UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

Form 6-K

Report of Foreign Private Issuer
Pursuant to Rule 13a-16 or 15d-16 under the Securities Exchange Act of 1934

For the month of January 2018

Commission File Number 001-37626

Mesoblast Limited

(*Exact name of Registrant as specified in its charter*)

Not Applicable
(*Translation of Registrant's name into English)*

Australia
(*Jurisdiction of incorporation or organization)*

Silviu Itescu
Chief Executive Officer and Executive Director
Level 38
55 Collins Street
Melbourne 3000
Australia
(*Address of principal executive offices*)

Indicate by check mark whether the registrant files or will file annual reports under cover Form 20-F or Form 40-F:

Form 20-F ☑ Form 40-F ☐

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(1):

Yes ☐ No ☑

Indicate by check mark if the registrant is submitting the Form 6-K in paper as permitted by Regulation S-T Rule 101(b)(7):

Yes ☐ No ☑

INFORMATION CONTAINED ON THIS REPORT ON FORM 6-K

On January 12, 2018, Mesoblast Limited filed with the Australian Securities Exchange a new investor presentation, which is attached hereto as Exhibit 99.1, and is incorporated herein by reference.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly organized.

MESOBLAST LIMITED

/s/ Charlie Harrison

Charlie Harrison
Company Secretary

Dated: January 18, 2018

INDEX TO EXHIBITS

Item	
99.1	Investor presentation of Mesoblast Ltd, dated January 12, 2018.

mesoblast
the regenerative medicine company

Cellular Medicines for Intractable Serious and Life-Threatening Diseases

J.P. Morgan 2018 Healthcare Conference

January 2018

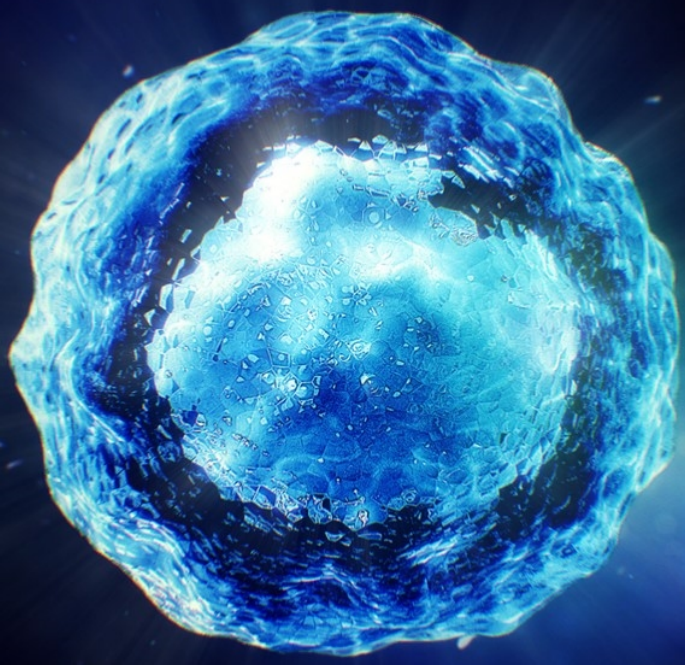
Nasdaq: MESO ASX: MSB

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 disruptive cellular medicines to treat serious and life-threatening illnesses



Investment Proposition:
Building a Leading Franchise of Cellular Medicines

- Disruptive Cellular Technology Platform
- Commercial Translation Capabilities
- Advanced Pipeline of Cellular Medicines
- Targeting Serious or Life-Threatening Conditions with Unmet Needs

Disruptive Cellular Medicine Platform[1-4]

- STRO-1^{+} Mesenchymal Precursor Cells (MPCs) are at the apex of the hierarchy of Mesenchymal Lineage cells
- STRO-1/STRO-3 immuno-selection provides a homogeneous population of MPCs with unique receptors that respond to activating inflammation and damaged-tissue signals
- In response to activating signals present in the endogenous environment, MPCs secrete a diverse variety of biomolecules responsible for immunomodulation and tissue repair
- The multi-modal mechanisms of action target multiple pathways

1. Simmons PJ and Torok-Storb, B. Identification of stromal cell precursors in bone marrow by a novel monocloncal antibody, STRO-1. Blood. 1991;78:55-62.
2. Gronthos S, Zannettino AC, Hay SJ, et al. Molecular and cellular characterisation of highly purified stromal stem cells derived from human bone marrow. J Cell Sci. 2003;116(Pt 9):1827-35.
3. See F, Seki T, Psaltis PJ, et al.Therapeutic effects of human STRO-3-selected mesenchymal precursor cells and their soluble factors in experimental myocardial ischemia. J Cell Mol Med. 2011;15:2117-29.
4. Psaltis PJ, Paton S, See F, et al. Enrichment for STRO-1 expression enhances the cardiovascular paracrine activity of human bone marrow-derived mesenchymal cell populations. J Cell Physiol. 2010;223(2):530-40.

