Welcome to **R&D Day**

ASX: MSB; Nasdaq: MESO. I April 8, 2026

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Agenda

	Presenting	KOL Perspective
Welcome	Paul Hughes	
Overview	Silviu Itescu, MD	
Ryoncil®		
Flagship Growth	Marcelo Santoro, DBA	Joanne Kurtzberg, MD
Adult SR-aGvHD	Michael Schuster, MBA, MS	Susan Prockop, MD
Chronic Lower Back Pain	Roger Brown	Doug Beall, MD
Inflammatory Heart Failure	Ken Borow, MD	Emerson Perin, MD Eric Rose, MD
Pediatric Label Extension	Michael Schuster, MBA, MS	
Next Generation Platforms	Dan Devine, JD, MBA	Saad Kenderian, MB
Financial and Manufacturing	James O'Brien / Justin Horst	
Wrap-up and Closing Remarks	Silviu Itescu, MD	
Audience Q&A		

Meet Today's Invited Experts – Key Opinion Leaders

Joanne Kurtzberg, MD

Jerome Harris Distinguished Professor of Pediatrics
Professor of Pathology
Duke University School of Medicine

Emerson C. Perin, MD, PhD

Medical Director of The Texas Heart Institute
Professor of Medicine, Baylor College of Medicine

Douglas P. Beall, MD

Chief of Services, Comprehensive Specialty Care; Director of Research Clinical Investigations LLC

Susan Prockop, MD

Director, Clinical and Translational Research
(Stem Cell Transplant Program, DFCI/BCH Cancer and Blood Disorders Center)

Eric Rose, MD, Chief Medical Officer

World-renowned heart surgeon and scientist made history when he performed the first successful pediatric heart transplant

Saad Kenderian, MD, ChB

Assistant Professor of Oncology, Medicine and Immunology at Mayo Clinic

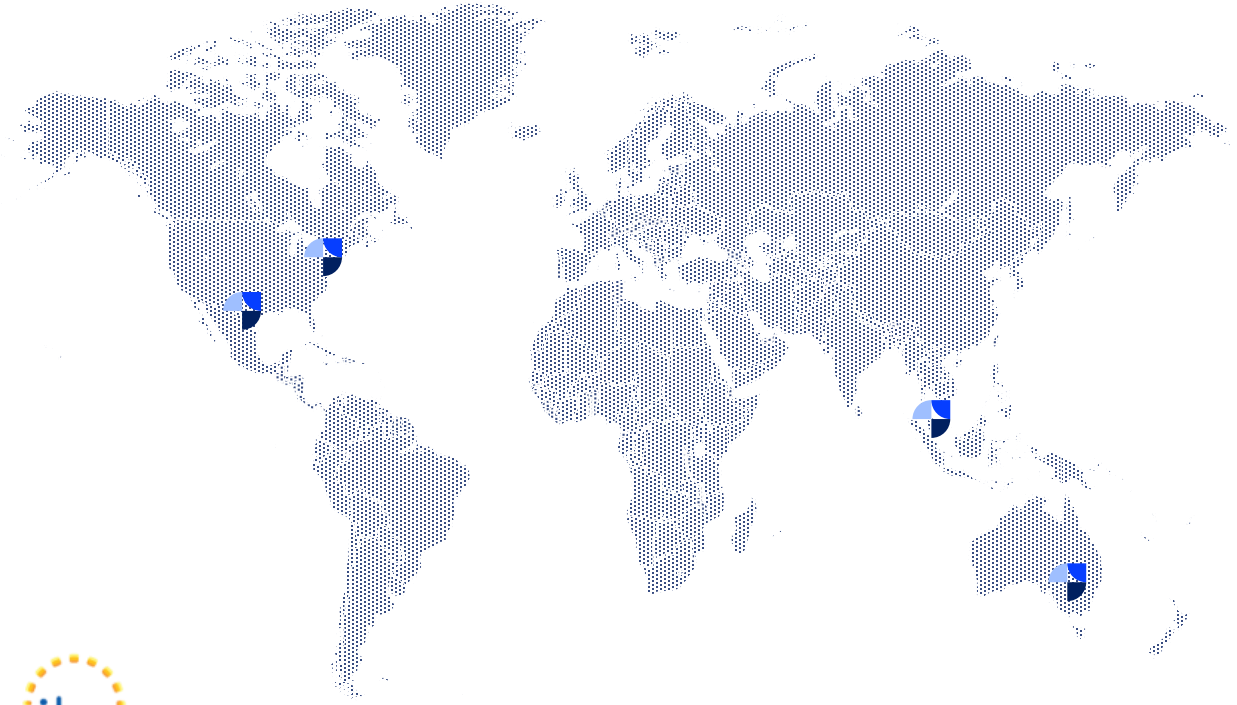
Strategic Overview

Silviu Itescu

Chief Executive

Mesoblast: Global Leader in Allogeneic (Off-the-Shelf) Cellular Medicines

- World leader in developing allogeneic (off-the-shelf) cellular medicines for the treatment of severe and life-threatening inflammatory conditions
- Locations in United States, Australia, and Singapore
- Listed on NASDAQ (MESO) and ASX (MSB)
- Developing product candidates for distinct indications based on its remestemcel-L and rexlemestrocel-L stromal cell technology platforms
- First FDA-approved product launched successfully
- Extensive global intellectual property portfolio with protection extending through to at least 2044 in all major markets
- FDA-inspected commercial scale manufacturing process and facilities



Ryoncil® (remestemcel-L-rknd)

First FDA approval

THREE Additional Major Phase 3 Assets

Robust Pipeline

more than 1,100 patents & applications

Proprietary Stromal Cell Technology Positions Mesoblast First-in-Class

Based on mesenchymal lineage adult stromal cells (MLCs)

MLCs: Unique Cells Fighting Inflammation

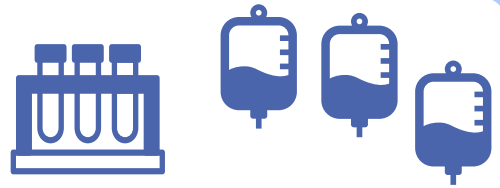
- Derived from healthy donors
- Home to inflamed tissue and respond to inflammatory signals
- Secrete factors that target multiple inflammatory pathways, inert in the absence of inflammation
- Reduction in inflammation and tissue repair

Proven 1st and 2nd Gen Technology Platforms

- **Remestemcel-L**: first generation, FDA-approved, focused on rare orphan diseases
- **Rexlemestrocel-L**: second generation, immunoselected for precision, greater potency for blockbuster high volume diseases

Unique Off-the-Shelf (Allogeneic) Properties Underpin Business

- No expression of cell surface co-stimulatory molecules
- Do not induce immune reaction, no need for immunosuppression
- From a single donor product made for thousands of unrelated recipients

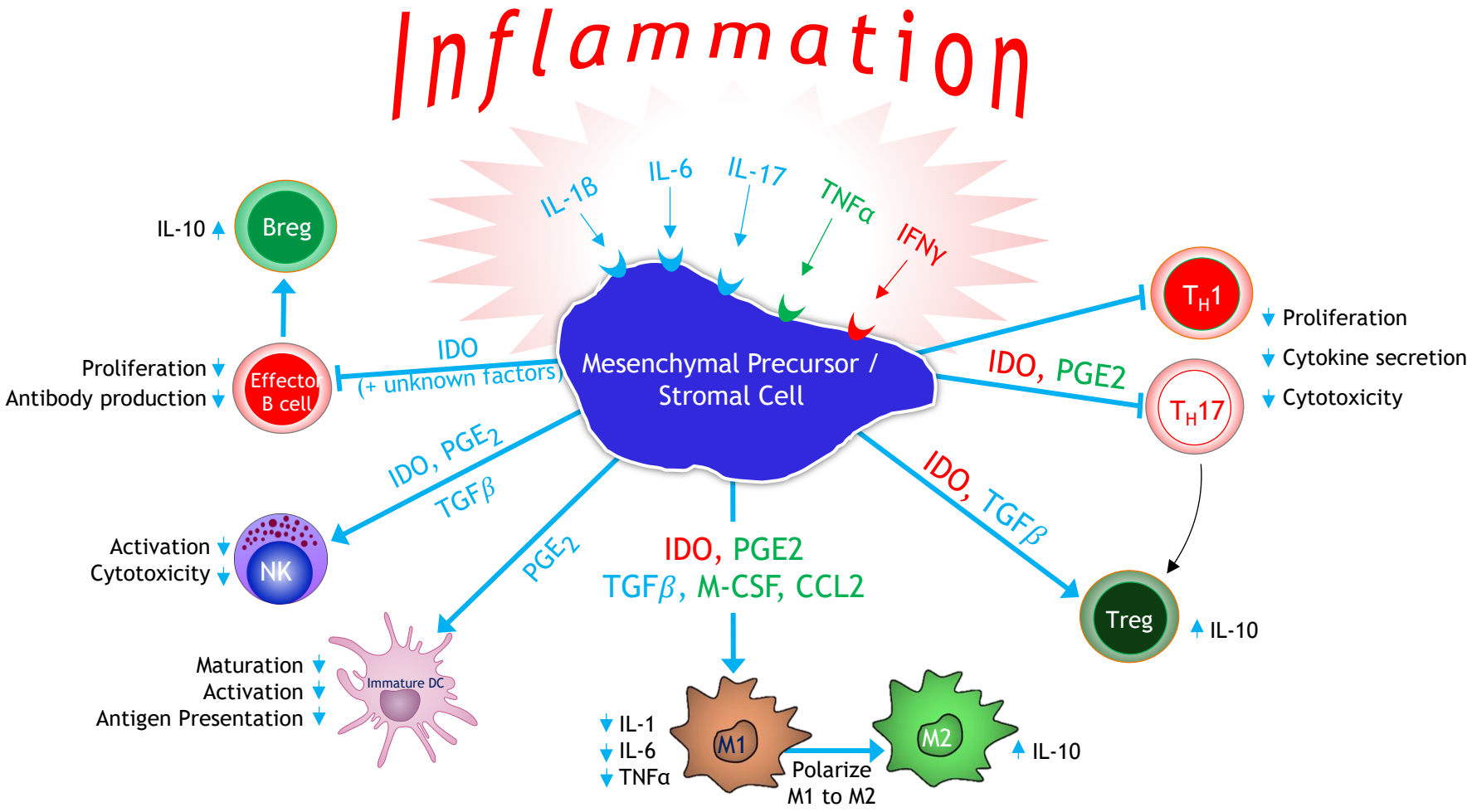


Proprietary Scalable Production

- Scalable “off-the-shelf” cellular platforms
- Expansion without differentiation
- Validated potency assays ensure batch-to-batch consistency
- Proprietary media formulations and bioreactors for scale-up

MLCs Orchestrate Potent Anti-Inflammatory Cascade

Activation Via Multiple Surface Receptors Results In Powerful Multi-Modal Response That Cannot Be Achieved By Agents Targeting Single Pathways



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Mesoblast First-In-Class Leader in Allogeneic Cellular Therapies

Ryoncil® Only FDA Approved MSC, Successful First US Launch

Net revenue approaching US$100M since launch last year

Highly profitable single product on stand-alone basis

Proceeds from revenue generated is being re-invested in label extensions studies and blockbuster opportunities

Commercial Capability Established

Infrastructure to support product launches across multiple expansion indications

Built specialized sales team focused on hospitals, transplant centers, and specialists

Pipeline with Multiple Blockbuster Opportunities

Phase 3 programs position rexlemestrocel-L to transform the treatment of low back pain with degenerative disc disease, and inflammatory heart failure

Phase 3 programs to extend Ryoncil® label to adult aGvHD and pediatric rare diseases such as Duchenne Muscular Dystrophy

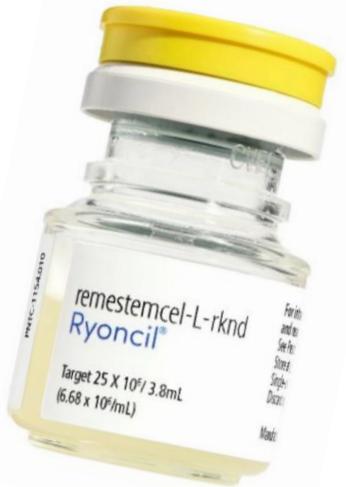
RYONCIL Profitability to Fund Growth Pipeline

Successful U.S. commercial launch of RYONCIL

- Q3 FY26 gross revenue US$35.3M, net revenue US$30.3M
- RYONCIL net revenue approaching US$100 million since launch last year
- RYONCIL gross profit 1H FY26, excluding amortization expense, was US$44.2M. Direct selling costs were US$7.7M

Strong operating performance in the period allowed us to invest in:

- R&D, including to support the Phase 3 trial on the blockbuster chronic low back pain indication
- Clinical programs for lifecycle extension
- Commercial manufacturing of Ryoncil® inventory as well as for launch of second-generation product



Ryoncil®
(remestemcel-L-rknd)

What We Have Built - Commercial Capability

- ✓ Established **commercial infrastructure** to support product launches
- ✓ Built **specialized sales and marketing teams** focused on hospitals and transplant centers
- ✓ Implemented **market access and payer engagement** strategies to support reimbursement and adoption
- ✓ Established strong **manufacturing and supply chain capabilities** ensuring scalable, consistent cell therapy production and delivery
- ✓ Leveraged **clinical data and real-world evidence** to support product positioning and physician uptake
- ✓ Established **medical affairs and education programs** to drive clinician awareness and training
- ✓ Ensured leadership position is maintained by continued access to **cutting-edge technology**

Pipeline with Multiple Blockbuster Opportunities

RYONCIL
Remestemcel-L

Adult SR-aGvHD
Pivotal trial as part of second-line regimen
TAM
children & adults
~US$1B

Pediatric Inflammatory Rare Diseases
(e.g. DMD,
TAM >US$1B)

Rexlemestrocel-L

Cardiac HFrEF
Ischemic chronic heart failure with inflammation
TAM
>US$10B

CLBP with degenerative disc disease; confirmatory Phase 3 topline results in mid-CY2027
TAM
>US$10B

SR-aGvHD: steroid-refractory acute graft versus host disease | TAM: total addressable market | DMD: Duchenne Muscular Dystrophy | HFrEF: heart failure reduced ejection fraction | CLBP: chronic low back pain

Mesoblast Allogeneic Mesenchymal Stromal Cell Portfolio

Product	Indication	Phase 2	Phase 3	Approved
RYONCIL® remestemcel-L	Pediatric SR-aGvHD			
	Adult SR-aGvHD			
RYONCIL® remestemcel-L	Duchenne's			
REVASCOR® rexlemestrocel-L (STRO3+)	Adult HFrEF Class II/III			
	Adult HFrEF End-stage			
Rexlemestrocel-L (STRO3+)	CLBP			

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

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.

Anticipated Major Upcoming Milestones

Blockbuster CLBP

- Complete enrollment of pivotal trial end of April
- Top-line primary endpoint mid-CY2027
- BLA filing for FDA approval Q3 CY2027
- Potential FDA approval and US launch Q2 CY2028

CHF: regulatory strategy to gain approval for blockbuster indication

- File BLA with FDA for end-stage heart failure patients on LVADs this quarter
- Leverage approval to initiate confirmatory trial in NYHA II/III HFrEF

Label extension for RYONCIL

- Adult SR-aGvHD partnered with BMT-CTN network, trial initiated, to complete in 12-18 months
- Pediatric Duchenne's partnered with PPMD advocacy group, Phase 3 IND cleared by FDA

SR-aGvHD: steroid-refractory acute graft versus host disease | CHF: chronic heart failure | BLA: Biologics License Application | LVAD: left ventricular assist device | HFrEF: heart failure reduced ejection fraction | NYHA: New York Heart Association | CLBP: chronic low back pain | PPMD: Parent Project Muscular Dystrophy

Innovation in Technology & Manufacturing Drives Next Generation Products

New technologies Genetically Modifying Our MLCs

- Chimeric antigen receptors (CAR) expressed for precision targeting and enhanced potency
- Delivery of Oncolytic Viruses encoded with immuno-stimulatory factors for treating cancer

Multiple New Blockbuster Opportunities

- Ulcerative colitis and Crohn's Disease (IBD)
- Lupus nephritis / other B cell autoimmune disorders
- Alzheimer's Disease / Parkinson's
- Cancer applications

Manufacturing Efficiencies

- Second generation media with growth factors for increased yield
- Automation for larger volume production and demand
- Bioreactors for COGS and footprint reduction

MLC: mesenchymal lineage cell | IBD: inflammatory bowel disease | COGS: cost of goods sold

Key Takeaways

- MSCs safe and effective treatments to transform outcomes
- First-in-class platform technology approved by FDA, unlocks many opportunities
- Massive barriers to entry include dominant IP, clinical trial outcomes, robust manufacturing, proprietary potency assays and FDA approval
- Well cashed-up, profits from RYONCIL being re-invested into follow-on opportunities
- Blockbuster potential with major near-term milestones with back pain and heart failure products
- Innovative next generation technologies to genetically modify our cells provide potential for even greater efficacy

Ryoncil®
(remestemcel-L-rknd) Suspension for IV infusion

Pediatric Steroid Refractory Acute Graft versus Host Disease

Marcelo Santoro

Chief Commercial Officer

Redefining What's Possible for SR-aGvHD Children and Their Loved Ones

Ryoncil®
(remestemcel-L-rknd) Suspension for IV infusion

Successful First Year of RYONCIL

Ryoncil® (remestemcel-L-rknd) Suspension for IV infusion

- Ryoncil is transforming outcomes in pediatric SR-aGvHD, with strong positive feedback from treating physicians
- Commercial uptake has exceeded expectations, outperforming benchmarks from comparable successful launches
- We have established the capability to scale, with a clear path to doubling our US revenue from RYONCIL
- Adult indication represents a major opportunity, representing a 3-fold increase in TAM and revenue potential

