LONGEVERON

A Regenerative Medicine Company

Cellular therapies for life-threatening and chronic aging-related conditions

Investor Presentation

Nasdaq (LGVN) | May 2025

Forward Looking Statements

Certain statements in this press release that are not historical facts are forward-looking statements made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995, which reflect management's current expectations, assumptions, and estimates of future operations, performance and economic conditions, and involve known and unknown risks, uncertainties, and other important factors that could cause actual results, performance, or achievements to differ materially from those anticipated, expressed, or implied by the statements made herein. Forward-looking statements are generally identifiable by the use of forward-looking terminology such as "anticipate," "believe," "contemplate," "continue," "could," "estimate," "expects," "intend," "looks to," "may," "on condition," "plan," "potential," "predict," "preliminary," "project," "see," "should," "target," "will," "would," or the negative thereof or comparable terminology, or by discussion of strategy or goals or other future events, circumstances, or effects and include, but are not limited to, statements about the various below-listed factors. Factors that could cause actual results to differ materially from those expressed or implied in any forward-looking statements in this release include, but are not limited to, our cash position and need to raise additional capital, the difficulties we may face in obtaining access to capital, and the dilutive impact it may have on our investors; our financial performance, and ability to continue as a going concern; the period over which we estimate our existing cash and cash equivalents will be sufficient to fund our future operating expenses and capital expenditure requirements; the ability of our clinical trials to demonstrate safety and efficacy of our product candidates, and other positive results; the timing and focus of our ongoing and future preclinical studies and clinical trials, and the reporting of data from those studies and trials; the size of the market opportunity for certain of our product candidates, including our estimates of the number of patients who suffer from the diseases we are targeting; our ability to scale production and commercialize the product candidate for certain indications; the success of competing therapies that are or may become available; the beneficial characteristics, safety, efficacy and therapeutic effects of our product candidates; our ability to obtain and maintain regulatory approval of our product candidates in the U.S. and other jurisdictions; our plans relating to the further development of our product candidates, including additional disease states or indications we may pursue; our plans and ability to obtain or protect intellectual property rights, including extensions of existing patent terms where available and our ability to avoid infringing the intellectual property rights of others; the need to hire additional personnel and our ability to attract and retain such personnel; and our estimates regarding expenses, future revenue, capital requirements and needs for additional financing.

Further information relating to factors that may impact the Company's results and forward-looking statements are disclosed in the Company's filings with the Securities and Exchange Commission, including Longeveron's Annual Report on Form 10-K for the year ended December 31, 2024, filed with the Securities and Exchange Commission on February 28, 2025, its Quarterly Reports on Form 10-Q, and its Current Reports on Form 8-K. The Company operates in highly competitive and rapidly changing environment; therefore, new factors may arise, and it is not possible for the Company's management to predict all such factors that may arise nor assess the impact of such factors or the extent to which any individual factor or combination thereof, may cause results to differ materially from those contained in any forward-looking statements. The forward-looking statements contained in this press release are made as of the date of this press release based on information available as of the date of this press release, are inherently uncertain, and the Company disclaims any intention or obligation, other than imposed by law, to update or revise any forward-looking statements, whether as a result of new information, future events, or otherwise.

Stem cell therapies for life-threatening & chronic aging-related conditions

Clinical pipeline in HLHS, Alzheimer's disease (AD) and Aging-related Frailty

POSITIVE CLINICAL DATA

- Positive initial results in 5 clinical trials across 3 indications
- Well established safety profile

CLEAR REGULATORY PATHWAY TO BLAs

- Positive FDA Type C mtg for HLHS & on-going pivotal trial
- Positive FDA Type B mtg for AD; planned single, pivotal Phase 2/3 clinical trial

5 IMPORTANT FDA DESIGNATIONS

- HLHS: Orphan Drug, Fast Track & Rare Pediatric Disease
- AD: Regenerative Medicine Advanced Therapy (RMAT) & Fast Track

LARGE U.S. MARKETS

HLHS: ~$1 billion

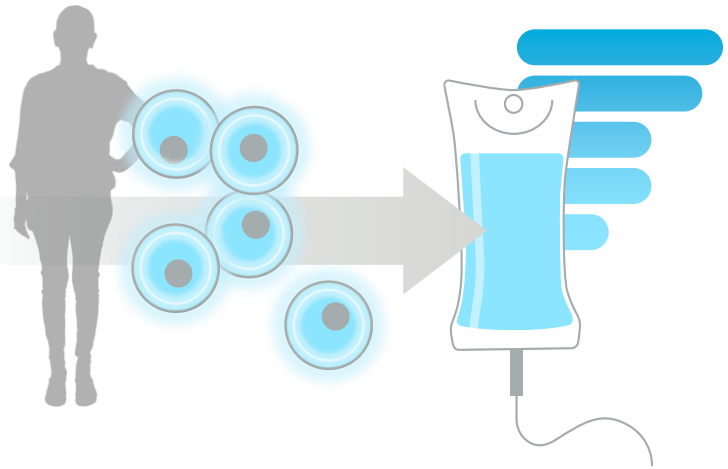
AD: ~$5+ billion

Aging-related Frailty: ~$4+ billion

Proven management, scientific and manufacturing teams

Cellular Therapy laromestrocel (Lomecel-B™) -- A Pipeline in a Product

- Stem cell therapy uses stem cells to repair, regenerate or replace damaged or diseased cells in the body
- Allogeneic (donor-derived) mesenchymal stem cells (MSCs) isolated from bone marrow of healthy young adults (18 to 45)
- Cells are culture-expanded - replicated under controlled laboratory conditions - into the billions
- After a specific number of expansion cycles called “passages”, the cells are harvested, separated into specific doses (e.g. 50 million cells), and frozen until future use in patients
- Laromestrocel development programs:
  - Hypoplastic Left Heart Syndrome (HLHS) - on-going Phase 2b clinical trial
  - Alzheimer’s disease (AD) - completed through Phase 2a
  - Aging-related Frailty (AF) - completed through Phase 2b



