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Global Leader in Allogeneic Cellular Medicines for Inflammatory Diseases

Corporate Presentation

November 2023

ASX: MSB; Nasdaq: MESO

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This presentation includes forward-looking statements that relate to future events or our future financial performance and involve known and unknown risks, uncertainties and other factors that may cause our actual results, levels of activity, performance or achievements to differ materially from any future results, levels of activity, performance or achievements expressed or implied by these forward-looking statements. We make such forward- looking statements pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995 and other federal securities laws. All statements other than statements of historical facts contained in this presentation are forward-looking statements. Words such as, but not limited to, “believe,” “expect,” “anticipate,” “estimate,” “intend,” “plan,” “targets,” “likely,” “will,” “would,” “could,” and similar expressions or phrases identify forward-looking statements. We have based these forward-looking statements largely on our current expectations and future events , recent changes in regulatory laws, and financial trends that we believe may affect our financial condition, results of operation, business strategy and financial needs. These statements may relate to, but are not limited to: expectations regarding the safety or efficacy of, or potential applications for, Mesoblast's adult stem cell technologies; expectations regarding the strength of Mesoblast's intellectual property, the timeline for Mesoblast's regulatory approval process, and the scalability and efficiency of manufacturing processes; expectations about Mesoblast's ability to grow its business and statements regarding its relationships with current and potential future business partners and future benefits of those relationships; statements concerning Mesoblast's share price or potential market capitalization; and statements concerning Mesoblast's capital requirements and ability to raise future capital, among others. Forward-looking statements should not be read as a guarantee of future performance or results, and actual results may differ from the results anticipated in these forward-looking statements, and the differences may be material and adverse. You should read this presentation together with our financial statements and the notes related thereto, as well as the risk factors, in our most recently filed reports with the SEC or on our website. Uncertainties and risks that may cause Mesoblast's actual results, performance or achievements to be materially different from those which may be expressed or implied by such statements, include, without limitation: risks inherent in the development and commercialization of potential products; uncertainty of clinical trial results or regulatory approvals or clearances; government regulation; the need for future capital; dependence upon collaborators; and protection of our intellectual property rights, among others. Accordingly, you should not place undue reliance on these forward-looking statements. We do not undertake any obligations to publicly update or revise any forward-looking statements, whether as a result of new information, future developments or otherwise.

Our Mission

Mesoblast is committed to bringing to market innovative cellular medicines to treat serious and life-threatening illnesses

Investment Highlights

Novel Allogeneic Cell Therapy Platform	Developing off-the-shelf, allogeneic cellular medicines based on proprietary mesenchymal stromal cell (MSC) technology platforms to enable treatment without the need for donor matching or immunosuppression
Remestemcel-L for *Pediatric* SR-aGVHD	Single-arm pivotal Phase 3 trial completed; primary endpoint successfully met Long-term data shows durability of survival benefit >4 years Additional potency assay data to be presented to FDA
Remestemcel-L for *Adult* SR-aGVHD	Market size for adult population approx. 5-fold larger than pediatric The pivotal trial is expected to be conducted by BMT CTN, a body responsible for approximately 80% of all US transplants, at a fraction of the cost of a traditional CRO
Rexlemestrocel-L for CLBP	First randomized controlled Phase 3 trial completed, RMAT granted by FDA for discogenic pain Agreement on 12-month pain reduction endpoint for FDA approval, confirmatory trial needed Start-up activities for this trial significantly advanced with investigators, trial sites & CRO
Rexlemestrocel-L for HFrEF	RMAT granted by FDA for heart failure with reduced ejection fraction (HFrEF) and LVADs Phase 2b/3 trial in HFrEF LVAD patients completed First Phase 3 trial for HFrEF Class II/III patients completed

BLA = Biologics License Application
FDA = United States Food and Drug Administration
PDUFA = Prescription Drug User Fee Act
RMAT = Regenerative Medicine Advanced Therapy
LVAD = Left Ventricular Assist Device
CRO = Contract Research Organization

Pathway to Approval for RYONCIL in Pediatric Patients with SR-aGVHD

- During the Biologics License Application (BLA) review we made substantial progress towards bringing this cutting-edge product to market with a completed FDA inspection of our manufacturing process.

- In August FDA provided a complete response requiring Mesoblast to provide additional potency assay data confirming that product used in the Phase 3 trial is similar to product intended for commercial release, as measured by a standardized potency assay.

- At the Type A meeting in September, Mesoblast presented clinical data indicating that treatment with the improved RYONCIL product version of remestemcel-L, manufactured using the current process inspected by FDA, resulted in consistently high survival rates in children with SR-aGVHD.

- Similarly high survival rates were seen whether using product made for the Phase 3 clinical trial MSB-GVHD001 between 2015-2018 or made with the validated manufacturing process proposed for commercial release and used under Emergency Investigational New Drug (EIND) protocol through 2023.

- Mesoblast believes that the totality of these clinical studies, together with additional potency assay data currently being generated using the IL-2R alpha inhibition potency assay in place during the pediatric Phase 3 trial, will both support approval for the pediatric indication and provide a link between the RYONCIL product that was used in the pediatric Phase 3 trial and available commercial inventory.

Pathway to Approval for RYONCIL in Adult Patients with SR-aGVHD

- Survival in adults with SR-aGVHD who have failed at least one additional agent, such as ruxolitinib, remains as low as 20-30% by 100 days, a patient population with no approved therapies.[1,2]

- In contrast, 100-day survival was 63% after remestemcel-L treatment was used under expanded access in 71 patients aged 12 and older with SR-aGVHD who failed to respond to at least one additional agent, such as ruxolitinib.

- In its September 2023 draft guidance to industry for development of agents to treat aGVHD, the FDA stated that a marketing application in a population with refractory aGVHD where there are no approved therapies might be supported by positive results from a single-arm trial.[3]

- Mesoblast intends to commence a Phase 3 trial of RYONCIL in adults and adolescents, a market approx. 5-fold larger than pediatric, who are refractory to both corticosteroids and a second line agent such as ruxolitinib, for whom there are no approved therapies.

- The trial is expected to be conducted by the Blood and Marrow Transplant Clinical Trials Network (BMT CTN), a body responsible for approximately 80% of all US transplants, at a fraction of the cost of a traditional contract research organization (CRO).

