UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

FORM 8-K

CURRENT REPORT
Pursuant to Section 13 or 15(d)
of the Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): December 7, 2022

Vor Biopharma Inc.
(Exact name of registrant as specified in its Charter)

Delaware	**001-39979**	**81-1591163**
(State or Other Jurisdiction of Incorporation)	**(Commission File Number)**	**(IRS Employer Identification No.)**

100 Cambridgepark Drive **Suite 101** **Cambridge, Massachusetts**	**02140**
(Address of Principal Executive Offices)	**(Zip Code)**

Registrant's telephone number, including area code: (617) 655-6580

(Former Name or Former Address, if Changed Since Last Report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instructions A.2. below):

☐ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

☐ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

☐ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

☐ Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common Stock, $0.0001 par value per share	VOR	Nasdaq Global Select Market

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company ☒

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Item 7.01 Regulation FD Disclosure

On December 7, 2022, Vor Biopharma Inc. (the "Company") issued a press release announcing initial clinical proof-of-concept data from VBP101, its Phase 1/2a clinical trial of VOR33. A copy of the press release is attached hereto as Exhibit 99.1 and is incorporated herein by reference.

In connection with the announcement, the Company will host a call and webcast on December 7, 2022 at 8:00 a.m. ET. Call details are contained in the press release referenced above. Accompanying slides may be accessed through the "Investors" section of the Company's website at www.vorbio.com. A copy of these slides is attached hereto as Exhibit 99.2 and is incorporated herein by reference.

The information furnished under this Item 7.01, including Exhibits 99.1 and 99.2, shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, or subject to the liabilities of that section or Sections 11 and 12(a)(2) of the Securities Act of 1933, as amended. The information in this Item 7.01, including Exhibits 99.1 and 99.2, shall not be deemed incorporated by reference into any other filing with the U.S. Securities Exchange Commission made by the Company, whether made before or after the date hereof, regardless of any general incorporation language in such filing.

Item 8.01 Other Events

Clinical Update

On December 7, 2022, the Company announced initial clinical data from the first treated patient in its Phase 1/2a clinical trial of trem-cel (formerly VOR33) in combination with Mylotarg. A product dose of 7.6 $x10^6$ CD34+ viable cells/kg, with a CD33 editing efficiency of 88% was manufactured. Following myeloablative conditioning, trem-cel was infused with no infusion reactions. The patient achieved neutrophil engraftment 10 days post-transplant which was within expectations for CD34-enriched transplants. Platelet recovery was observed on Day 22. Hematopoietic cell sub-population reconstitution was robust with over 90% of peripheral blood cells negative for CD33 expression, and 100% donor chimerism was achieved. These data provide proof-of-concept that trem-cel can engraft as expected and that CD33 does not appear to be biologically necessary for engraftment and hematopoietic reconstitution.

The patient received Mylotarg at a dose of 0.5 mg/m^2. At this dose, Mylotarg saturates CD33 antigen in patients with relapsed/refractory AML, and in the original Phase 1 trial of Mylotarg, neutropenia was observed across dose levels starting at 0.25mg/m^2 within 14 days of infusion. No treatment related adverse events and no liver enzyme changes were observed through day 20 following Mylotarg dosing. No negative impacts to neutrophil and platelet counts were observed through day 20, suggesting tolerability at this initial dose level.

The clinical trial continues to enroll patients and additional data are expected in 2023.

Regulatory Update

On August 16, 2022, President Biden signed the Inflation Reduction Act of 2022 ("IRA") into law, which among other things, (1) directs the U.S. Department of Health and Human Services ("HHS") to negotiate the price of certain single-source drugs and biologics covered under Medicare and (2) imposes rebates under Medicare Part B and Medicare Part D to penalize price increases that outpace inflation. These provisions will take effect progressively starting in fiscal year 2023, although they may be subject to legal challenges. It is currently unclear how the IRA will be implemented but is likely to have a significant impact on the pharmaceutical industry. Further, the Biden administration released an additional executive order on October 14, 2022, directing HHS to submit a report within ninety (90) days on how the Center for Medicare and Medicaid Innovation can be further leveraged to test new models for lowering drug costs for Medicare and Medicaid beneficiaries.

Item 9.01 Financial Statements and Exhibits

Exhibit No.	Description
99.1	Press release, dated December 7, 2022
99.2	Company Presentation
104	Cover Page Interactive Data File (embedded within the Inline XBRL document)

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Vor Biopharma Inc.

By: /s/ Robert Ang
Robert Ang
Chief Executive Officer

Date: December 7, 2022

First AML Patient Successfully Transplanted with Vor Bio's Investigational Trem-cel (VOR33) and Tolerated Mylotarg™

- *Trem-cel (formerly VOR33) successfully manufactured and engrafted normally*
- *Blood counts successfully maintained following post-transplant treatment with Mylotarg*
- *Conference call scheduled for today, December 7 at 8:00am ET*

CAMBRIDGE, Mass., Dec. 7, 2022 (GLOBE NEWSWIRE) — Vor Bio (Nasdaq: VOR), a clinical-stage cell and genome engineering company, today announced initial clinical data from VBP101, its Phase 1/2a multicenter, open-label, first-in-human study of tremtelectogene empogeditemcel or "trem-cel" (formerly VOR33) in patients with acute myeloid leukemia (AML). The data observed from the first treated patient support the potential of a trem-cel transplant to be successfully manufactured, to engraft normally, and to maintain blood counts following treatment with the CD33-targeted therapy Mylotarg. The clinical trial continues to enroll patients and additional data are expected in 2023.

"These early engraftment data represent the first time genome engineering has been used to genetically alter donor cells by removing an antigen present on blood cells, thereby allowing treatment using a CD33 targeted therapy while protecting normal blood cells," said Dr. Robert Ang, Vor Bio's President and Chief Executive Officer. "These encouraging data represent the first clinical validation of our platform to potentially enable next-generation transplants for patients with blood cancers. We look forward to sharing additional data updates in 2023."