Addressing Unmet Medical Needs of Chronic and Life-threatening Conditions

Hypoplastic Left Heart Syndrome (HLHS)

- One of most severe congenital heart conditions
- Cause unknown
- Devastating for patient & family
- Limited treatment options
  - Series of surgical repairs
  - Heart transplant
- HLHS accounts for 2-3% of all congenital heart disease

Alzheimer's Disease (AD)

- 1 in 3 older adults dies with Alzheimer's or another dementia
- AD kills more than breast cancer and prostate cancer combined
- In 2024, AD and other dementias cost U.S $360 billion
- Between 2000 and 2021, deaths from AD have increased 141% *(deaths from heart disease have decreased 2.1%)*

Aging-related Frailty (AF)

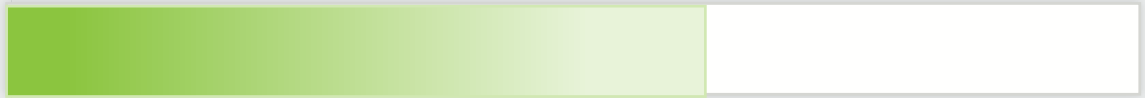
- By 2030, 1 in 6 people in the world > 60 years old, representing over 1.4 billion people
- In 2020, # of people > 60yrs outnumbered children <5yrs
- Accumulation of molecular and cellular damage with the passage of time
- Gradual decrease in physical & mental capacity, a growing risk of disease and death

U.S. Opportunity: Large Markets with Unmet Medical Needs

	Hypoplastic Left Heart Syndrome (HLHS)	Alzheimer's Disease	Aging-related Frailty
U.S. Patient Population	1,000[3]	6.9 million[2]	8.1 million[1]
U.S. Market Potential	Up to $1B[6]	~$5-10B[5]	~$4 – 8B[4]

[1] Company estimate based on US Census Bureau Population ≥65 years old of 54.06 million (2019 estimate) and community-dwelling Aging-related Frailty prevalence estimates over the age of 65 (15%) from Bandeen-Roche et al; *Gerontol A Biol Sci Med Sci*. 2015. Prevalence estimates vary depending on definition criteria used and population studied.
[2] 2024 Alzheimer's Disease Facts and Figures, 2024.
[3] Centers for Disease Control and Prevention estimate. www.cdc.gov/ncbddd/heartdefects/hlhs.html
[4] Assumes 10% penetration and cost of $5,000 to $10,000 per patient
[5] Assumes 20% penetration and cost of $5,000 to $10,000 per patient
[6] Based on Market Analysis from Clearview Healthcare Partners with a wide range to acknowledge that product profile could be limited to functional cardiac improvement but might include survival benefit

Robust Clinical Pipeline

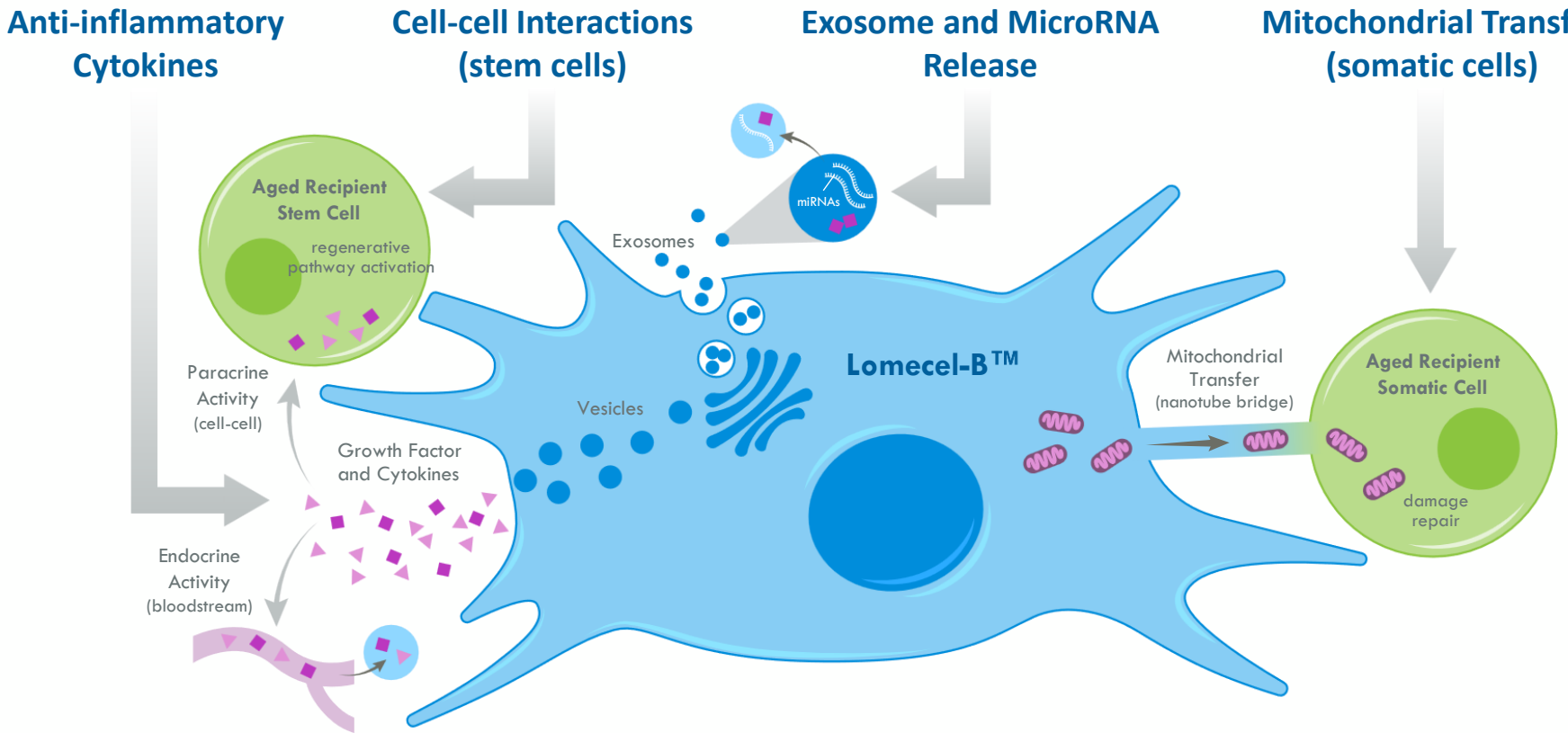
Indication	Geography	Phase 1	Phase 2	Phase 3	Milestones
Hypoplastic Left Heart Syndrome	U.S.				• ELPIS II approaching enrollment completion • ELPIS I LT Transplant-free survival data presented at CHSS (Oct 2024)
Alzheimer's Disease	U.S.				• Positive Phase 2a results presented at AAIC 2024 (July '24) & published in *Nature Medicine* (Mar '25)
Aging-related Frailty	U.S.				• U.S. Phase 2b Single-Dose trial complete

