mesoblast

the regenerative medicine company

Operational Highlights and Financial Results for the Half Year Ended December 31, 2018

February 2019

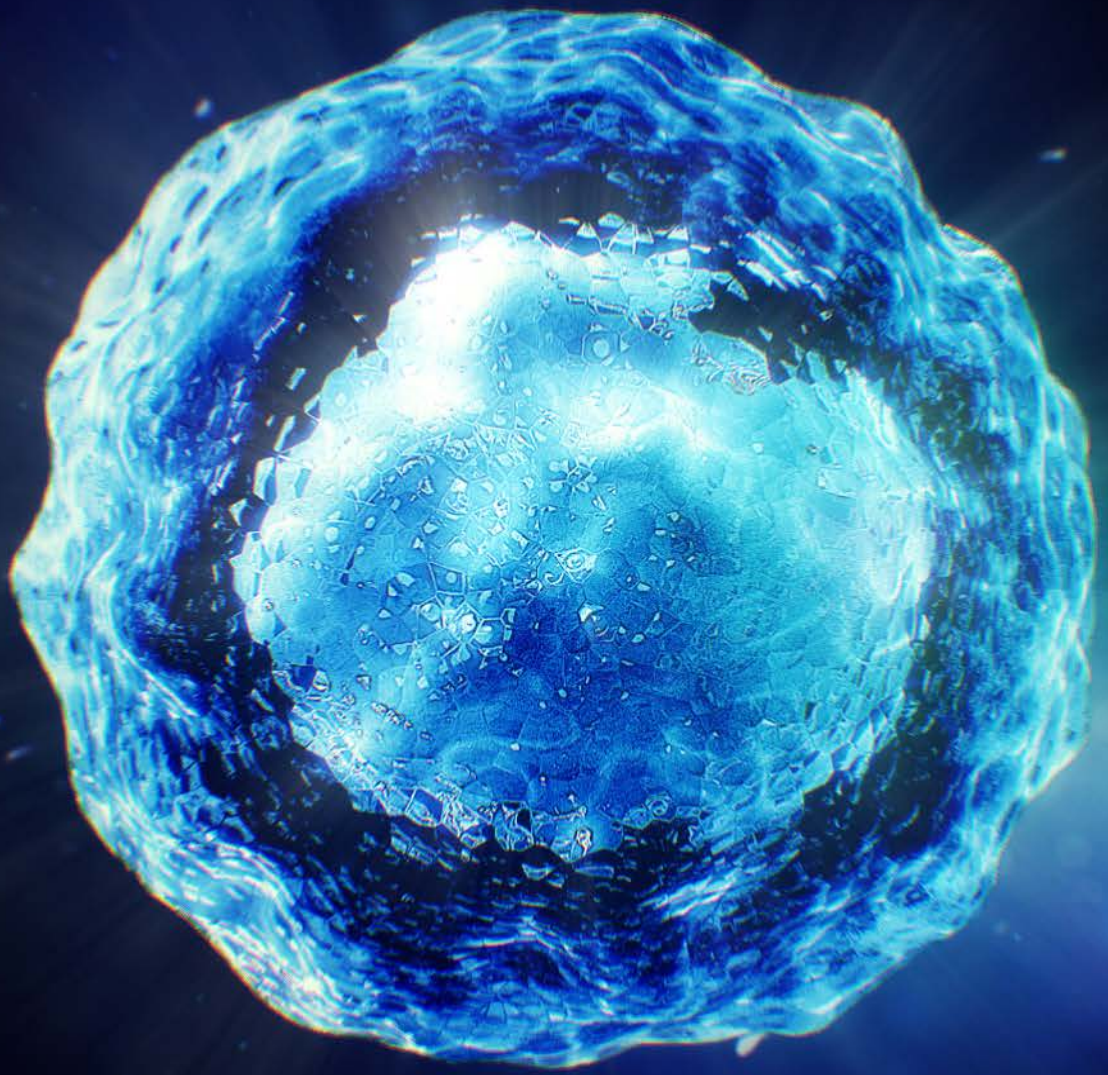
Nasdaq: MESO ASX: MSB

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 bring to market innovative cellular medicines to treat serious and life-threatening illnesses



Premier Global Cellular Medicines Company

Innovative Technology Platform[1]	Late Stage Pipeline	Commercialization
▪ Innovative technology targets the most severe disease states refractory to conventional therapies ▪ Well characterized multimodal mechanisms of action ▪ Underpinned by extensive, global IP estate	▪ Upcoming BLA submission for Steroid-Refractory Acute GVHD ▪ 2 blockbuster product candidates completed Phase 3 trial enrollment - heart failure and back pain ▪ China cardiovascular partnership established	▪ Building focused U.S. sales force for GVHD product launch ▪ Industrial-scale manufacturing to meet commercial demand ▪ First approved products commercialized by licensees in Japan[2] and Europe[3] ▪ Increasing revenues and milestone payments

1. Mesenchymal precursor cells (MPCs) and their culture-expanded progeny mesenchymal stem cells (MSCs).
2. Licensee JCR Pharmaceuticals Co., Ltd. received the first full PMDA approval for an allogeneic cellular medicine in Japan and markets this product under its trademark, TEMCELL® Hs Inj.
3. Licensee Takeda received first central marketing authorization approval from the European Commission for an allogeneic stem cell therapy and markets this product under its trademark, Alofisel®.