Trem-cel Displayed Normal Engraftment

A product dose of 7.6 x10^6 $CD34^+$ viable cells/kg, with a CD33 editing efficiency of 88% was manufactured.
Following myeloablative conditioning, trem-cel was infused with no infusion reactions. The patient achieved neutrophil engraftment 10 days post-transplant which was within expectations for CD34-enriched transplants. Platelet recovery was observed on Day 22. Hematopoietic cell sub-population reconstitution was robust with over 90% of peripheral blood cells negative for CD33 expression, and 100% donor chimerism was achieved. These data provide proof-of-concept that trem-cel can engraft as expected and that CD33 does not appear to be biologically necessary for engraftment and hematopoietic reconstitution.

Mylotarg Tolerated at Initial Dose Level

The patient received Mylotarg at a dose of 0.5 mg/m^2. At this dose, Mylotarg saturates CD33 antigen in patients with relapsed/refractory AML[1], and in the original Phase 1 trial of Mylotarg[2], neutropenia was observed across dose levels starting at 0.25mg/m^2 within 14 days of infusion. No treatment related adverse events and no liver enzyme changes were observed through day 20 following Mylotarg dosing. No negative impacts to neutrophil and platelet counts were observed through day 20, suggesting tolerability at this initial dose level.

"The unmet medical need for AML is significant and hematopoietic cell transplant is the best hope for these patients," said Brenda Cooper, M.D., Professor of Medicine in the Cellar Therapy Program at University Hospitals, Seidman Cancer Center, and an investigator in the VBP101 study. "Early treatment data in the first patient show that trem-cel can engraft normally and maintain normal hematopoiesis following Mylotarg dosing, which typically causes severe cytopenias. These data support the promise of this approach."

1 *Mylotarg ODAC 2017*
2 *Sievers 1999 Blood 93:3678*

Conference Call & Webcast Information

Members of the Vor Bio management team, joined by Dr. Brenda Cooper, will conduct a live conference call and webcast today at 8:00 am Eastern Time.

Listeners can register for the webcast via this link.

Analysts wishing to participate in the Q&A session should use this link.

A replay of the webcast will be available via the investor section of the Company's website at www.vorbio.com approximately two hours after the call's conclusion.

About AML

AML is the most common type of acute leukemia in adults and one of the deadliest and most aggressive blood cancers, affecting 20,000 newly diagnosed patients each year in the United States. Approximately half of patients with AML who receive a hematopoietic cell transplant (HCT) suffer a relapse of their leukemia, with two-year survival rates of less than 20%, and relapse rates are higher for patients with certain adverse risk features. The fragility of engrafted hematopoietic stem cells prevents treatment following transplant, giving the cancer a chance to return.

About the VBP101 Clinical Trial

VBP101 is a Phase 1/2a, multicenter, open-label, first-in-human study of trem-cel in participants with AML who are undergoing human leukocyte antigen (HLA)-matched allogeneic hematopoietic cell transplant (HCT). Trem-cel is an allogeneic CRISPR/Cas9 genome-edited hematopoietic stem and progenitor cell (HSPC) therapy product, lacking the CD33 protein. It is being investigated for participants with $CD33^+$ AML at high risk for relapse after HCT to allow post-HCT targeting of residual $CD33^+$ acute AML cells using Mylotarg without toxicity to engrafted cells. Participants undergo a myeloablative HCT with matched related or unrelated donor CD34-selected HSPCs engineered to remove CD33 expression (trem-cel drug product). Mylotarg is given after engraftment for up to four cycles. The primary endpoint is the incidence of successful engraftment, defined as the first day of 3 consecutive days of absolute neutrophil count (ANC) $\geq$500 cells/mm^2 by day 28. Part 1 of this study is evaluating the safety of escalating Mylotarg dose levels to determine the maximum tolerated dose (MTD) and recommended Phase 2 dose. Part 2 will expand the number of participants to evaluate the Mylotarg recommended Phase 2 dose. For more information, visit: https://clinicaltrials.gov/ct2/show/NCT04849910

About Trem-cel

Tremtelectogene empogeditemcel (trem-cel), formerly VOR33, is a genome-edited hematopoietic stem and progenitor allogeneic donor product candidate where CD33 has been deleted using genome engineering. Transplant with trem-cel is designed to replace standard of care transplants for patients suffering from AML and potentially other blood cancers. Trem-cel has the potential to enable powerful targeted therapies in the post-transplant setting including CD33-targeted CAR-T cells.

About Vor Bio

Vor Bio is a clinical-stage cell and genome engineering company that aims to change the standard of care for patients with blood cancers by engineering hematopoietic stem cells to enable targeted therapies post-transplant. For more information, visit: www.vorbio.com.

Forward-Looking Statements

This press release contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. The words “aim,” “anticipate,” “can,” “continue,” “could,” “design,” “enable,” “expect,” “initiate,” “intend,” “may,” “on-track,” “ongoing,” “plan,” “potential,” “should,” “target,” “update,” “will,” “would,” and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain these identifying words. Forward-looking statements in this press release include Vor Bio’s statements regarding the feasibility of a trem-cel transplant to be successfully manufactured, to engraft normally, to maintain blood counts following treatment with Mylotarg following allogeneic hematopoietic cell transplant and to be well tolerated, the potential of Vor Bio’s platform, and timing expectations for additional release of clinical data. Vor Bio may not actually achieve the plans, intentions, or expectations disclosed in these forward-looking statements, and you should not place undue reliance on these forward-looking statements. Actual results or events could differ materially from the plans, intentions and expectations disclosed in these forward-looking statements as a result of various factors, including: uncertainties inherent in the initiation and completion of preclinical studies and clinical trials and clinical development of Vor Bio’s product candidates; availability and timing of results from preclinical studies and clinical trials; whether interim results from a clinical trial will be predictive of the final results of the trial or the results of future trials; expectations for regulatory approvals to conduct trials or to market products; the success of Vor Bio’s in-house manufacturing capabilities and efforts; and availability of funding sufficient for its foreseeable and unforeseeable operating expenses and capital expenditure requirements. The interim data presented in this press release is based on one patient and future results for this patient or additional patients may not produce the same or consistent results. These and other risks are described in greater detail under the caption “Risk Factors” included in Vor Bio’s most recent annual or quarterly report and in other reports it has filed or may file with the Securities and Exchange Commission. Any forward-looking statements contained in this press release speak only as of the date hereof, and Vor Bio expressly disclaims any obligation to update any forward-looking statements, whether because of new information, future events or otherwise, except as may be required by law.