Key Accomplishments So Far

Ryoncil® (remestemcel-L-rknd) Suspension for IV infusion

- Initial real world experience

  84% survival outcomes all with Grade III/IV disease*
- Net revenue approaching US$100M since launch last year
- 50 centers onboarded
- 30 formulary approvals

  (13 accounts using specialty pharmacy)
- 98% US lives covered
- Medicaid in place

  J-Code received October 2025
- Expansion into adult market (phase 3 underway)

*Children with steroid refractory active graft versus host disease after completing 28 days of treatment

Customer Centric Model – Key Account Executives as Quarterbacks

Ryoncil® (remestemcel-L-rknd) Suspension for IV infusion

Supported By MSLs, Field Reimbursement and Digital Ecosystem

Key Account Executives (8)

TC quarterback – fully accountable for transplant centers assigned

Medical Science Liaisons (3)

Scientific exchange - support KAEs as required

Field Reimbursement (3)

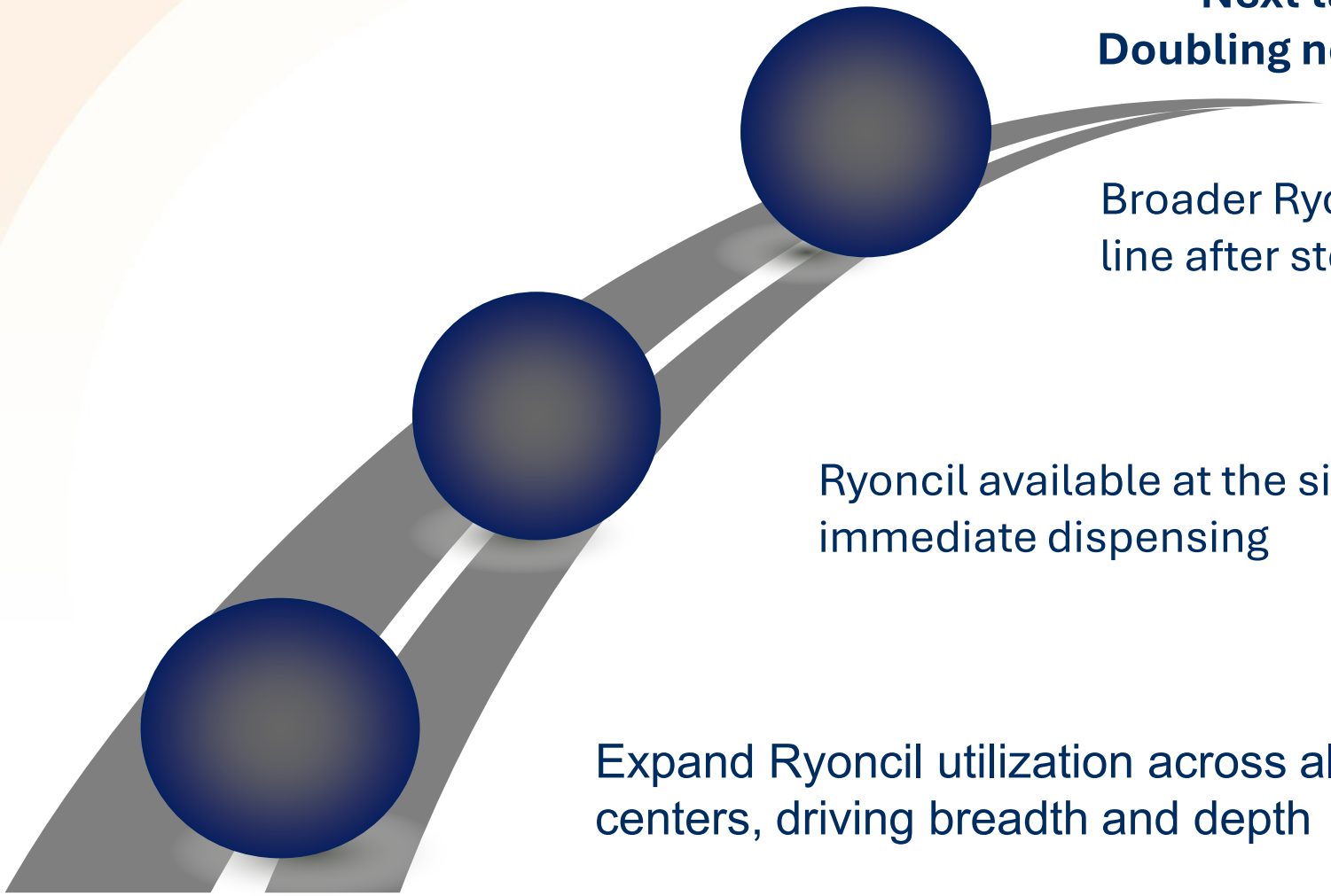
Reimbursement (Commercial and Medicaid/Medicare) support

Digital Ecosystem

Digital CRM hub providing omnichannel capabilities and performance tracking

Revenue Growth Plan

Ryoncil® (remestemcel-L-rknd) Suspension for IV infusion



Next target:
Doubling net revenue

Broader Ryoncil utilization in first line after steroids

Ryoncil available at the site of care for immediate dispensing

Expand Ryoncil utilization across all 64 targeted centers, driving breadth and depth

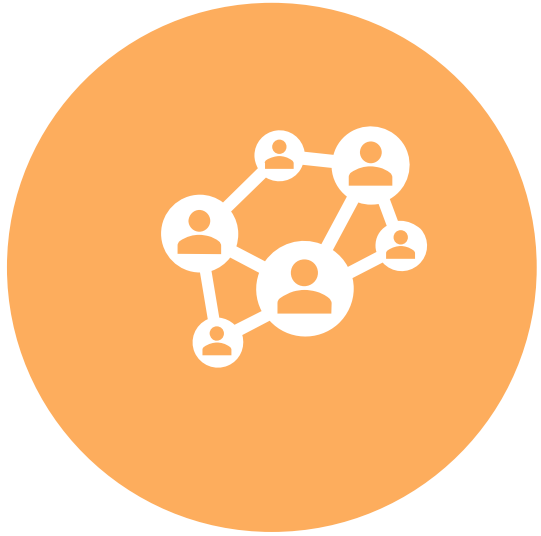
Approaching US$100M net revenue since launch

Three Strategic Priorities for Continued Growth in FY 2027

Ryoncil® (remestemcel-L-rknd) Suspension for IV infusion

Proactively identify and prioritize appropriate patients

Reinforce superior patient outcomes in first-line



Empower caregivers to demand Ryoncil® for their children

Key Takeaways

Ryoncil® (remestemcel-L-rknd) Suspension for IV infusion

- Approaching US$100M in net revenues since launch last year, strategy in place to double revenue
- TAM for children and adults in SR-aGvHD alone is >US$1.0 billion
- Leveraging the commercial capability to support RYONCIL label extensions
- Opportunity to expand ex-US at US Most Favored Nation pricing

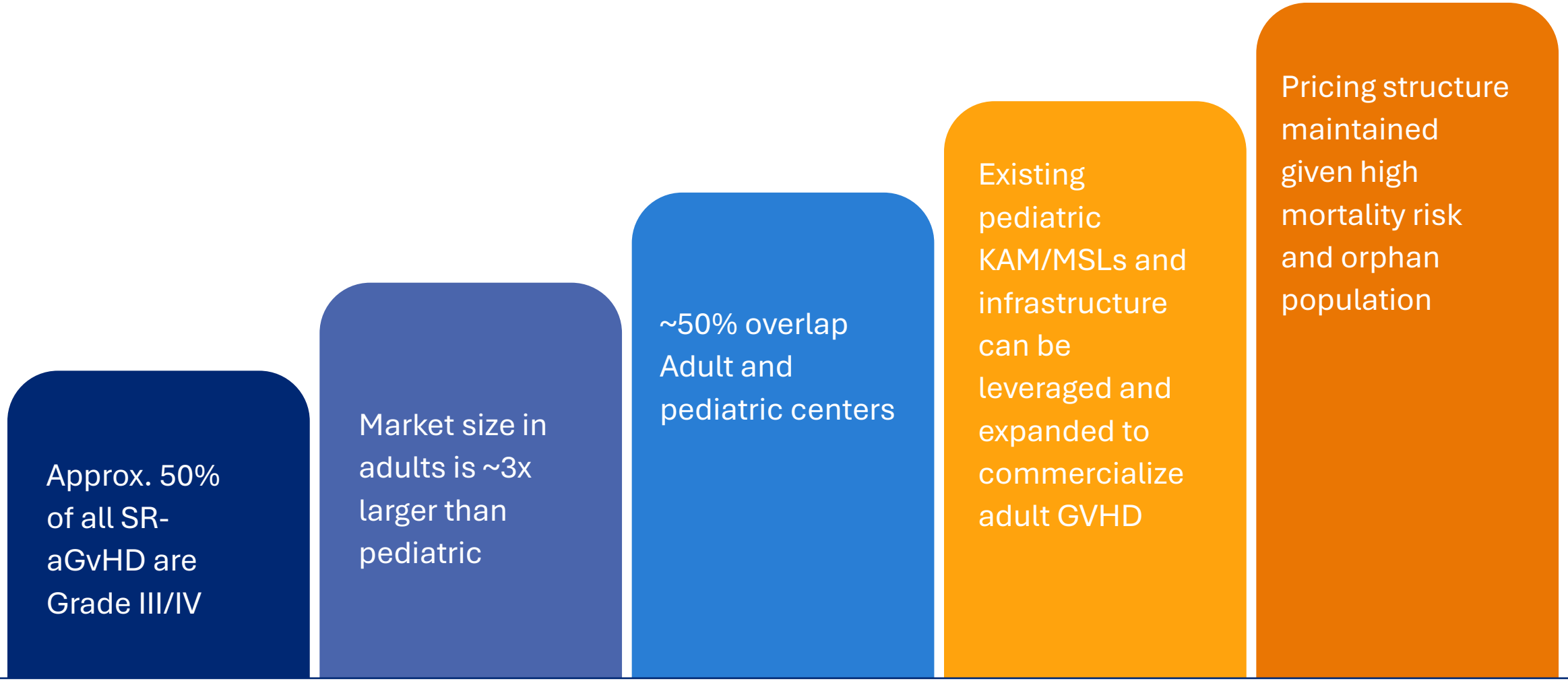
Ryoncil in Adult GvHD

Michael Schuster

Head of Business Development

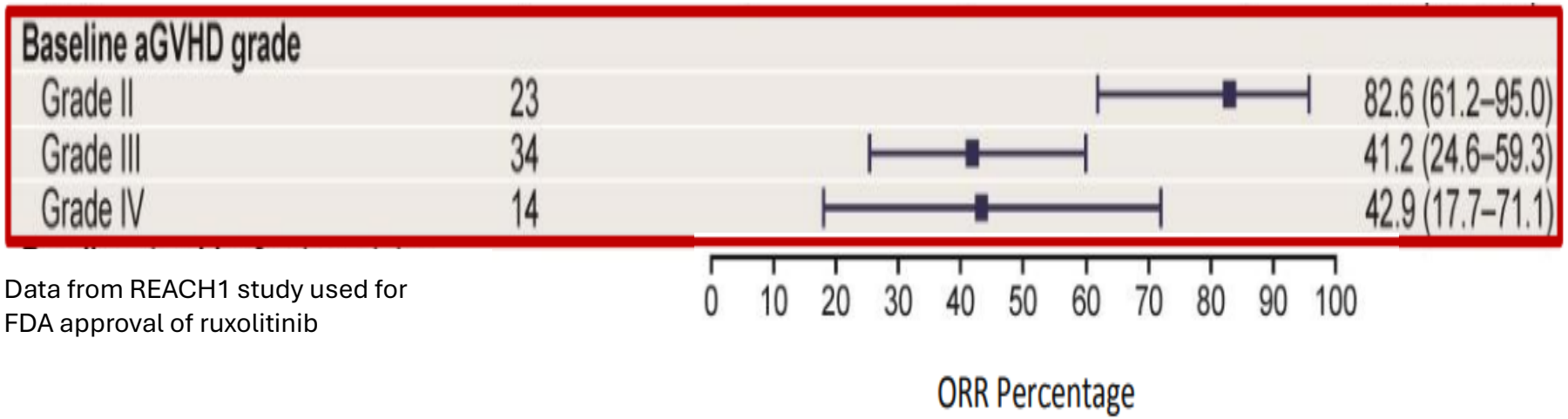
Beyond 2027, First-line Treatment in Adult SR-aGvHD is a Huge Opportunity for RYONCIL Growth

Ryoncil® (remestemcel-L-rknd) Suspension for IV infusion



Grade III/IV Adult SR-aGvHD is a Major Unmet Need

Only ~42% of Grade III/IV GVHD patients achieve Day 28 ORR with the existing FDA-approved treatment[1]

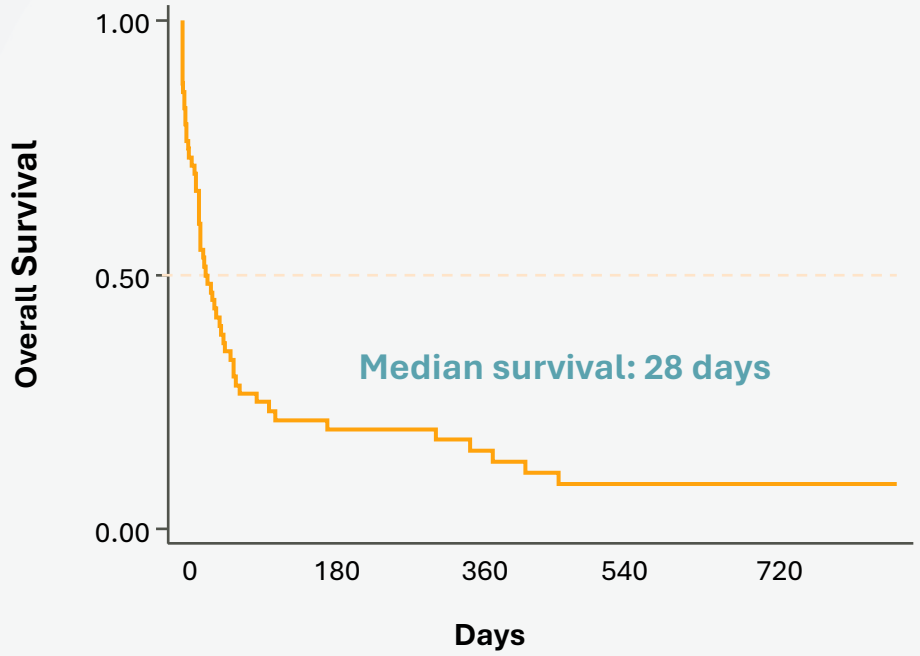


Data from REACH1 study used for FDA approval of ruxolitinib

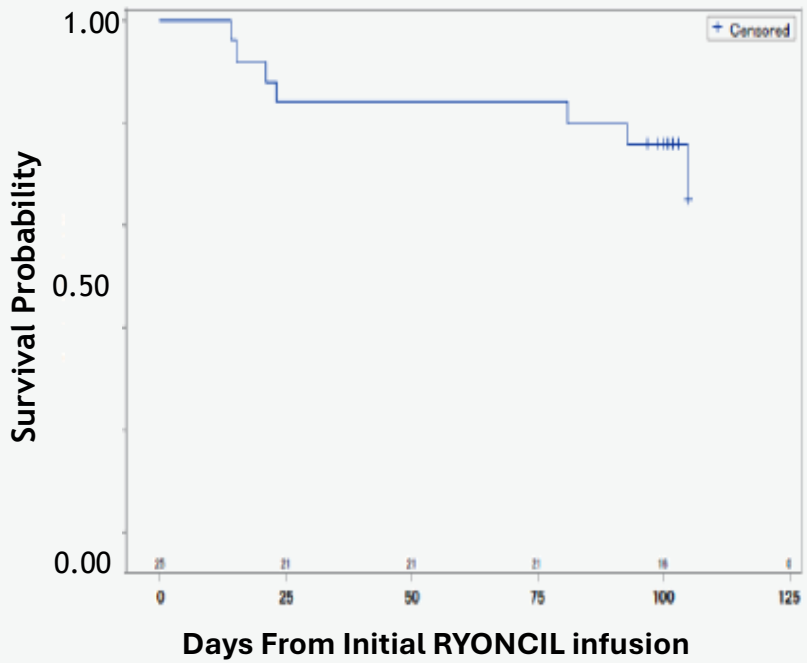
1. Jagasia M et al. *Blood*. 2020;135(20):1739-1749.
2. Abedin S et al. *Br J Haematol*. 2021;195(3):429-432.

