# UNITED STATES SECURITIES AND EXCHANGE COMMISSION WASHINGTON, DC 20549 <br> <br> FORM 8-K 

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## CURRENT REPORT

Pursuant to Section 13 or 15 (d) of the
Securities Exchange Act of 1934
Date of Report (Date of earliest event reported): January 23, 2023

## Lineage Cell Therapeutics, Inc.

(Exact name of registrant as specified in charter)

California<br>(State or other jurisdiction of incorporation)

94-3127919
(IRS Employer
Identification No.)

2173 Salk Avenue, Suite 200 Carlsbad, California


Zip Code)
(442) 287-8990

Registrant's telephone number, including area code

## (Former name or former address, if changed since last report)

 below):
$\square$ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
$\square$ Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
$\square$ Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
$\square$ 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:

 Exchange Act of 1934 ( $\$ 240.12 \mathrm{~b}-2$ of this chapter).
 provided pursuant to Section 13(a) of the Exchange Act. $\square$

Item 7.01. Regulation FD Disclosure.
Included as Exhibit 99.1 to this report is copy of a presentation that Lineage Cell Therapeutics, Inc. ("Lineage") intends to use in various meetings, commencing on January 23 , 2023, with investors, securities analysts and others. The presentation, dated January 23, 2023 and incorporated herein by reference, addresses, among other things, information about Lineage, its product candidates and recent business developments.

The information contained in this Item 7.01, and in Exhibit 99.1 attached hereto, is being "furnished" and shall not be deemed "filed" for purposes of Section 18 of the Securities Exchange Act of 1934 , as amended (the "Exchange Act"), or otherwise subject to the liabilities of that Section 18 or of Sections 11 and 12(a)(2) of the Securities Act of 1933, as amended (the "Securities Act"). Furthermore, the information contained in this Item 7.01 and in Exhibit 99.1 shall not be deemed to be incorporated by reference into any registration statement or other document filed by Lineage with the Securities and Exchange Commission pursuant to the Securities Act or the Exchange Act, whether filed before or after the date hereof, regardless of any general incorporation language in such filing.

Item 9.01. Financial Statements and Exhibits.

## (d) Exhibits

Exhibit No. Description
99.1 Corporate Presentation dated January 23, 2023

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.

## Lineage Cell Therapeutics, Inc.

By: /s/ George A. Samuel III
Name: George A. Samuel III
Title: General Counsel and Corporate Secretary

## From promise to people.

Our mission is to pioneer a new branch of medicine based on the directed differentiation and transplant of allogeneic cells to patients

## Forward-Looking Statements

This presentation is for informational purposes only and is not an offer to sell or a solicitation of an offer to buy any securities of Lineage Cell Therapeutics, Inc. ("Lineage"). This presentation includes certain information obtained from trade and statistical services, third-party publications, and other sources. Lineage has not independently verified such information and there can be no assurance as to its accuracy.

All statements in this presentation, other than statements of historical fact, are forward-looking statements within the meaning of federal securities laws. In some cases, you can identify forward-looking statements by terms such as "may," "will," "would," "expect," "plan," "anticipate," "strategy," "designed," "could," "can," "intend," "believe," "estimate," "target," "potential," "aim," "seek," "continue," "next steps," "upcoming," or the negative of these terms and other similar expressions. Such statements include, but are not limited to, statements relating to the broad potential for Lineage's regenerative medicine platform and Lineage's ability to advance and expand the same; differentiated data and Lineage's ability to reproduce the same or similar results in future preclinical research or clinical trials; the collaboration and license agreement with Roche and Genentech and activities expected to occur thereunder, its potential success, the potential application of OpRegen to additional retinal diseases, the milestone and royalty consideration payable to Lineage; the potential success of other existing partnerships and collaborations, the potential opportunities for the establishment or expansion of strategic partnerships and collaborations and the timing thereof; the projected timing of milestones of future studies, including their initiation and completion; and the potential for Lineage's investigational allogeneic cell therapies to generate clinical outcomes beyond the reach of traditional methods and provide safe and effective treatment for multiple, diverse serious or life threatening conditions. Forward-looking statements involve risks, uncertainties and assumptions that may cause Lineage's actual results, performance, or achievements to be materially different from those expressed or implied by the forward-looking statements in this presentation, including, but not limited to, the following risks: that positive findings in early clinical and/or nonclinical studies of a product candidate may not be predictive of success in subsequent clinical and/or nonclinical studies of that candidate; that planned research, development or clinical activities may be ceased or delayed for various reasons; that Lineage may not be able to manufacture sufficient clinical quantities of its product candidates in accordance with current good manufacturing practice; that competing alternative therapies may adversely impact the commercial potential success of any product candidate, and other risks and uncertainties inherent in Lineage's business and other risks described in Lineage's filings with the Securities and Exchange Commission (SEC). Lineage's forward-looking statements are based upon its current expectations and involve assumptions that may never materialize or may prove to be incorrect. All forward-looking statements are expressly qualified in their entirety by these cautionary statements. Further information regarding these and other risks is included under the heading "Risk Factors" in Lineage's periodic reports filed with the SEC, including Lineage's most recent Annual Report on Form 10-K, Quarterly Report on Form 10-Q and its other reports, which are available from the SEC's website at www.sec.gov. You are cautioned not to place undue reliance on forward-looking statements, which speak only as of the date on the cover of this presentation. Lineage undertakes no obligation to update any forward-looking statement to reflect events that occur or circumstances that exist after that date, except as required by law.