1. Jagasia M et al. Ruxolitinib for the treatment of steroid-refractory acute GVHD (REACH1): a multicenter, open-label phase 2 trial. Blood. 2020 May 14; 135(20): 1739–1749.
2. Abedin S, et al. Ruxolitinib resistance or intolerance in steroid-refractory acute graft versus-host disease — a real-world outcomes analysis. British Journal of Haematology, 2021;195:429–43.
3. US FDA. Graft-versus-Host Diseases: Developing Drugs, Biological Products, and Certain Devices for Prevention or Treatment Guidance for Industry. Draft Guidance. Sep 2023

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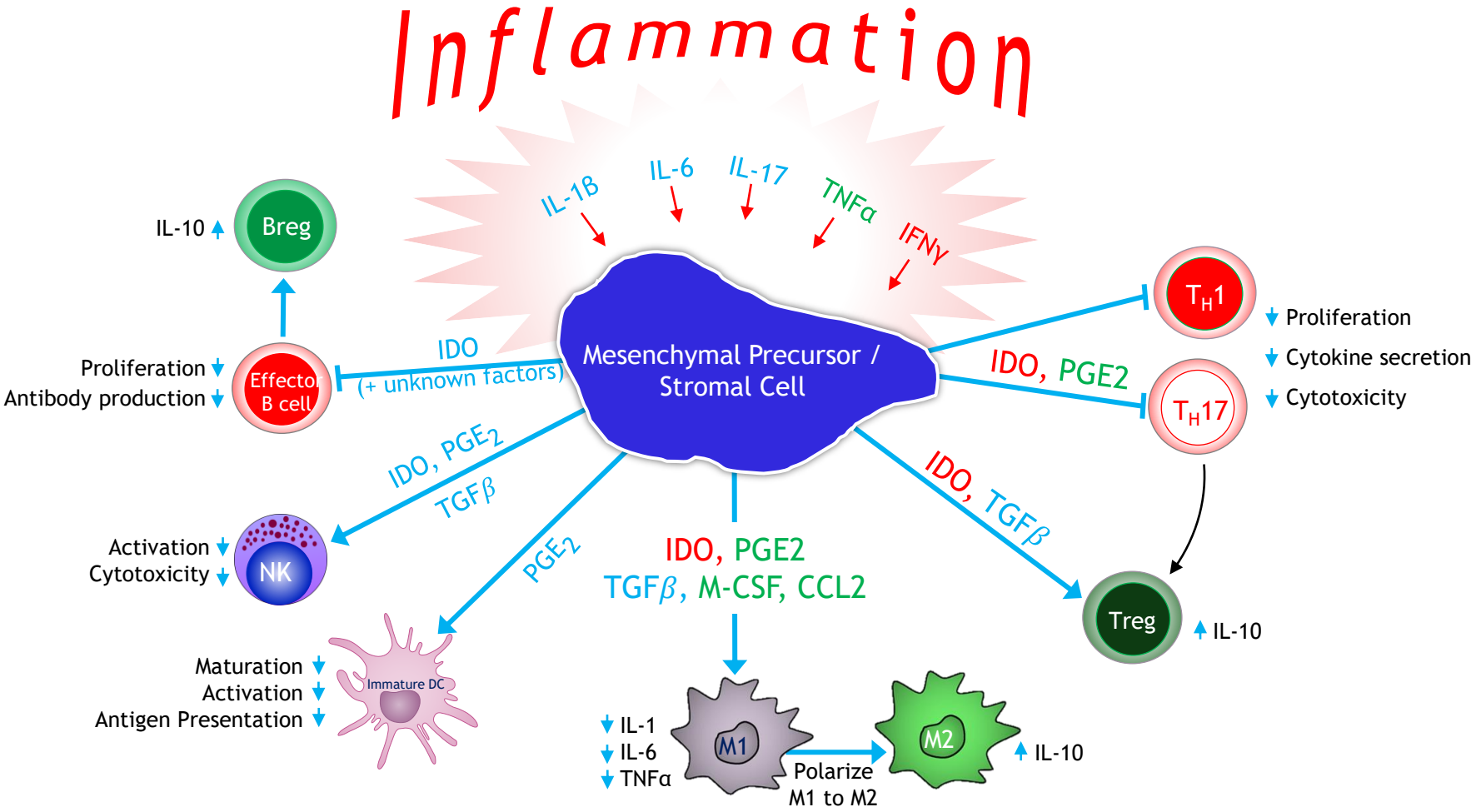
Financials

- Revenue from royalties, predominantly on sales of TEMCELL® HS Inj.[1] sold in Japan by our licensee, were US$7.5 million for the year ended June 30, 2023.[2]
- Cash balance at September 30, 2023 was US$53.2 million, with net operating cash spend of US$14.2 million for the quarter.
- Management and the Board have put in place a plan that focuses on preservation of cash by implementing significant cost containment strategies and enacting substantial payroll reductions.
- Net operating cash usage over the past two years reduced by 37% to US$63.3 million in FY2023. We have implemented a cost containment plan to achieve a further targeted 23% reduction (US$15 million) in projected FY2024 annual net operating cash spend compared with FY2023, which will be partially offset by investment in our Phase 3 programs for adults with steroid-refractory acute graft versus host disease (SR-aGVHD) and chronic low back pain (CLBP).

1. TEMCELL® HS Inj. is a registered trademark of JCR Pharmaceuticals Co. Ltd.
2. TEMCELL sales by our Licensee are recorded in Japanese Yen before being translated into USD for the purposes of calculating the royalty paid to Mesoblast. Results have been adjusted for the movement of the USD to Japanese Yen exchange rate from 1USD:122.14 Yen for the year ended June 30, 2022 to 1USD:139.76 Yen for the year ended June 30, 2023.

Platform Technology – Mechanism of Action

Our mesenchymal precursor/stromal cells respond to and are activated by multiple inflammatory cytokines through surface receptors, resulting in orchestration of an anti-inflammatory cascade



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Global Intellectual Property (IP) Estate

Provides Substantial Competitive Advantage

- Extensive patent portfolio with protection extending through 2040
- Over 1,100 patents and patent applications (82 patent families) across all major jurisdictions
- Covers composition of matter, manufacturing, and therapeutic applications of mesenchymal lineage cells
- Provides strong global protection in areas of our core commercial focus against cell-based competitor products
- Outside our core areas, may grant rights to third parties requiring access to our patent portfolio to commercialize their products
- Track record of managing intellectual property
  - Royalty agreement and income received from JCR Pharmaceuticals in Japan for treatment of aGVHD
  - Patent license granted to TiGenix, S.A.U., a wholly owned subsidiary of Takeda, on its worldwide sales of its product Alofisel® for the treatment of complex perianal fistulas in Crohn's disease