Ryoncil is Effective in Grade III/IV SR-aGvHD

Survival is a dismal ~25% at Day 100 for adults with SR-aGvHD who have failed ruxolitinib and are treated with other agents



Day 100 Survival with RYONCIL is 76% when used after ruxolitinib or other second-line failure In Adults with SR-aGvHD



Single-site pilot study has shown additive benefit when MSCs are used concurrently with ruxolitinib in severe SR-aGvHD immediately after steroids

Registrational Adult Steroid Refractory Acute GVHD Trial In Partnership With NIH-Funded Blood & Marrow Transplant Clinical Trial Network (BMT-CTN)

180 Grade III/IV SR-aGvHD Adults will be Randomized 1:1

- RUX + RYONCIL (2×10^6/kg) 8 doses over 4 weeks vs RUX alone

Trial Primary Endpoint

- Assess Overall Response @ Day 28

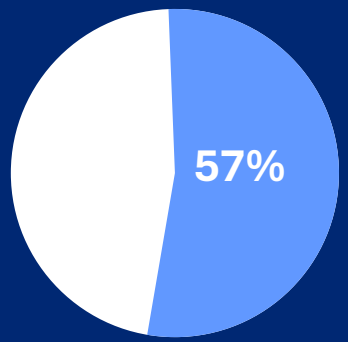
Trial Key Secondary Endpoint

- Overall Survival at Day 180

RUX: ruxolitinib

Adult SR-aGvHD Trial Timelines

- Mesoblast will oversee trial execution using NIH-sponsored BMT-CTN network of major hospitals
- DSMB approval and NMDP Central IRB clearance
- Patients to be recruited across 45 U.S. centers (representing ≈5,000 annual allo transplants)
- First sites to be activated this quarter
- Expected duration 18 months, with interim analysis at 12 months



Interim analysis planned for early success when first 102 patients (57% enrolled) have reached Day 28 (primary endpoint)

BMT-CTN: Blood & Marrow Transplant Clinical Trial Network | NIH: National Institutes of Health | DSMB: Data and Safety Monitoring Board | IRB: Institutional Review Board | allo: allogeneic

Label Expansion into Adult GvHD Provides Significant Revenue Upside

- Partnership with the BMT-CTN consortium will subsidize cost and create end-user awareness for market adoption
- Potential to shorten time to launch by six months through successful interim analysis
- Label extension in adult SR-aGvHD maintains existing Ryoncil pricing structure
- Leverages existing commercial infrastructure for pediatric
- Adult SR-aGvHD represents a market opportunity 3x that of pediatric SR-aGVHD

KOL Perspective

Joanne Kurtzberg, MD

Duke University School of Medicine

Jerome Harris Distinguished Professor of Pediatrics

Professor of Pathology

Duke University School of Medicine

Adult aGvHD KOL Perspective

Susan Prockop, MD

Dana Farber Cancer Institute/Boston Children's Hospital

Director, Clinical and Translational Research

Stem Cell Transplant Program, DFCI/BCH Cancer and Blood Disorders Center

Rexlemestrocel-L for Chronic Lower Back Pain

Roger Brown

Head of Musculoskeletal

Rexlemestrocel-L for CLBP: Huge Commercial Opportunity

Substantial Unmet Need

~35M patients in US suffer from CLBP of which ~60% is due to degenerative disc disease (DDD)

~7M US patients have moderate / severe DDD within 5 years of diagnosis that is refractory to medical therapies including opioids

10% of prevalent market penetration represents US$14B per year in product sales

Timelines to CLBP Commercial Launch

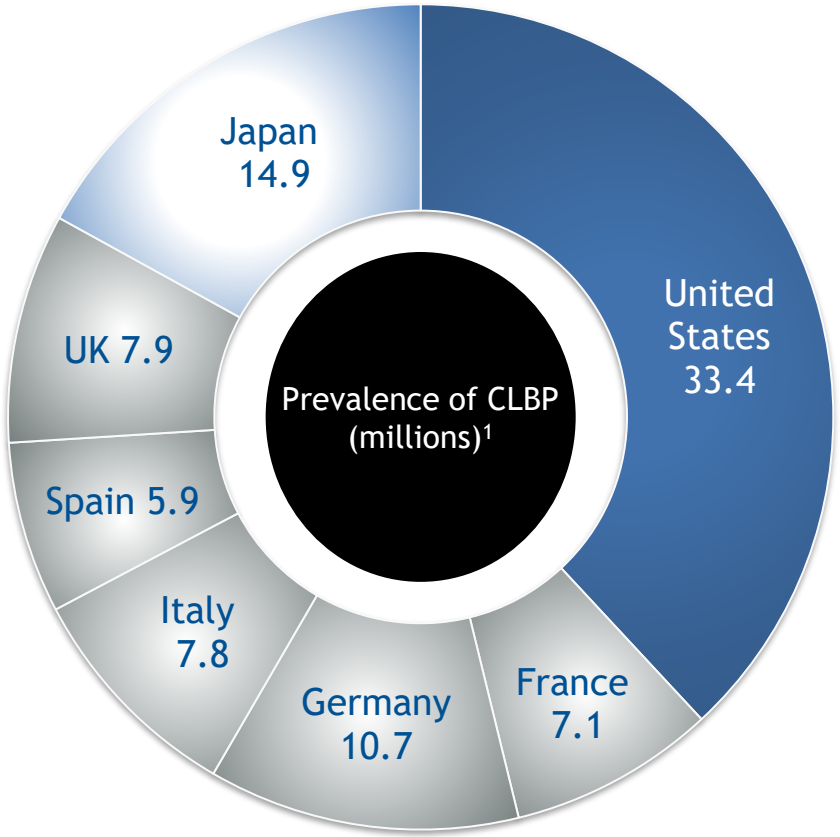
P3 trial results to confirm first trial pain reduction at 12 months expected mid-CY2027

Filing BLA with FDA in Q3 CY2027

Potential approval following Priority Review Q2 CY2028

Transformational Market Opportunity in US, EU & Japan

Approx. 10–15% of Adult Population Suffers from Chronic Lower Back Pain



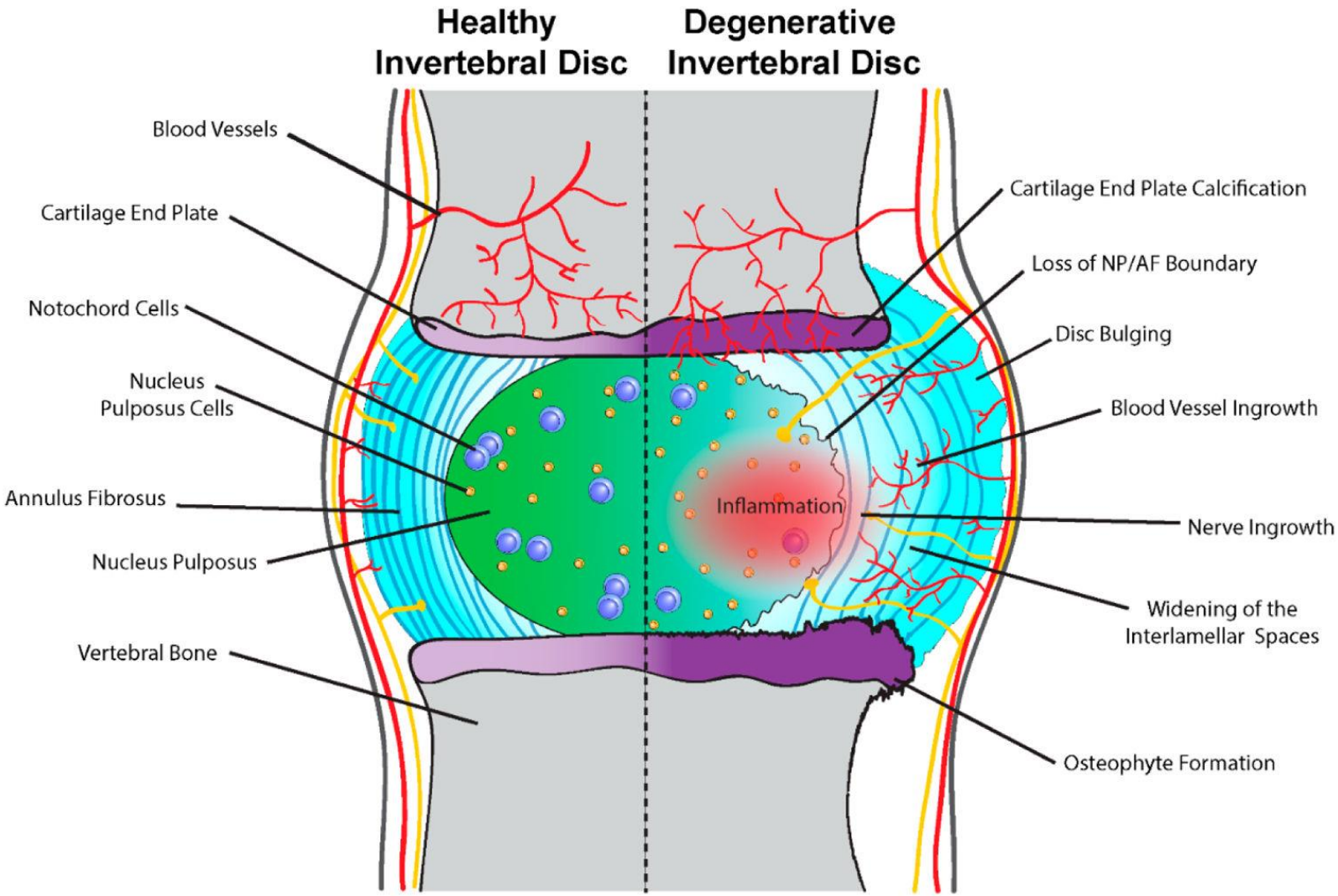
- **US prevalence 33.4M, Japan 14.9M**

  Mesoblast to commercialize with or without strategic partner

- **EU5 prevalence 39.4M**
  - **To be commercialized by Grunenthal, Mesoblast to receive milestone payments & royalties**

1 Decision Resources: Chronic Pain Report 2015 2 LEK Primary / Secondary Research 2013

Inflammation is at the Core of Pain in Degenerative Disc Disease



McCann MR and Seguin CA. Notochord Cells in Intervertebral Disc Development and Degeneration. J. Dev. Biol. **2016**, 4(1), 3

The Patient Treatment Journey

Rexlemestrocel-L has Potential to be First-Line in Choice for Treatment of CLBP with DDD Refractory to Conservative Treatment

Rexlemestrocel-L targeting moderate-to-severe CLBP

Conservative Treatments

- NSAIDs
- Physical therapy
- Chiropractic treatments
- Acupuncture
- Anticonvulsants (e.g., gabapentin)

Opioid Analgesics

- Weak opioid analgesics (e.g., tramadol)
- Strong opioid analgesics (e.g., oxycodone)

Interventional Therapies

- Epidural steroid injections (off-label)
- Radio frequency ablation
- Spinal cord stimulation
- Intrathecal pumps

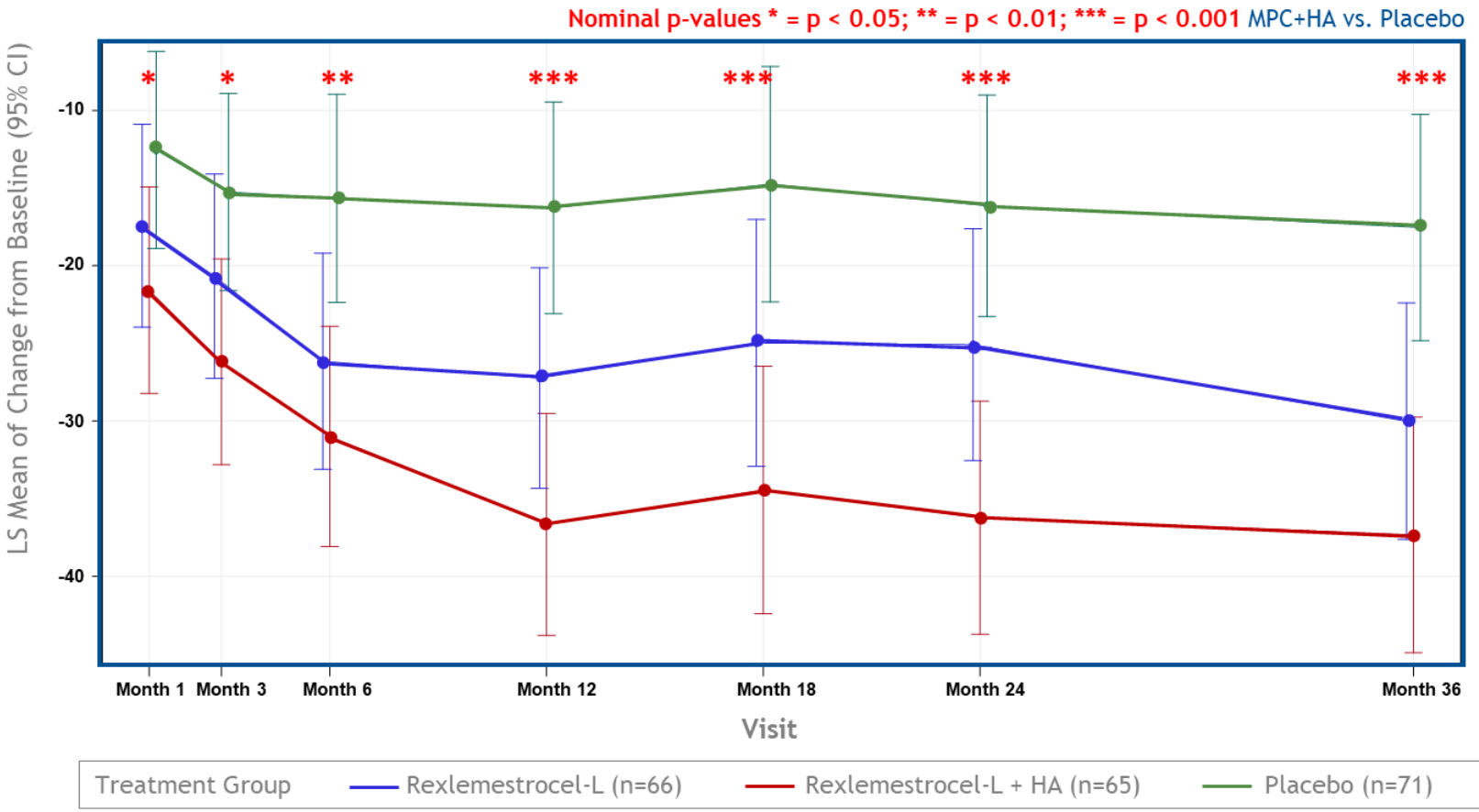
Surgery

- Spinal fusion
- Disc replacement

Phase 3 Trial Key Outcome Pain Reduction

Rexlemestrocel-L+HA Demonstrated Significant Pain Reduction Through 36 Months

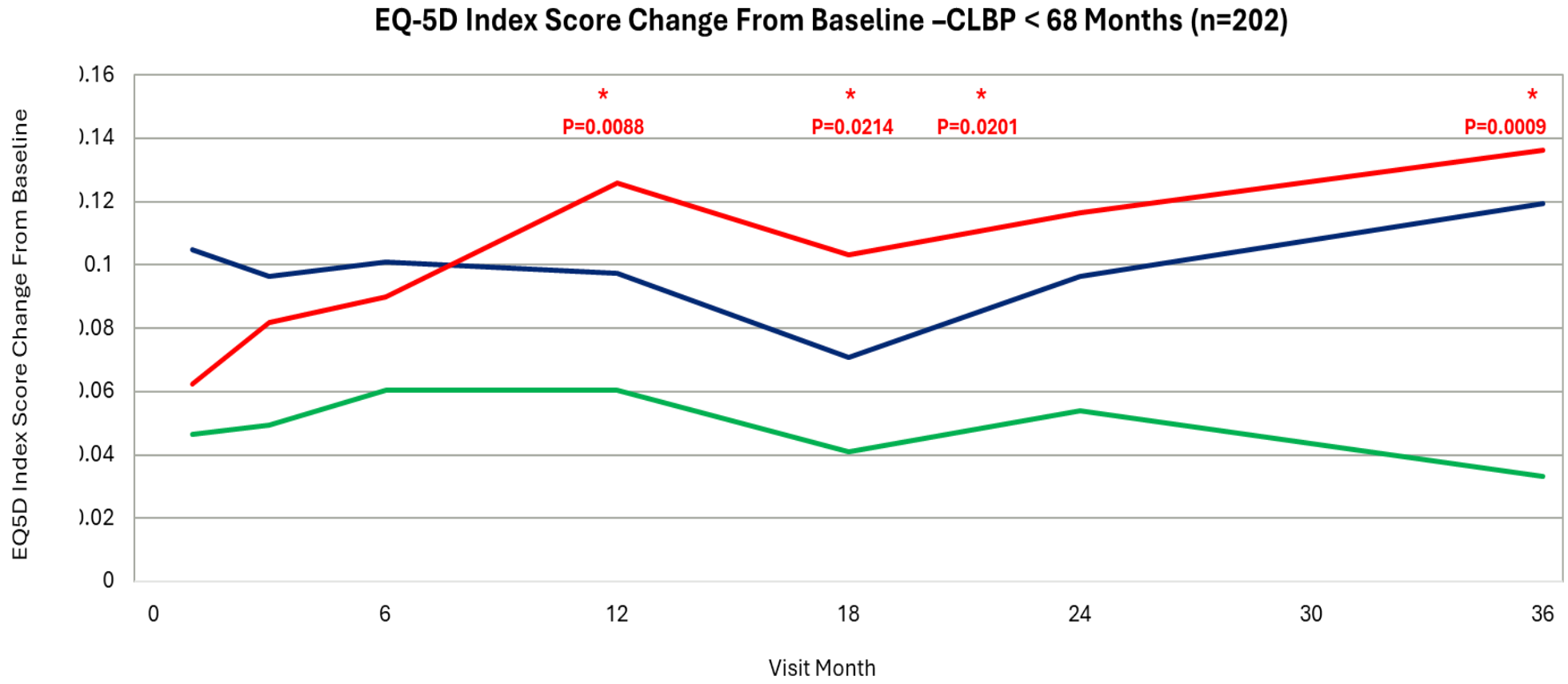
LS Mean VAS Change From Baseline, CLBP < 68 Months (n=202)