Broad Capabilities
Cell manufacturing and transplant technology

## 5

Cell types in active development

## >200

Cell types for future targeting


Commercial scalability and cell line supply

Highly Differentiated Allogeneic product candidates


Product candidates in active clinical trials

$>50$ patients treated with zero cases of rejection


Addressing multi-billion dollar markets

## Validated Technology

Global partnership
for lead asset OpRegen®

## \$670M ${ }^{*}$

Partnership
Genentech
A Member of the Roche Group
5
Unprecedented cases of retinal regeneration

## 1

Single administration per patient

## Cell Therapy Pipeline - 100\% Allogeneic

|  | FIELD | PROGRAM | PHASE 1 | PHASE 2 | PHASE 3 | PARTNERS |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Ophthalmology | OpRegen <br> Dry AMD with Geo |  | 24 patients treated |  | Genentech <br> A Member of the Roche Group |
| $$ | Demyelination | OPC1 <br> Spinal Cord Injury |  | 30 patients treated |  | CIRM |
| $\begin{aligned} & \overline{0} \\ & \bar{z} \end{aligned}$ | Neurotology | ANP1 <br> Auditory Neuropat | Preclinical |  |  | Internally-owned |
|  | Ophthalmology | PNC1 <br> Vision loss; Retinit | Preclinical |  |  | Internally-owned |
|  | Immuno-oncology | VAC2 <br> Non-Small Cell Lun | 8 patients treated logy) |  |  | $\begin{aligned} & \text { CANCER } \\ & \text { RESEARCH } \end{aligned}$ |

## Lineage Technology: Two-Step Allogeneic Cell Production



- Pluripotent stem cell lines (PSCs) provide an endless supply of undifferentiated starting material for all programs
- PSCs can become each of the $200+$ cell types of the human body
- No genetic editing is required
- The target cell has been validated by evolution
- Residual pluripotent cells are undetectable
- Generates IP (~500 issued and pending patents)
- Ready to inject formulation (no dose preparation delay)
- One-time treatment - cells integrate without rejection
- Scalable process for clinical and commercial


## Requirements for a Successful Cell Therapy




## Worldwide Collaboration for Dry AMD

"Roche and Genentech embarked on an ambitious journey to revolutionise ophthalmology"

- Creating allogeneic retinal pigment epithelial (RPE) cells to either replace or support cells that are dysfunctional or absent due to degenerative disease
- Largest cell therapy license agreement outside of oncology at signing; funds development and commercialization of RG6501 (OpRegen) for all ocular disorders
- \$50M up front received; eligible for additional \$620M of milestone payments and double-digit royalties
https://www.celebratelife roche.com/explore/science/ophthaimology-restoration

James Sabry, Roche "Cell therapy has the potential to change how we treat disease. At Roche and Genentech, our interest in cell therapy is directly tied to our commitment to inventing pioneering medicines with substantial patient benefit."


Seppi Lin, Genentech
and the ability to have "This approach may allow for a robust supply of cells and the ability to have
doses manufactured ahead of time, so they are readily available for patients."

## THE WALLSTREET JOTRNAL

Brian Culley, Lineage CEO
"Being a global unmet need, it made a lot of sense for us to partner with Genentech, which bring the resources and capabilities to move quickly and globally."