Corporate Highlights for the Half Year

Remestemcel-L for Steroid Refractory Acute Graft Versus Host Disease

- After demonstrating strong survival benefits through Day 180, held two successful end-of-phase meetings with the FDA covering clinical and manufacturing aspects of the upcoming BLA filing
- Meeting scheduled with the FDA in April 2019 and on track to subsequently initiate filing
- Building an efficient and targeted sales force for product launch

Revascor for Advanced and End-Stage Heart Failure

- Phase 3 trial in chronic heart failure completed patient enrollment, with 566 patients randomized, and will complete when sufficient primary endpoint events have accrued, which is likely to be within 12 months
- First Joint Steering Committee meeting held with Tasly, objective to initiate a clinical study in China using similar clinical endpoints and targeting a similar patient population as in Mesoblast's North American Phase 3 trial
- NIH sponsored 159-patient trial of Revascor in end-stage heart failure patients with an LVAD achieved a 76% reduction in major GI bleeding events and a 65% reduction in associated hospitalizations
- FDA provided guidance that reduction in GI bleeding and related hospitalizations is a clinically meaningful outcome that could support product registration

Corporate Highlights for the Half Year

Financial

- Strengthened cash position through both corporate transactions and strategic financing
  - US$92 million pro forma cash on hand
- Completed transaction with Tasly to establish a cardiovascular partnership in China, and received US$40 million
- Ramp up of manufacturing investment in preparation for registration and launch of remestemcel-L
- Increased product royalties from licensees

Board of Directors – Structured Succession Plan to Bring Complementary Skills

- Proven FDA product approval capabilities, commercial launch expertise, reimbursement and health system expertise and extensive global transactional record

Management – Expand to Support Commercial Launch Plans

- Commercial leadership with proven track record to roll out launch team
- Operational leadership to drive product life cycle management, commercial manufacturing and regulatory interactions


Dublin
Zurich
New York
San Francisco
Hong Kong
Melbourne
ASX
Nasdaq

Financials

Pro Forma Cash Position of US$92 million

US$m	December 31, 2018	June 30, 2018
Reported Cash on Hand	77.0	37.8
NovaQuest financing agreement	-	39.0
Tasly strategic partnership	-	40.0
Hercules – 2nd tranche	15.0	-
Pro forma cash on hand	**92.0**	**116.8**

- Pro forma cash on hand at December 31, 2018 includes US$15.0 million received in January 2019 from Hercules Capital, Inc. after having successfully achieved the clinical milestone of reduction in major gastrointestinal bleeding (GI) events and related hospitalizations in the 159 patient trial of Mesoblast's product candidate Revascor in end stage heart failure patients with LVADs
- An additional US$35.0 million may be available under existing arrangements with Hercules Capital and NovaQuest, subject to achievement of certain milestones

Significant reduction in Operating Net Cash Outflows

For the six months ending (US$m)	December 31, 2018	December 31, 2017
Operating net cash outflows	**(17.5)**	**(35.2)**
Investing net cash outflows	(0.1)	(0.7)
Financing net cash inflows	57.0	37.9
Net increase in cash	39.4	2.0

- 50% (US$17.7 million) reduction in net operating cash outflows for the six months ended December 31, 2018, primarily due to the timing of receipts of milestone payments
- Increase in financing net cash inflows from strategic transactions with Tasly and Novaquest

Revenues – continued growth in royalties and substantial milestone revenues from corporate transactions

For the six months ending (US$m)	December 31, 2018	December 31, 2017
Milestone revenue	11.0	12.8
Commercialization revenue	2.2	1.6
Interest revenue	0.3	0.2
Total revenue	**13.5**	**14.6**

- 43% growth in commercialization revenue from royalty income on sales of TEMCELL® HS. Inj.[1]
- Corporate transactions drive milestone revenues
  - US$10.0 million of milestone revenue from licensee Tasly Pharmaceutical Group in first half FY2019
  - US$11.8 million of milestone revenue from licensee Takeda Pharmaceuticals in first half FY2018

1. TEMCELL® HS Inj. is a registered trademark of JCR Pharmaceuticals Co. Ltd.

Increased loss due to investment in manufacturing and financing, and non-cash gains in comparable period from revaluation of tax and contingent consideration

Profit and Loss for the six months ending (US$m)	December 31, 2018	December 31, 2017
Total Revenue	13.5	14.6
Research and development	(34.0)	(31.6)
Manufacturing	(9.7)	(1.7)
Management & administration	(10.7)	(10.7)
Contingent consideration	(0.6)	8.7
Other operating income & expenses	(1.0)	1.1
Finance costs	(5.1)	-
(Loss)/Profit before tax	(47.7)	(19.6)
Income tax benefit	3.6	26.2
(Loss)/Profit after tax	(44.1)	6.7

- Increase in loss primarily due to the following items in the current period:
  - increased investment in commercial manufacturing by US$8.0 million in preparation for GVHD approval;
  - incurred US$5.1 million of increased finance costs;
- And the following items in the comparative period:
  - a one-off non-cash income tax benefit of US$23.0 million due to a revaluation of tax liabilities given changes in tax rates
  - non-cash US$8.7 million gain on contingent consideration for reduction of future payments to third parties;

Operational highlights for the half year ended December 31, 2018

Commercial and Late-Stage Product Pipeline

MARKETED

PLATFORM	PRODUCT	THERAPEUTIC AREA		APPROVAL	COMMERCIAL RIGHTS
MSC (Bone Marrow)	TEMCELL® HS Inj[1]	Acute Graft Versus Host Disease	1st allogeneic regen med approved in Japan	✓	JCR Japan
MSC (Adipose)	Alofisel®[2]	Perianal Fistula	1st allogeneic regen med approved in Europe	✓	Takeda Global

IN DEVELOPMENT

	PLATFORM	PRODUCT CANDIDATE	THERAPEUTIC AREA	PRE-CLINICAL / PHASE 2 / PHASE 3	COMMERCIAL RIGHTS
TIER 1	MSC	Remestemcel-L	Acute Graft Versus Host Disease		mesoblast
TIER 1	MPC	Revascor	Advanced HF (Class II/III) End-Stage HF (Class III/IV)[3]		mesoblast TASLY China[4]
TIER 1	MPC	MPC-06-ID	Chronic Low Back Pain		mesoblast
TIER 1	MPC	MPC-300-IV	Rheumatoid Arthritis Diabetic Nephropathy		mesoblast
TIER 2	Includes remestemcel-L (Crohn's disease – biologic refractory), MPC-25-IC (Acute Cardiac Ischemia), MPC-25-Osteo (Spinal Fusion) and MPC-75-IA (Knee Osteoarthritis)				