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

Phase 3 Trial Quality of Life (QOL) Outcomes:

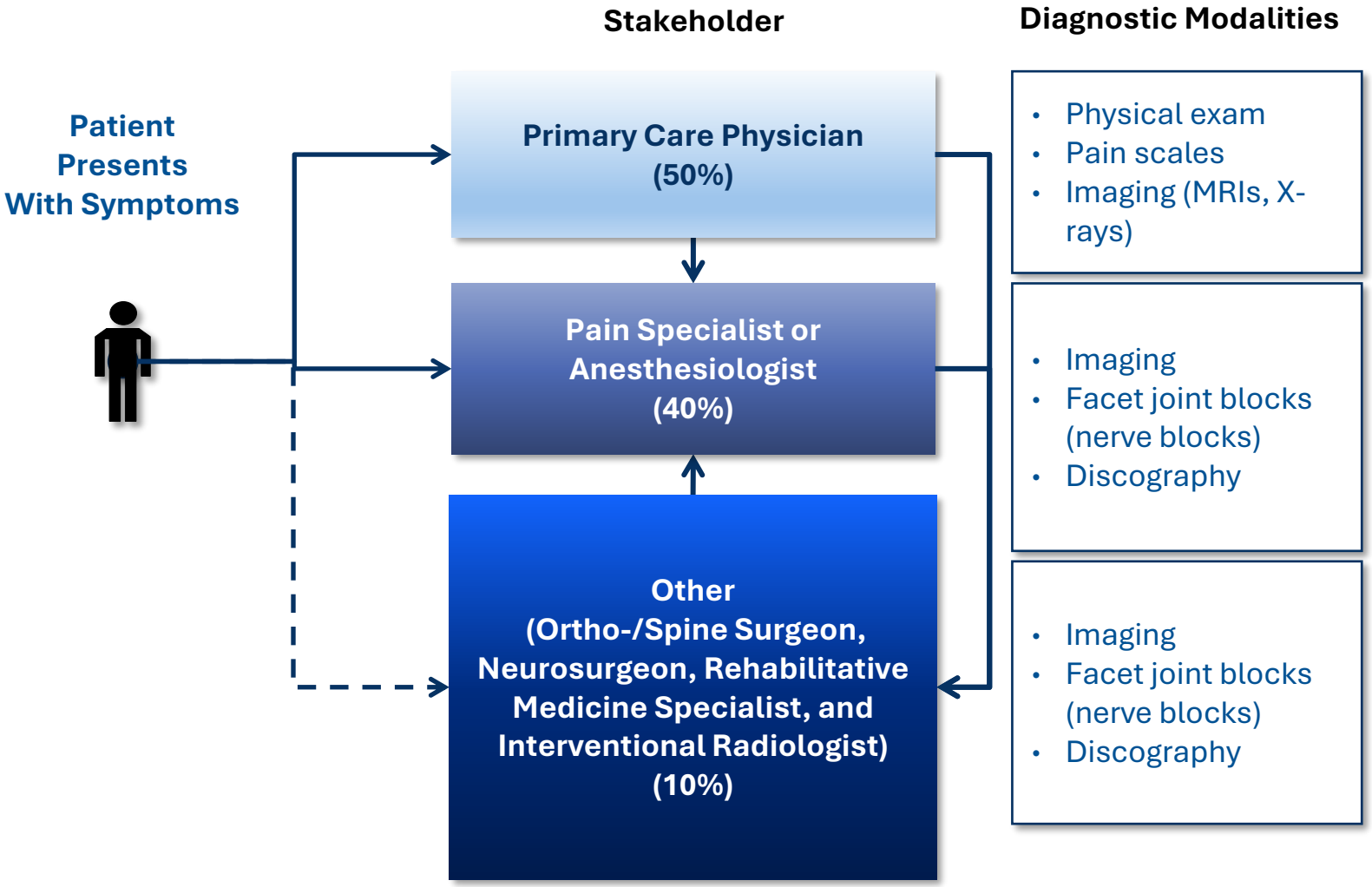
Rexlemestrocel-L+HA significantly improved QOL (mobility, self-care, usual activities, pain/discomfort and anxiety/depression) through 36 months



*** = nominal p-value**
MPC+HA vs. Placebo

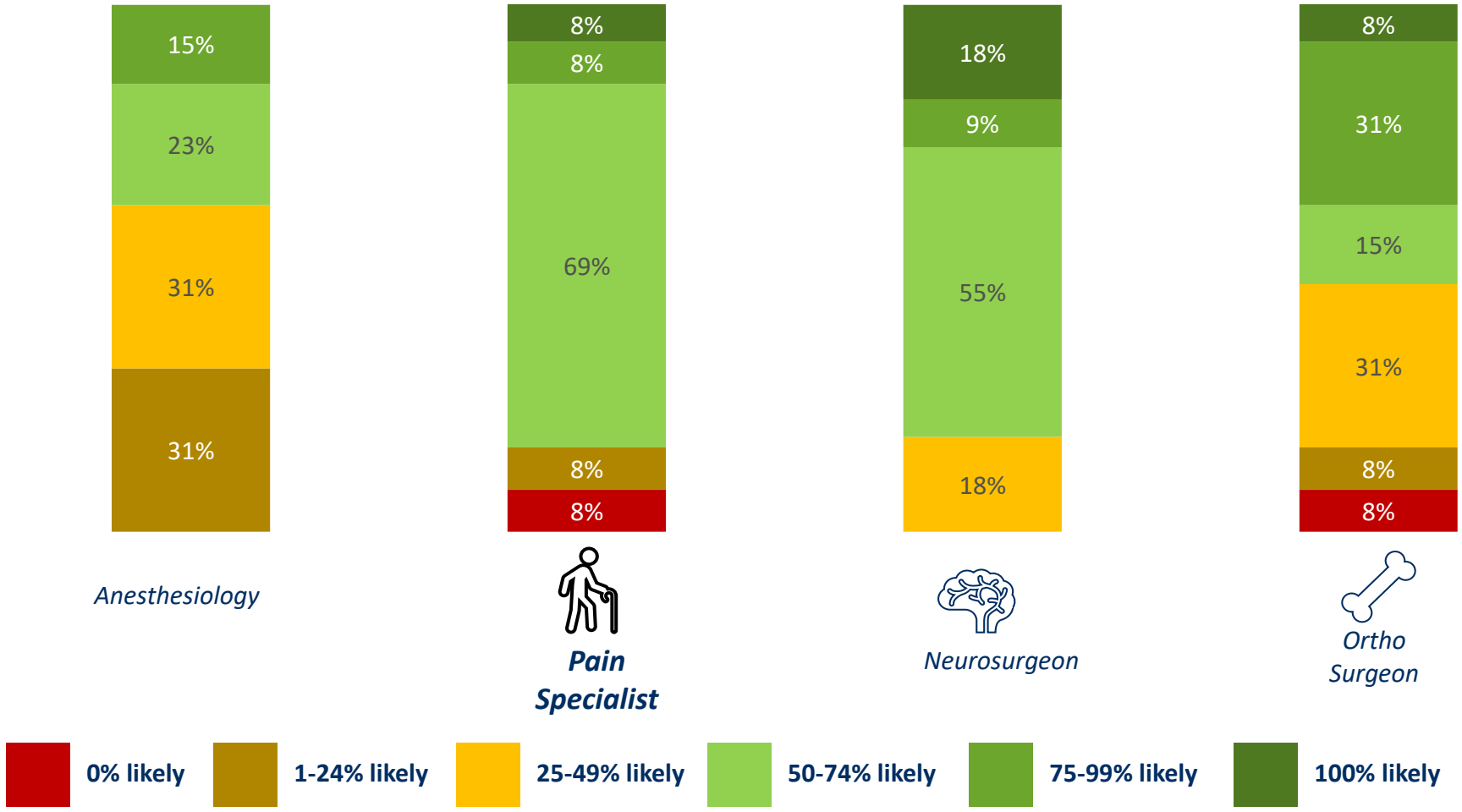
Pain Specialists are the Primary Caregivers Seen by Patients with CLBP

50% of Patients With Moderate-to-Severe CLBP Progress to Specialists for Diagnosis & Treatment of Degenerative Disc Cause



85% of Pain Specialists are More Likely to Recommend Rexlemestrocel-L for CLBP Based on Observed Clinical Outcomes

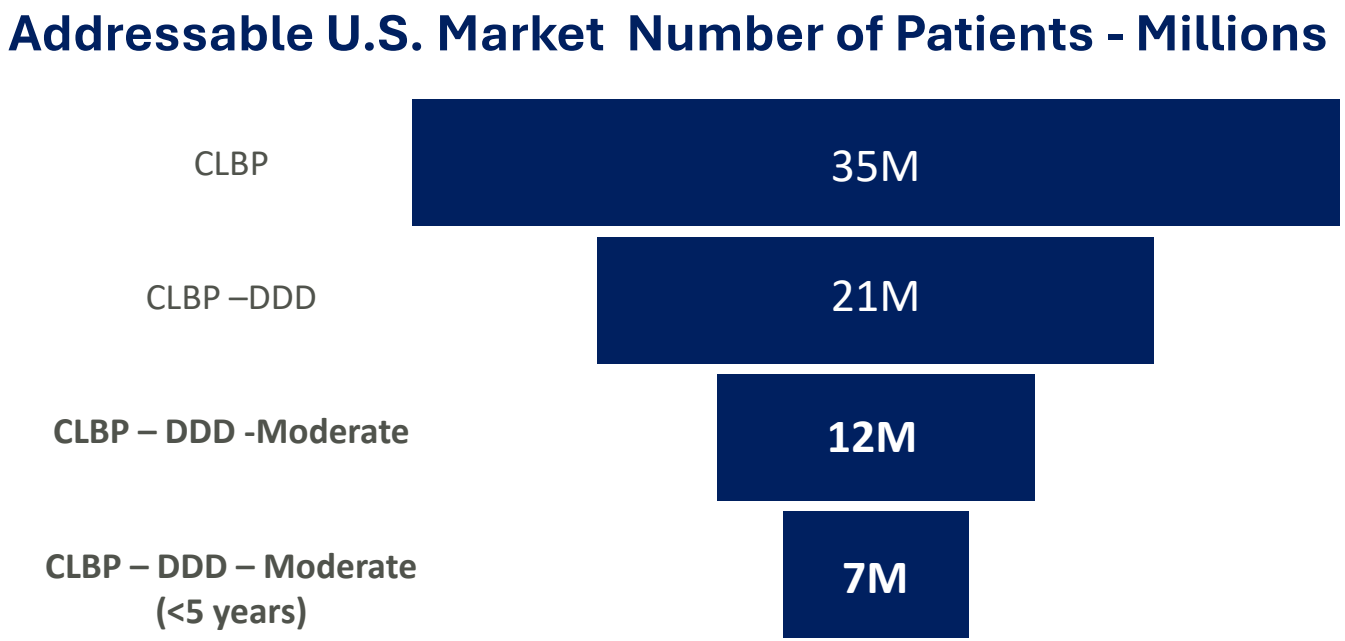
Likelihood of Recommendation Irrespective of Price: Pain and Function Data at 12 Months



Guidehouse 2021 Study

Rexlemestrocel-L: Potential Mega-Blockbuster in CLBP in U.S. Alone

- 7M+ Addressable Population
- Price ~$20,000/patient based on durable pain and function results
- 85% of Pain Specialists are Likely to Recommend Rexlemestrocel-L for CLBP Based on Observed Clinical Outcomes[1]
- Potential revenue of $14B with just 10% market penetration



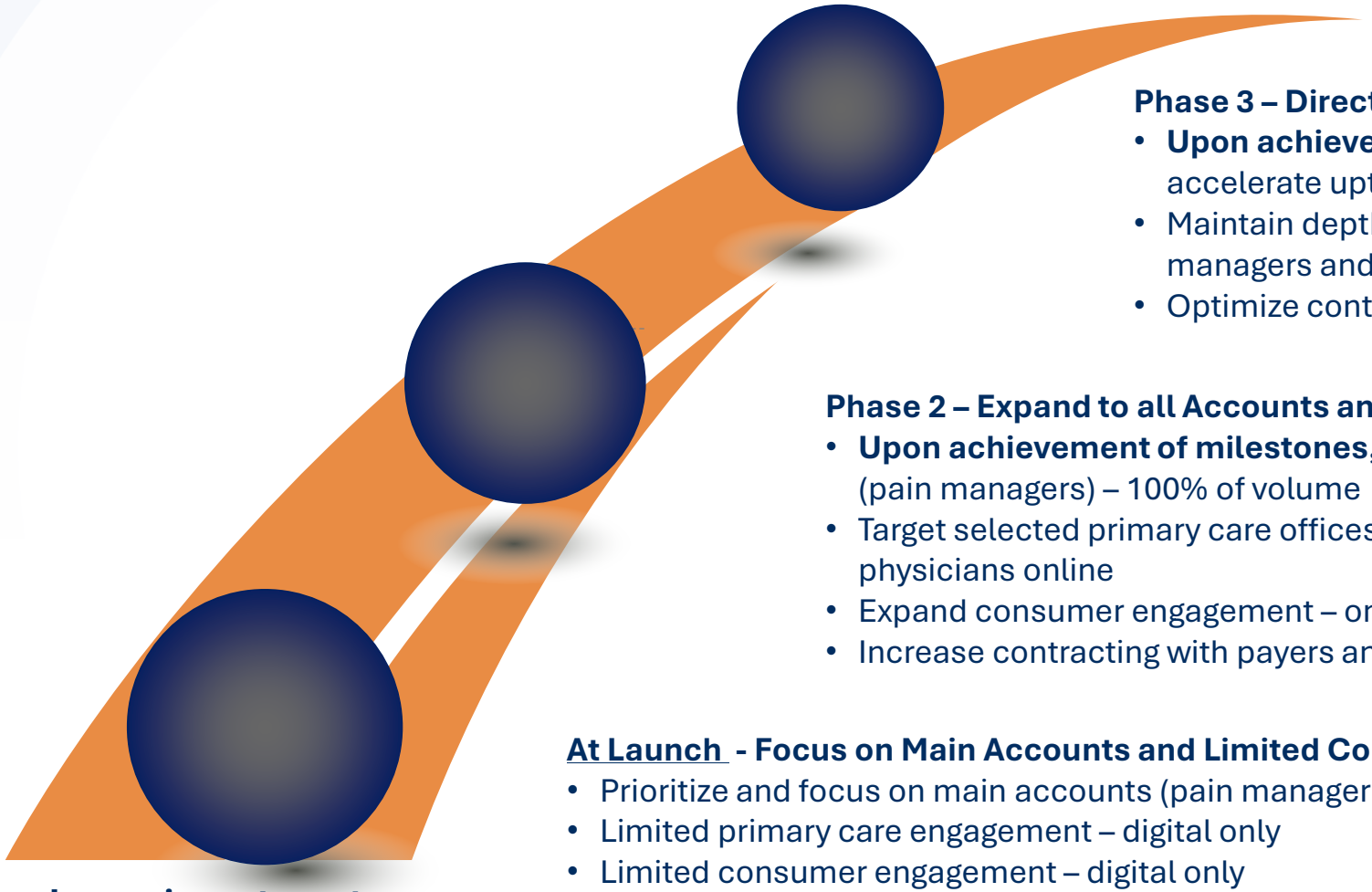
Market research study for MSB by Guidehouse

Launch timeline for rexlemestrocel-L in CLBP

300 Patient 1:1 Placebo-Controlled Phase 3 Pivotal Trial in DDD Completes Enrollment	APR 2026
12 Month Primary Endpoint of Pain Reduction Top-Line Results	Mid CY2027
BLA Submission to FDA	Q3 CY2027
Potential Approval Following Priority Review	Q2 CY2028

Go To Market - Phased Launch Based on Milestones Achievement

Higher investments



Lower investments

Phase 3 – Direct to Consumer (DTC)

- **Upon achievement of milestones,** deploy DTC campaign to accelerate uptake
- Maintain depth and breadth to all accounts - 100% of volume (pain managers and selected primary care offices)
- Optimize contracting with payers and GPOs

Phase 2 – Expand to all Accounts and Increase Consumer Spend

- **Upon achievement of milestones,** increase depth and breadth to all accounts (pain managers) – 100% of volume
- Target selected primary care offices and expand reach to all primary care physicians online
- Expand consumer engagement – omnichannel
- Increase contracting with payers and GPOs

At Launch - Focus on Main Accounts and Limited Consumer Spend

- Prioritize and focus on main accounts (pain managers) representing 70%+ of the volume
- Limited primary care engagement – digital only
- Limited consumer engagement – digital only
- Limited contracting with payers and GPOs

Chronic Lower Back Pain KOL Perspective

Doug P. Beall, MD

Clinical Investigations LLC

Chief of Services, Comprehensive Specialty Care;
Director of Research Clinical Investigations LLC