Markets
Global coverage including U.S., Europe, China, and Japan

Therapeutic Areas
Core commercial and non-core indications

Sources
Allogeneic / Autologous (Bone Marrow, Adipose, Dental Pulp, Placental), Pluripotent (iPS)

Commercial-scale Manufacturing Process and Facilities

- Scalable allogeneic “off-the-shelf” cellular platforms
- Manufacturing meets stringent criteria of international regulatory agencies
- Robust quality assurance processes ensure final product with batch-to-batch consistency and reproducibility
- Manufacturing innovations to meet increasing capacity requirements, improve yields and reduce cost of goods
  - Proprietary xeno-free technologies
  - Scaled-up 2D manufacturing
  - 3D bioreactors for high volume indications

Manufacturing Remestemcel-L

Late-Stage Clinical Pipeline

Based on the Proprietary Allogeneic Mesenchymal Stromal Cell Platform

Product	Indication	Phase 2	Phase 3	Regulatory Filing	Approved
Remestemcel-L	Pediatric SR-aGVHD				
Remestemcel-L	Adult SR-aGVHD				
Rexlemestrocel-L	CLBP				
Rexlemestrocel-L	HFrEF				

SR-aGVHD = Steroid-Refractory Acute Graft Versus Host Disease; CLBP = Chronic Low Back Pain; HFrEF = Heart Failure with Reduced Ejection Fraction

This chart is figurative and does not purport to show individual trial progress within a clinical program

Notes:

- JCR Pharmaceuticals Co., Ltd. (JCR), has the right to develop mesenchymal stromal cells (MSCs) in certain fields for the Japanese market, including for the treatment of hematological malignancies, such as Graft vs Host Disease, and for hypoxic ischemic encephalopathy (HIE).
- Grünenthal has an exclusive license to develop and commercialize rexlemestrocel-L for chronic low back pain in Europe and Latin America/Caribbean.
- Tasly Pharmaceuticals has exclusive rights for rexlemestrocel-L for the treatment or prevention of chronic heart failure in China.

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Rexlemestrocel-L

Chronic Low Back Pain due to Degenerative Disc Disease (CLBP)

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Chronic Low Back Pain Due to Degenerative Disc Disease (CLBP) Impacts 7M+

Rexlemestrocel-L represents a potential new paradigm for the treatment of CLBP

Burden of Illness

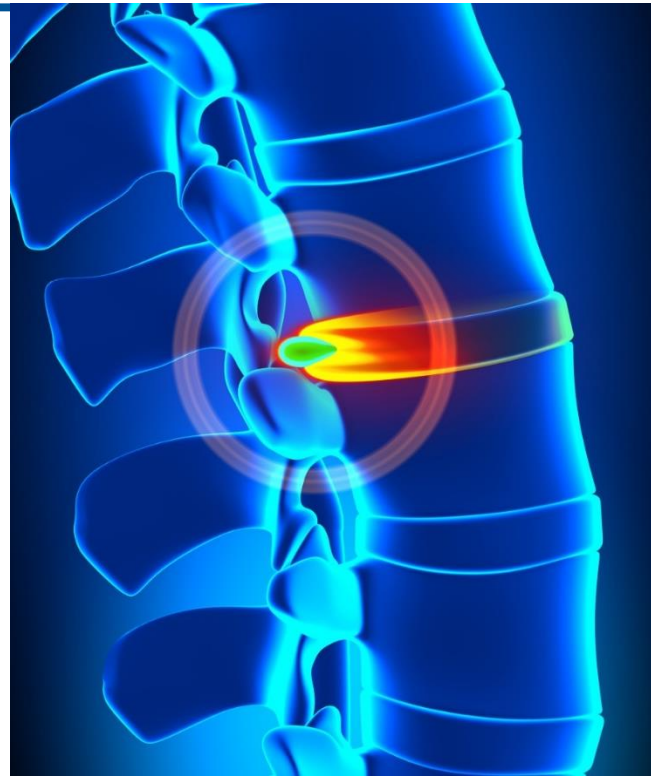
- Back pain causes more disability than any other condition[1]
- Inflicts substantial direct and indirect costs on the healthcare system,[1] including excessive use of opioids in this patient population

Treatment Options

- Minimal treatment options for patients with chronic low back pain (CLBP) who fail conservative therapy include opioids and surgery
- 50% of opioid prescriptions are for CLBP[2]
- Durable improvement in pain has potential to reduce opioid use and prevent surgical intervention

Market Opportunity

- Over 7m patients are estimated to suffer from CLBP due to degenerative disc disease (DDD) in each of the U.S. and E.U.5 [2-4]



1. Williams, J., NG, Nawi, Pelzter, K. (2015) Risk factors and disability associated with low back pain in older adults in low-and middle-income countries. Results from the WHO Study on global ageing and adult health (SAGE). PloS One. 2015; 10(6): e0127880., 2.Decision Resources: Chronic Pain December 2015., 3. LEK & NCI opinion leader interviews, and secondary analysis., 4. Navigant: Commercial Assessment for a Proprietary Cell-Based Therapy for DDD in the U.S. and the EU3 – August 2014.

Rexlemestrocel-L / CLBP – Program Summary

Regulatory Alignment

Gained alignment with the FDA on the appropriate pivotal Phase 3 study

Seeks to replicate the significant reduction in pain seen at 12 and 24 months in our first Phase 3 trial

Phase 3 Protocol

FDA has agreed with Mesoblast plans for mean **pain reduction at 12 months as the primary endpoint** of the pivotal trial

Functional improvement and reduction in opioid use as secondary endpoints

Product Manufacturing

Product has been manufactured for use in the pivotal Phase 3 study

Potency assays are in place for product release

Pivotal P3 Trial

RMAT designation for CLBP received from FDA this year

Start-up activities for this trial significantly advanced with investigators, trial sites & CRO

Regenerative Medicine Advanced Therapy (RMAT) Designation Granted by FDA for Rexlemestrocel-L in the treatment of CLBP

- RMAT designation provides all the benefits of Breakthrough and Fast Track designations, including rolling review and eligibility for priority review on filing of a Biologics License Application (BLA)

Results from the trial showed that:

- A single injection of rexlemestrocel-L+HA into the lumbar disc resulted in significant reduction in pain compared with saline control at 12 and 24 months across all subjects (n=404)

- Pain reduction through 36 months was seen in the subset of patients using opioids at baseline (n=168) with the rexlemestrocel-L+HA group having substantially greater reduction at all time points compared with saline controls

