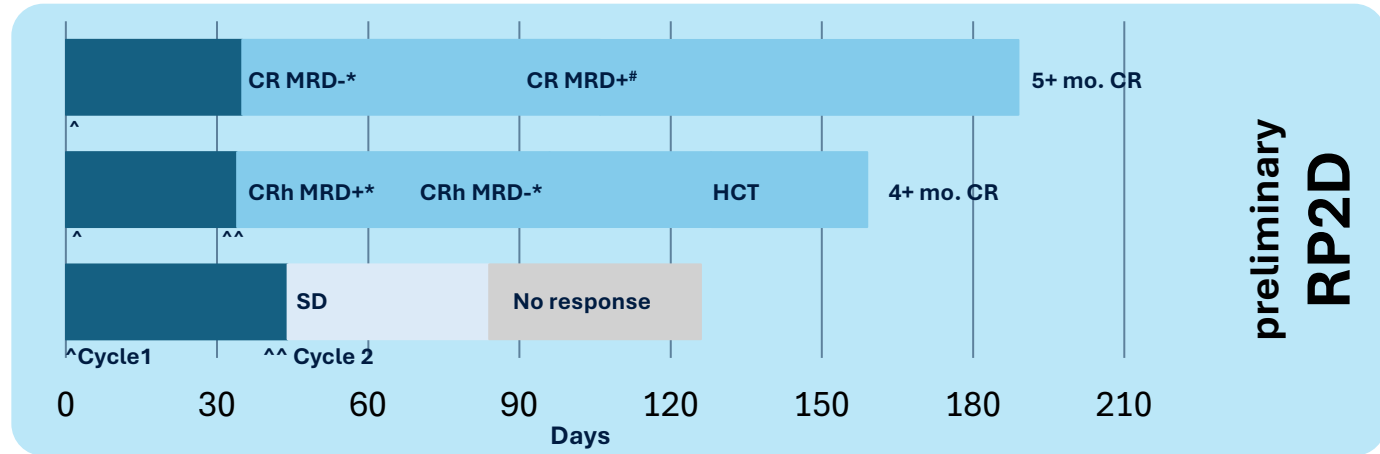
# Rapid Bone-Marrow Blast Reduction Observed Across All Dose Cohorts



**Blast Reduction Noted in Majority of Patients Across All Dose Cohorts**

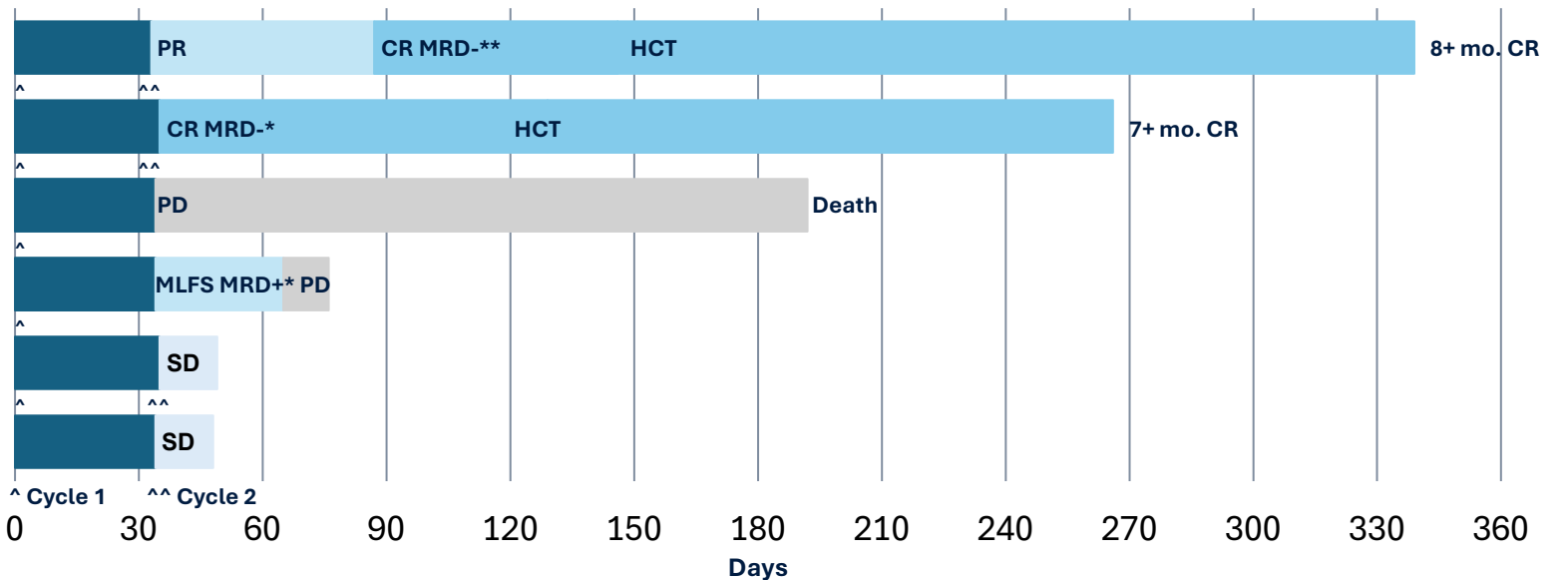
# Early Deep Responses Noted Across Dose Levels with Durability 8+ Months