Chronic Heart Failure/LVAD

Ken Borow

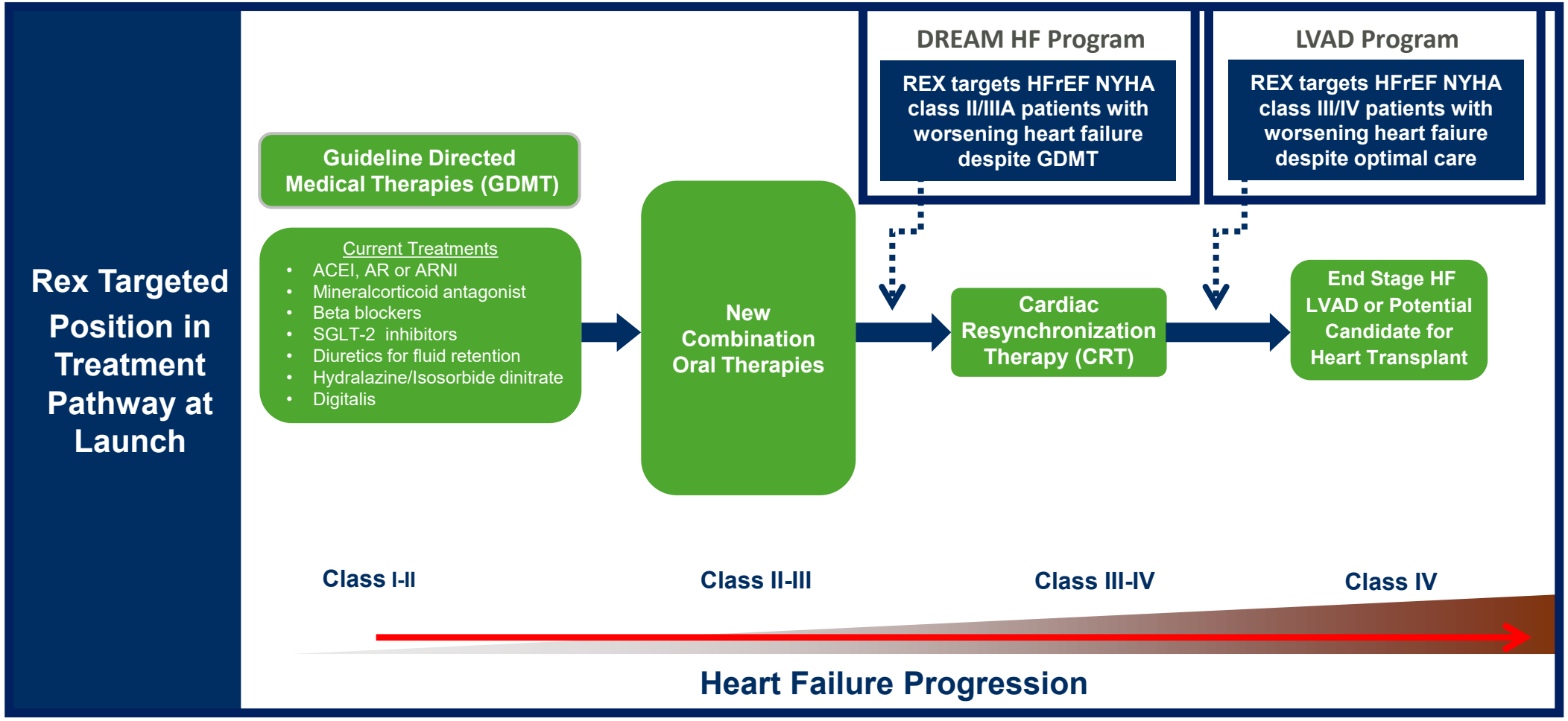
Head of Cardiovascular

Chronic Heart Failure: Rising Incidence with High Morbidity and Mortality

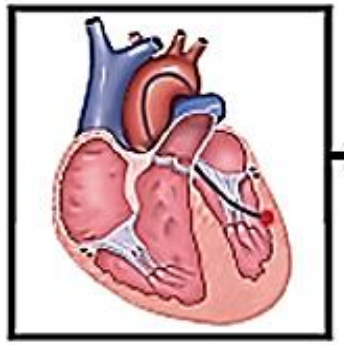
- Cardiovascular (CV) disease associated with inflammation is the leading cause of death in the U.S.[1]
- Heart failure (HF) in the United States is projected to affect >7 million adults by the year 2030. Approximately 50% of these people will have heart failure with reduced ejection fraction (HFrEF)[2]
- Chronic heart failure is a progressive disease with mortality that approaches 50% at 5 years and at least 75% after an initial hospitalization[2-4]

1. Muntner BEJ, et al. Heart Disease and Stroke Statistics-2019 Update: A Report From the American Heart Association. *Circulation*. Feb 19, 2019.
2. United States Food & Drug Administration. Treatment for Heart Failure: Endpoints for Drug Development. Draft Guidance. June 2019.
3. Taylor CJ, et al. Trends in survival after a diagnosis of heart failure in the United Kingdom 2000-2017: population-based cohort study. *BMJ*. 2019;364:l223.
4. Shah KS, et al. Heart Failure with Preserve, Borderline, and Reduced Ejection Fraction; 5-Year Outcomes. *JACC*. 2017;Nov12.

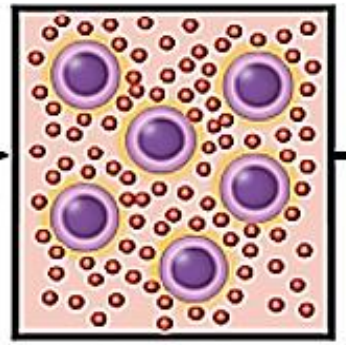
Mesoblast's Rexlemestrocel-L Targets Patients with Worsening HFrEF and Inflammation...A Paradigm Shift In Precision CV Medicine



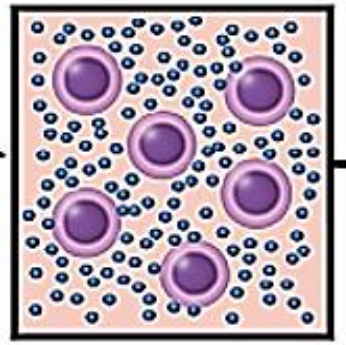
Same formulation, dose and potency assay for product in both indications



MPCs are injected into viable but dysfunctional myocardium



MPCs are activated by local cytokines in the heart



MPCs exert anti-inflammatory, neovascular, and immunomodulatory effects

DREAM-HF Trial

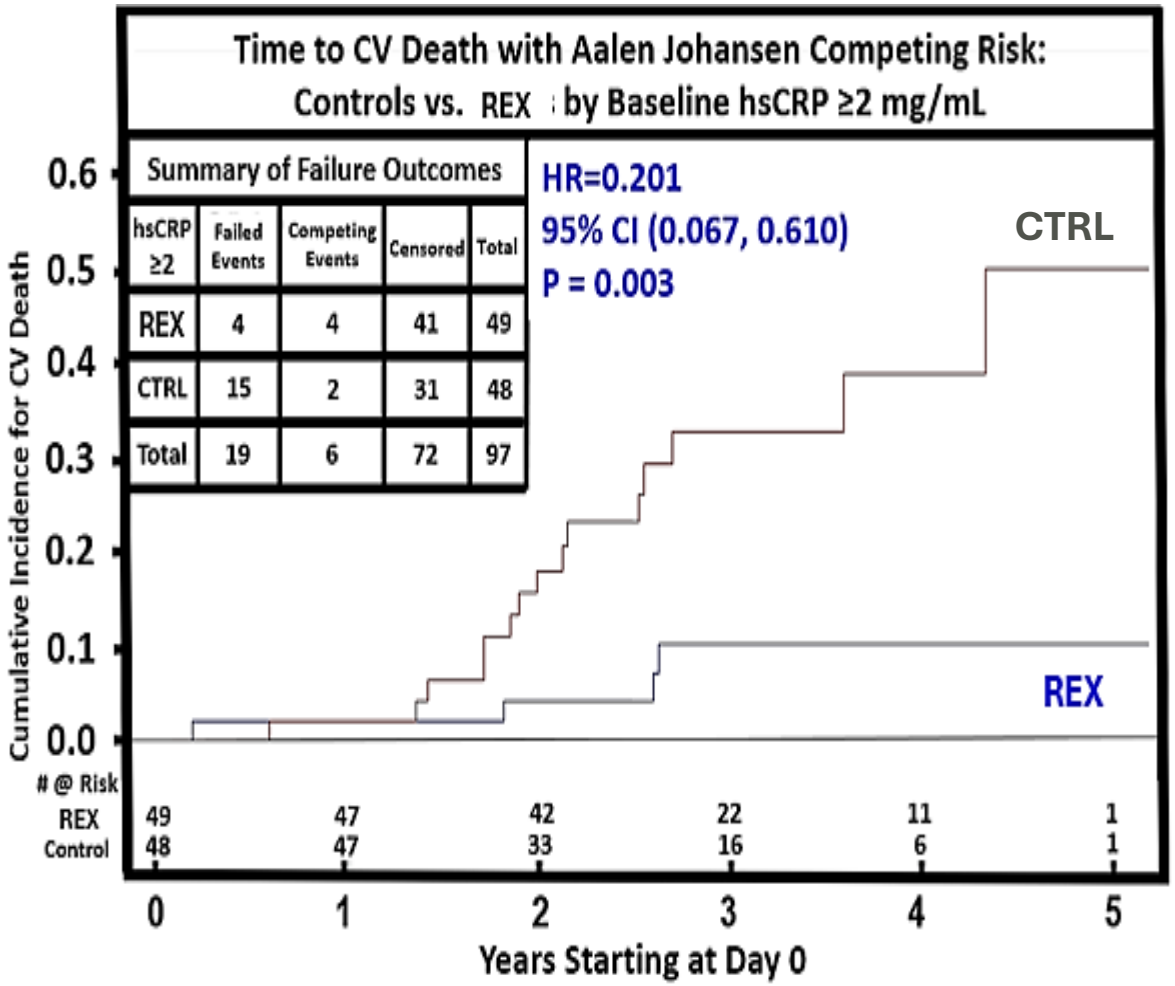
- 565 patient Phase 2b/3 randomized clinical trial (RCT) in NYHA II/IIIA HFrEF
- Rexlemestrocel-L reduced myocardial infarctions (MIs), strokes and cardiovascular death.

LVAD Study

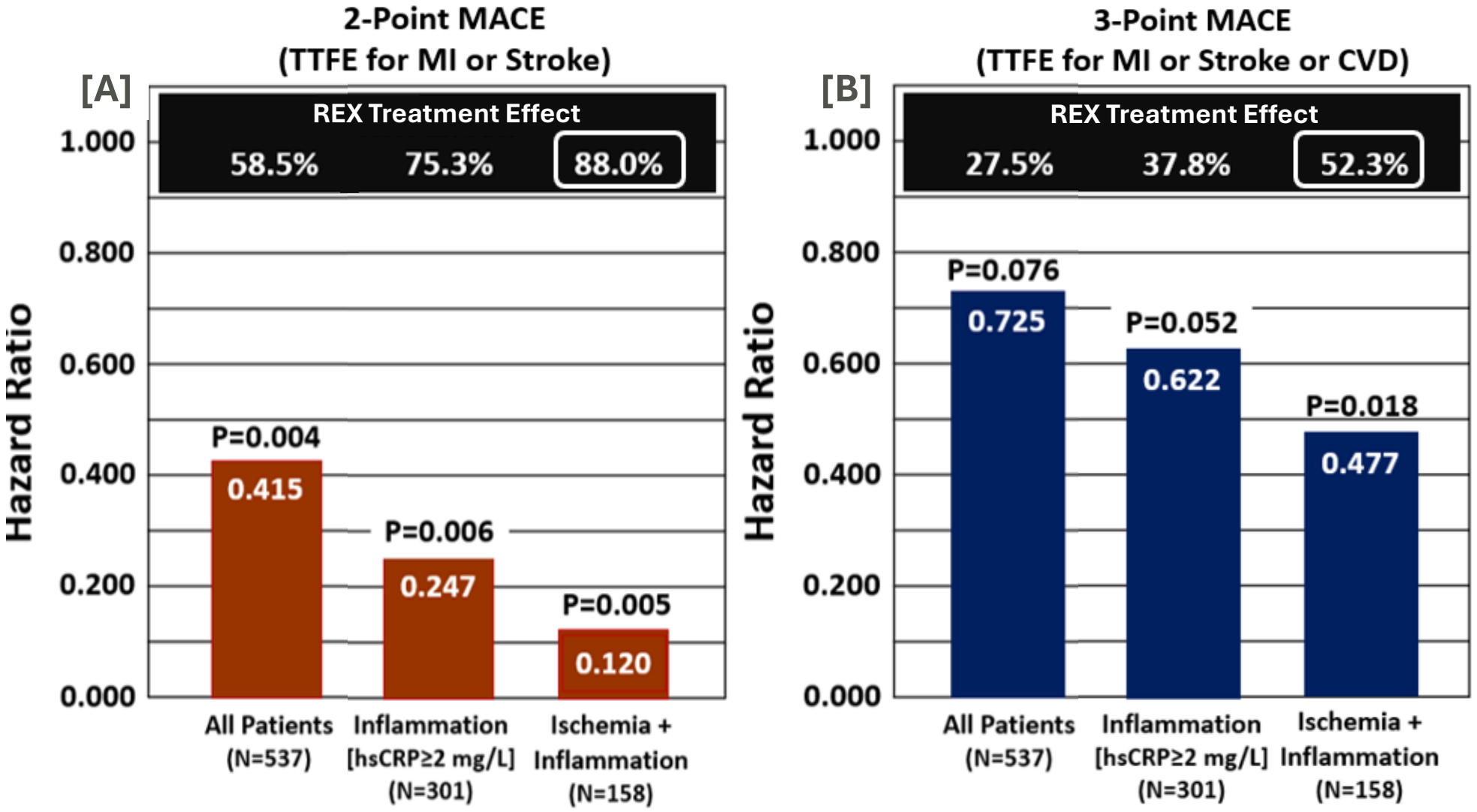
- 159 patient Phase 2b/3 randomized clinical trial in end-stage (NYHA IIIB/IV)
- Rexlemestrocel-L reduced complications of right heart failure (RHF) and GI bleeding

Successful outcomes of 150M intramyocardial cell dose of rexlemestrocel-L in both RCTs

DREAM-HF: Rexlemestrocel-L Significantly Reduced CV Deaths In Patients With Inflammation (p=0.003)



DREAM-HF Trial: Effect of REX on 2-point MACE (Panel A) and 3-point MACE (Panel B) in all HFrEF Patients and Sub-groups with Inflammation and Ischemia + Inflammation



Perin EC, Borow KM, Henry TD, et al. Mesenchymal precursor cells reduce mortality and major morbidity in ischaemic heart failure with inflammation: DREAM-HF. Eur J Heart Failure 2024;

Investigational Agents Evaluated for Cardiovascular Risk Reduction Using 3-Point MACE (TTFE for MI or Stroke or CV Death)

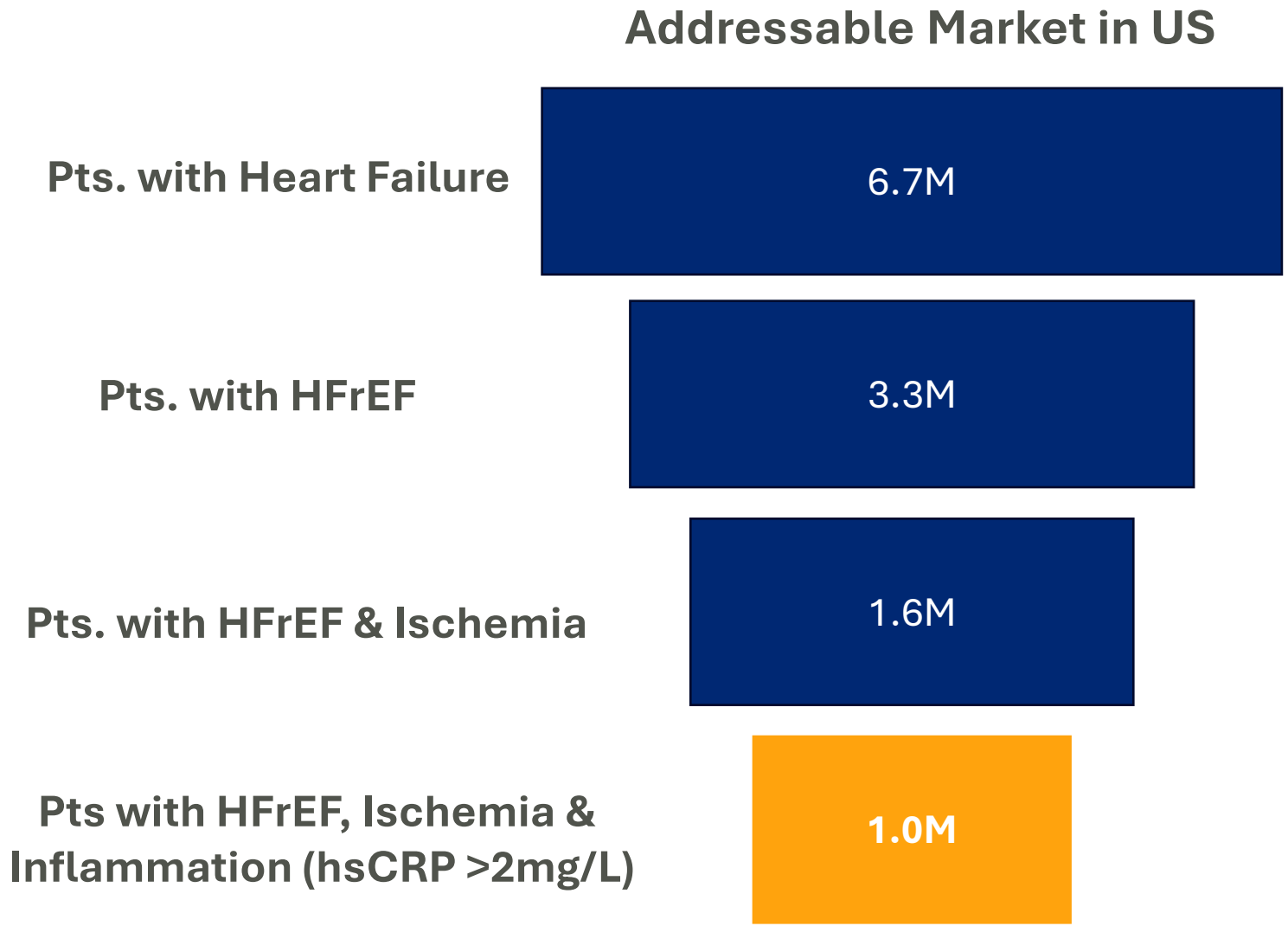
Comparison with Rexlemestrocel-L in Patients with Myocardial Ischemia &/or Diabetes