1. Mesoblast receives royalty income from its licensee JCR Pharmaceuticals Co Ltd on sales of JCR's TEMCELL® Hs. Inj. product in Japan
2. Mesoblast will receive royalty income from its licensee Takeda Pharmaceuticals on Takeda's worldwide sales of its product Alofisel® in the local treatment of perianal fistulae
3. Study funded by the United States National Institutes of Health (NIH) and the Canadian Health Research Institute; conducted by the NIH-funded Cardiothoracic Surgical Trials Network
4. Tasly's rights are limited to China; Tasly also has rights to develop MPC-25-IC for AMI

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

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

Burden of Illness

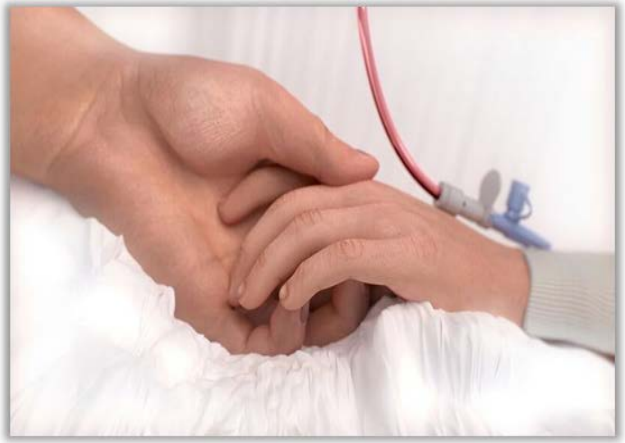
- aGVHD is a life-threatening complication that occurs in ~50% of patients receiving allogeneic bone marrow transplants (BMT)[1]
- Steroid-refractory aGVHD is associated with **mortality rates as high as 95%[1] and significant extended hospital stay costs[2]**

Minimal Treatment Options

- There are **no approved treatments for SR-aGVHD outside Japan**
- In Japan, Mesoblast's licensee has received the only product approval for SR-aGVHD in both children and adults

Market Opportunity

- >30,000 allogeneic BMTs performed globally (>20K US/EU) annually, ~20% pediatric[3,4]
- Our licensee, JCR Pharmaceuticals Co., Ltd launched TEMCELL® HS Inj.[5] in Japan for SR-aGVHD in 2016; reimbursed up to ~$USD195k[6]
- **SR-aGVHD represents USD > $700m USA/EU market opportunity[4,7]**



1. Westin, J., Saliba, RM., Lima, M. (2011) Steroid-refractory acute GVHD: predictors and outcomes. Advances in Hematology. **2**. Anthem-HealthCore/Mesoblast claims analysis (2016). Data on file **3.** 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. **4.** Source: CIBMTR Current Uses and Outcomes of Hematopoietic Cell Transplantation 2017 Summary. Passweg JR, Baldomero, H (2016) Hematopoietic stem cell transplantation in Europe 2014: more than 40,000 transplants annually. **5.** TEMCELL is the registered trademark of JCR Pharmaceuticals Co. Ltd. **6.**Based on a ¥JPY = $USD 0.009375 spot exchange rate on market close on November 11, 2016. Amounts are rounded. Source: Bloomberg. **7.** Data on file

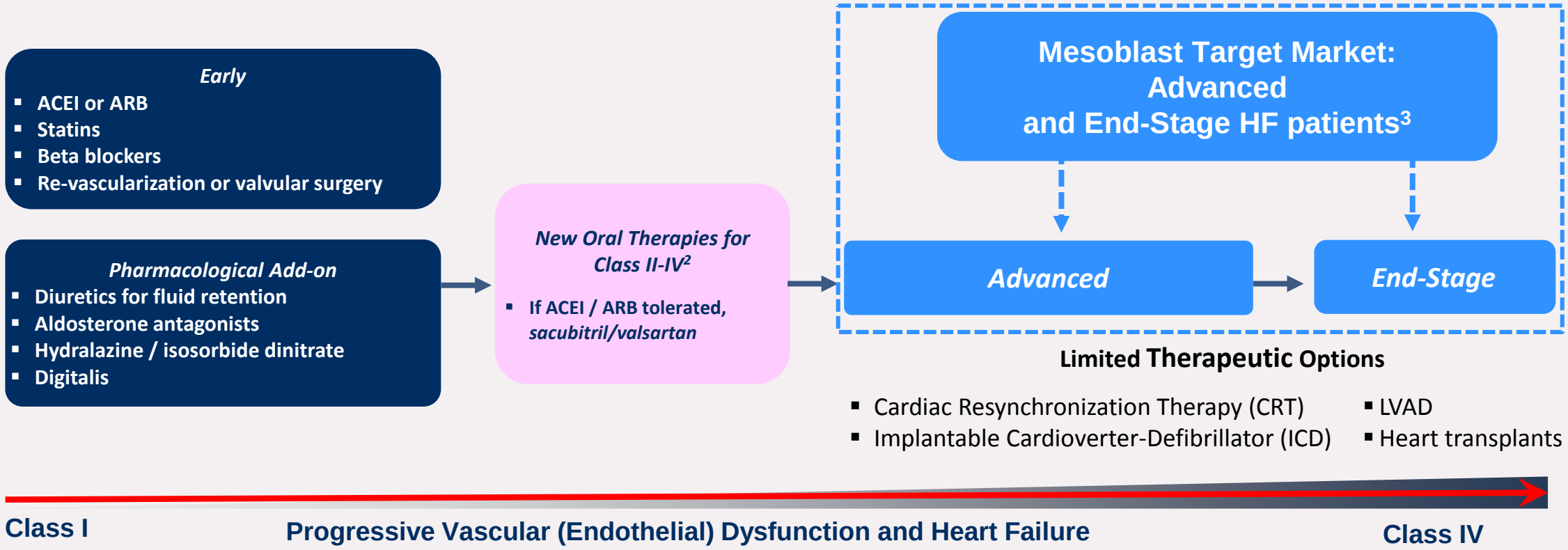
Remestemcel-L for SR Acute Graft Versus Host Disease: Commercial strategy overview