Pt	I <sup>0</sup> Ref	Adv. Risk	FA Exp	FA Ref
Pt4	Yes	Yes	Yes-both	Yes-both
Pt5	No	Yes	Yes-both	No
Pt6	Yes	Yes	Yes	Yes



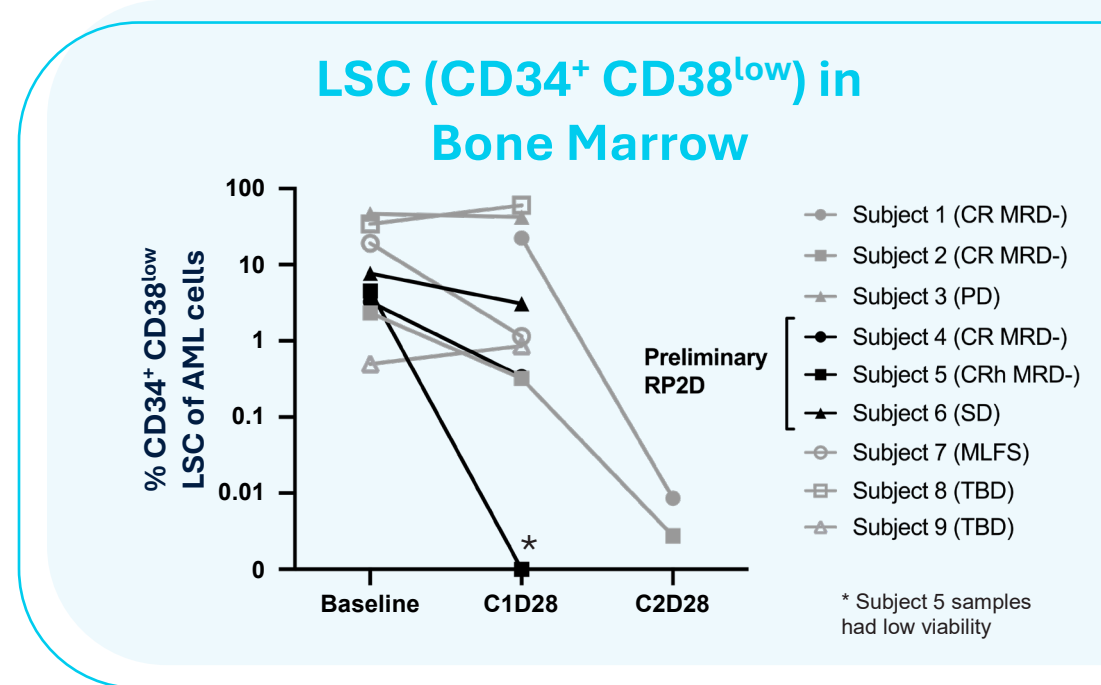
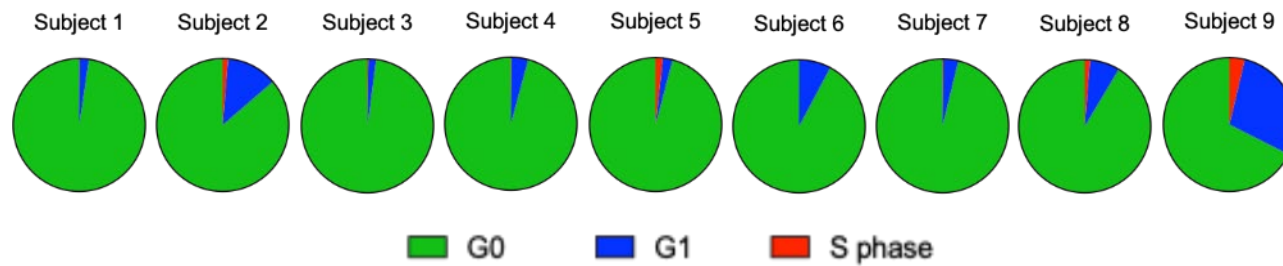
\*MRD by multi-parametric flow (sensitivity  $\leq 1/10^{-4}$ ), \*\*MRD by NGS (sensitivity  $\leq 1/10^{-2}$ )