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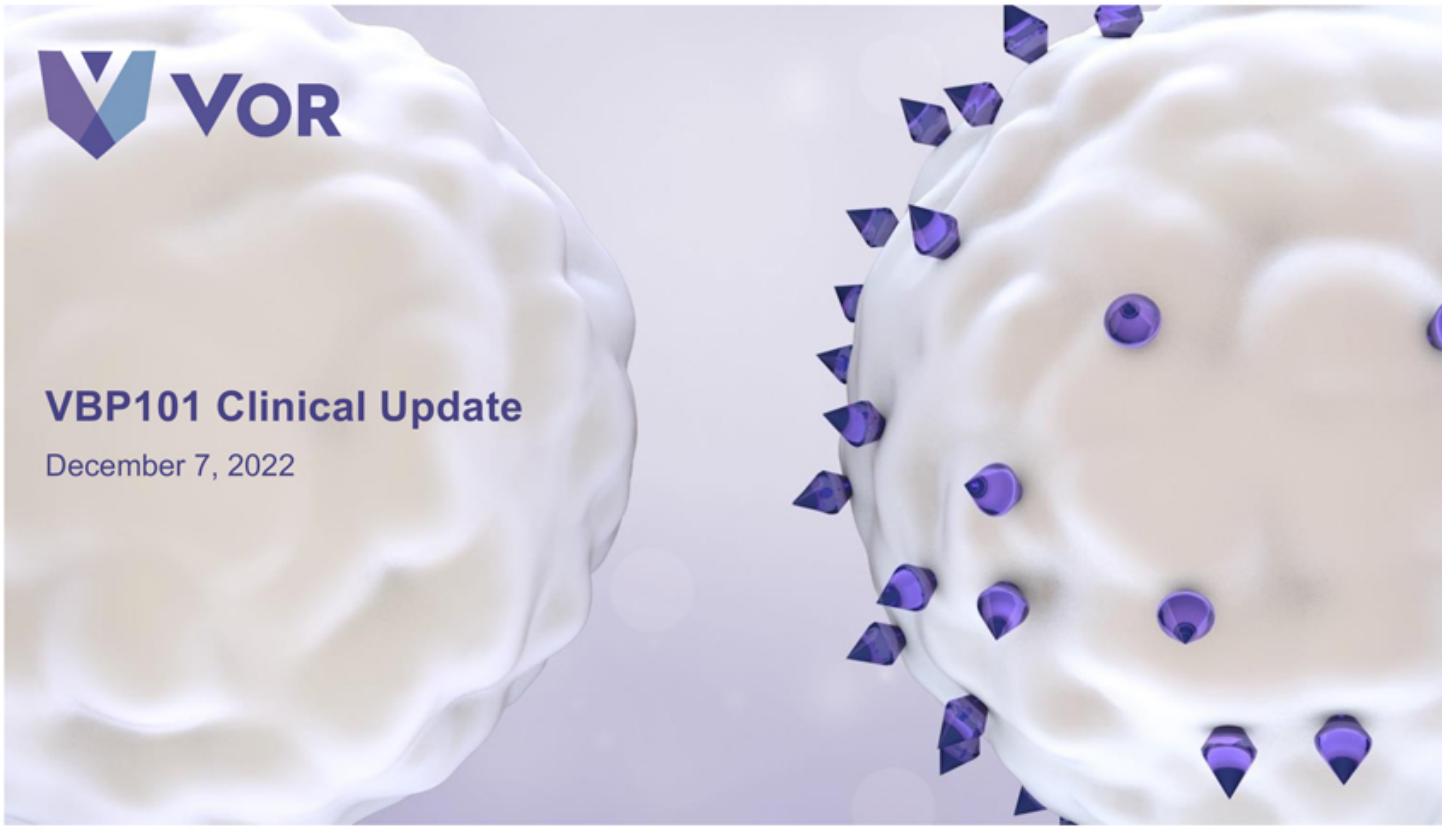

VOR
VBP101 Clinical Update
December 7, 2022

Disclaimer

This presentation (the "Presentation") contains forward-looking statements within the meaning of The Private Securities Litigation Reform Act of 1995 about Vor Biopharma Inc. ("Vor," "Vor Bio" or the "Company") that involve substantial risks and uncertainties. All statements, other than statements of historical facts, contained in this Presentation, are forward looking statements including, but not limited to, terms such as "anticipate," "believe," "continue," "could," "estimate," "expect," "intend," "may," "plan," "potential," "project," "should," "target," "vision," "will," "would," or other similar expressions. Such forward-looking statements in this Presentation include those regarding Vor Bio's plans, strategies and expectations for its preclinical and clinical programs, including the anticipated milestones and related catalysts of such programs. Vor Bio may not actually achieve the plans, intentions, or expectations disclosed in these forward-looking statements. These forward-looking statements should not be relied upon as representing Vor Bio's views as of any date subsequent to the date of this Presentation. Factors that could cause actual results to differ include, but are not limited to, Vor Bio's dependence on its product candidates VOR33 (trem-cel) and VCAR33^{ALLO}, the risks inherent in biopharmaceutical product development and clinical trials, including the lengthy and uncertain regulatory approval process, uncertainties related to the timing of initiation, enrollment and completion of clinical trials, whether the clinical trials will validate the safety and efficacy of VOR33 (trem-cel) and VCAR33 programs in acute myeloid leukemia or other indications, and the impact of the COVID-19 pandemic on Vor Bio's business, operations, strategy and anticipated milestones, among others. The first patient data presented herein is preliminary and is subject to change. These results may not be reproduced in subsequent patients. These and other risks are described in greater detail under the caption "Risk Factors" in Vor Bio's reports filed with the Securities and Exchange Commission ("SEC"), and in other filings that Vor may make with the SEC in the future. We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements, and you should not place undue reliance on our forward-looking statements. Actual results or events could differ materially from the plans, intentions and expectations disclosed in the forward-looking statements we make. In addition, the forward-looking statements included in this Presentation represent our views as of the date of this Presentation. We anticipate that subsequent events and developments will cause our views to change. We undertake no obligation to update or revise any forward-looking statements, whether as a result of new information, the occurrence of certain events or otherwise.