- TEMCELL® HS Inj. sales experience in Japan helps inform commercial strategy for the U.S.
- Fast Track designation provides eligibility for FDA priority review
- Commercialization strategy in place for product launch
- Building out efficient, targeted sales force

FDA Biologics License Application submission on track for early 2019

Revascor: Targeting patients with progressive heart failure despite maximal standard of care

Common Treatment Pathway in Progressive Heart Failure[1]



1. Source: Simon-Kucher & Partners 2017. Primary research 2017; Payers n=35, KOLs n=15, Cath lab managers n=4.
2. Corlanor® (ivabradine) approved by FDA (April 2015). ENTRESTO® (sacubitril/valsartan) approved by FDA (July 2015).
3. GlobalData-PharmaPoint Heart Failure (2016); McMurray et al., 2012;Yancy et al., 2013, 2016 ACC/AHAHFSA Focused Update on New Pharmacological Therapy for Heart Failure: An Update of the 2013 ACCF/AHA Guideline for the Management of Heart Failure.

Revascor: Commercial Opportunity for Advanced Heart Failure Market

Burden of Illness/Limited Options

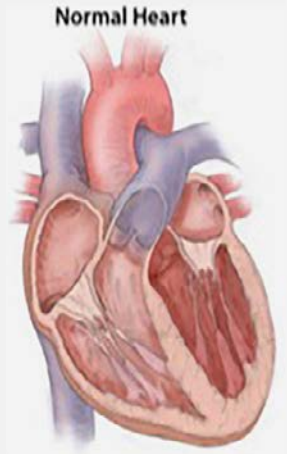
- ~ 8 million patients with chronic heart failure by 2030 in USA alone[1]
- 17-45% globally die within 1 year of hospital admission[1]
- Majority of advanced heart failure patients die within 5 years[1]
- Despite recent advances in newly approved drugs, limited treatment options are available for patients with advanced heart failure[2]

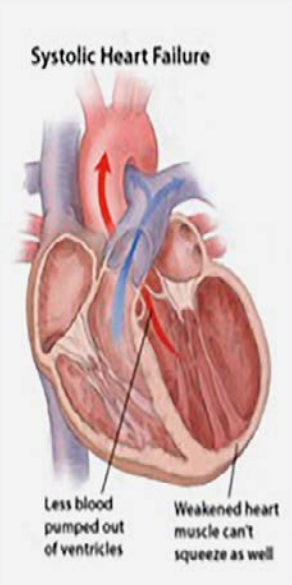
Unmet Need

- New therapies to reduce hospitalizations and mortality in patients with advanced heart failure who have failed other therapies
- Greatest need is in NYHA class III/IV where event rate is highest

Market Opportunity

- US healthcare costs for NYHA class II-IV patients $115bn/year[5]
- Hospitalizations account for ~69% of expenditure[3-5]
- **Multi-billion dollar annual market opportunity in USA**[4,5]





1. Heart Failure: Preventing disease and death worldwide – European Society of Cardiology 2014., 2. ACC/AHAHFSA Focused Update on New Pharmacological Therapy for Heart Failure: An Update of the 2013 ACCF/AHA Guideline for the Management of Heart Failure., 3. Gurwitz JH, Magid DJ, Smith DH, et al. Contemporary Prevalence and Correlates of Incident Heart Failure with Preserved Ejection Fraction. The American Journal of Medicine. 2013;126(5):393-400. Derived by applying a HF-REF prevalence rate of 32.6% to the U.S. rate of 5.7m U.S. patients., 4.A Reevaluation of the Costs of Heart Failure and its Implications for Allocation of Health Resources in the United States. Voigt J. Clinl.Cardiol. 37, 5, 312-321 (2014)., 5.The Medical and Socioeconomic Burden of Heart Failure: A Comparative Delineation with Cancer. Dimitrios, F. International Journal of Cardiology (2015), doi: 10.1016/j.ijard.2015.10.172.

Revascor: Phase 3 Trial for Advanced Heart Failure Fully Enrolled

- Events-driven Phase 3 trial completes enrollment of 566 patients
- Evaluating a single dose of Revascor to reduce recurrent heart failure-related major adverse cardiac events such as heart failure-related hospitalizations and cardiac death
- Target patient population enriched for those likely to be both highest-risk for events and greatest responders to MPC therapy
- Trial will complete when sufficient primary endpoint events accrued, likely to be within 12 months from last patient dosed
- Trial design is 1:1 randomized, controlled, double blinded; conducted over 55 sites across North America

Revascor: Commercial Opportunity for Use in End-Stage Heart Failure Patients with LVADs to Reduce Hospitalizations from GI Bleeding

Burden of Illness

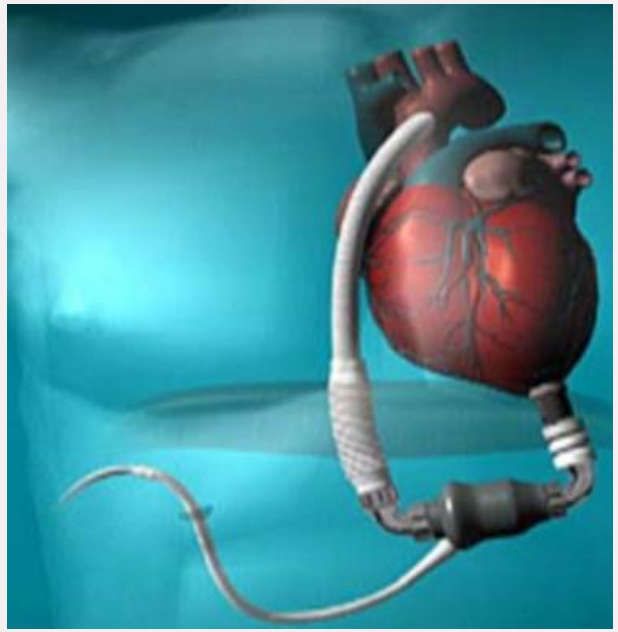
- In the USA, there are approximately 250,000–300,000 patients annually who suffer from advanced systolic heart failure (NYHA Class III–IV). [1]
- Despite optimal medical therapy, mortality exceeds 50% in class IV patients.[1]