Pt	I <sup>0</sup> Ref	Adv. Risk	FA Exp	FA Ref
Pt1	No	Yes	Yes	No
Pt2	No	No	Yes	No
Pt3	Yes	Yes	Yes	Yes
Pt7	Yes	No	Yes-both	Yes-both
Pt8	Yes	Yes	Yes	Yes
Pt9	Unk	Yes	Yes-both	Unk



# CyTOF Bone Marrow Data Reveals SENTI-202 Treatment Resulted in Decreased LSCs in Responders

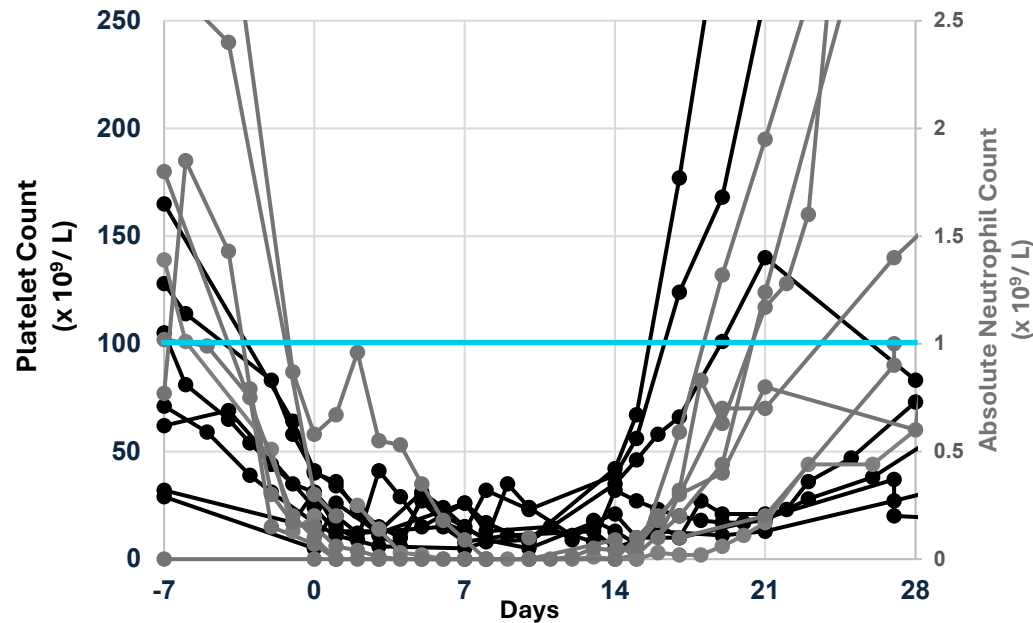
LSCs in bone marrow at baseline are largely non-cycling when analyzed by Ki67 and IdU



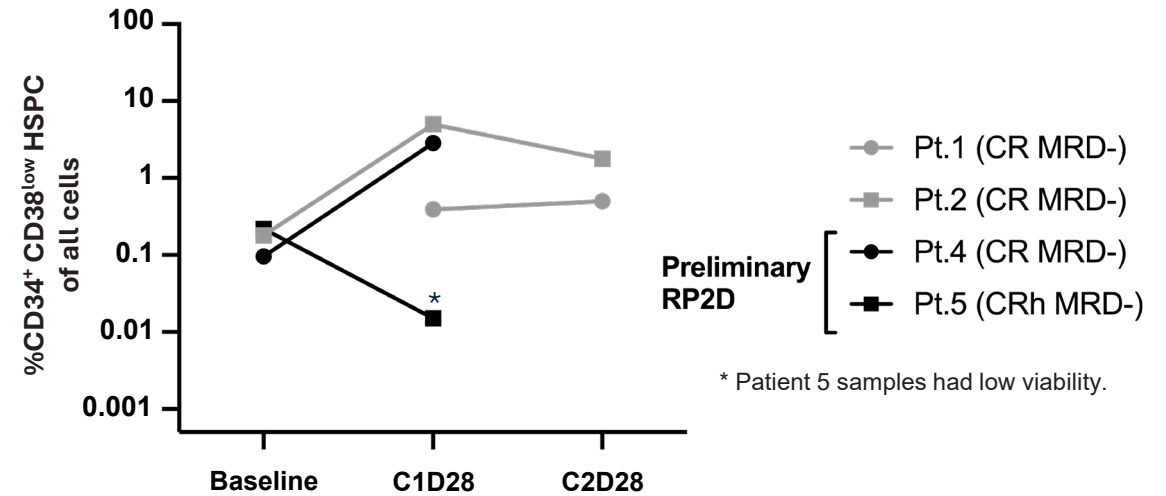
- CyTOF measured 49 different proteins in serial bone marrow derived mononuclear cells samples from baseline and end of each Cycle
- At baseline, majority of leukemic stem cells (LSCs) were in G0 phase and not expected to be susceptible to chemotherapy
- With SENTI-202 treatment, LSCs decreased > 10-fold in all patients who achieved cCR