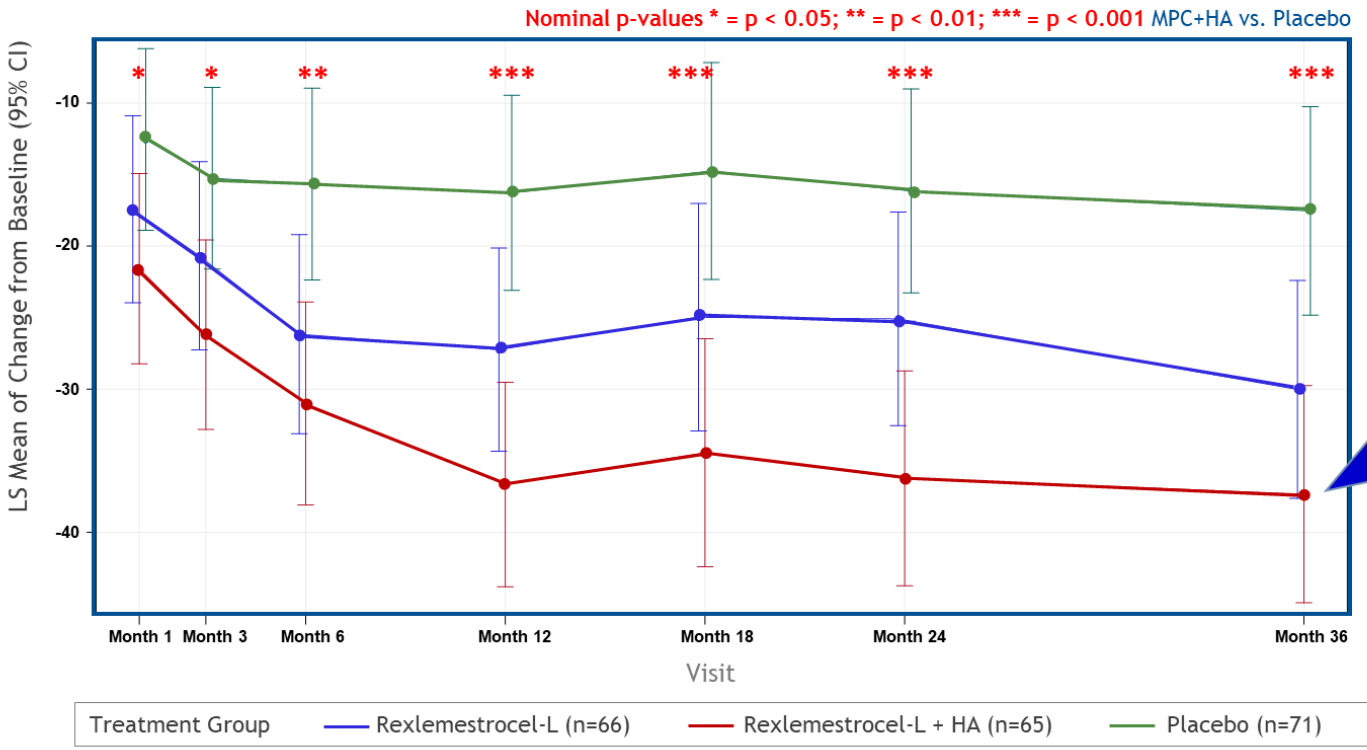
- Among patients on opioids at baseline, despite instructions to maintain existing therapies throughout the trial, at 36 months 28% who received rexlemestrocel-L+HA were not taking an opioid compared with 8% of saline treated controls

Phase 3 Trial Outcomes based on a Single Injection of Rexlemestrocel-L + HA

Results in More than Three Years of Pain Reduction

Greatest pain reduction was observed in the pre-specified population of subjects with CLBP duration shorter than the baseline study median of 68 months (n=202) with significantly greater reduction (nominal p-value < 0.05) at all time points analyzed over 36 months compared with saline controls

LS Mean VAS Change in Low Back Pain from Baseline - Duration CLBP < 68 Month Median Baseline Duration (n=202)



Duration < Median

Rexlemestrocel-L +HA Demonstrated significant reductions in pain over 36-months

VAS=Visual Analog Score; HA=Hyaluronic Acid

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Rexlemestrocel-L

Chronic Heart Failure Reduced Ejection Fraction (HFrEF)

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Rexlemestrocel-L / HFrEF - Program Summary

Defining the Regulatory Path to FDA Approval

Significant Need

Cardiovascular disease remains the leading cause of death in the US

CHF is a progressive disease with a high mortality approaching 50% at 5 years, and at least 75% after an initial hospitalization

Promising Data

Recent data from the DREAM-HF P3 trial showed improved LVEF at 12 months, preceding long-term reduction in MACE events across all treated patients

LVEF is a potential early surrogate endpoint

Targeting Inflammation

Effects on LVEF and MACE outcomes are enhanced in patients with active inflammation

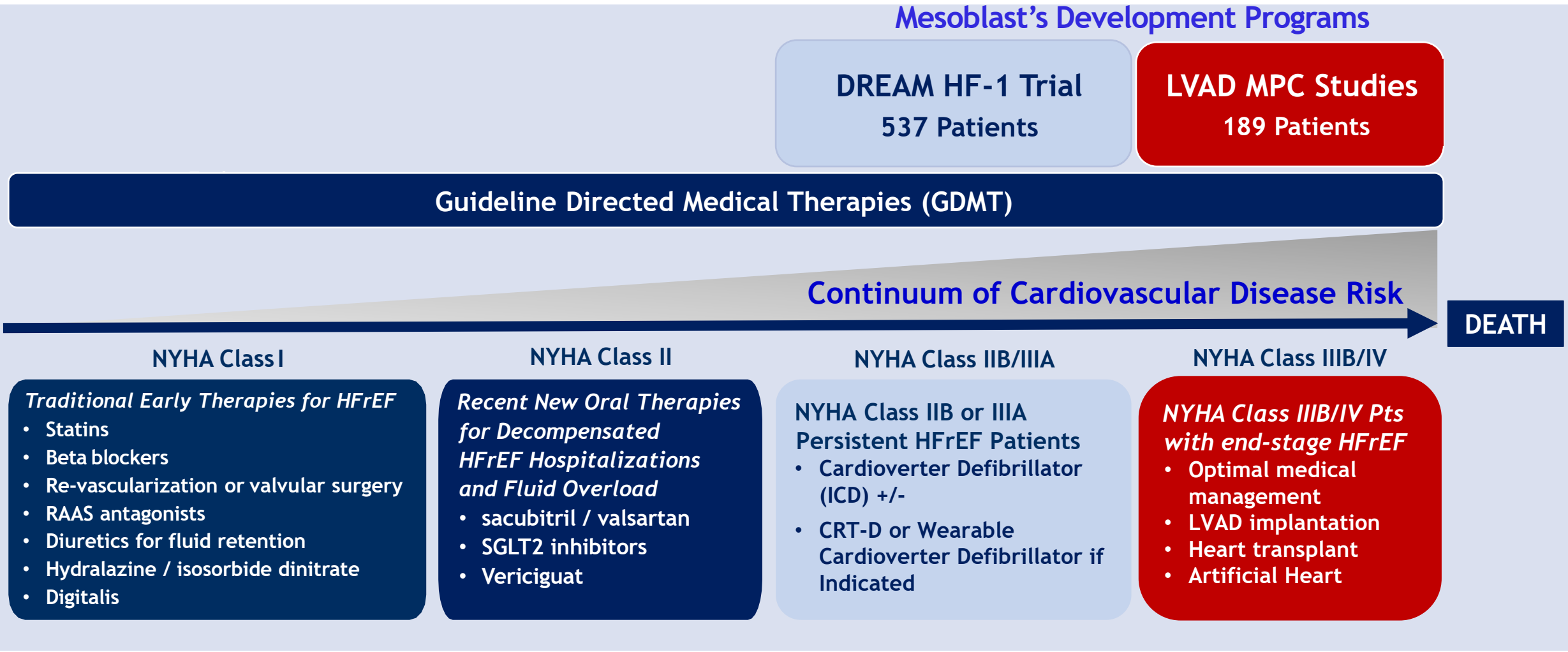
Trial results from class II to end-stage HFrEF now support a MOA by which rexlemestrocel-L reverses inflammation-related endothelial dysfunction