Certain information contained in this Presentation relates to or is based on studies, publications, surveys and other data obtained from third party sources and Vor Bio's own internal estimates and research. While we believe these third-party sources to be reliable as of the date of this Presentation, it has not independently verified, and makes no representation as to the adequacy, fairness, accuracy or completeness of any information obtained from third party sources. In addition, the third party information included in this Presentation may involve a number of assumptions and limitations, and there can be no guarantee as to the accuracy or reliability of such assumptions. Finally, while we believe our own internal research is reliable, such research has not been verified by any independent source.

VCAR33^{AUTO} and NMDP-Sponsored Trial. A T cell therapy using the same chimeric antigen receptor construct as VCAR33^{ALLO} is being studied in a Phase 1/2 clinical trial sponsored by the National Marrow Donor Program ("NMDP"), and timing of data release is dependent on the investigators conducting the trial. Although we are not the sponsor of this trial, the NMDP has permitted us to cross-reference its IND for this trial in future IND applications that we may submit with the FDA. For more information regarding the NMDP trial, see "Risk Factors – We have not successfully tested our product candidates in clinical trials and any favorable preclinical results are not predictive of results that may be observed in clinical trials" in our Annual Report on Form 10-K for the year ended December 31, 2021 filed with the SEC and such other filings that we may make with the SEC from time to time.

Today's Agenda

Agenda	Speaker
Introductory Remarks	Robert Ang, MBBS, MBA, President & CEO, Vor Bio Siddhartha Mukherjee, MD, DPhil, Founder of Vor Bio
Overview of VBP101	Eyal Attar, MD, Chief Medical Officer, Vor Bio
VBP101 Clinical Trial Results	Brenda Cooper, MD, Professor of Medicine & Investigator, VBP101 Study
Vor Bio Platform	Tirtha Chakraborty, PhD, Chief Scientific Officer, Vor Bio
Closing Remarks	Robert Ang, MBBS, MBA, President & CEO, Vor Bio
Q&A	

Our Founding

Siddhartha Mukherjee, MD, DPhil, Founder of Vor Bio

A Radically Simplistic Idea

Protect the Healthy Cells, Expose the Cancer

From Vision To Reality

Scale

Infrastructure

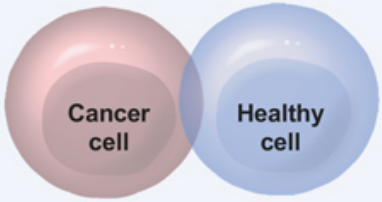
Expertise

Vor Bio's Vision

Robert Ang, MBBS, MBA, President & CEO, Vor Bio

Changing the Thinking on Tumor Targeting

Traditional Paradigm for Drug Development



Target cancer antigens to kill cancer cells

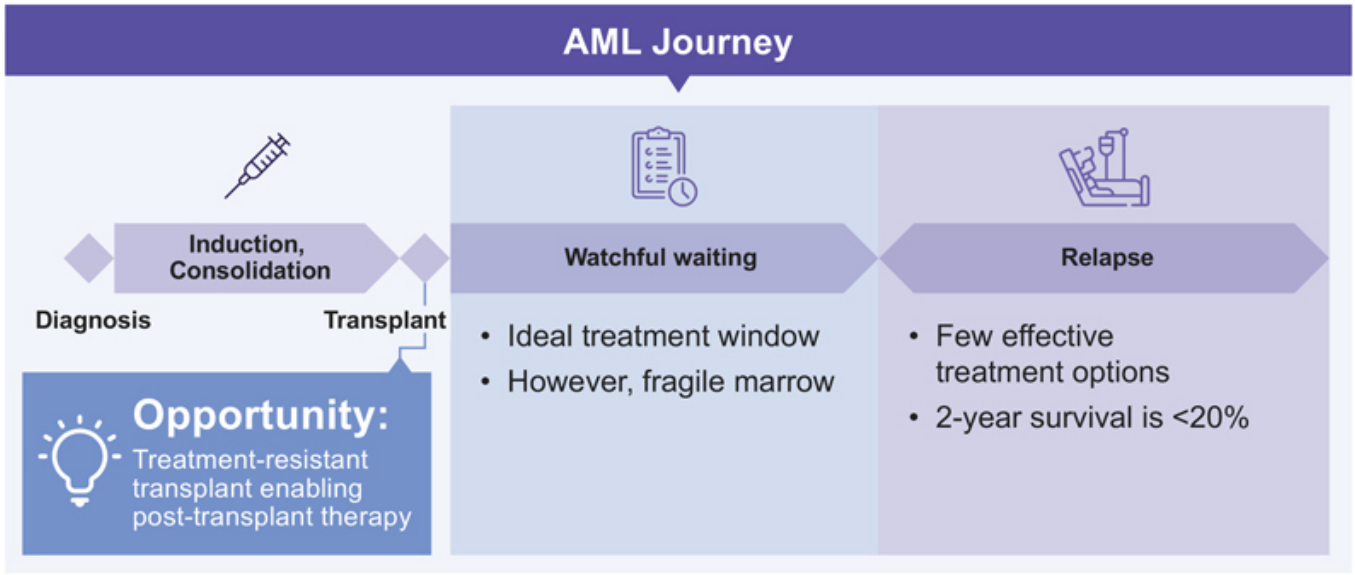
Problem

Few unique cancer antigens, so drugs kill both cancer and healthy cells through **on-target toxicity**

Vor Bio Paradigm: Engineered HSCs (eHSCs)

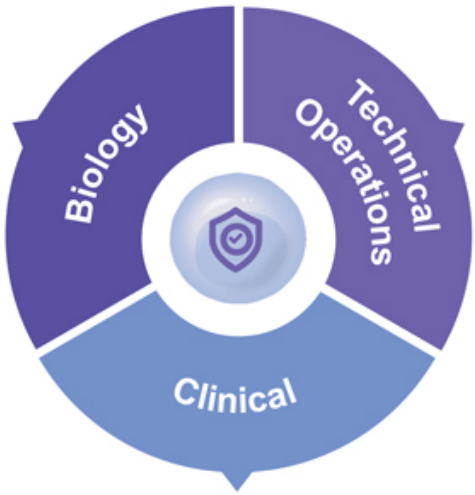
Remove target expression on healthy cells so that killing is **cancer-specific**

Can We Establish a New Standard of Care for AML?