Ongoing Unmet Need

- LVADs have improved survival, but morbidity remains high with patients on average experiencing greater than two hospitalization annually.[2]
- Gastrointestinal (GI) bleeding is the leading cause of non-surgical hospitalizations in LVAD patients[2]
- **Device attributable major adverse events (DAEs) can cost on average from up to $46.5k per hospitalization[2]**

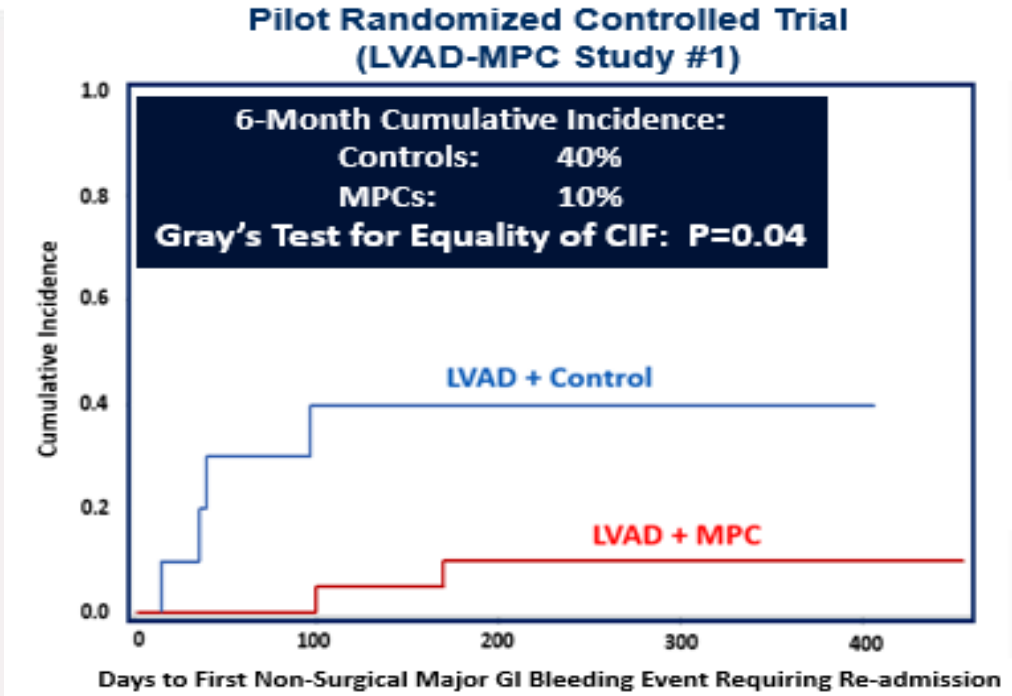
Market Opportunity

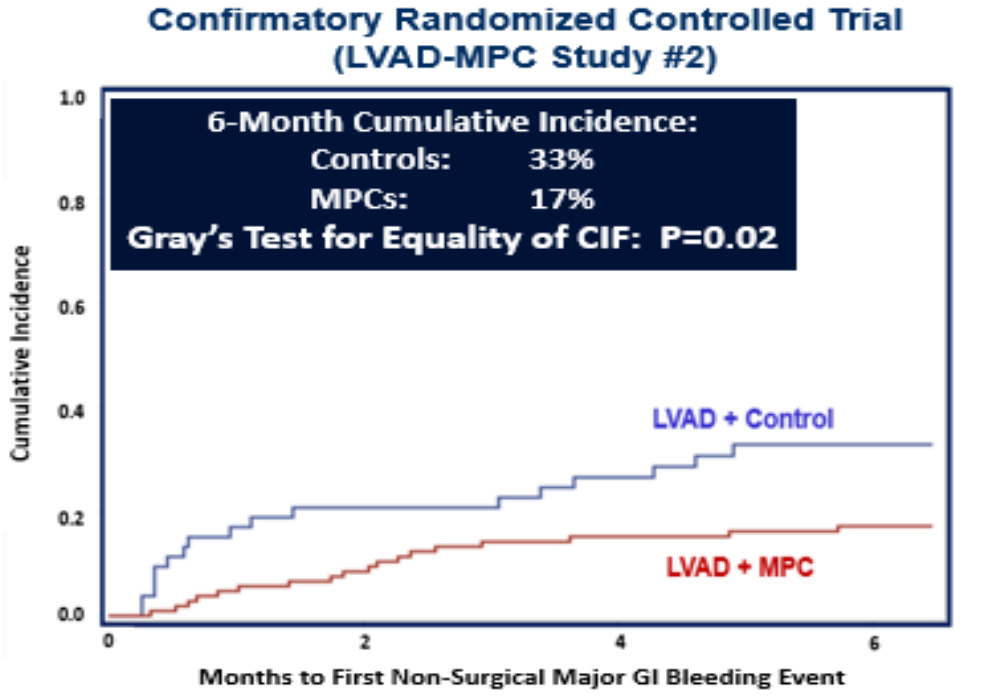
- ~4,500 – 5,500 assist devices are implanted annually in the United States.[3, 4]
- **US LVAD market is growing double-digit CAGR and represents significant market growth opportunity[3,4]**
- US targeted commercial footprint provides low cost market entry