Laromestrocel (Lomecel-B™): Multiple Mechanisms of Action (MOA)

Pro-vascular, Pro-regenerative and Anti-inflammatory: Repairs Tissue and Promotes Healing

Laromestrocel Key Advantages:

- Superior efficacy for addressing inflammation
- Cells migrate to sites of tissue damage
- Enhanced safety as inherently Immuno-evasive
- Convenient off-the-shelf administration



Jimenez-Puerta GJ, et al. *Journal of Clinical Medicine*. 2020 Feb;9(2):445.
Mazhari R and Hare JM. *Nature Clinical Practice Cardiovascular Medicine*. 2007 Feb;4(1):S21-6.

Laromestrocel (Lomecel-B™) for Hypoplastic Left Heart Syndrome (HLHS)

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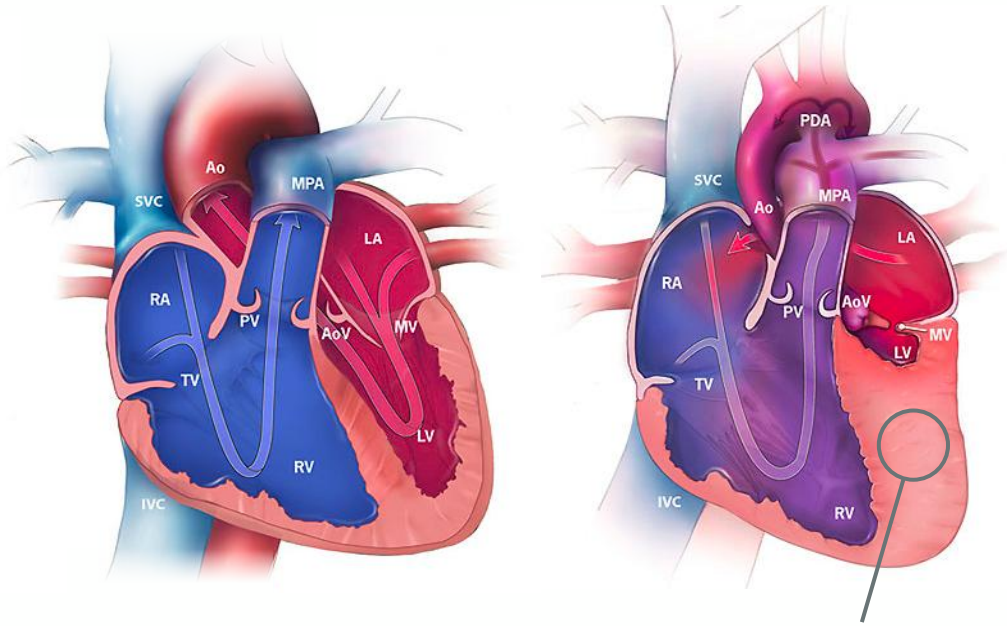
Significant Unmet Need in HLHS

- **HLHS** is a rare pediatric congenital heart defect in which the left side of the heart fails to normally develop
- Affects ~1,000 babies/year in United States[1]
- Children with HLHS require 3 staged open-heart surgeries in order to survive
    - Norwood Procedure – 10 days of life
    - Glenn Procedure – approximately 4 months
    - Fontan – 3 to 4 years
- Even with surgery, overload on the right ventricle causes it to fail, leading to increased short-term mortality, delayed development, and long-term organ failure
- Overall survival to adolescence estimated at only 50% to 60%[2]
- 5 years transplant-free survival ~80%[3,4]