Medication	Drug Class	Clinical Trial	Hazard Ratio	Risk Reduction	95% CI	P-value	# Randomized Patients
Liraglutide	GLP-1 Receptor Agonist (RA)	LEADER	0.87	13%	0.78, 0.97	0.01	9,340
		Heart Failure Sub-group	0.94	6%	0.72, 1.21	-------	1,305
Dulaglutide	GLP-1 Receptor Agonist (RA)	REWIND	0.88	12%	0.79, 0.99	0.03	9,901
Empagliflozin	SGLT-2 Inhibitor	EMPA-REG	0.86	14%	0.74, 0.99	0.04	7,020
Canagliflozin	SGLT-2 Inhibitor	CANVAS + CANVAS-R	0.86	14%	0.75, 0.97	0.02	10,142
		Heart Failure Sub-group	0.80	20%	0.61, 1.05	-------	1,461
Dapagliflozin	SGLT-2 Inhibitor	DECLARE Timi 58	0.93	7%	0.84, 1.03	-------	17,160
		Heart Failure Sub-group	1.01	0%	0.81, 1.27	-------	1,724
Ertugliflozin	SGLT-2 Inhibitor	VERTIS CV	0.99	1%	0.88, 1.12	-------	8,246
Rexlemestrocel-L	**Mesenchymal Precursor Cells**	**DREAM HF Ischemics &/or Diabetics**	**0.63**	**37%**	**0.43, 0.93**	**0.019**	**385**
		Ischemics &/or Diabetics With Baseline hsCRP≥2mg/L	**0.46**	**52%**	**0.27, 0.77**	**0.003**	**212**

Wang CCL, et al. Circulation; 2019; 139: 1741-1743; McGuire DK, et al. JAMA Cardiology 2021; 6: 148-158

A Treatment that Reduces 3-Point MACE (Myocardial Infarction, Stroke and CV Death) Represents a Multi-Billion Dollar Opportunity

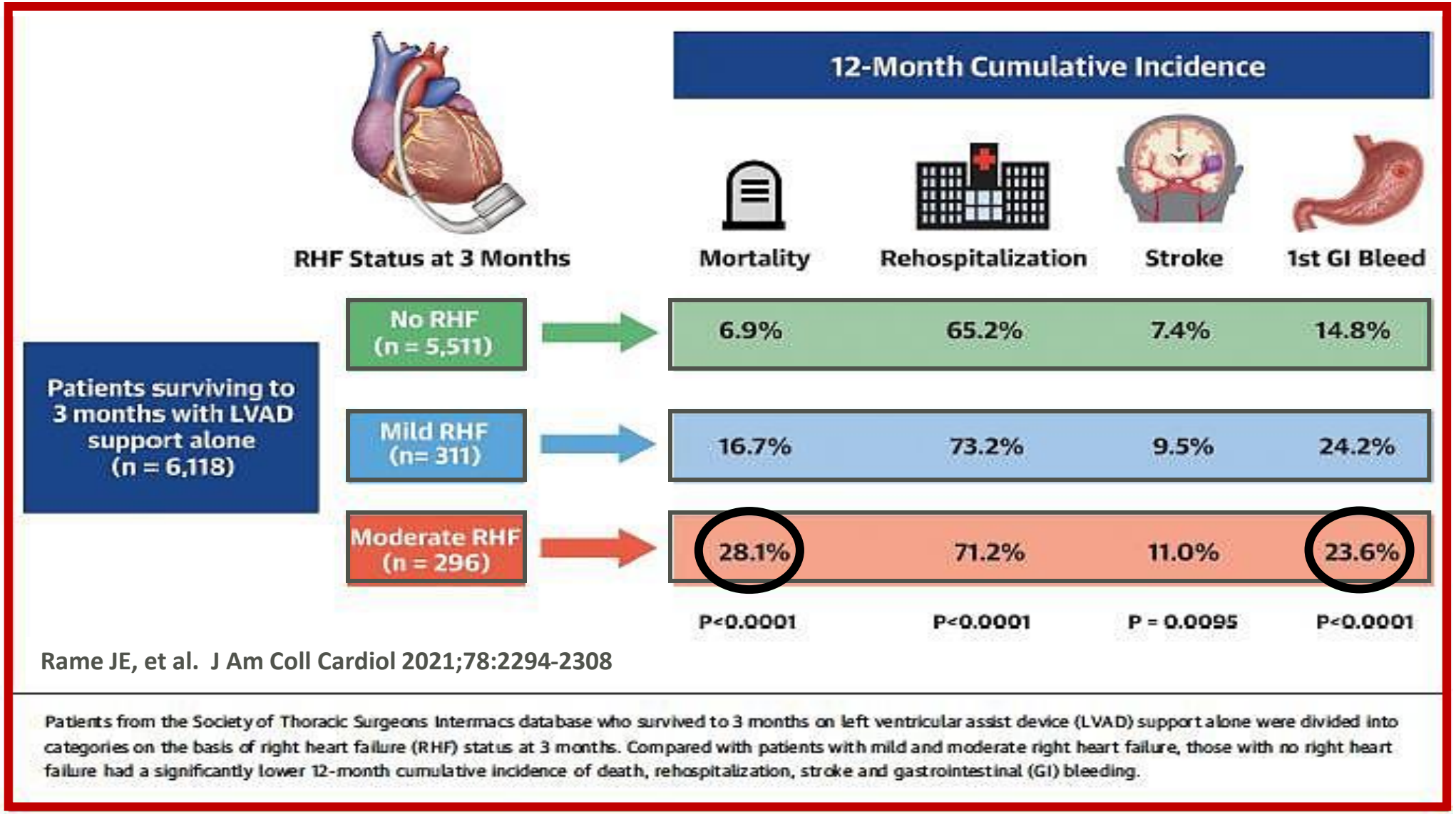
- **Sales price of $150,000 would be supported based on phase 3 study results**
- **Potential annual revenue of >$15B with just 10% market penetration**



End-stage Chronic HFrEF with LVAD

- Despite an LVAD in the left ventricle, progressive right heart failure (RHF) continues due to ongoing inflammation of the right ventricle
- Progressive RHF occurs in 15-30% of patients and is the primary cause of multi-organ failure and death
- A further complication of RHF is potentially life-threatening major mucosal bleeding events (MMBE), seen in ~30% of patients and the main cause of recurrent hospitalizations

12-Month 28% Mortality in Patients with Moderate Right Heart Failure (National INTERMACS LVAD Registry Data)

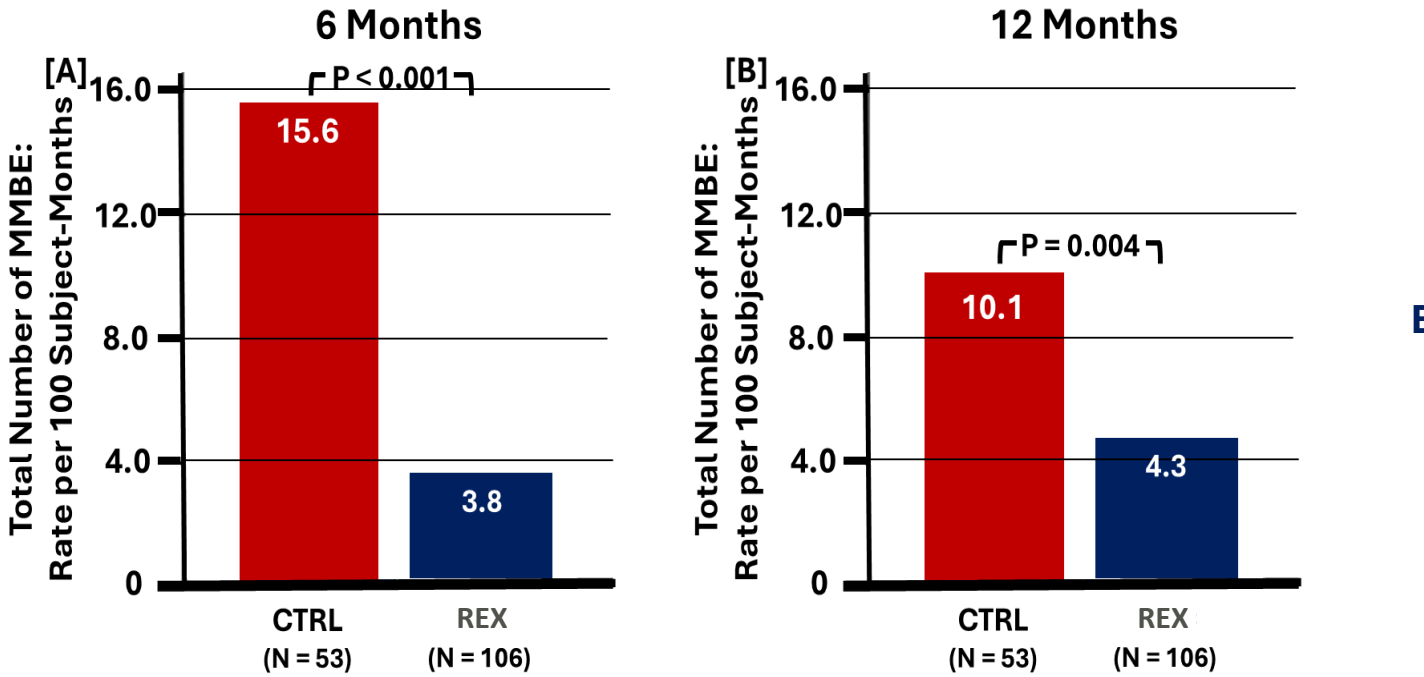


Rame JE, et al. J Am Coll Cardiol 2021;78:2294-2308

Patients from the Society of Thoracic Surgeons Intermacs database who survived to 3 months on left ventricular assist device (LVAD) support alone were divided into categories on the basis of right heart failure (RHF) status at 3 months. Compared with patients with mild and moderate right heart failure, those with no right heart failure had a significantly lower 12-month cumulative incidence of death, rehospitalization, stroke and gastrointestinal (GI) bleeding.

LVAD Study: Rexlemestrocel-L in End-Stage HFrEF Patients with LVAD

- Improved right ventricular function
- Reduced right heart failure hospitalizations and mortality
- Reduced circulating inflammatory cytokines
- Reduced major GI bleeding events caused by hepatic venous congestion – FDA approvable endpoint



Reduced Major Mucosal Bleeding Events in End-stage HFrEF Patients with LVAD Over 12 Months

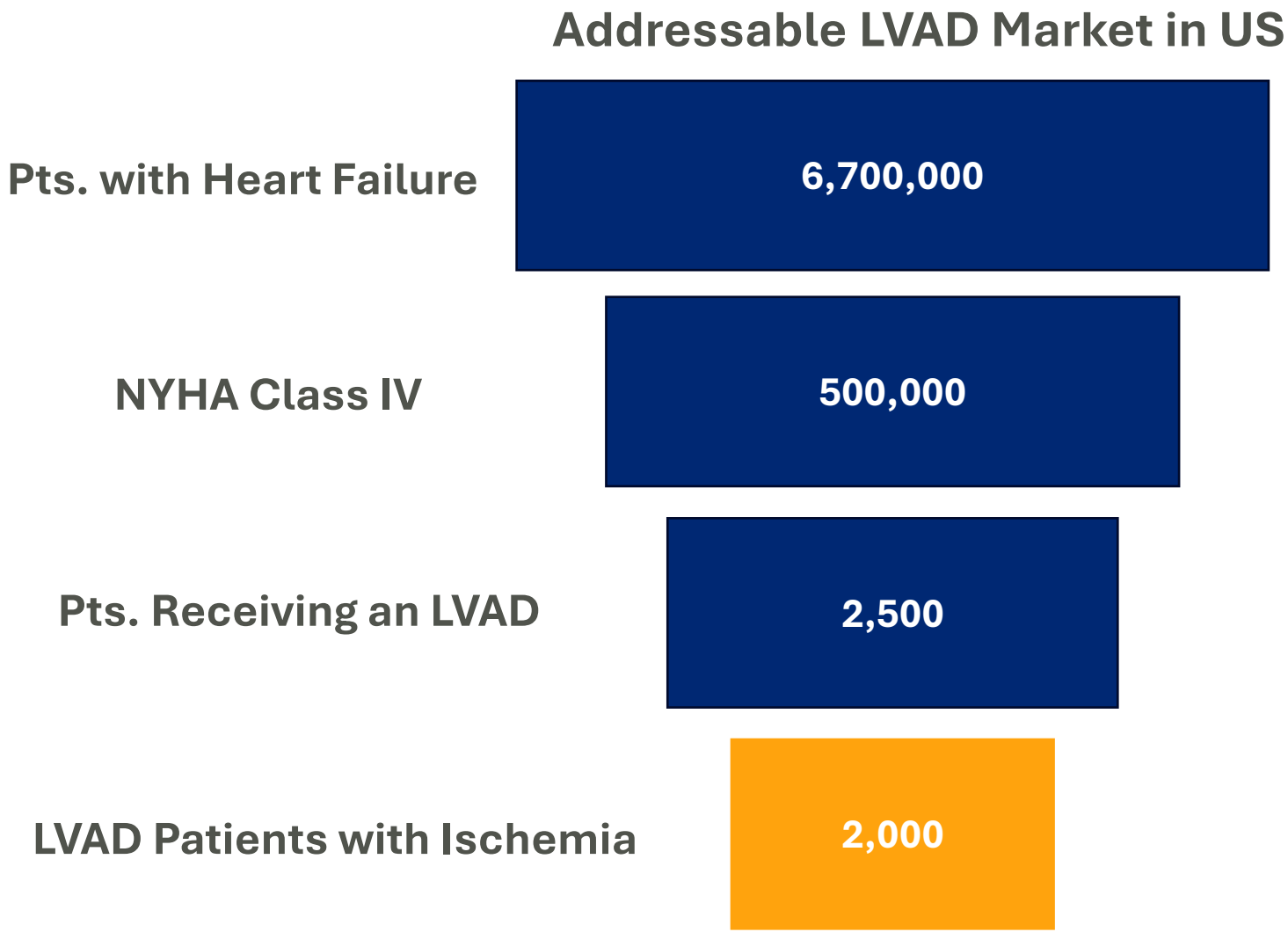
CHF Franchise: Tactics & Strategy

- File with FDA for full approval for rex-L in patients with LVADs
- Filing is based on GI Bleeding being an FDA-acknowledged indication and having received Orphan Drug designation
- FDA's stated preference for randomized controlled trials has resulted in Mesoblast seeking a full FDA approval pathway, with benefit that an additional confirmatory trial is not required
- FDA approval of Rex-L in patients with LVADs will facilitate subsequent approval of Mesoblast's pre-LVAD (NYHA Class II/IIIA) chronic HFrEF patients via label extension

GI = gastrointestinal | CMC = chemistry, manufacturing & controls | HFrEF = heart failure reduced ejection fraction

LVAD Approval Represents A Near Term Orphan Opportunity That Supports Label Extension Into The Larger Heart Failure Market

- **Sales price of $200,000 would be supported based on phase 3 results and reduction in cardiac ICU hospitalizations**
- **Total addressable market potential is $400M**
- **Approximately 190 LVAD certified centers in the US**



Inflammatory Heart Failure KOL Perspective

Emerson Perin, MD, PhD, FACC

Baylor College of Medicine

Medical Director of The Texas Heart Institute

Professor of Medicine, Baylor College of Medicine

Eric Rose, MD

Chief Medical Officer, Mesoblast

Chief Medical Officer

World-renowned heart surgeon and scientist made history when he performed the first successful pediatric heart transplant

Emerson C. Perin, MD, PhD

Eric Rose, MD

Leveraging FDA Approval for Ryoncil for New Pediatric Label Extension Indications

Michael Schuster

Head of Business Development

Duchenne Muscular Dystrophy (DMD): An Inflammatory Disease with Unmet Need

- DMD is a genetic X-linked muscle disease with lack of dystrophin (a stabilizing protein essential for muscle strength) which ~15,000 patients in US
- Inflammation of skeletal muscle and fibrosis results in loss of ambulation by 12 years old
- Steroids are used in every patient for life and are the only agents proven to delay loss of ambulation and improve survival
- Dystrophin gene therapy replacement has only shown modest benefit

DMD: Revenue Growth Opportunity Leveraging RYONCIL's Anti-Inflammatory Mechanism of Action