[1]Gustafsson G, Rogers J. (2017) Left ventricular assist device therapy in advanced heart failure: patient selection and outcomes, [2] Mehra, MR Salerno C, Cleveland JC (2018) Health care resources use and cost implications in the MOMENTUM 3 long-term outcome study: a randomized controlled trial of a magnetically levitated cardiac pump in advanced heart failure, [3]Agency for Healthcare Research and Quality – Healthcare Cost and Utilization Project – claims analysis using ICD-9 37.6 implantation of heart and circulatory assist systems, [4] Data on File

MPCs Prolong Time-to-First Major GI Bleeding Event and Reduce Cumulative Major GI Bleeding Events in Two Confirmatory Randomized Controlled Trials in LVAD Patients[1,2]





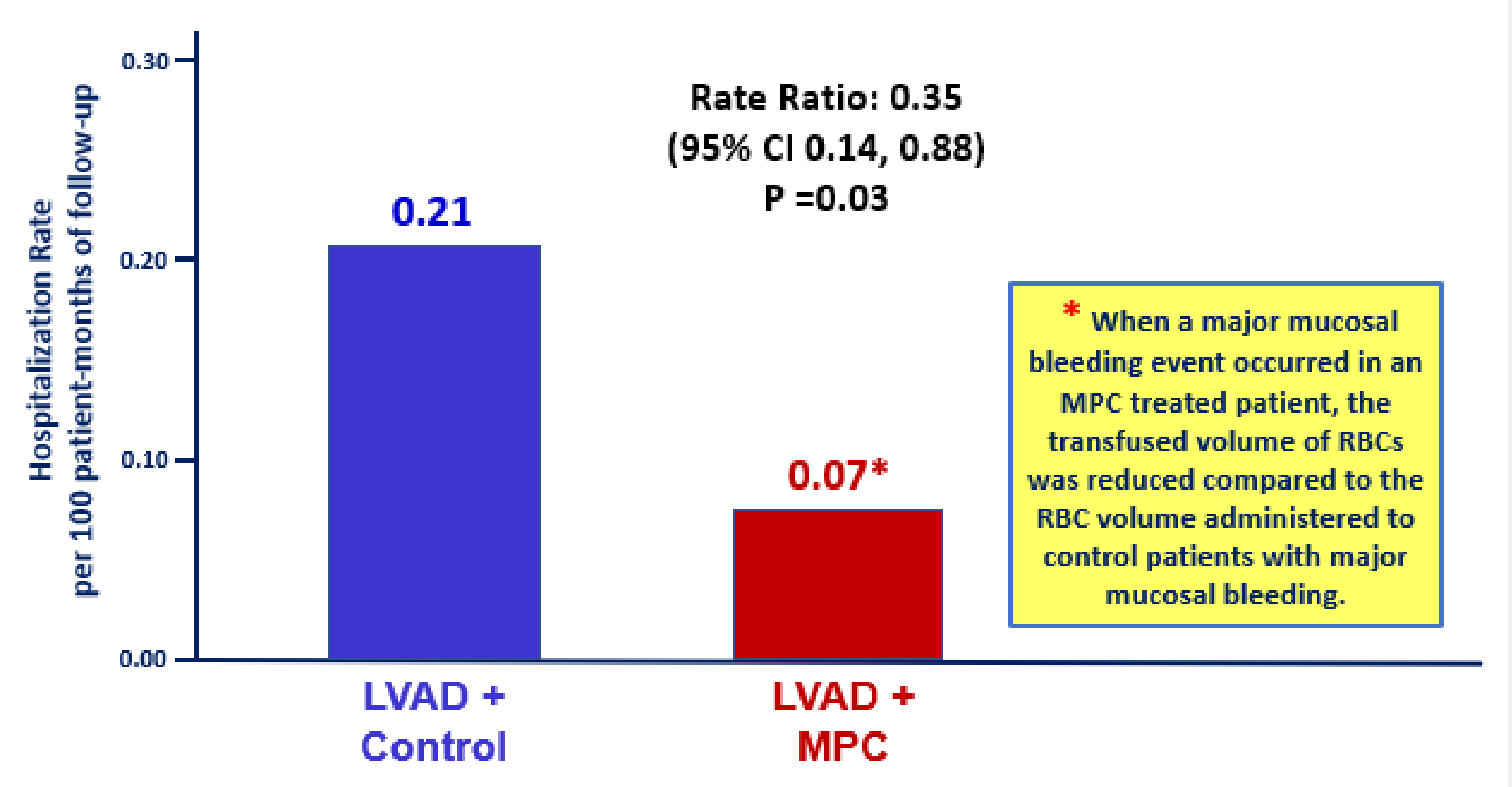
MPC (n = 20)	Control (n = 10)	P-value
Event Rate (100-Pt-Months)	Event Rate (100-Pt-Months)	
4.2	**14.2**	**0.06**

MPC (n = 106)	Control (n = 53)	P-value
Event Rate (100-Pt-Months)	Event Rate (100-Pt-Months)	
3.8	**15.9**	**<0.001**

Rate of major GI bleeding events over 6 months in LVAD patients reduced by 70% and 76% with MPCs in two randomized controlled trials

1. Mesoblast internal data post-hoc analysis 2017 (clinicaltrials.gov; identifier: NCT01442129). 2. Presented at American Heart Association Scientific Sessions 2018.