# Rapid Normalization of Peripheral Blood Cell Count along with Protection of BM HSPCs in Patients who Achieved cCR

## Peripheral Blood Cell Counts



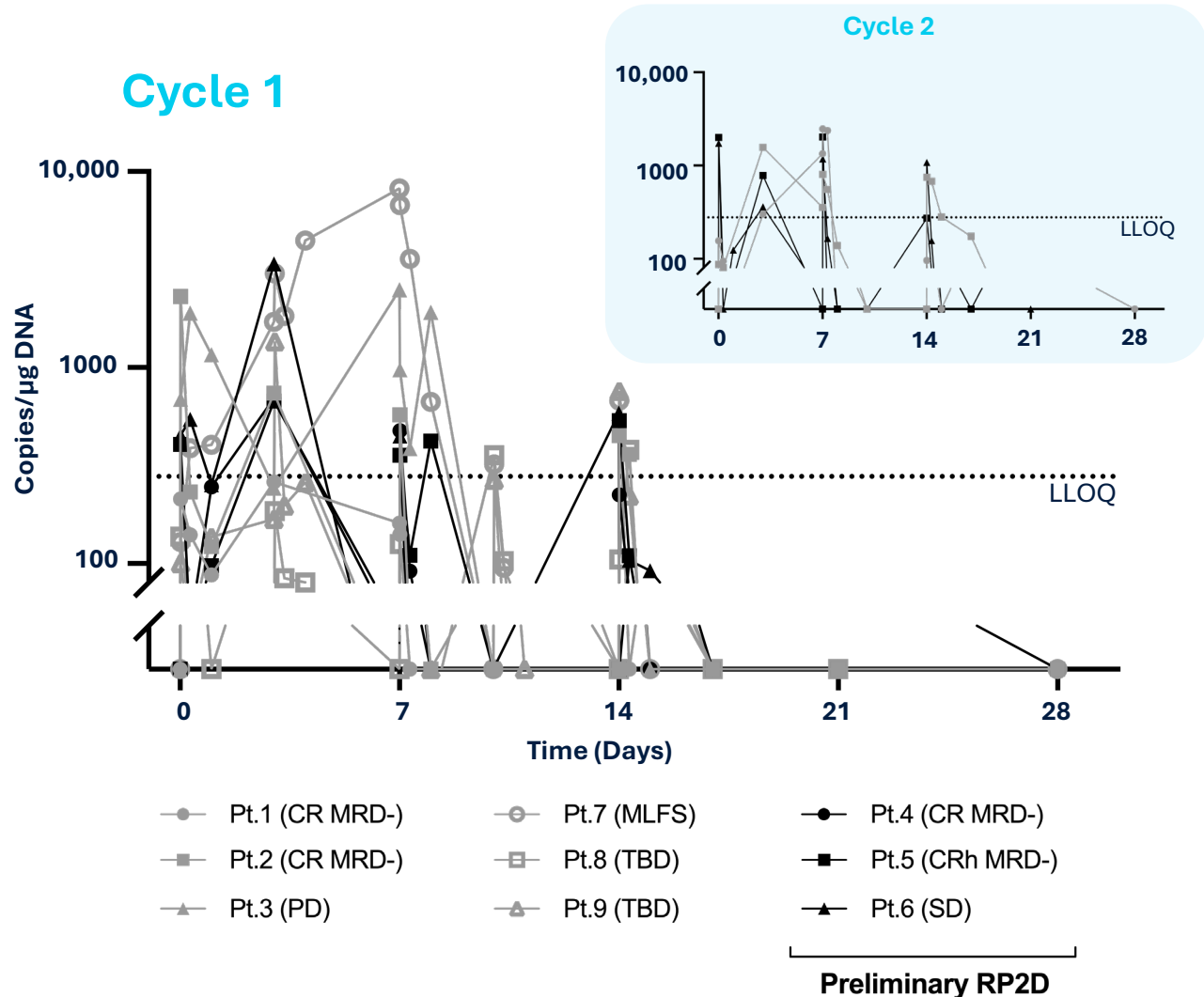
## HSPC (CD34+ CD38<sup>low</sup>) in Bone Marrow (BM)