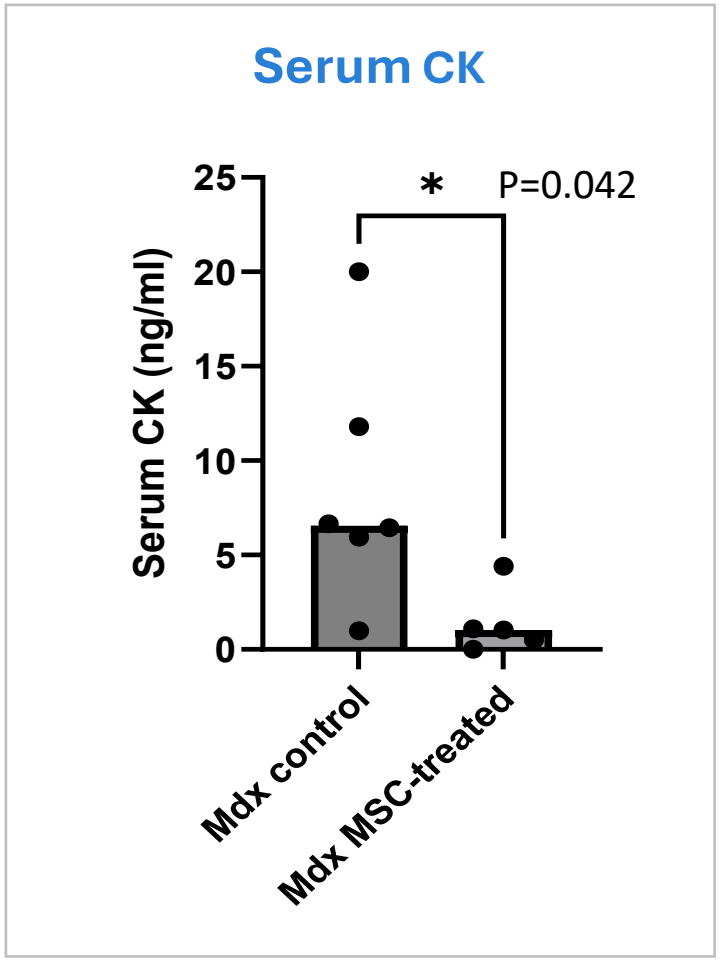
- RYONCIL has proven efficacy and safety in pediatric SR-aGvHD following steroid resistance, a disease of severe inflammation
- RYONCIL has demonstrated benefit alone and with gene therapy in animal models of DMD
- IND cleared by FDA for a trial that aims to extend RYONCIL label to ambulatory children with DMD
- Label extension in DMD maintains existing RYONCIL pricing structure

Proprietary Mesoblast MSC Technology Improves Muscle Function in Duchenne Mice

Administration of RYONCIL in mdx Mice Results in:

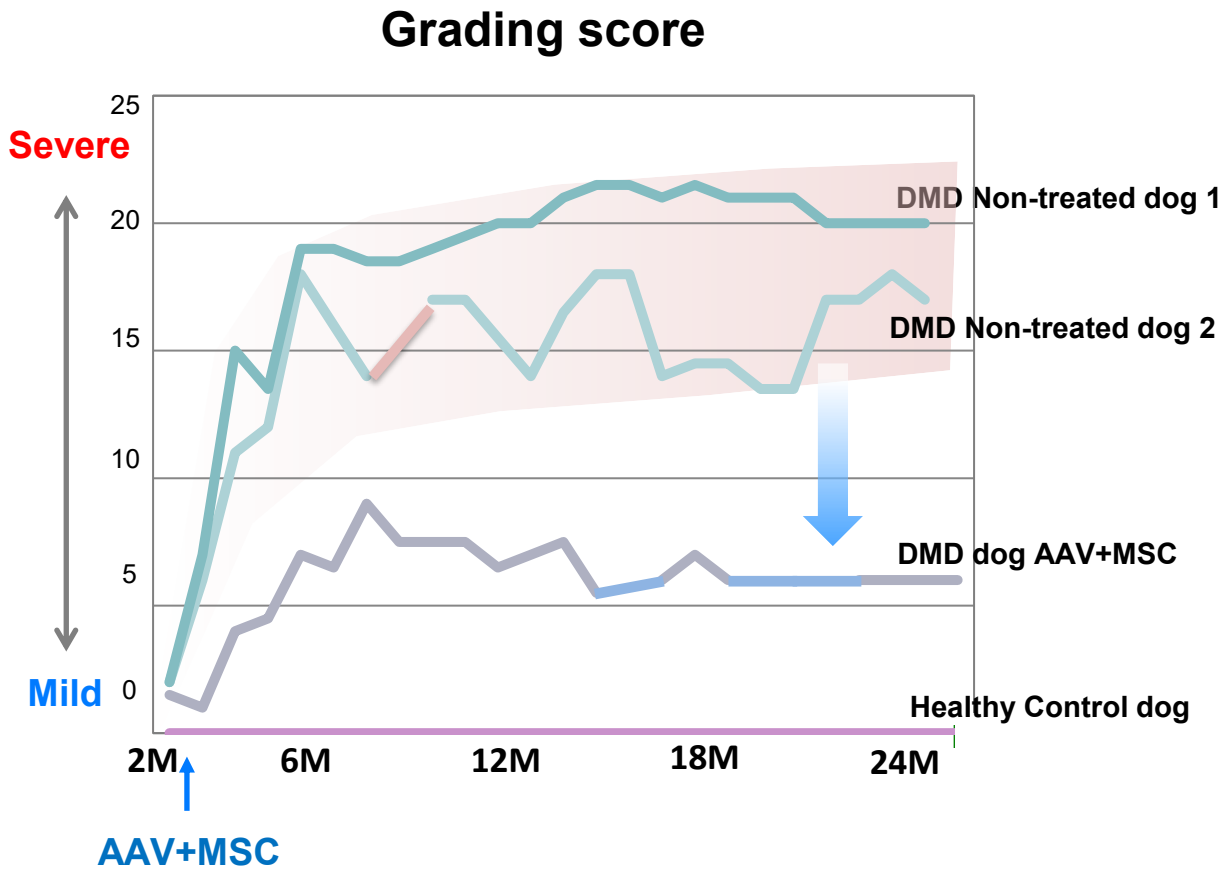
- Down regulation of T cell, macrophage and neutrophil immune activation pathways
- Increase in muscle regeneration pathways
- Improvement in exercise-induced muscle fatigue

Ryoncil Reduces Serum Creatine Kinase (CK) Activity



1. McGreevy JW, et al. Dis Model Mech. 2015 Mar;8(3):195-213.
2. Morrison J et al, Lab Invest 2000, 80:881–891.

Mesoblast Proprietary MSC Combined with Micro Dose of Dystrophin Gene Therapy Shows Additive Benefit In Duchenne Dogs



Composite score of gait, mobility, limb or temporal muscle atrophy, drooling, macroglossia, and dysphagia

DMD Beagle - Control

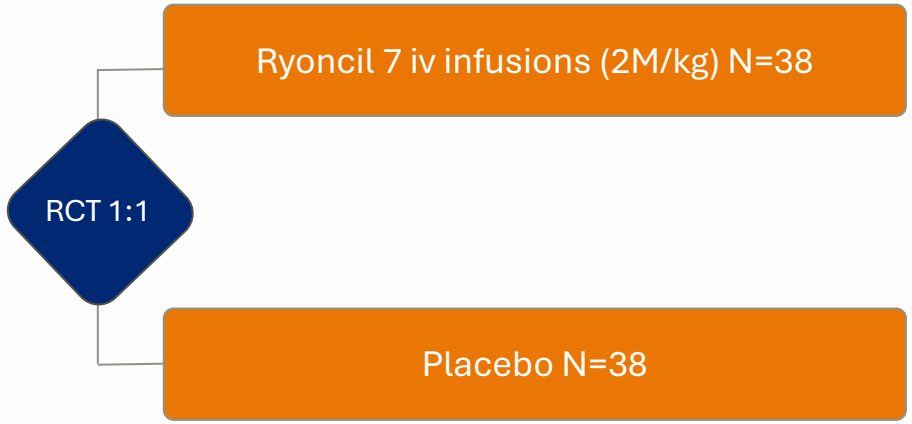
DMD Beagle 8 Months Post Treated

IND Clearance Received from FDA for Phase 3 Registration Trial in Children Aged 5-9 Years with Duchenne Muscular Dystrophy

Clinical Development Plan

Inclusion & Exclusion Criteria

- Patients 5-9yo
- All patients ongoing treatment with steroids for >6months
- May have received gene therapy



Primary endpoint

9 month change in Time to Stand Velocity

- Collaboration with Parent Project Muscular Dystrophy (PPMD) for patient identification and trial awareness; PPMD is the leading advocacy group for afflicted patients and their families
- Expected to enroll over12 months
- Prevalence of 5-9 year olds ~2,500 patients with ~500 new patients/year

Next Generation MSC Therapies

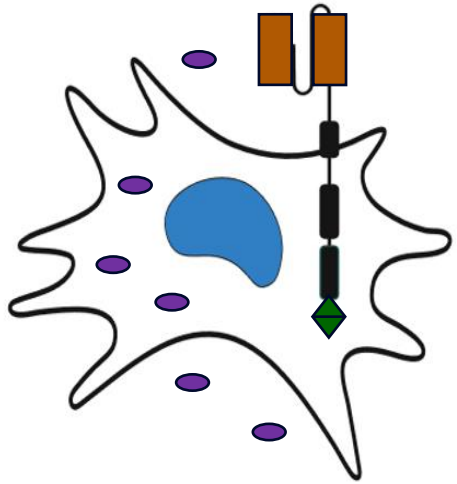
Dan Devine

Head of Special Projects

Next Generation Gene Modified MSCs – Enhanced Products for New Indications

- Mesoblast is leveraging the only FDA-approved MSC platform to create genetically-modified next gen products

- Enhanced (a) potency via payload (⬭) or triggered pathway (◆), and (b) targeting via antigen binding moiety (▮)

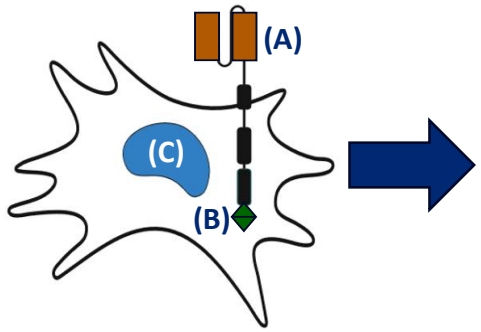


- Two proprietary next gen platforms (patents through 2043)
  - **Chimeric Antigen Receptor "CAR-MSCs" developed at Mayo Clinic (Saad Kenderian)***
  - **Oncolytic Virus "OV-MSCs" developed at Baylor College of Medicine (Dr. Malcolm Brenner)****

- IND-enabling development ongoing at each location; first IND in 1QCY2028

*Nat Biomed Eng. 2024 April ; 8(4): 443–460. doi:10.1038/s41551-024-01195-6;**https://pubmed.ncbi.nlm.nih.gov/36989357

CAR-MSC Platform



(A) Chimeric antigen receptor (CAR) targeting specific disease-associated antigen

(B) Binding to antigen triggers selected intracellular pathway to enhance potency

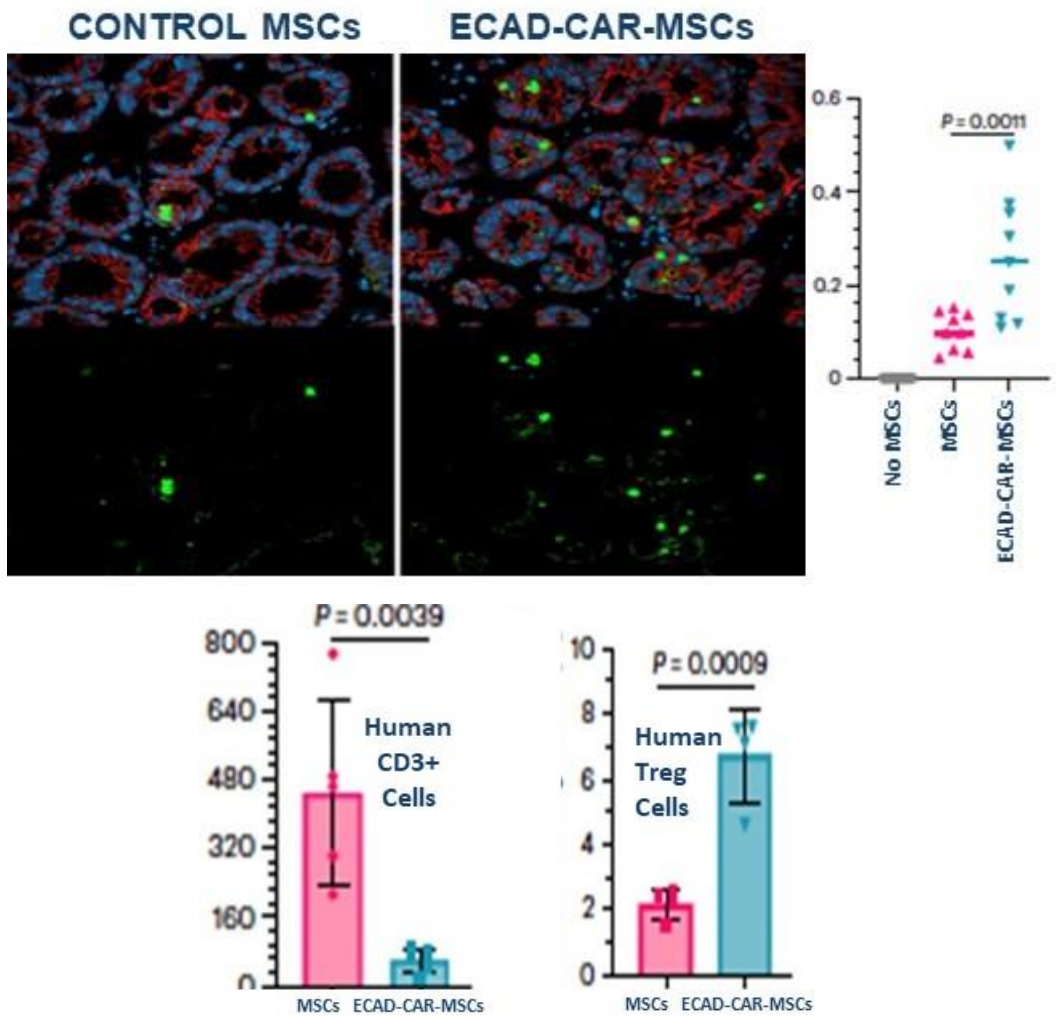
(C) Retain native properties of MSCs

- Leverage tech behind CAR-T therapies *without* issues re: (i) safety and (ii) manufacturing
- Broad range of potential target antigens/intracellular pathway choices - plug and play system
- Enhanced targeting/increased potency can reduce dosing/COGS for all future indications
- Lead products target Lupus and UC/Crohn's, significant/unmet medical needs
- IND-enabling studies at Mayo Clinic; supervised by Dr. Kenderian

Antigen/Product	Target Tissue	Potential Indication(s)	Triggered Intracellular Pathway
CD19-CAR-MSC	CD19 B Cells	Lupus	CD28z, TLR3, TLR4, CD28, IFNy
ECAD-CAR-MSC	Inflamed tissue	UC/Crohn's	
MOG-CAR-MSC	Myelin Sheath	MS	
COL2A1-CAR-MSC	Collagen	RA	
AMPA-CAR-MSC	Neurons	Alzheimer's	
CAR-MSC-CCN1	Skin	Wounds	

ECAD-CAR-MSC for Ulcerative Colitis/Crohn's

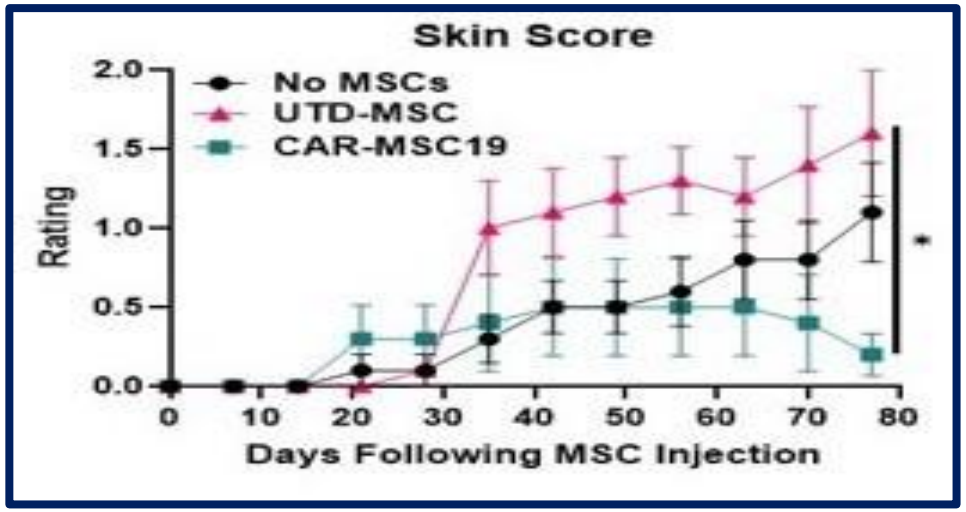
- Ulcerative Colitis and Crohn's are significant unmet medical needs; US sales projected to reach total of $20 billion by 2030
- CAR modification will enhance the potency of and reduce dose requirements of Mesoblast's unmodified MSCs, which have already produced positive results in clinical trials
- ECAD-CAR-MSCs, which targets e-cadherin antigen, have shown promise in animal model of inflammation*
  - Significantly increased homing to target inflamed colon vs. unmodified MSCs
  - Significantly greater inhibition of CD3+ T cell proliferation and induction of T regs vs unmodified MSCs