Tom Zioncheck, Roche
"This deal and this collaboration represents what we believe could be the tip of the spear in our efforts in cell-based therapies."

December 20, 2021

## Millions Suffer from Vision Loss due to Dry-AMD

- Age-related macular degeneration (AMD) presents in two forms, wet and dry
- Wet age-related macular degeneration (wet AMD) is usually caused by blood vessels that leak fluid or blood into the macula
- Dry age-related macular degeneration (dry AMD) involves the loss of retinal pigmented epithelium (RPE cells), creating an area of geographic atrophy (GA), causing impaired vision and blindness
- Wet AMD supports $>\$ 10 \mathrm{Bn}^{2}$ in product sales, while dry AMD has no FDA-approved treatments, yet is eight times more common ${ }^{1}$



## Lineage Approach - OpRegen, a "Complete" Approach

OpRegen is a one-time injection of fully-differentiated RPE cells intended to:

1) replace and restore retinal tissue (anatomy), and
2) preserve or improve vision (function)


## Phase 1/2a Trial Complete, Long-Term Follow-Up Ongoing

Cohorts 1-3 (Dose and Safety)
12 Legally Blind Patients


Generally well-tolerated, no reports of rejection

Cohort 4 (Initial Efficacy)
12 Impaired Vision Patients


Cells delivered across entire area of atrophy ( $\mathrm{n}=5$ ):
12-month gains in visual acuity averaged +12.8 letters
$100 \%$ of patients who received OpRegen across their area of atrophy represent the only known clinical cases of outer retinal structure improvement in dry AMD

## Improved Structure (Smaller GA) Detectable Within Three Months

OCT 2020


GA AREA: $3.56 \mathrm{~mm}^{2}$

JAN 2021


GA AREA: $2.69 \mathrm{~mm}^{2}=$ negative growth rate!

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Total area 3M GROWTH RATE: -0.87 mm2
(ANNUAL RATE - \(3.48 \mathrm{~mm}^{2}\) )
SQRT transformation 3M GROWTH RATE: -0.23 mm
(ANNUAL RATE - 0.92 mm )
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## Re-Thinking the Dry AMD Treatment Paradigm

"The moment our goal shifted from preservation to restoration"
"Our recent partnership with Lineage Cell
Therapeutics...is one of the important routes we are pursuing....The hope is that this treatment could not only slow down progression of the dry form of AMD, but also restore function to the retina."

## REGENERATIVE MEDICINE CELL THERAPIES FOR EYE DISEASES

Cell therapy is a powerful approach for turning cells into living medicines
"Cell-based therapies provide the possibility to replace dying or damaged eye cells with new healthy ones. Our aim is to repair the underlying cellular structure of the retina - a thin layer of tissue that lines the back of the eye - to preserve and even restore vision."
-Tom Zioncheck, Roche

## Ongoing Development: Phase 2a Trial

A multicenter, open-label, single arm clinical study in patients with geographic atrophy (GA), secondary to age-related macular degeneration

- Managed and funded by Genentech
- Seeks to optimize subretinal surgical delivery and evaluate safety/activity
- Approximately 30 (up to 60) patients
- Primary objectives:
- Proportion of patients with subretinal surgical delivery to target regions under the retina, and
- Safety of subretinal surgical delivery
- Secondary objective:
- Proportion of patients with qualitative improvement in retinal structure, determined by SD-OCT

Currently enrolling - primary and secondary endpoints occur at 90 days

## OpRegen - A Multi Billion-Dollar Opportunity

- The only known reported clinical cases of outer retinal structure improvement with improved vision observed in five dry AMD patients
- Market opportunity not limited by monogenic deficiencies (e.g., gene therapy)
- Well-tolerated; no cases of rejection (only 90d of peri-operative immunosuppression)
- Potential application in additional retinal diseases (example: Stargardt disease)
- Issued patents cover aspects of production, characterization, and formulation
- Fast Track designation from FDA
- Validating development partnership with global ophthalmology leader, Genentech
- Phase 2a clinical study launched November 2022


# Key Takeaway for the Lineage Approach 

In certain settings, replacing whole cells may provide restorative benefits beyond the reach of traditional approaches
\#replaceandrestore