MPCs Reduce Hospitalization Rate from GI Bleeding by 65% in 159-Patient Phase 2 Trial[1]



1 Presented at American Heart Association Scientific Sessions 2018.

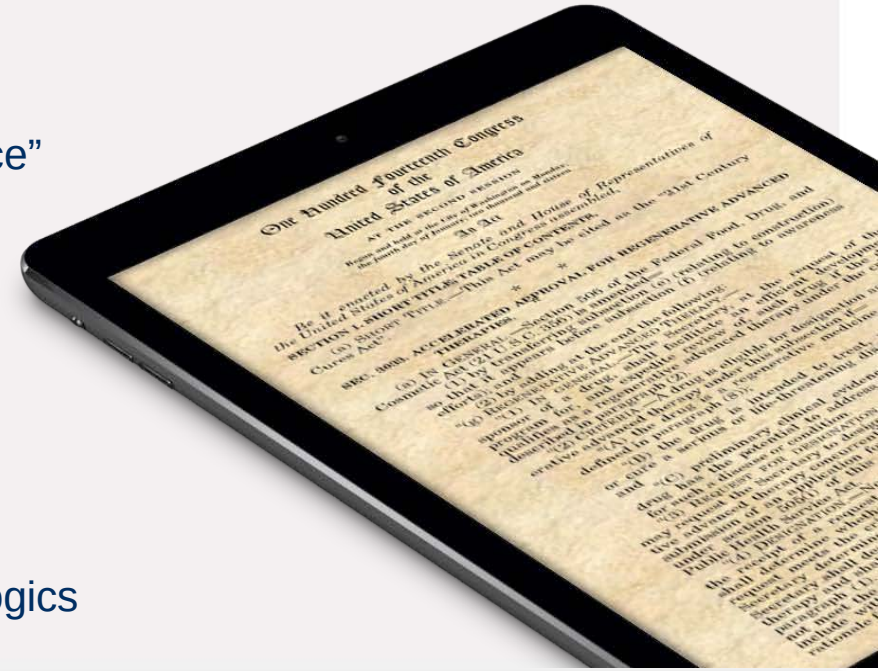
21st Century Cures Legislates an Expedited Approval Path for Regenerative Medicine Advanced Therapies (RMAT)

Revascor (MPC-150-IM) Has Received RMAT Designation for Use In End-Stage Heart Failure Patients with LVADs

- Key benefits of the RMAT designation include:
  - Potential eligibility for priority review and accelerated approval
  - Potential to utilize surrogate endpoints for accelerated approval
  - Potential to utilize patient registry data and other sources of "real world evidence" for post approval studies, subject to approval by the FDA

- Mesoblast received guidance from FDA that reduction in major GI bleeding
  - is a clinically meaningful outcome
  - could be used as an endpoint to support product approval

- Mesoblast plans to meet with FDA in 1H 2019 to discuss pathway to filing for Biologics License Application (BLA)



MPC-06-ID for Chronic Low Back Pain due to Disc Degeneration

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[2]

Minimal Treatment Options

- Treatment options for patients with CLBP who fail conservative therapy include opioids and surgery
- 50% of opioid prescriptions are for chronic low back pain (CLBP)[2]

Unmet Need

- Novel therapeutic approach for durable improvement in pain and function
- Potential alternative for opioid use or surgical intervention

Market Opportunity

- MPC-06-ID development focused on over ~3.2m patients with CLBP due to degenerative disc disease (DDD) in US alone[3,4,5]
- **USA market opportunity >USD $1 billion**[3,4,5.6]

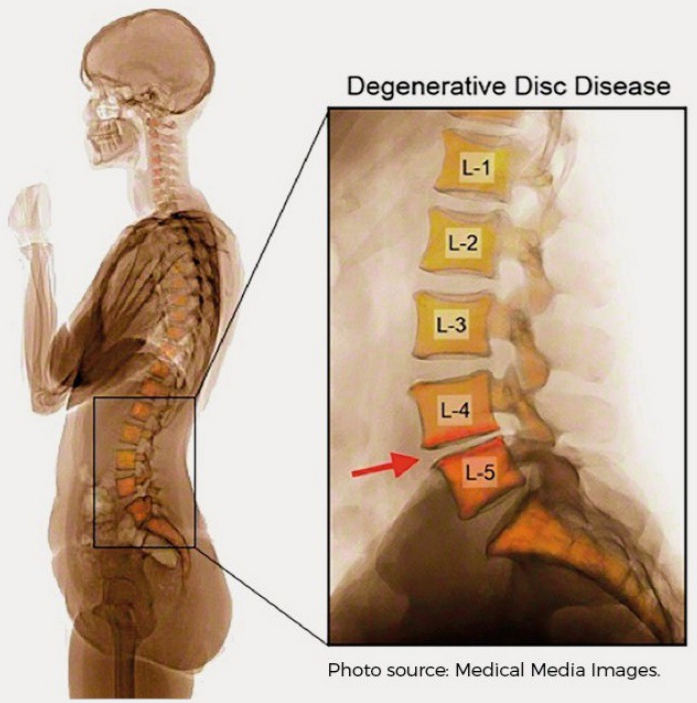


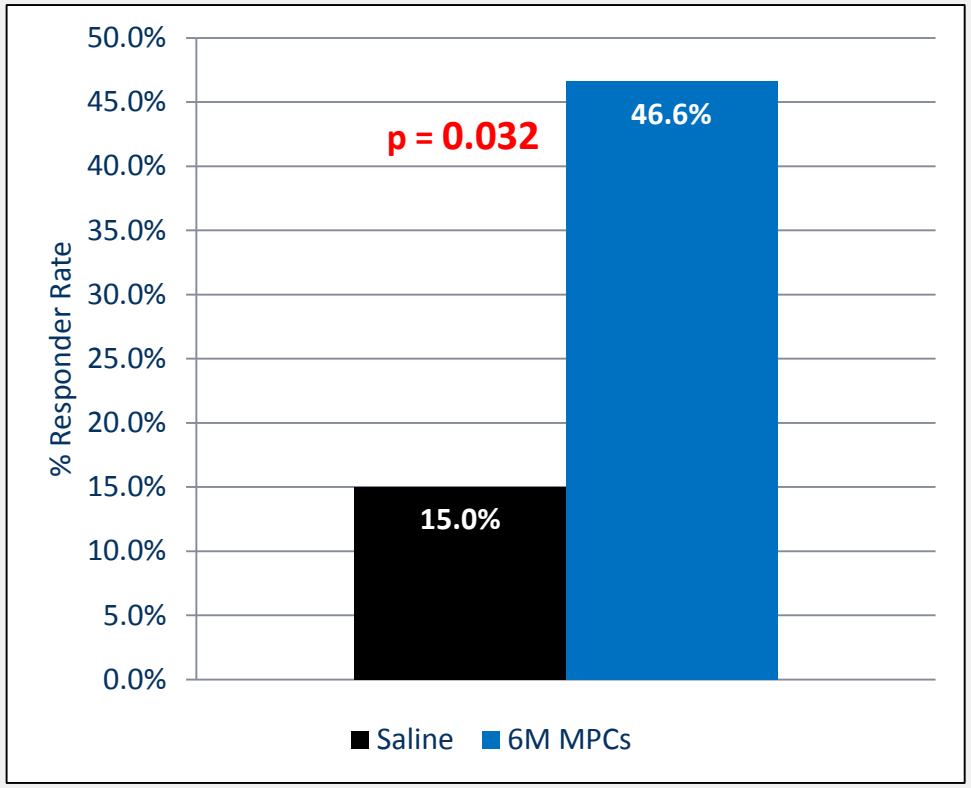
Photo source: Medical Media Images.