FDA Meeting

Mesoblast plans to meet with the FDA under its RMAT designation to discuss the potential pathway to approval

Patients Experience Progressive Vascular Dysfunction and Heart Failure

Rexlemestrocel-L has the potential to improve endothelial dysfunction in patients from Class II thru IV



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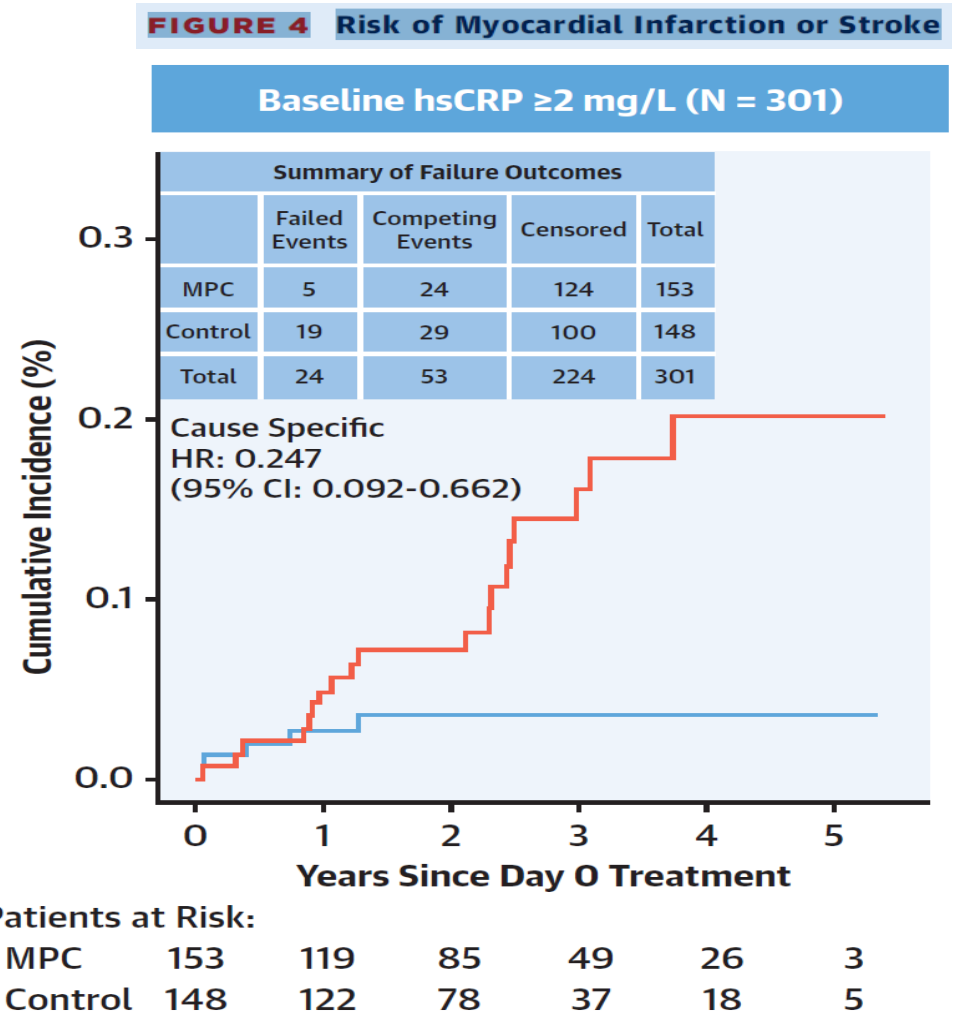
ORIGINAL INVESTIGATIONS

Randomized Trial of Targeted Transendocardial Mesenchymal Precursor Cell Therapy in Patients With Heart Failure

Emerson C. Perin, MD, PHD,[a] Kenneth M. Borow, MD,[b] Timothy D. Henry, MD,[c] Farrell O. Mendelsohn, MD,[d] Leslie W. Miller, MD,[e] Elizabeth Swiggum, MD,[f] Eric D. Adler, MD,[g] David H. Chang, MD,[h] R. David Fish, MD,[a] Alain Bouchard, MD,[d] Margaret Jenkins, BSC (HONS),[i] Alex Yaroshinsky, PHD,[j] Jack Hayes, MA,[k] Olga Rutman, PHD,[k] Christopher W. James, PA,[k] Eric Rose, MD,[l] Silviu Itescu, MD,[l] Barry Greenberg, MD[m]

Randomized, double-blind, controlled, 537 patient Phase 3 trial of rexlemestrocel-L over mean follow-up of 30 months showed:

- Improved LVEF from baseline to 12 months in all patients - maximal benefit seen in patients with active inflammation
- Reduced risk of MI or stroke by 57% in all treated patients, and by 75% in patients with inflammation
- Reduced risk for time-to-first Major Adverse Cardiac Event (MACE), defined as cardiovascular death, MI or stroke, by 28% in all patients, and by 37% in patients with inflammation