Key Questions To Create Protected eHSC Transplants

Do biologically dispensable targets exist?



Can eHSCs be produced at scale, in time, and with quality?

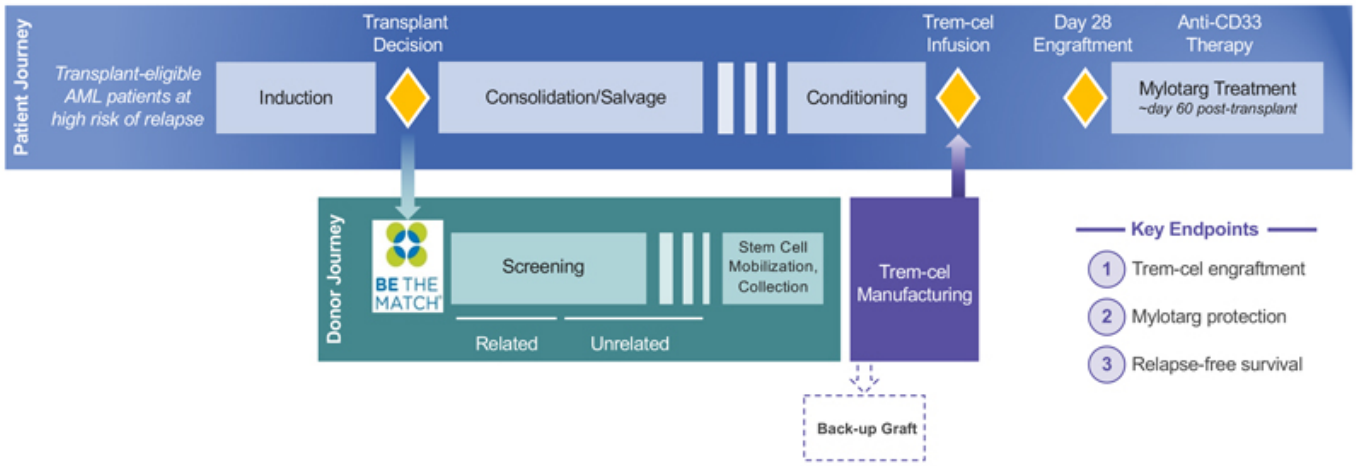
Will eHSC transplants engraft and function normally?

Can eHSCs enable safe dosing of heme-toxic therapies?

Overview of VBP101

Eyal Attar, MD, Chief Medical Officer, Vor Bio

VBP101: Trem-cel (VOR33) + Mylotarg Phase 1/2a Clinical Trial



Key Endpoints

1. Trem-cel engraftment
2. Mylotarg protection
3. Relapse-free survival

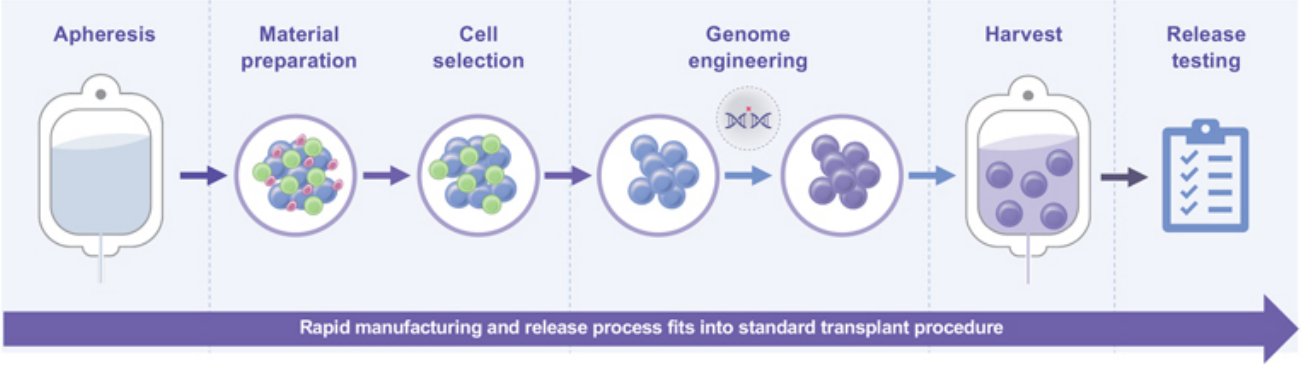
Clinical Trial Sites

- MSKCC (NY)
- Hackensack/Theurer Cancer Ctr. (NJ)
- Miami Cancer Inst. (FL)
- UC San Diego Cancer Ctr. (CA)
- CWRU/Seidman Cancer Ctr. (OH)
- Hôpital Maisonneuve-Rosemont (Montreal)
- The National Cancer Institute (MD)
- WashU Siteman Cancer Ctr. (MO)
- Fred Hutchinson Cancer Ctr. (WA)

Goals for Our First eHSC in Patients With AML

1	**Manufacturing**	Streamlined process with high editing efficiency
2	**Engraftment**	Successful timely neutrophil engraftment, platelet recovery
3	**Reconstitution**	Repopulate blood system and fully functional cells
4	**Safety**	Disease status and AEs consistent with traditional HCTs
5	**Protection**	Reduce on-target heme toxicity from Mylotarg

Trem-cel Manufacturing and Specifications for Patient 1



Characteristics	Release Criteria	Pt #1 Drug Product	Achieved
Product dose (viable $CD34^+$ cells)	≥3 x 10^6 cells/kg	7.6 x 10^6 cells/kg	✓
Gene editing efficiency	≥50%	88%	✓
$\%CD34^+$	≥90%	97%	✓