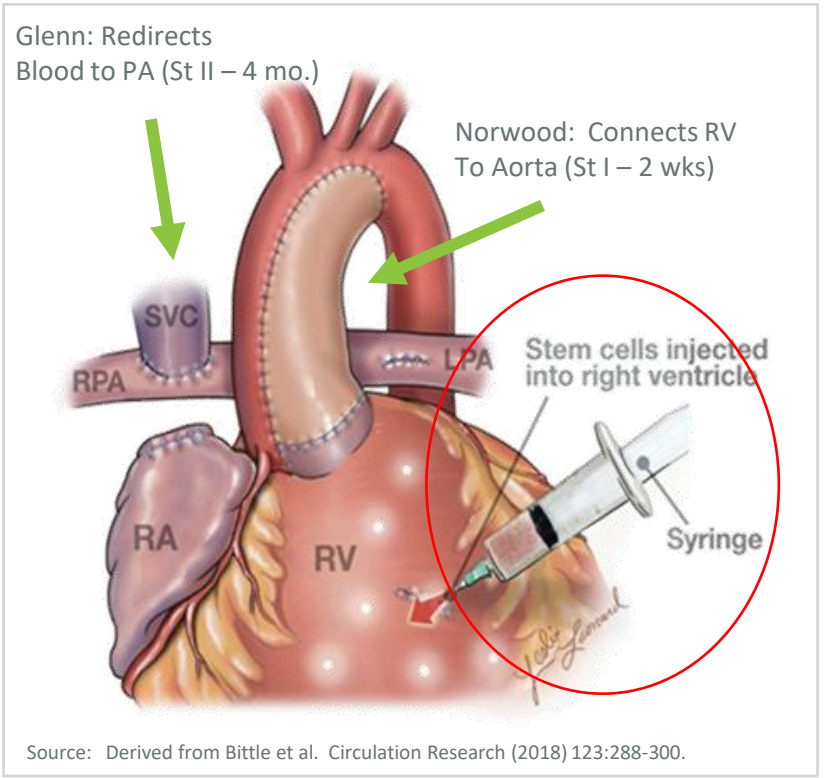
Normal Heart HLHS

1. Ohye RG, et al. Comparison of shunt types in the Norwood procedure for single-ventricle lesions. The New England journal of medicine (2010) 362:1980-92. 2. Newburger JW, et al. Transplant-Free Survival and Interventions at 6 Years in the SVR Trial. Circulation(2018) 137:2246-2253. 3. Kaushal S, et al. Long-Term Transplant-Free Survival is Improved in Hypoplastic Left Heart Syndrome with Cell-Based Therapy. 2023 American Heart Association Scientific Meeting. Philadelphia, PA (11 – 14 Nov 2023). 4 Lynch et al. Outcomes of Children with Hypoplastic Left Heart Syndrome and Heart Failure on Medical Therapy (2024) JACC: Advances 3:100811.

Clinical Approach to HLHS with Laromestrocel

Improving Cardiac Function through Regenerative Effect of MSCs

- Dysfunction of the systemic right ventricle (RV) remains an independent risk factor for death or heart-transplant
- Laromestrocel injected into myocardium of right ventricle during Stage II surgery at approximately 4 months of age ("Glenn or Hemi-Fontan Procedure")
- Phase 1 ELPIS I Trial (n=10) completed
- Phase 2 ELPIS II Trial (n=38) on-going
- **U.S. FDA has granted laromestrocel for HLHS:**
  - Rare Pediatric Disease Designation
    - Approval may come with transferable Priority Review Voucher
  - Orphan Drug Designation
  - Fast Track Designation



Source: Derived from Bittle et al. Circulation Research (2018) 123:288-300.

Laromestrocel administered directly into heart at approximately four months during second surgery

Long-term Survival Data Presented at 2024 Congenital Heart Surgeon's Society Ann Mtg

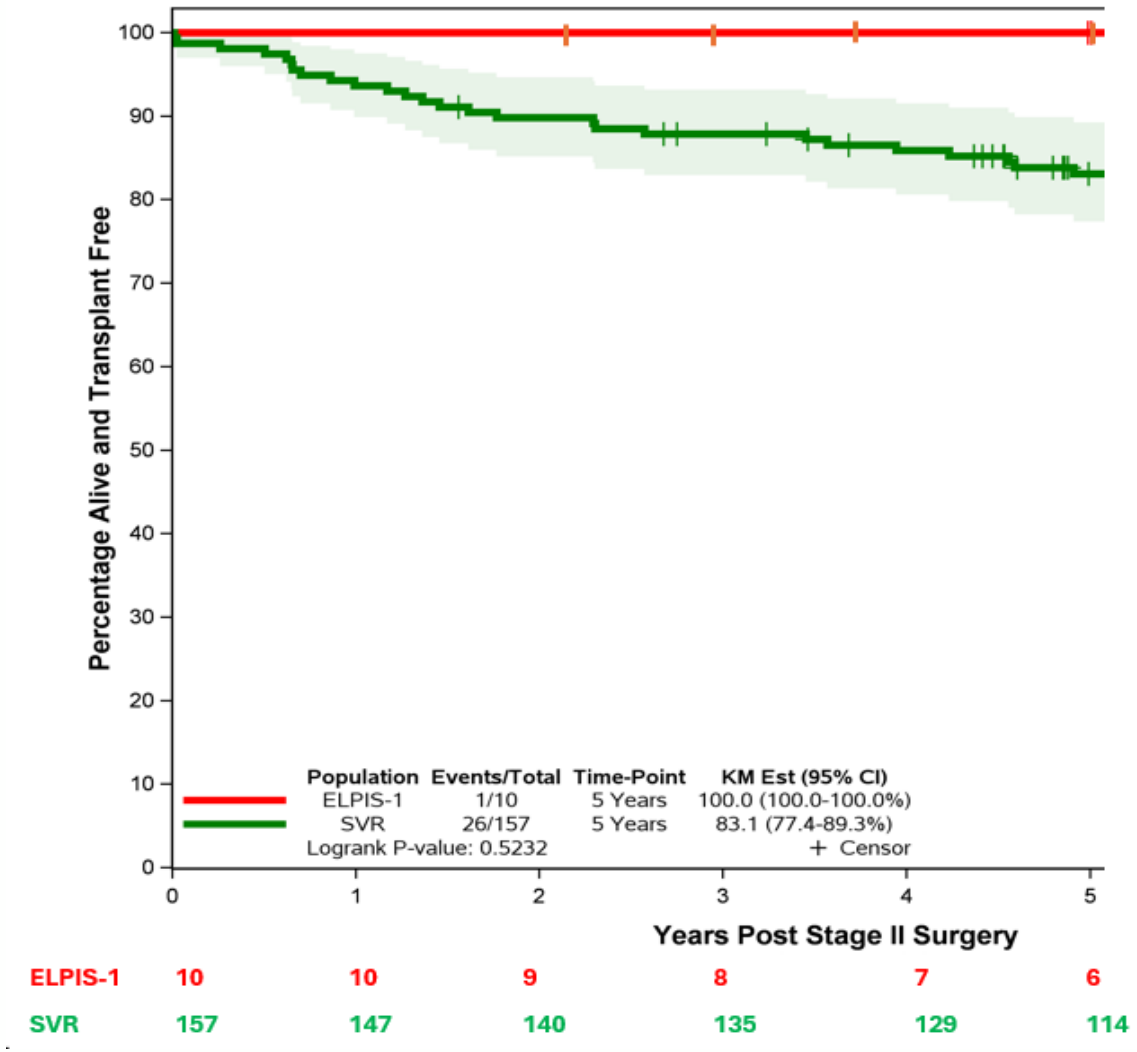
ELPIS I - 100% transplant-free survival for 10 patients up to 5 years post Glenn surgery