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Rexlemestrocel-L – Two Pivotal Studies in Chronic Heart Failure (CHF)

Mesoblast's Development Programs Assess the Impact of Intra-cardiac Administration of Rexlemestrocel-L Across the Continuum of Disease from Mild/Moderate to End-stage Severity

MPC Study Design	LVAD-MPC Study #2	DREAM-HF Trial
Treated Patients	**159**	**537**
Study Design	Prospective, randomized, Multi-center, double-blinded, single dose, sham-controlled, parallel group efficacy & safety studies of allogeneic mesenchymal precursor cells (MPCs)	
Pathologies of ↑ed Importance	LV Systolic Function, Inflammation, Mortality, Major Morbidities	
Product	Mesenchymal Precursor Cells with defined Cardiac Potency (Rexlemestrocel-L)	
Cell Preparation, Manufacturing, Central Storage and Shipping	Same facilities and vendors in both studies	
Physical Location Used for Cell Administration at the Study Site	Operating room	Cardiac catheterization laboratory
Patient Analysis Population	End-stage chronic HFrEF candidate for LVAD implant (NYHA Class IIIB or IV), ischemic or non-ischemic etiology (N=159: MPC=106, CTRL=53)	Chronic HFrEF (Late NYHA Class II or IIIA), ischemic or non-ischemic etiology (N=537: MPC=265, CTRL=272)
Cell Dose in MPC	150 million cells administered as 15-20 individual injections during a single procedure	
Route of Cell Administration	Epicardial injection	Transendocardial injection
Target of Cell Administration	Mid-wall of left ventricle	

Remestemcel-L

Steroid-Refractory Acute Graft Versus Host Disease (SR-aGVHD)

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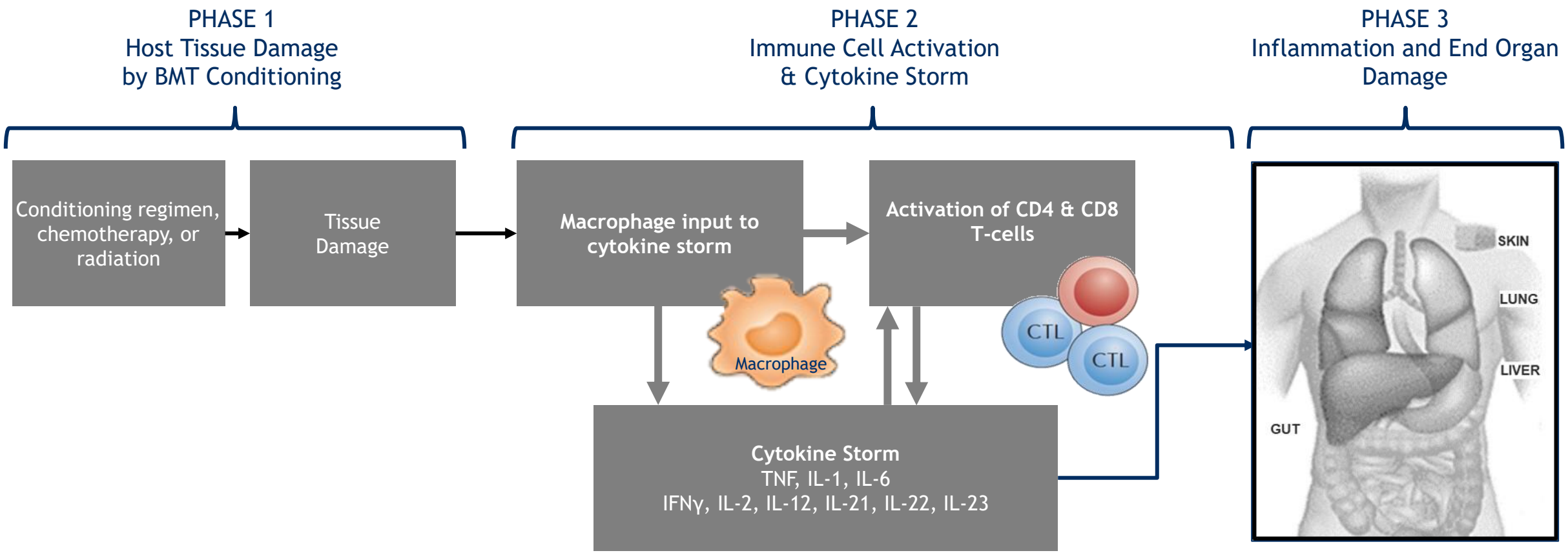
Acute Graft Versus Host Disease (aGVHD)

Serious and Fatal Complication of Allogeneic Bone Marrow Transplantation (BMT)



Modified from Blazar et al., Nature Reviews Immunology 12: 443 – 458

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Remestemcel-L: Steroid-Refractory Acute Graft Versus Host Disease (SR-aGVHD)

SR-aGVHD is associated with mortality rates as high as 90%

Treatment Options

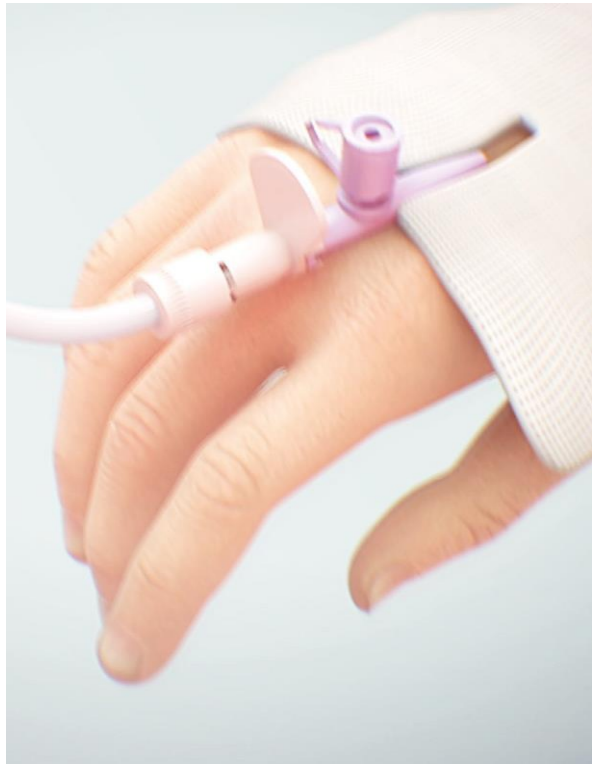
- Corticosteroids are first-line therapy for aGVHD
- There is only one approved treatment for disease refractory to steroids and no approved treatment in the US for children under 12 years old
- In Japan, Mesoblast's licensee received the first product approval for SR-aGVHD in both children and adults