VBP101 Clinical Trial Results

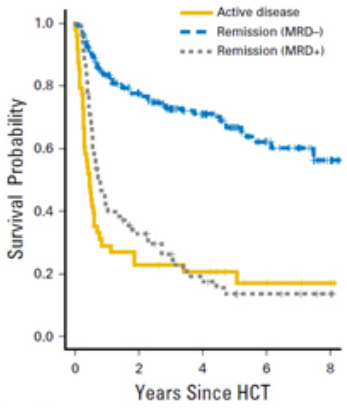
Brenda Cooper, MD, Professor of Medicine & Investigator, VBP101 Study

AML Background

- AML is a fatal disease with poor outcomes

- Patients with high-risk disease are referred for allogeneic hematopoietic cell transplantation (HCT)
  - Approximately 40-50% of AML patients have MRD+ or residual disease at the time of HCT
  - Outcomes for these patients are particularly poor
  - Relapse rate is considerable even in patients without detectable MRD

Post-Transplant Overall Survival

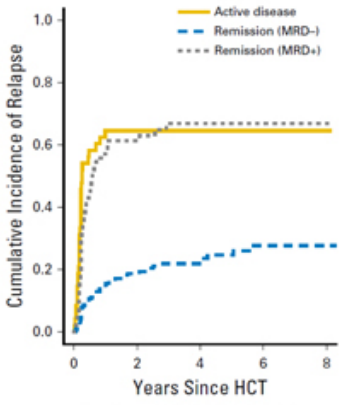


Araki et al (2016) JCO 34:329

Transplant Outcomes

- AML relapse is the leading cause of death after HCT
  - There are no approved post-HCT maintenance therapies
  - Targeted treatments are generally confined to small subgroups of patients
  - For patients who relapse post-HCT, treatments are limited and poorly tolerated due in large part to myelosuppression
- Treatments that address the majority of AML are desperately needed

Post-Transplant Relapse



Araki et al (2016) JCO 34:329

CD33, Mylotarg, and Trem-cel

- CD33 expressed on most AML and on normal hematopoietic cells
- Mylotarg (gemtuzumab ozogamicin), is an anti-CD33 ADC approved in front line AML alone or in combination with chemotherapy for favorable risk patients, and for R/R AML
  - Could potentially be used post-HCT to prevent or treat relapse in the post-HCT setting
  - Use is limited in large part due to myelosuppression
- Trem-cel is an allogeneic donor stem cell graft where CD33 is deleted using CRISPR gene editing technology
  - CD33 shown to be dispensable for normal hematopoiesis in animal models
- Trem-cel is hypothesized to enable use of CD33-directed therapies, such as Mylotarg or CD33 CAR-T cells, that target AML cells while sparing normal blood cells

Patient 1 Characteristics and High-Risk AML Features

- 64-yo female with complex karyotype AML with MDS-related changes
- Required 2 courses of cytarabine and daunorubicin to achieve clinical CR (but MRD positive)
- 3 cycles high-dose cytarabine consolidation
- Disease relapsed with 5-10% blasts
- Referred for allogeneic HCT due to high risk factors
- Received 2 cycles of venetoclax + hypomethylating agent, achieved remission with MRD+ (1.8% by flow cytometry)
- 10/10 matched unrelated donor identified

Characteristic	High Risk AML Feature
Age	>60
Remission Status	Primary induction failure Relapsed AML
AML Type	AML with MDS changes
Karyotype: Adverse cytogenetics	41-44, X, -X[17] ,add (3) (p22) [2] , inv (3) (p25q21) [10] ,-5[19] ,+6 [5] ,der(8;17) (q10; q10), add(9) (q22), -11,add(12) (p11.2) [15] ,add (12) (p11.2) [5],-17[14] ,-18 [9], -19[11], add (19) (q13.3) [5] ,-22,+3-4 mar [cp20]
Molecular Features	Mutant DNMT3A, KDM6A, TP53
CR2 Status	Incomplete CR with MRD positive status by flow (1.8%)

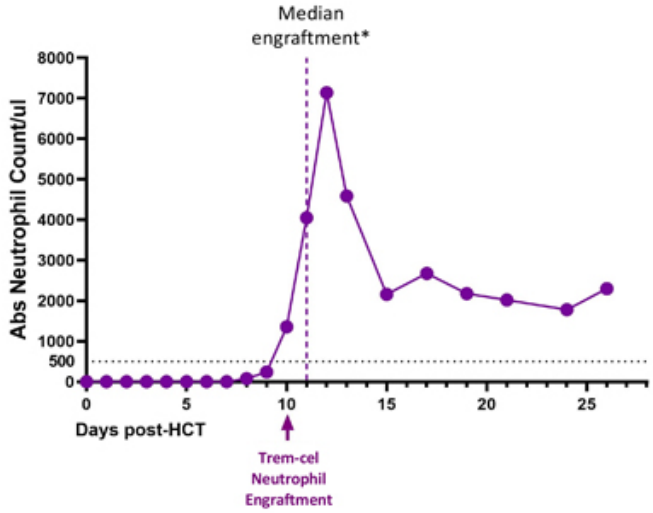
Protocol Treatment and Early Post-HCT Clinical Course

- Enrolled on VBP101 to receive trem-cel
- Sufficient PBSCs collected after GCSF and plerixafor mobilization for trem-cel manufacturing and backup graft