Rapid blood cell count recovery in periphery in patients who achieved cCR

- Median of 21 days for neutrophil count  $\geq 0.5$  and  $1 \times 10^9/L$ , and 28/35 days to platelet count  $\geq 50$  and  $100 \times 10^9/L$
- CyTOF analyses revealed HSPCs were maintained or increased in bone marrow of patients who achieved cCR consistent with SENTI-202 Logic Gate mechanism of action

# SENTI-202 Is Detected in Periphery of All Treated Patients Consistent with Allo-NK Profile



- PK profile consistent with allogeneic NK cell therapy
  - Modest peripheral expansion in first 14 days consistent with NK biology and safety of SENTI-202
  - Clearance >14 days from periphery
- No significant difference in exposure across patients who achieved cCR or not
- No significant difference in exposure across Dose Cohorts
- No significant difference in exposure between Cycle 1 and 2



# Dosing and Safety Conclusions- SENTI-202

## Generally Well Tolerated in R/R AML Patients

- SENTI-202 is a First-In-Class Off-the-Shelf Logic Gated selective CD33 OR FLT3 NOT EMCN CAR NK cell therapy
  - Designed to selectively kill both AML blasts and LSCs while protecting healthy HSPCs with a novel OR/NOT logic gate gene circuit
- SENTI-202-101 trial enrolled heavily treated R/R AML patients with poor prognosis
- SENTI-202 is well tolerated
  - Most frequent Grade 3+ AEs were hematologic and consistent with R/R AML patients receiving LD
  - MTD not reached and preliminary RP2D identified as 1.5B cells/ dose x 3 weekly doses/ 28 days

# Efficacy Conclusions- Promising Preliminary Efficacy Noted with SENTI-202 in R/R AML Patients

## • Efficacy

- 5/7 ORR and 4/7 cCR across all patients including 2/3 cCR in preliminary RP2D cohort
- 4/4 cCR MRD- as assessed per local standard of care
- All cCR patients maintaining morphologic remission with longest follow up of 8+ mo

## • PK

- SENTI-202 detected in all treated patients, consistent with other allogeneic CAR NK cell therapy PK profiles and its well tolerated safety profile

## • CyTOF analyses of BM

- SENTI-202 treatment decreased LSC frequencies and maintained (or increased) healthy HSPC frequencies in patients achieving cCR consistent with SENTI-202 Logic Gated gene circuit design





## Also at AACR...

- First-In-Human, Multicenter Study of SENTI-202, a CD33/FLT3 Selective Off-the-Shelf Logic Gated CAR NK Cell Therapy in Hematologic Malignancies including AML: Correlative Data (#10977)

**Session:** PO.CT01.02 - First-in-Human Phase I Clinical Trials 2

**Location:** Section 48, #9

**Time:** 4/29/2025 9:00:00 - 12:00:00 PM

- SENTI-202 CD33 OR FLT3 NOT EMCN Logic-Gated Gene Circuit Components Selectively Target AML while Protecting Human HSC/HPCs from Off-Tumor Toxicity in a Humanized Mouse Model (#6833)

**Session:** PO.IM01.17 - Novel In Vivo, In Vitro, and In Silico Models

**Location:** Section 38, #18;

**Time:** 4/30/2025 9:00:00 - 12:00:00 PM

# Acknowledgements

- We deeply appreciate our Patients and their caregivers
- Clinical and research staff at all participating Institutions
  - **United States:**
    - SCRI at TriStar Centennial, Nashville, TN
    - Colorado Blood Cancer Institute, Denver CO
    - Methodist Physician Practices, PLLC, San Antonio
    - The University of Texas M.D. Anderson Cancer Center, Houston, TX
    - UCLA Department of Medicine, Los Angeles, CA
  - **Australia:**
    - Peter MacCallum Cancer Center, Melbourne, Australia
- California Institute of Regenerative Medicine (CIRM) for partially funding the study





# Q & A