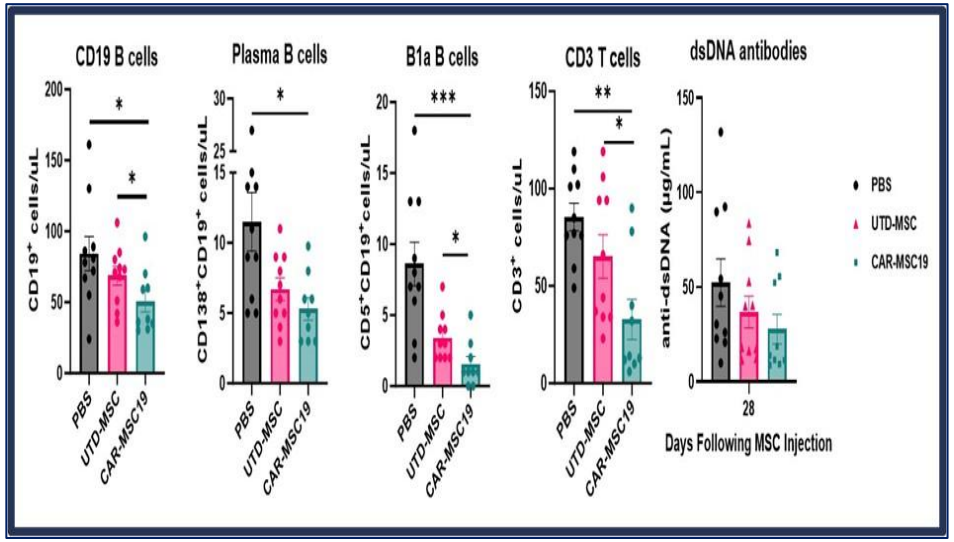


*Nat Biomed Eng. 2024 April ; 8(4): 443–460. doi:10.1038/s41551-024-01195-6

CD19-CAR-MSC for Lupus Nephritis

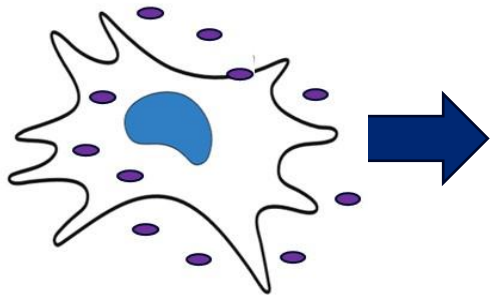
- Lupus nephritis (LN) represents a significant unmet medical need, as current treatments are only effective in 30% of patients
- CD19-CAR-MSCs have shown promise in animal models of Lupus by reducing key contributors to pathology and improving outcomes
- *
- Relative to CD19-CAR T cells, which have shown efficacy in early trials, CD19-CAR-MSCs offer significant advantages:*
  - Avoidance of cytokine release syndrome
  - Avoidance of long-term B cell depletion/infection
  - Inhibition of CD3+ T cells
  - Recruit and induce T-Reg cells
- Lupus market projected to grow to US$20 billion in 2034





*Nat Biomed Eng. 2024 April ; 8(4): 443–460. doi:10.1038/s41551-024-01195-6;

OV-MSC Platform



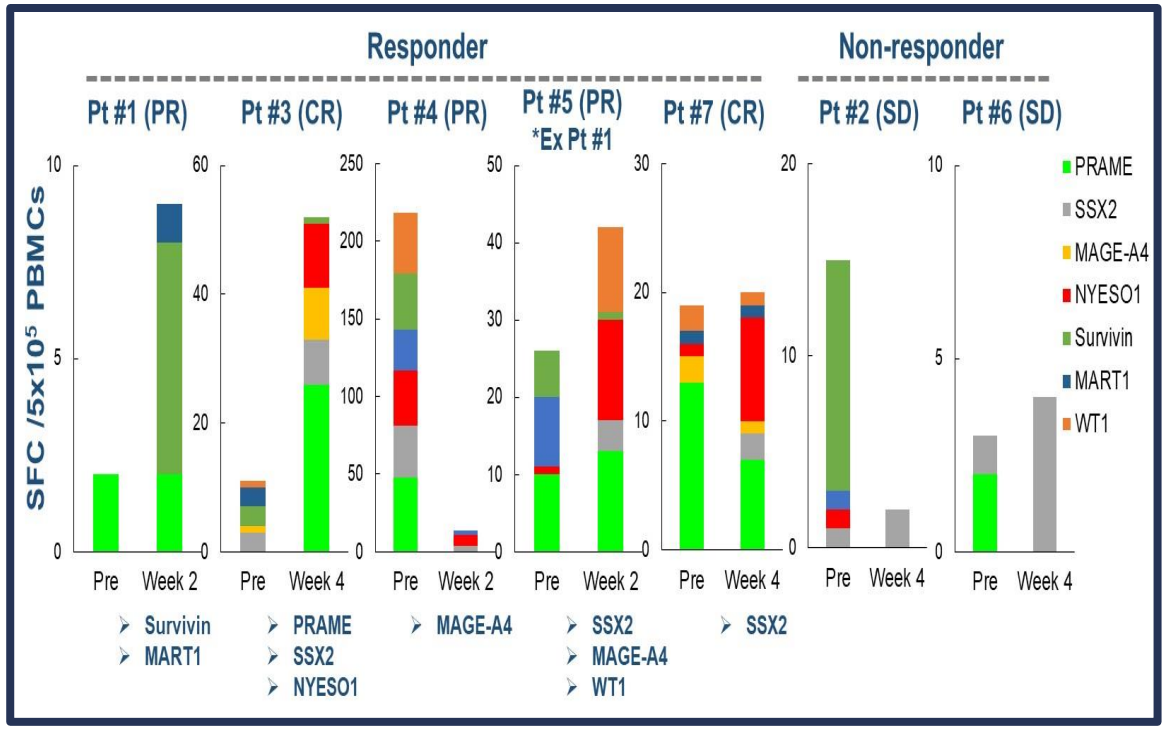
- MSCs loaded with an oncolytic virus (OV) genetically engineered to produce (i) binary T-cell engager (BiTE) that engage tumor cells and CD3+ T cells; and (ii) anti-cancer payloads
- MSCs protect payload as they navigate to targeted tissues
- OV and payloads released at tumor site as MSCs go through oncolysis

- Leverage technology behind CAR-T therapies without issues of safety and manufacturing
- IND-enabling studies ongoing at Baylor College of Medicine, under supervision of Dr. Malcolm Brenner, Director of the Center for Cell and Gene Therapy at Baylor

OV Payloads/Engagers Evaluated by BCM			
Chemokine	**Cytokine**	**Checkpoint Inhibitor**	**Engager**
MPI-1a RANTES	IL2 IL7 IL12 IL15 IL21	PD-L1 CTLA-4	CD19 CD44v6 MUC-1 FAP HER2

OV/IL12/PDL1 (First Gen OV) and CD44v6-OV-MSC for Cancer

First Generation oncolytic virus (OV) encoded for IL12 and PDL1 inhibitor (OV/IL12/PDL1) responses in 5 of 7 patients (intratumoral admin) in Phase 1 clinical trial[a]



[a]**Mesoblast has exclusive rights to this first gen oncolytic virus product**

- Microdose of 1st Generation OV/IL12/PDL1 demonstrated safety and local efficacy intratumorally*
- 2nd Generation OV has demonstrated greater potency in animal model, due to addition of bi-specific engager (BiTE) targeting CD3+ T cells and CD44v6 tumor associated antigen, along with IL12 and PDL1 inhibitor (CD44v6-OV-MSC)
- Diverse anti-cancer mechanisms: (i) oncolysis, (ii) T-cell engagement, (iii) IL12 and (iv) PDL1 inhibitor
- Baylor team has also demonstrated that MSC IV delivery significantly increases anti-tumor effect of engineered OV/IL12/PDL1**
- CD44v6-OV-MSC in IND-enabling studies at Baylor, evaluating efficacy in lung, pancreatic and breast cancer

*https://pubmed.ncbi.nlm.nih.gov/36989357/; **https://pubmed.ncbi.nlm.nih.gov/33571680/

Next-Gen MSC Technology
Securing the Future While Aligned with Current Priorities

Next-Gen MSCs protect leadership position and enhance pipeline

- Maintains leading competitive position well into the future (IP, technology, product performance)
- Opens promising/valuable new commercial opportunities
- Candidates for deployment of advanced manufacturing capabilities (e.g., bioreactors)

Development of Next-Gen MSCs strategically aligned with current corporate priorities

- Leading institutions can advance products through Phase 1 trials onsite
- Building value w/o expansion of infrastructure
- Maintains internal focus on core commercial and late-stage clinical trial focus

Next Generation MSC Platforms KOL Perspective

Saad Kenderian, MD, ChB

Mayo Clinic

Assistant Professor of Oncology, Medicine and Immunology at Mayo Clinic

Manufacturing

Justin Horst

Head of Manufacturing

Cutting Edge Innovations in Manufacturing: Drivers of Increased Yield, Capacity & Reduced COGS

Generation 1 Platform (current)
- Existing Media
- 2D Process

Generation 2 Platform
- Proprietary Media
- Enhanced growth factors

Downstream Automation
- Filling – Freezing
- To handle 6x output in vials in current facility

Expansion to US CDMO
- Scale out
- Secure / diversify supply

3D BioReactor
- Ensures long-term autonomy
- Further reduce COGSs
- Increase flexibility and control

~6x output/unit time
⬆ Yield ⬇ COGS

⬇ Labor ⬇ COGS

COGS: Cost of Goods Sold; 2D/3D: Two/Three Dimensional; GMP: Good Manufacturing Practice; CDMO: Contract Development & Manufacturing Organization

Manufacturing activities adequately funded internally to support projected demand and further drive down COGS

Manufacturing Activity & Strategic Initiatives	Timeframe
• Ensure RYONCIL commercial inventory supply meets projected growth in demand for pediatric and adult indications	CDMO contracts in place for projected 3-year demand in commercial product
• Introduce **second generation manufacturing platform with proprietary media** post first approvals for initial remestemcel-L and rexlemestrocel-l products to meet requirements of large volume indications (Adult GVHD, CLBP, CHF)	12-18 months
• Introduce automation to match increased production scale	12-18 months
• Validate U.S. manufacturing site post approvals	Planned for FY2028

Financial

James O’Brien

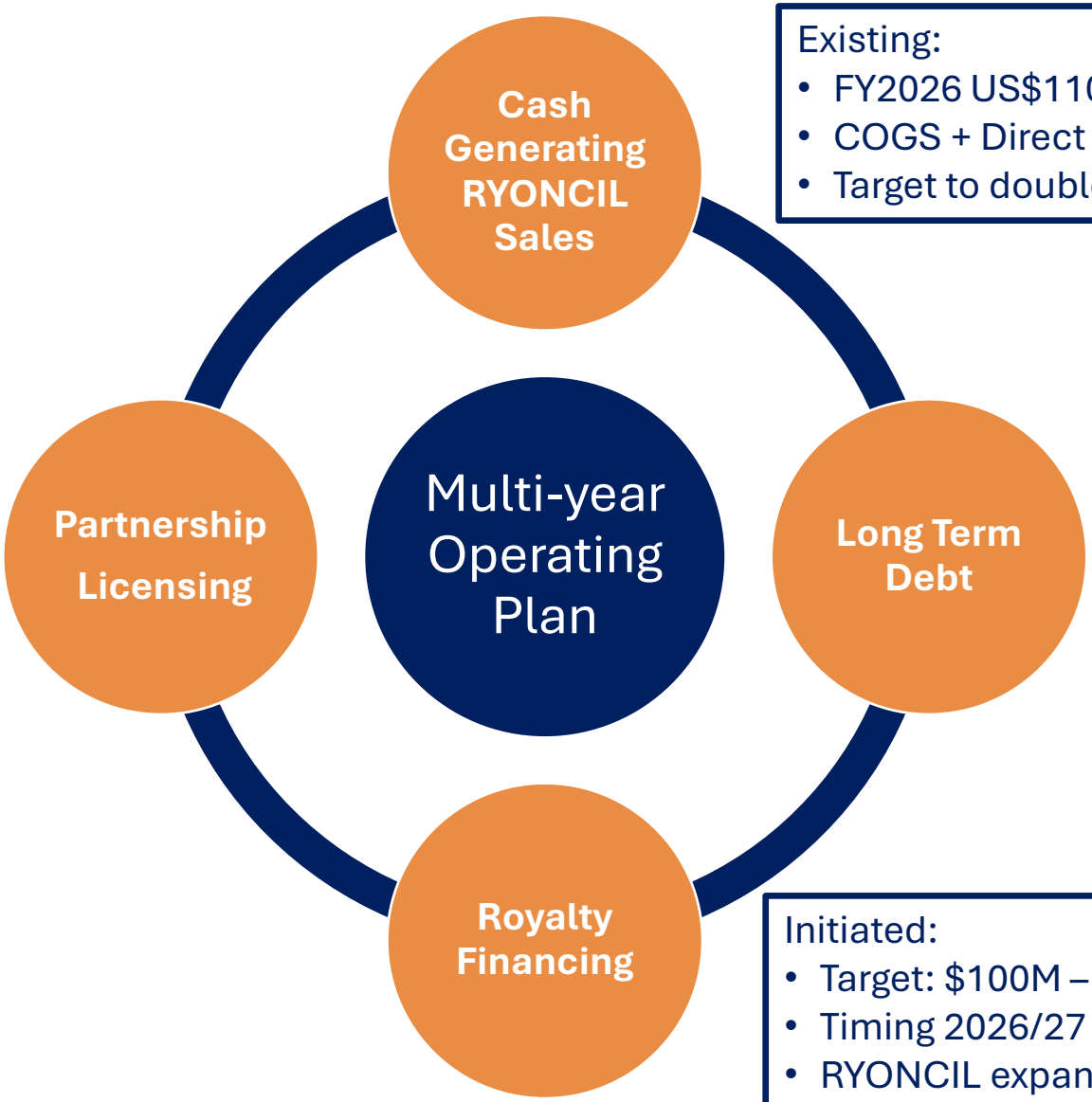
Chief Financial Officer

Strong Financial Position

- Gross revenue Q3 FY26 was US$35.3M, with net revenue US$30.3M
- RYONCIL gross profit for H1 FY26 was US$44.2M, with US$7.7M direct selling costs
- Net operating cash usage for H1 FY26 was US$30.3M
- Mesoblast expects to see reduction in net cash spend over the remainder of the fiscal period based on projected receipts from quarterly revenues
- Cost discipline approach to managing spend in-line with revenue
- Operating plan includes spend on Phase 3 programs, manufacturing for BLA filing and commercial inventory
- New term loan totaling US$125M replaces existing higher-cost debt

BLA: Biologics License Application (FDA)

Internal Revenue Supports Existing Operations, Various Non-Dilutive Sources of Capital For Growth



Existing:
- FY2026 US$110M to 120M net revenue
- COGS + Direct selling costs c. 25%
- Target to double revenue in SR-aGvHD

Ongoing:
- Target Large Pharma
- Size / Use of Funds (CF)
- Timing: 2026/27

- Draw US$50 million from existing credit facility by Jun 30, 2026
- Carry – 8%
- Interest only, repay at any time, no penalty

Initiated:
- Target: $100M – 200M
- Timing 2026/27
- RYONCIL expansion / CLBP/ CHF

Wrap-Up

Silviu Itescu

Chief Executive

MSC Magic – What Makes These Cells Special

- Multi-modal anti-inflammatory mechanism of action – means can act concurrently on multiple pathways of the immune system, not just one
- Inert and self-regulating in absence of inflammation equals excellent safety profile
- These features result in superior efficacy without concerns of off-target adverse events typical of small molecules or antibodies
- Platform technology can be leveraged across many indications with high unmet needs
- No requirement for matching or immunosuppression
- Highly expandable and scalable manufacturing means product made from one donor can be used in thousands of unrelated recipients
- These features underpin industrial scale supply chain with a sustainable high-margin business model

Our 'MOAT' – What Sets Mesoblast Apart and Protects Our Market Leadership Position

- Globally IP portfolio >1,100 patents provide protection through >2044
- Dominant IP protects a cell type whose unique properties underpin a scalable commercial business model
- First mover advantage – the first and only MSC approved by FDA
- Completed large, US-based, randomized clinical trials which provide evidence of efficacy
- Benchmark in complex manufacturing with IP protection, significant know-how advantage, demonstrated FDA alignment, scale-up capacity, and ability to leverage across many products
- Next gen technology leadership to enhance tissue-homing characteristics and achieve even greater efficacy for existing products in areas such as inflammatory bowel disease, lupus nephritis and Alzheimer's disease, and completely open new areas such as cancer

Anticipated Major Upcoming Milestones

RYONCIL – Commercial

- Net revenue approaching US$100M since launch
- Strategy in place to strongly grow revenue base
- Well-funded to execute on operational plans, RYONCIL sales to fund growth pipeline
- Focused on increasing penetration of pediatric SR-aGvHD market

RYONCIL - Label Extension

- Label extension to adult SR-aGvHD; 3x larger market vs pediatric
- Adult SR-aGvHD trial in collaboration with BMT-CTN network, trial initiated, to complete in 12-18 months
- Pediatric Duchenne's in collaboration with PPMD patient advocates – FDA IND clearance received

Rexlemestrocel-L - CLBP Blockbuster

- Complete enrollment of pivotal trial end of April
- Top-line primary endpoint mid-CY2027
- BLA filing for FDA approval Q3 CY2027
- Potential FDA approval and US launch Q2 CY2028

CHF: regulatory strategy to gain approval for blockbuster indication

- File BLA with FDA for end-stage heart failure patients on LVADs this quarter
- Leverage approval to initiate confirmatory trial in NYHA II/III HFrEF

Thank You

mesoblast