Burden of Illness

- Acute GVHD is a life-threatening complication that occurs in ~50% of patients receiving allogeneic bone marrow transplants (BMTs)[1]
- Acute GVHD primarily affects skin, GI tract, and liver
- Steroid-refractory aGVHD is associated with mortality rates as high as 90%[1,4] and significant extended hospital stay costs[2]

Market Opportunity

- More than 30,000 allogeneic BMTs performed globally (>20K US/EU) annually, ~20% pediatric[2,3]
- Approx. 9,000 -10,000 allogeneic BMTs performed in the US annually
- Approx. 1,500 allogenic BMTs are in children and adolescents in US[3]



1. Westin, J., Saliba, RM., Lima, M. (2011) Steroid-refractory acute GVHD: predictors and outcomes. Advances in Hematology. 2. Niederwieser D, Baldomero H, Szer J. (2016) Hematopoietic stem cell transplantation activity worldwide in 2012 and a SWOT analysis of the Worldwide Network for Blood and Marrow Transplantation Group including the global survey. 3. HRSA Transplant Activity Report, CIBMTR, 2020 4. Axt L, Naumann A, Toennies J (2019) Retrospective single center analysis of outcome, risk factors and therapy in steroid refractory graft-versus-host disease after allogeneic hematopoietic cell transplantation. Bone Marrow Transplantation.

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Remestemcel-L for Children with SR-aGVHD

Improved Early Survival Across Three Studies involving more than 300 Treated Children

Day 100 Survival			
Remestemcel-L Protocol	**Remestemcel-L**	**Matched Controls**	**Matched Control Protocol**
First Line Therapy after Steroids Treatment Setting			
Pediatric Subset of Protocol 280: randomized controlled P3, n=27 w/SR-aGVHD	79%	54%	Study Control Arm (n=13)
Study 001, open-label P3, n=54[1] with 89% Grade C/D disease	74%	57%	**MAGIC[2] cohort**, n=30[3] propensity-controlled subset
Salvage Therapy Treatment Setting			
Expanded Access Protocol (EAP275), n=241	66%	na	
EAP275, n=51 Grade D subset	51%	31%	**CIBMTR dbase**, n=327[4] propensity controlled subset

1. GVHD001 had 55 randomized patients, however one patient dropped out before receiving any dose of remestemcel-L; 2. Mount Sinai Acute GVHD International Consortium (MAGIC) - a group of ten BMT centers throughout the US and Europe whose purpose is to conduct ground-breaking clinical trials in GVHD, including developing informative biorepositories that assist in developing treatments that can guide GVHD therapy; 3. Two subjects in the MAGIC cohort had follow-up <100 days; these subjects are excluded from the respective survival analyses; 4. Data on file

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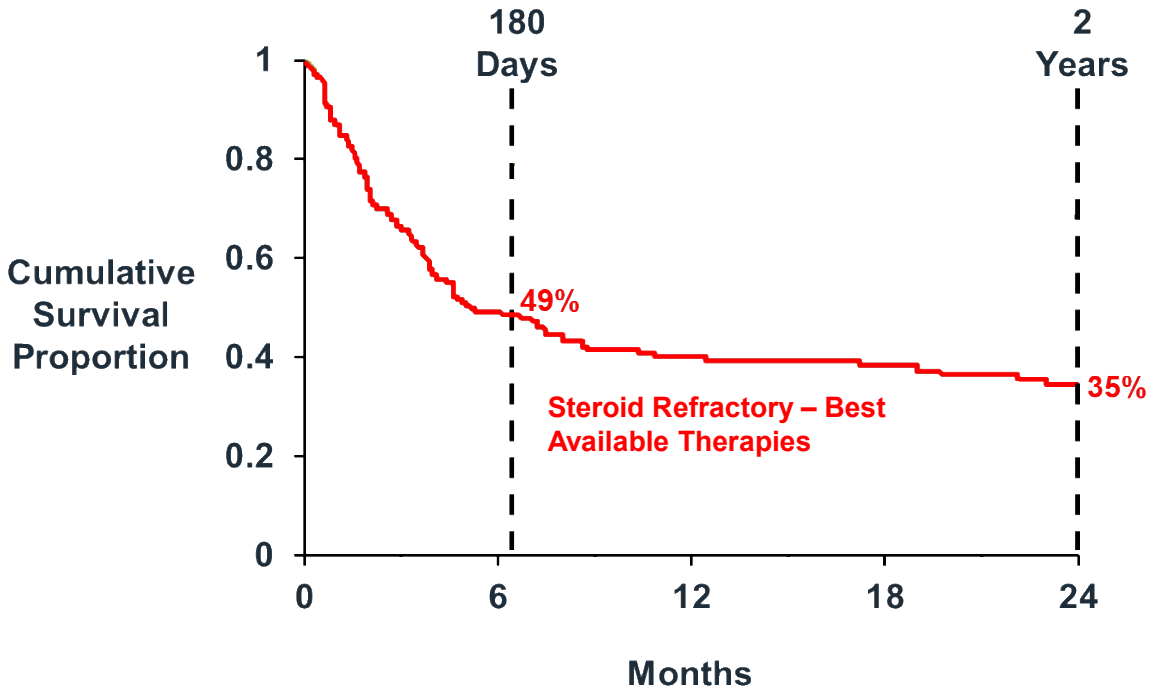
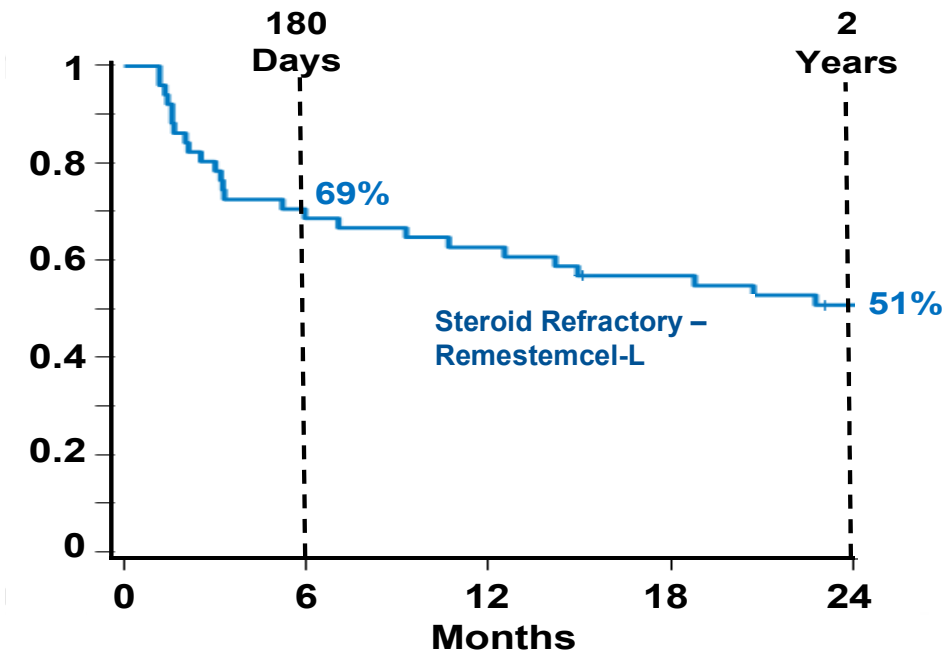
Long term Survival in Pediatric Patients with SR-aGVHD Treated with Remestemcel-L