- ELPIS I met its primary endpoint of safety through 1-year post-treatment, with 100% survival rate, 100% transplant-free and patients maintained expected rate of growth one year after treatment
- 5 years survival data are available
- None of the 10 treated patients required heart transplant up to 5 years post Stage 2 surgery
- 5-year transplant-free survival is 100% in laromestrocel treated cohort compared to 80% in a propensity-matched historical control group.[1,2,3,4]
- No laromestrocel related safety issues were reported
- No Major Adverse Cardiovascular Events (MACE) were reported during the study
- Findings support the use of laromestrocel as a potential adjunct to HLHS reconstruction surgery to improve transplant-free survival

1. Ohye RG, et al. Comparison of shunt types in the Norwood procedure for single-ventricle lesions. The New England journal of medicine (2010) 362:1980-92. 2. Newburger JW, et al. Transplant-Free Survival and Interventions at 6 Years in the SVR Trial. Circulation(2018) 137:2246-2253. 3. Kaushal S, et al. Long-Term Transplant-Free Survival is Improved in Hypoplastic Left Heart Syndrome with Cell-Based Therapy. 2023 American Heart Association Scientific Meeting. Philadelphia, PA (11 – 14 Nov 2023). 4 Lynch et al. Outcomes of Children with Hypoplastic Left Heart Syndrome and Heart Failure on Medical Therapy (2024) JACC: Advances 3:100811.

Long-term Survival in HLHS from ELPIS I Trial of laromestrocel

Post-Stage II Heart Transplant-Free 5-years Survival



SVR patients matched with ELPIS I patient's population (N=157)

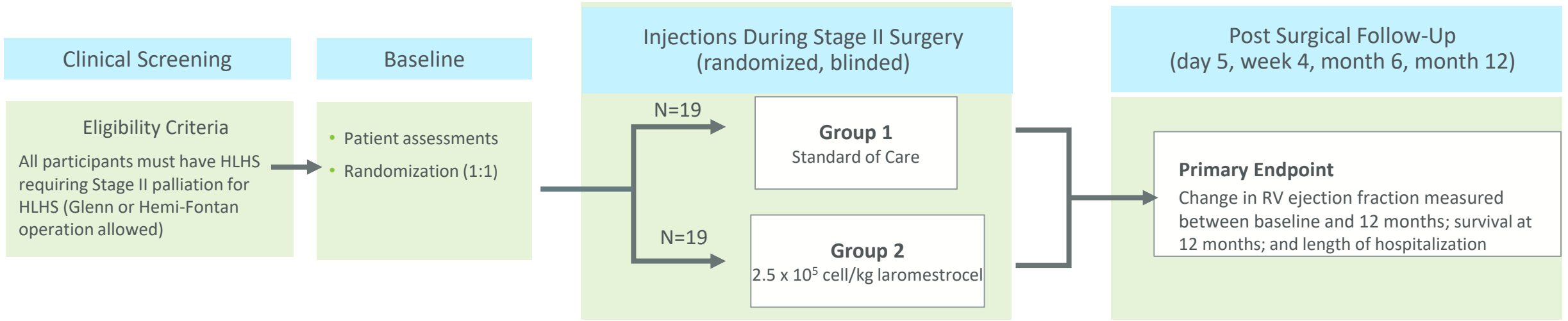
ELPIS I patient's population (N=10)

- 100% Transplant-free survival for all patients in ELPIS I, ranging from 3 years 8 months to 5 years 2 months post stage-II surgery.
- Patients Receiving the RVPA shunt in the SVR trial experienced ~80% transplant-free survival 5 years post stage-II surgery.