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: Pain Management Study, Chronic Pain December 2013., **3.** Decision Resources: Chronic Pain December 2015., **4**. LEK & NCI opinion leader interviews, and secondary analysis., 5**.** Navigant: Commercial Assessment for a Proprietary Cell-Based Therapy for DDD in the U.S. and the EU3 – August 2014. **6**. Data on File.

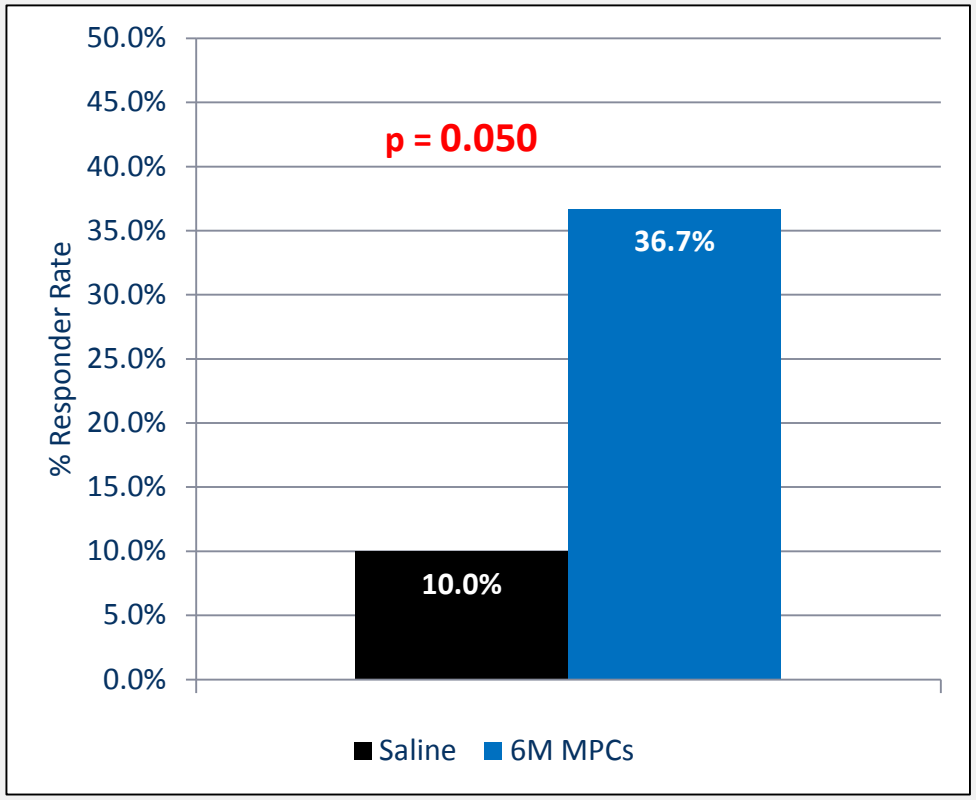
Chronic Low Back Pain MPC-06-ID

Post-Hoc Phase 2 results over 24 months provide target endpoints for Phase 3 trial

A: Phase 2: Treatment Success Responders[1,2] at 12 Months



B: Phase 2: Treatment Success Responders[1,2] at both 12 & 24 Months



404 patient 2:1 randomized Phase 3 trial completed enrollment March 2017
All patients to complete 12 month assessment for safety and efficacy in H1 2019

1. Subjects with missing data are classified as non-responders.
2. Treatment Success Responders have a 50% reduction in LBP as measured by VAS AND a 15 point improvement in function as measured by ODI at a) 12 months, and b) both 12 and 24 months and no intervention through 24 months.

Key Milestones

Remestemcel-L for Acute Graft Versus Host Disease

- Successfully met all efficacy and safety endpoints through six months ✓
- Initiate BLA filing for marketing authorization following FDA meeting scheduled for April 2019
- Build out efficient and targeted sales force for product launch

Revascor for Advanced and End-Stage Heart Failure

- Phase 3 events-driven trial in advanced heart failure in North America completed 566 patient enrollment ✓
- Primary endpoint events continue to accrue; likely to complete within 12 months
- Mesoblast's partner Tasly plans to meet in H1 CY19 with the National Medical Products Administration of China to discuss the regulatory approval pathway for Revascor in China
- Mesoblast plans to meet with FDA in H1 CY19 to discuss pathway for approval of Revascor for reduction in GI bleeding in patients with LVADs

MPC-06-ID for Chronic Low Back Pain

- Phase 3 trial completed enrollment (Q1 CY18) ✓
- All 404 patients in Mesoblast's Phase 3 trial in MPC-06-ID for chronic lower back pain will have completed their 12-month assessments for safety and efficacy in H1 CY19

Establish additional global and regional strategic and commercial licensing arrangements