Presented at the 2023 Tandem Meeting of ASTCT and CIBMTR

2-Year Survival in Pediatric Patients Refractory to Steroids[1]
N=128



2-Year Survival in Pediatric Patients GVHD001[2]
N=51



1.Adapted and redrawn from Figure 2 of MacMillan, M.L. et al. Pediatric acute GVHD: clinical phenotype and response to upfront steroids. Bone Marrow Transplant 55, 165–171 (2020);
2.CIBMTR – Center for International Blood & Bone Marrow Transplantation Research. Clinical Outcomes of Pediatric Patients Treated with Remestemcel-L for Steroid-Refractory Acute Graft Versus-Host Disease on a Phase 3, Single- Arm, Prospective Study (Nov 2022)
ASTCT = American Society for Transplantation and Cellular Therapy; CIBMTR = Center for International Blood and Marrow Transplant Research

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Extended Survival Data in Children with SR-aGVHD

Remestemcel-L Treatment Resulted in Durable Survival Over 4 Years

Survival Outcomes in Pediatric & Adult SR-aGVHD

(Remestemcel-L data from the Center for International Blood and Marrow Transplant Research (CIBMTR) dbase)

Study	GVHD001	MacMillan et al[1]	Rashidi et al[2]	REACH2[3]	REACH2[3]	REACH1[4]
Treatment	Remestemcel-L	BAT[5]	BAT[5]	BAT[5]	Ruxolitinib	Ruxolitinib
N=	51	128	203	155	154	71
Subjects	Children	Children	Adults	Adults	Adults	Adults
aGVHD Grade	88% Grade C/D	22% Grade 3/4	54% Grade 3/4	63% Grade 3/4	63% Grade 3/4	68% Grade 3/4
Year 1 Survival	63%	40%	--	44%	49%	43%
Year 2 Survival	51%	35%	25%	36%	38%	--
Year 3 Survival	49%					
Year 4 Survival	49%					

1. MacMillan ML et al. Pediatric acute GVHD: clinical phenotype and response to upfront steroids. Bone Marrow Transplant 2020; 55(1): 165-171
2. Rashidi A et al. Outcomes and predictors of response in steroid-refractory acute graft-versus-host disease: single-center results from a cohort of 203 patients. Biol Blood Bone Marrow Transplant 2019; 25(11):2297-2302.
3. Zeiser R et al. Ruxolitinib for Glucocorticoid-Refractory Acute Graft-versus-Host Disease. N Engl J Med 2020;382:1800-10.
4. Jagasia M et al. Ruxolitinib for the treatment of steroid-refractory acute GVHD (REACH1): a multicenter, open-label phase 2 trial. Blood. 2020 May 14; 135(20): 1739–1749
5. BAT = Best Available Treatment

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Pathway to Approval for RYONCIL in Pediatric Patients with SR-aGVHD

- During the Biologics License Application (BLA) review we made substantial progress towards bringing this cutting-edge product to market with a completed FDA inspection of our manufacturing process.

- In August FDA provided a complete response requiring Mesoblast to provide additional potency assay data confirming that product used in the Phase 3 trial is similar to product intended for commercial release, as measured by a standardized potency assay.

- At the Type A meeting in September, Mesoblast presented clinical data indicating that treatment with the improved RYONCIL product version of remestemcel-L, manufactured using the current process inspected by FDA, resulted in consistently high survival rates in children with SR-aGVHD.

- Similarly high survival rates were seen whether using product made for the Phase 3 clinical trial MSB-GVHD001 between 2015-2018 or made with the validated manufacturing process proposed for commercial release and used under Emergency Investigational New Drug (EIND) protocol through 2023.

- Mesoblast believes that the totality of these clinical studies, together with additional potency assay data currently being generated using the IL-2R alpha inhibition potency assay in place during the pediatric Phase 3 trial, will both support approval for the pediatric indication and provide a link between the RYONCIL product that was used in the pediatric Phase 3 trial and available commercial inventory.

RYONCIL for Adults with SR-aGVHD

- Commercial strategy is to progress to adults who have failed steroids and a first-line agent, including ruxolitinib
- Market opportunity approximately five times larger than pediatric
- Approximately 45% of ruxolitinib patients are non-responders [1]
- Survival in adults with SR-aGVHD who have failed at least one additional agent, such as ruxolitinib, is 20-30% by 100 days [1,2]
- In contrast, 100-day survival was 63% after remestemcel-L treatment was used under compassionate care in 71 patients aged 12 and older with SR-aGVHD who failed to respond to at least one additional agent, such as ruxolitinib
- In its September 2023 draft guidance to industry for development of agents to treat aGVHD, the FDA stated that a marketing application in a population with refractory aGVHD where there are no approved therapies might be supported by positive results from a single-arm trial.[3]
- The Blood and Marrow Transplant Clinical Trials Network (BMT CTN), a body responsible for approximately 80% of all US transplants, is expected to conduct the pivotal trial of RYONCIL in this adult population at a fraction of the cost of a traditional contract research organization (CRO)

1. Jagasia M et al. Ruxolitinib for the treatment of steroid-refractory acute GVHD (REACH1): a multicenter, open-label phase 2 trial. Blood. 2020 May 14; 135(20): 1739–1749
2. Abedin S, et al. Ruxolitinib resistance or intolerance in steroid-refractory acute graft versus-host disease — a real-world outcomes analysis. British Journal of Haematology, 2021;195:429-43.
3. US FDA. Graft-versus-Host Diseases: Developing Drugs, Biological Products, and Certain Devices for Prevention or Treatment Guidance for Industry. Draft Guidance. Sep 2023

Thank You