## Repeating Success - OpRegen as a Case Study and Guide




## Spinal Cord Injury (SCI) Burden \& Unmet Needs

- Approx. 18,000 cases per year (US) ${ }^{1}$
- A significant burden for patients and caregivers ${ }^{2}$
- $67 \%$ of patients are unemployed 10 years post-injury
- Lifetime healthcare costs can reach $\$ 5 \mathrm{M}$ for one patient
- Lifelong impairment

- Most common in ages 16-30
- Primary feature of a SCl is loss of mobility
- Goal of OPC1 therapy is to restore arm, hand, and finger function
- Greater mobility increases independence and quality of life
- Gains in motor function, particularly in the upper extremities, can provide significant benefits in
 self-care and lower costs of care


## Oligodendrocyte Cells as a Solution - OPC1 for SCI

Transplanting oligodendrocytes may provide additional upper extremity function and improve quality of life

- Oligodendrocyte progenitor cells (OPCs) are precursors to the myelinating cells of the central nervous system
- Myelinating cells provide insulation to nerve axons in the form of a myelin sheath
- Myelin is essential for proper function of neurons

- OPC1 is generated from an NIH-registered cell line
- Cells are allogeneic ("off the shelf") and not taken from the patient
- OPC1 is a one-time injection into the spinal cord
- Dosing occurs 3-6 weeks post-injury, providing time for consent and transportation
- Immunosuppression is brief ( 60 days)
- Cells are cryopreserved in a ready to use, thaw-and-inject formulation



## OPC1 Manufacturing Improvements: Lower Impurities

OPC-1 Impurity/non-targeted cell population profile by flow cytometry


## OPC1 Triple Mechanisms of Action

## Preventing Cavitation



Myelination of Axons


OPC1


## Expected Recovery ${ }^{1}$ vs OPC1: Motor Function Gains



[^0]
## Real-World Impacts from Motor Level Improvements

Motor level gains translate into meaningful improvements in self-care and large reductions in costs of care

| Cervical Injury Level | Daily Home Care |
| :---: | :---: |
| C1-3 | 24 Hour Attendant |
| C4 | 18-24 Hour Attendant |
| C5 | 6-12 Hours of |
| Assistance |  |
| C6 | 4 Hours Housework |
| C7-8 | 1 Hour Housework |
| $32 \%$ of OPC1 Recipients had +2 Level Improvement |  |

## OPC1 Cervical Clinical Trial - Summary of Adverse Events

Majority of adverse events were mild to moderate in severity

| All Treated Subjects (N=25) | AEs | SAEs |
| :--- | :---: | :---: |
| Total | 534 | 29 |
| Related to OPC1 | $1^{*}$ | 0 |
| Related to Injection Procedure | 20 | 1 |
| Related to Tacrolimus | 11 | 1 |

To date, there have been no serious adverse events related to the OPC1 cells Safety data is available for 2 to 5 years on all 25 patients

## OPC1 Cervical Clinical Trial - Cell Engraftment

## 12- and 24-Month MRI Scans Indicate Durable Engraftment

- Cystic cavitation (syringomyelia) is a disorder which can damage nerve fibers and is expected to occur in $\sim 80 \%$ of matched SCl cases
- MRIs show formation of a tissue matrix at the injury site, indicating OPC1 cells have durably engrafted to help prevent syringomyelia
- $96 \%(24 / 25)$ of OPC1 patients had serial MRI scans that indicated no sign of a lesion cavity at 24 months (for 22 available scans)


Weighted sagittal MRI

## OPC1 Thoracic \& Cervical Clinical Trials Overview

- Thoracic phase 1 clinical trial $(\mathbf{N}=5)$
- All subjects followed for at least 10 years (Journal of Neurosurgery Spine, Vol 37, Issue 3, 2022)
- No unexpected serious adverse events attributable to the OPC1 transplant:
-No evidence of neurological decline
- No enlarging masses
-No further spinal cord damage
-No syrinx formation


## - Cervical phase 1/2a clinical trial $(\mathbb{N}=25)$

- All subjects evaluated for at least 2 years (Journal of Neurosurgery Spine, Vol 37, Issue 6, 2022)
- No unexpected serious adverse events related to the OPC1 transplant;
- No enrolled patients had worsening of neurological function;
- Durable motor improvements:
-4 of 6 subjects gained at least 2 motor levels of improvement on at least one side at 12 months (cohort 2)
-5 of 6 subjects gained at least 2 motor levels of improvement on at least one side at 24 months (cohort 2)
-1 subject achieved 3 motor levels of improvement on one side; maintained at 3 years (cohort 2)