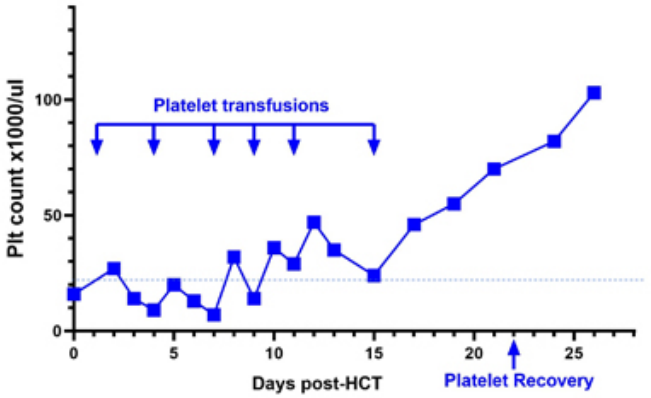
- D -9 to -1: Busulfan/fludarabine/melphalan/rATG
  - Tolerated well, no GVHD prophylaxis used with this type of HCT
- D0: Trem-cel infused: no related reactions or AEs
  - Standard supportive care given: prophylactic anti-microbials and blood product support
- Day +10: Neutrophil engraftment (1st of 3 consecutive days with ANC≥500)
- Day +15: Last platelet transfusion administered, discharged from hospital

Trem-cel Drug Product Characteristics	
Trem-cel $CD34^+$ dose	7.6 x 10^6 cells/kg
Total $CD34^+$ cells in drug product	544.5 x 10^6 cells
Total CD3 in drug product	<0.6 x 10^5 cells/kg
CD33 gene editing efficiency	88%

Peripheral Blood Neutrophil Engraftment Day 10 and Platelet Recovery Day 22



*CTN 1301 trial (median for CD34 selected graft), *Luznik 2021 JCO 40:356*



Pt was transfused platelets at a threshold of 30k/µL due to prior subdural hematoma

Select Adverse Events Reported Post Trem-cel Infusion

Serious Adverse Events	Grade	Date Noted	Comments
Renal colic	3	D+50	Attributed to passed kidney stone
Deep venous thrombosis	3	D+50	Resolving

All Infections	Grade	Date Noted	Comments
Skin infection	2	D+21	Resolved
Skin infection	1	D+37	Ongoing
CMV reactivation	2	D+31	Resolving
BK virus (urine)	2	D+50	Asymptomatic

Hepatic AE	Grade	Date Noted	Comments
LFT elevation (AST/ALT)	2 1	D+36/+39 D+56/+56	Both attributed to anti-fungal therapy, resolved after discontinuation

No trem-cel related events reported

Data cutoff: Day 87

Patient 1: CD33 expression, counts, and chimerism at day 28 and 60 assessments

CD33 Negative Cells, %	Day 28	Day 60
PB neutrophils	95	96
PB monocytes	94	94
BM maturing myeloid	95	93
BM maturing monocytes	92	90
BM CD34+	94	91

PB: Peripheral Blood
BM: Bone Marrow

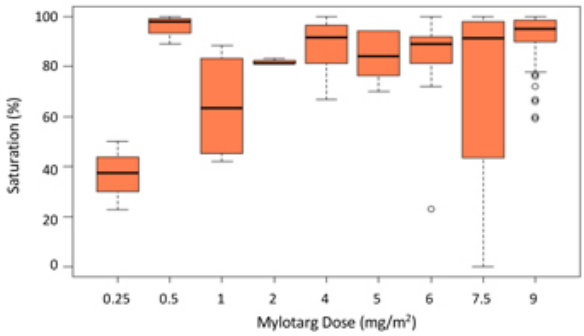
Blood Counts	Day 28	Day 60
White blood cells (x1000/µL)	3.9	3.4
Hemoglobin (g/dL)	7.7	10
Platelets (x1000/µL)	103	120
Absolute neutrophils/µL	2300	2770
Absolute lymphocytes/µL	510	180

Lineage, % Donor Chimerism	Day 28	Day 60
Whole blood	100	100
Myeloid	100	100
NK	100	100
T lymphoid	QNS	QNS
B lymphoid	QNS	100

QNS: Quantity Not Sufficient
For standard CD34-selected transplants, limited T/B lymphoid recovery expected through D+60

Historic Experience Following Single Dose Mylotarg

CD33 Saturation Following Mylotarg Single Dose



Mylotarg ODAC 2017

Reference: Mylotarg Phase 1 Study

Observed Neutropenia

>1,500 cells/μL → <200 cells/μL

n=8 out of 9

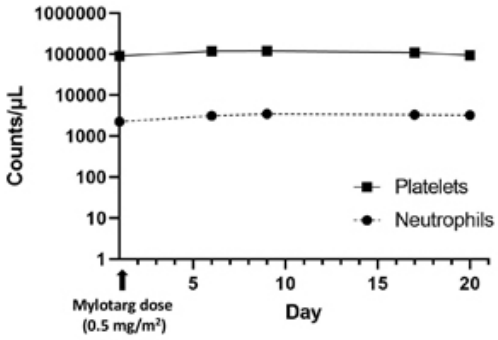
Occurred within 14 days of infusion regardless of study dose from 0.25 to 9 mg/m²

Sievers 1999 Blood 93:3678

Blood counts and LFTs following first Mylotarg administration

Transplant Day	D28	D60	D68	D73	D76	D84	D87
Mylotarg Day			D1	D6	D9	D17	D20
Abs Neutrophils/µL	2,300	2,770	2,260	3,140	3,490	3,330	3,250
Plt (x1000/µL)	103	120	91	118	120	110	94
ALT (IU/L)	6	78	32	14	14	12	12
AST (IU/L)	17	49	15	14	15	15	15

No reported Mylotarg-related adverse events through Cycle 1, D20



Conclusions

- First HCT of a patient with high risk, relapsed AML using trem-cel, a CD33-deleted allogeneic donor graft
- Uneventful post-HCT course
  - Engraftment occurred rapidly and appears comparable to unedited cells
  - No unexpected post-HCT AEs
- High percentage (>90%) sustained CD33-negative hematopoiesis
- No cytopenias observed through Cycle 1, D20 following Mylotarg 0.5 mg/m^2 dosing
- Data suggest trem-cel may enable post-HCT Mylotarg and other CD33-directed therapies