Longitudinal Follow-Up of Children With HLHS and Association Between Norwood Shunt Type and Long-Term Outcomes: The SVR III Study Caren S. Goldberg, MD at al, Circulation Volume 148, Number 17 https://doi.org/10.1161/CIRCULATIONAHA.123.065192

ELPIS II: Phase 2b Study Design

Phase 2b, Randomized, Multi-center study to Evaluate laromestrocel Injection in Patients with HLHS



- ELPIS II is being conducted at leading clinical centers, including Boston Children's Hospital, Lurie's Children's Hospital, Children's Hospital of Los Angeles, Children's Healthcare of Atlanta, UTHealth-McGovern Medical School, Cincinnati Children's Hospital Medical Center, Primary Children's Hospital at University of Utah, Children's Hospital of Colorado, Children's Nebraska, Children's Hospital of Philadelphia
- ELPIS II is being conducted in collaboration with the National Heart, Lung, and Blood Institute (NHLBI) through grants from the National Institutes of Health (NIH)

Laromestrocel for HLHS Regulatory Path Clarified

Successful Type C Meeting with U.S. FDA in August 2024

- On-going Phase 2b clinical trial (ELPIS II) deemed pivotal and, if positive, acceptable for Biological License Application (BLA) submission for potential full traditional approval
- Alignment with FDA on ELPIS II primary and secondary endpoints
- Alignment with FDA on CMC and Potency Assay plan and requirements

Potential for ELPIS II to serve as the foundation for a BLA submission potentially significantly reduces the time to reach submission and potential approval of laromestrocel as an HLHS adjunct therapy

Laromestrocel (Lomecel-B™) for Alzheimer's Disease (AD)

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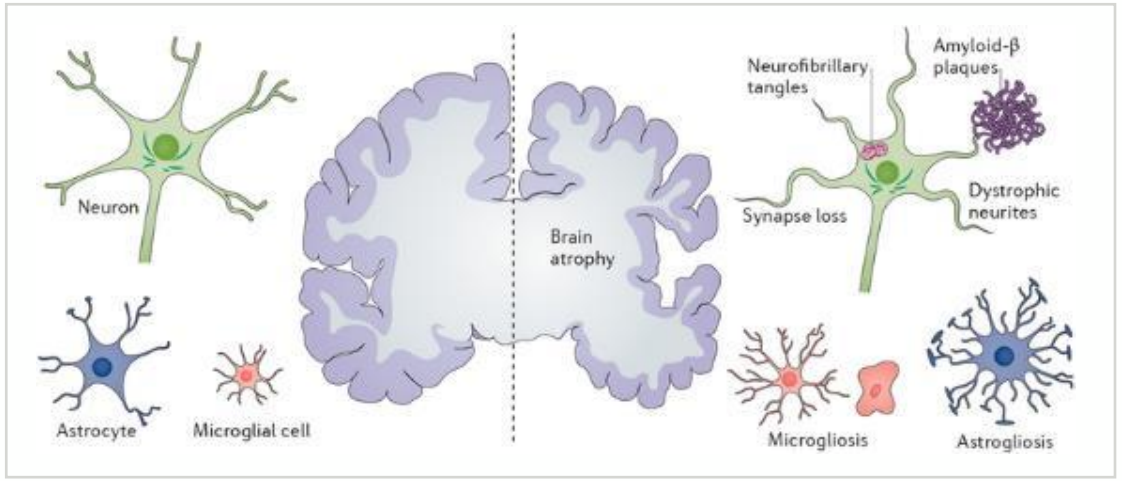
Laromestrocel for Alzheimer's Disease

Targeting CNS Inflammation

- Previous therapies targeted amyloid plaques (b-secretase inhibitors and anti-amyloid antibodies) or neurofibrillary tangles (antibodies) with little evidence of disease state improvement
- Inflammation is increasingly recognized as a major pathway to the pathology leading to neurodegeneration in AD
- Genetic evidence for inflammation being important in AD comes from *TREM2* (an important protein in multiple immune cells) variants associated with AD*
- Inflammatory responses in brain to the pathologies of AD are increasingly recognized to drive the pathogenesis of the disease+
- **U.S. FDA has granted laromestrocel for AD:**
  - Regenerative Medicine Advanced Therapy (RMAT) Designation
  - Fast Track Designation

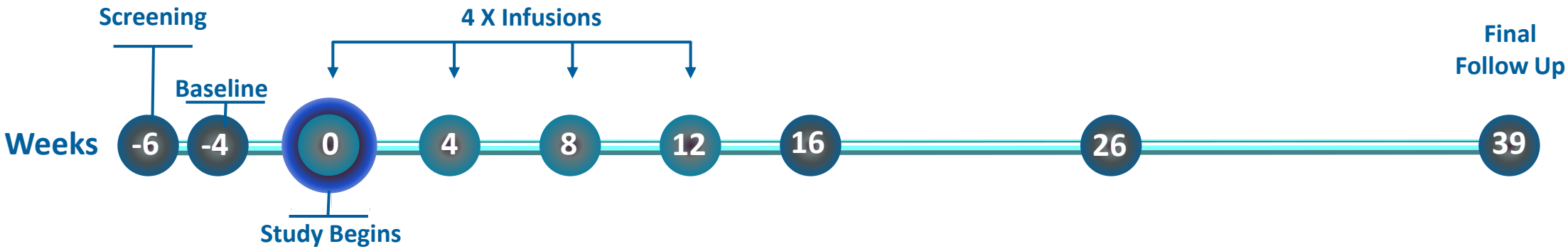


- MSCs effect in animal models of Alzheimer's disease:
  - Cross the blood brain barrier (BBB)
  - ↓ pro-inflammatory; ↑ anti-inflammatory biomarkers
  - Improve immune functioning
  - Promote neurogenesis
  - Improve endothelial function

*Shi Y, Holtzman DM (December 2018). *Nature Reviews. Immunology*. 18 (12): 759–772
+Heppner FL; Ransohoff RM; Becher B (2015).. *Nature Reviews Neuroscience*. 16 (6): 358–372

Figure from Congdon EE, Sigurdsson EM. Tau-targeting therapies for Alzheimer disease. *Nat Rev Neurol.* 2018 Jul;14(7):399-415.