## OPC1 Program Summary

## Key Takeaways

Next Steps

- Unmatched experience - one of the longest running trials in the field and first of its kind
- Indication of efficacy compared to best available matched control ( $32 \%$ two-level gain)
- Excellent overall safety profile
- 5 years follow up in cervical SCl
- 10 years follow up in thoracic SCl
- Higher purity and production scale has been achieved
- Learnings can be applied to next trial
- Inadequate decompression was associated with the two worst outcomes
- Clinical safety testing of new delivery system, starting in 2023
- 3-5 subacute and for the first time, 3-5 chronic injury patients
- Preparations underway for larger, controlled clinical trial
- Engaging with patients and patient advocacy organizations
- Assessing clinically-meaningful endpoints (no FDA precedent)
- Eligible for grants from the California Institute of Regenerative Medicine (CIRM)


## OPC1 Asset Overview

- OPC1 utilizes targeted cell replacement (similar to OpRegen for dry AMD)
- OPC1 has RMAT \& Orphan Drug Designations
- OPC1 has received >\$14M in grant support from CIRM
- OPC1 may have application in other demyelinating conditions

"There's no reason to not look forward in the same way now that I had before all of this happened. I'm looking forward to driving again... it's a bright future."
- Lucas Lindner, OPC1 Patient

"I couldn't drink, couldn't feed myself, couldn't text or pretty much do anything, I was basically just existing. I wasn't living my life, I was existing."
-Kris Boesen, OPC1 Patient

"My recovery from the point of the trial until now has been immense. A lot more than I would have expected. So, if I had the chance to go back and do it again, I 100\% would."
- Jake Javier, OPC1 Patient

"My AlS score improved from an AIS-A over to an AIS-B, because I've got a lot of feeling under my injury level that I didn't have right when I broke my neck. And I would attribute those directly to spinal cord injury cells."
- Chris Block, OPC1 Patient



## Preclinical Cell Transplant Programs

## ANP1 <br> Auditory neuron progenitor cells

- Intended to treat auditory neuropathy spectrum disorders (hearing loss)
- Hearing loss afflicts >400 million people worldwide
- IP filed covering composition and methods of generating ANPs
- Preclinical studies: initiated Q1 2023
- Progressed from product concept to preclinical testing in <12 months and less than \$1M
- Preparing for pre-IND meeting


## PNC1

Photoreceptor cells (rods and cones)

- Intended to treat conditions of photoreceptor loss or dysfunction (vision loss; Retinitis Pigmentosa)
- Leverages knowhow and capabilities in ophthalmology
- IP filed covering composition and methods of generating PRs
- Preclinical studies: ongoing
- In vivo data shows PNC1 may connect to surrounding functional layers
- Dynamic culturing offers path to industrial-scale production

Traditional Drug Discovery Pathway vs Lineage Technology



## The VAC Platform: On Demand Cell Therapy Vaccine

- VAC consists of allogeneic ("off the shelf") dendritic cells (DCs)
- No production lag between diagnosis and treatment, as required for autologous or patient-specific therapies
- DCs are manufactured and loaded with either a tumor antigen (as a cancer vaccine) or a viral antigen (as a vaccine for infectious diseases)
- Antigen presentation creates a large, targeted $T$ cell response (can be $>3 \%$ ), responsible for tumor cell destruction or pathogen clearance*



## VAC - A Platform for Many Product Candidates



VAC1 and VAC2 Immuno-Oncology

- Positive phase 1 data in AML
- Completed phase 1 in NSCLC analyses ongoing


Other Immuno-oncology Programs

- Partnerships based on new antigens
- Diversifies pipeline and shares cost

VAC-Infectious Diseases

- Long-term protection via memory T cells
- Leverages clinical data from VAC oncology programs


## Lineage Corporate Profile





[^0]:    =二二 $\quad$ 1. Steeves JD, Lammertse DP, Kramer LL, Klieitman N, Kalsi-RYan S, Jones L, Curt A, Blight AA, Anderson KD. Outcome Measures for Acute/Subacute Cervical Sensorimotor Complete (AIS-A) Spinal Cord Injury During a Phase 2 Clinical Trial. Top
    
    