Vor Bio Platform

Tirtha Chakraborty, PhD, Chief Scientific Officer, Vor Bio

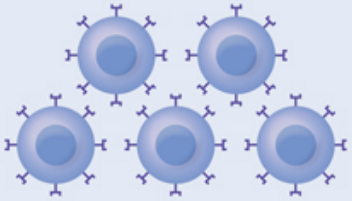
Vor Bio's Novel Technology Platform

Hematopoietic Stem Cells

- Deletion of biologically-redundant targets
- Doing no harm to HSC function

Genome Engineering

- Cas9, Cas ortholog enzymes, base editing
- Single and multiplex editing



CAR-T

- Allogeneic, healthy donor cell source
- Single targets and dual-specific CARs

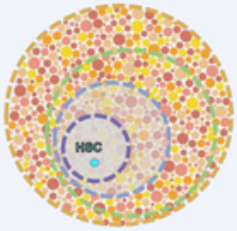
HSC Biology Platform

Hematopoietic Stem Cells

Refine HSC identification and pre-clinical transplant modelling

HSC Identity

Identified LT HSCs

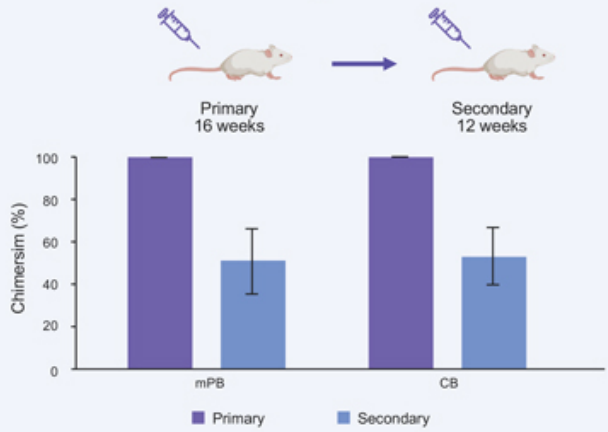


Groups	Frequency of CD34s	True HSC Frequency in vivo
Bulk CD34⁺	93.9%	-
CD34⁺ CD90⁺ Stem/Prog	14.6%	1 out of 6715
CD49f⁺ HSCs	2.22%	1 out of 2117
"New panel" HSCs	0.18%	1 out of 210

10x

Transplant PoC

Retention of Stemness



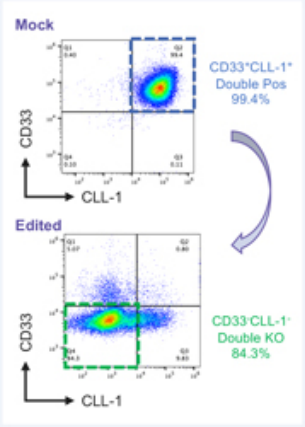
Genome Engineering Platform

Genome Engineering

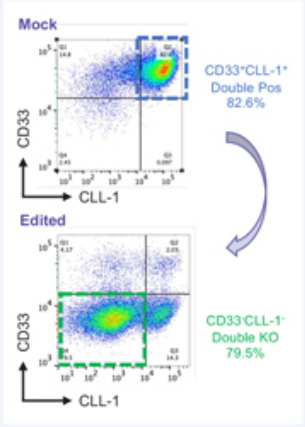
Multiplex HSC KO and reduced translocation

Multiplex KO

Sequential Cas9 Editing



Base Editing



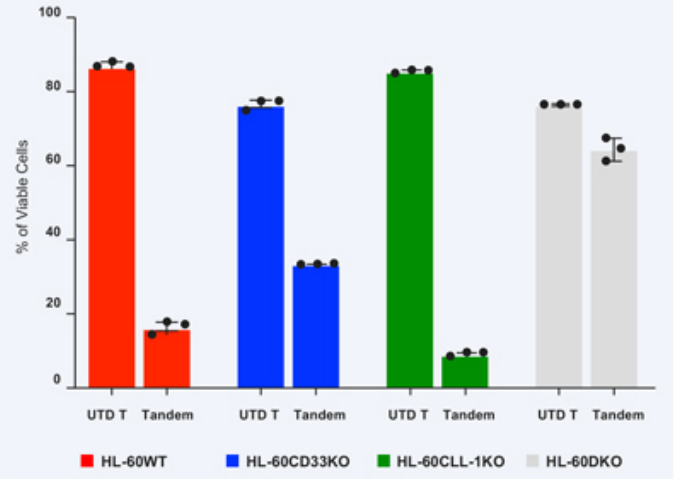
Reduced Translocation

Transactional Rate

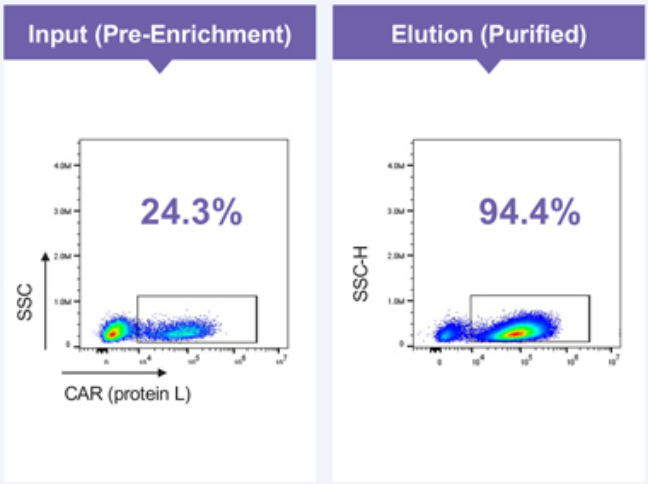
CAR-T Platform

Multi-valent CAR and process improvement for drug product enrichment

Multi-valent CAR



Process enrichment



Closing Remarks

Robert Ang, MBBS, MBA, President & CEO, Vor Bio

Trem-cel: First Patient Data

		Observations To Date
1	Manufacturing	Robust process
2	Engraftment	Normal engraftment, complete chimerism
3	Reconstitution	Normal CD33-negative myeloid development
4	Safety	No related SAEs or evidence of GvHD
5	Protection	Tolerable at this dose

What Is Next?

- Confirmation of findings with additional patients
- Test protection robustness with repeat Mylotarg dosing and dose escalation
- Potentially broaden eligibility
- VCAR33^{ALLO}: IND 1H 2023
- Trem-cel/VCAR33 Treatment System

Q&A

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