CLEAR MIND Phase 2a Study Design



Randomization 1:1:1:1

- Group 1: Placebo [N=12]
- Group 2: Single Dose laromestrocel (25M) [N=13]
- Group 3: Multi dose laromestrocel (25M) [N=13]
- Group 4: Multi dose laromestrocel (100M) [N=11]

Primary Endpoint	Percentage of patients with at least 1 SAE 4 weeks from any infusion
Secondary Endpoint	CADS composite imaging and neurocognitive testing scores
Exploratory Endpoints	Change from baseline cognitive tests, MRI biomarkers

CLEAR MIND Phase 2a Results for Alzheimer’s Disease

- Trial results selected for featured research oral presentation at the 2024 Alzheimer's Association International Conference (AAIC) July 2024
- Laromestrocel demonstrated positive benefit/risk profile
- Laromestrocel treated patients showed an overall slowing/prevention of disease worsening compared to placebo
- The trial achieved the primary safety and secondary efficacy endpoints and showed statistically significant improvements in pre-specified clinical and biomarker endpoints in specific laromestrocel groups compared to placebo
- The established safety profile of laromestrocel for single and multiple dosing regimens was demonstrated in study data that showed no incidence of hypersensitivity, infusion-related reactions, and no cases of amyloid-related imaging abnormalities (ARIA)
- Administration of laromestrocel was associated with slowing cognitive and functional decline as demonstrated by statistically significant results in the Montreal Cognitive Assessment and statistical trending improvements compared to placebo in CDR-SB and MMSE
- There was a statistically significant improvement relative to placebo observed in the Alzheimer’s Disease Cooperative Study Activities of Daily Living (ADCS-ADL)
- Brain MRI results demonstrated a 49% reduction in brain volume loss and improvement in cerebral blood flow

CLEAR MIND Phase 2a Conclusions and Pathway to BLA

- Results of the CLEAR MIND clinical trial support the therapeutic potential of laromestrocel in the treatment of mild Alzheimer's disease and provided evidence-based support for further clinical development
- Results of the CLEAR MIND Phase 2a clinical trial were selected for publication in the March 2025 edition of peer reviewed journal *Nature Medicine*
- Positive Type B meeting with U.S. FDA in March 2025 supporting the advancement of laromestrocel as a potential treatment for Alzheimer's disease
  - Planned single, pivotal Phase 2/3 clinical trial, if positive, acceptable for Biological License Application (BLA) submission for Alzheimer's disease
  - Alignment with FDA on proposed trial study design, population and endpoints
  - Initiation of planned pivotal Phase 2/3 clinical trial anticipated in 2H 2026, contingent upon obtaining non-dilutive funding and/or partnering support

Laromestrocel (Lomecel-B™) for Aging-related Frailty (AF)

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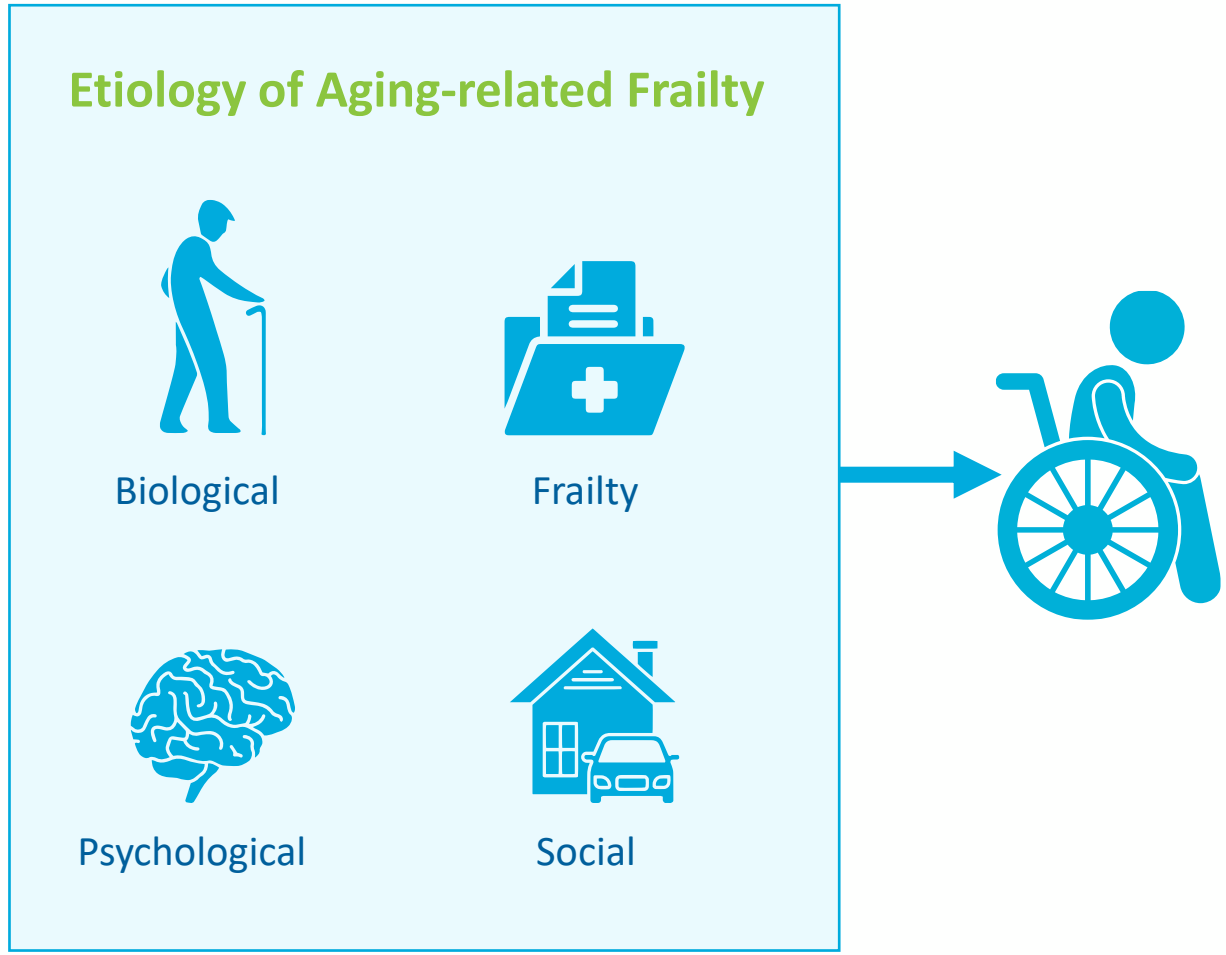
Aging-related Frailty*

Diminishing Health, Independence and QoL

- Frailty
  - Age-associated decline in reserve and function across multiple physiologic systems leading to inability to cope with stressors
  - Characterized by mobility disability, weakness, fatigue, weight-loss, slowness, low activity, etc.
- Higher risk for poor clinical outcomes
  - Infections, falls, fracture, hospitalizations, death
- High unmet need and high prevalence
- No approved treatments for Frailty
  - General prevalence of ~15% of individuals >65 using CHS Frailty Phenotype definition.[1]

Etiology of Aging-related Frailty



*Frailty/Aging-related Frailty" presently does not have a consensus definition of the indication for regulatory purposes

[1]Bandeen-Roche K, et al. J Gerontol A *Biol Sci Med Sci.* 2015

Laromestrocel for Aging-related Frailty

Completed U.S. Phase 2b Study Aging-related Frailty Study (N=143)

- Designed to determine whether there was a dose response to a single infusion of laromestrocel in Aging-related Frailty
- There were 5 treatment groups: placebo and 4 different doses of laromestrocel: 25, 50, 100 and 200 million cells
  - Note: highest dose treatment group added after start of study
- Patients were defined as aged 70 to 85, with evidence of inflammation by elevated TNF-a levels at baseline, and with mild to moderate frailty (by CHS scale) and impaired mobility
- Primary efficacy endpoint measure was 6MWT – a test of physical endurance (distance walked in 6 minutes)

Results:

There was a statistically significant increase in 6MWT in multiple laromestrocel treatment groups 9 months after a single infusion of laromestrocel compared to placebo

- There was also a dose-response to laromestrocel as measured in 6MWT at 6 months
- There were no SAEs attributed to treatment with laromestrocel and most AEs were related to the process of administration (associated with the insertion of a catheter for IV infusion)

Financial Position

$14.3 M
(as of 3/31/25)

Cash and cash equivalents

~15.0 M
(as of 5/1/25)

Shares of common stock outstanding;
~6.8M shares of common stock exercisable under outstanding warrants

Experienced and Successful Leadership

Wa'el Hashad

CHIEF EXECUTIVE OFFICER

- 35+ years as an executive leader in the biotechnology and pharmaceutical industries. His diverse global expertise encompasses leading early-stage companies focusing on drug approval and commercialization, as well as effectively overseeing mergers and acquisitions, and driving business development.

Joshua M. Hare, MD

CO-FOUNDER & CHIEF SCIENCE OFFICER

- A pioneer and world leader in stem cell research, he is the founding director of the Interdisciplinary Stem Cell Institute at the University of Miami's Miller School of Medicine and a Fellow of various esteemed associations, including the American Heart Association and the prestigious National Academy of Inventors.

Lisa Locklear

EVP & CHIEF FINANCIAL OFFICER

- Considerable CFO and global executive leadership experience in finance and accounting at Avanir Pharmaceuticals, GSN Games, CoreLogic, Ingram Micro, the Walt Disney Company, and Price Waterhouse (now PwC). She is also a recipient of the notable Healthcare Businesswoman's Association Luminary Award.

Nataliya Agafonova, MD

CHIEF MEDICAL OFFICER

- Extensive senior leadership experience in the biotechnology and pharmaceutical industries. Her successful cross-therapeutic expertise in drug development helped bring several products to the U.S. and EU markets.

Paul Lehr

GENERAL COUNSEL & SECRETARY

- Over 25 years of senior legal/executive roles in corporate and research settings. Former CEO of HeartGenomics, a cardiac biotech firm. Former President & General Counsel of a cardiac rehabilitation company, negotiating a master franchise agreement with 100+ facilities in India/the Middle East and securing Medicare approval with CMS.

Devin Blass

CTO & SVP, CMC

- Over 15 years of experience in the development and manufacture of advanced therapies. Mr. Blass served as SVP of Comprehensive Cell Solutions, the CDMO of New York Blood Center Enterprises (NYBCe). There, he oversaw the CDMO business unit, encompassing Technical Operations, Business Development, and Cell Sourcing.

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Thank You

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