Commercial Translation Capabilities:

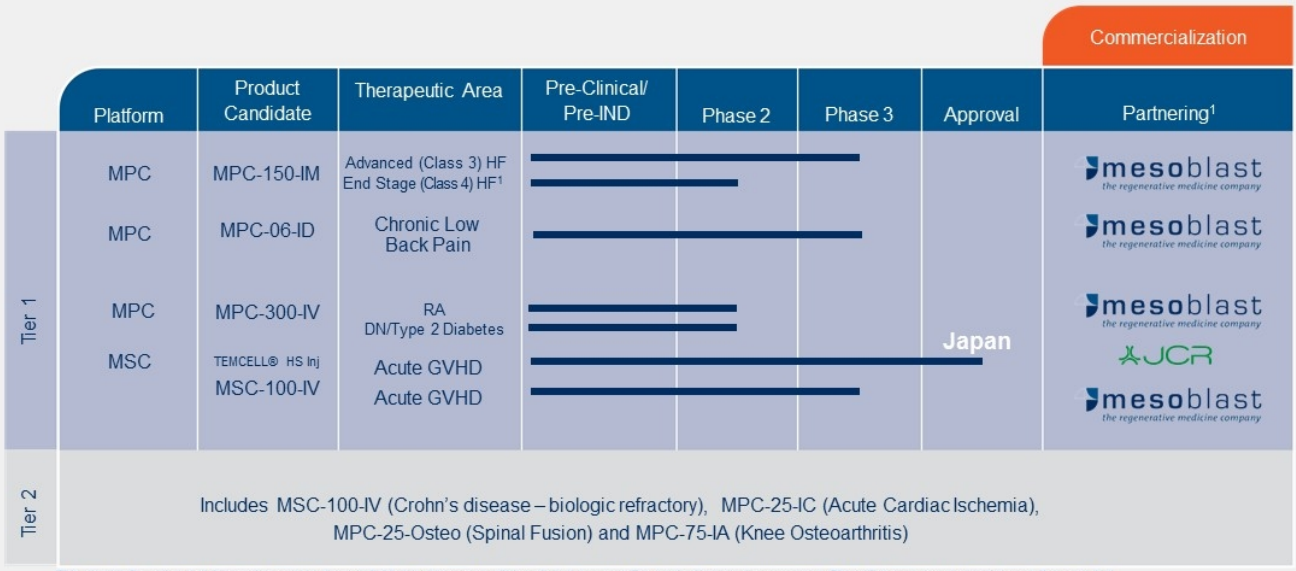
Technology Positioned for Scalable, Industrialized Manufacturing

- Immune privileged nature of STRO-1+ MPCs enables allogeneic “off the shelf” product candidates
- Culture expansion scalable to produce commercial quantities of potent and reproducible therapeutic doses
- In-house proprietary media formulations and commercial-grade bioreactors to deliver step-change yield improvements
- Specific formulations defined for product delineation
- Management know how in regulatory activities necessary for product approval and commercial launch
- TEMCELL® HS. Inj., first allogeneic cellular medicine received full approval in Japan and successfully launched for acute Graft vs Host Disease[1]

Lonza contract manufacturing facility in Singapore

1. TEMCELL® HS. Inj. Is the registered trademark of JCR Pharmaceuticals Co. Ltd., Mesoblast’s Licensee.

Portfolio of Advanced Product Candidates:
Three Tier 1 Product Candidates in Phase 3



This chart is figurative and does not purport to show individual trial progress within a clinical program. For product registration purposes, Phase 3 programs may require more than one trial.
Tier 1 programs represent our lead programs where we focus the majority of our time and resources. Tier 2 programs are also in development and may advance to Tier 1 depending on the merit of newly generated data, market opportunity or partnering options.

1. Clinical trial is funded by the U.S. National Institutes of Health and the Canadian Health Research Institute.

The 21st Century Cures Act ("Cures Act"):

Legislation for An Expedited Approval Path for Cellular Medicines Designated as Regenerative Medicine Advanced Therapies (RMAT)

- Cellular medicines may be designated as regenerative advanced therapies, if they are intended to treat, modify, reverse, or cure a serious or life-threatening disease or condition, and there is preliminary clinical evidence indicating the potential to address the unmet medical need

- Key benefits of the legislation for cell-based medicines, designated as regenerative advanced therapies, include:
  - Potential eligibility for priority review and accelerated approval
  - Potential to utilize surrogate endpoints for accelerated approval
  - Potential to utilize a patient registry data and other sources of "real world evidence" for post approval studies, subject to approval by the FDA

Our Portfolio of Advanced Product Candidates is Well Positioned to Achieve Accelerated Approvals Under the Cures Act

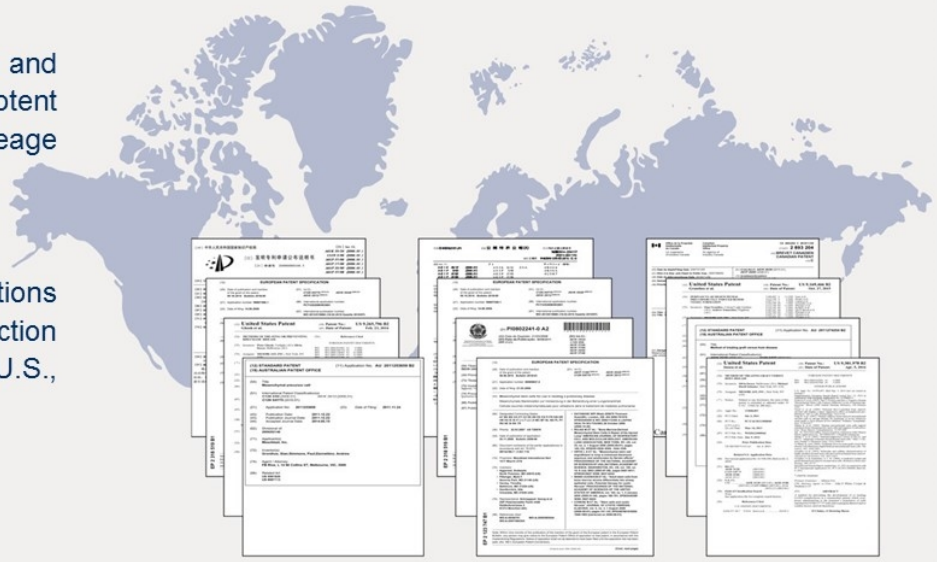
December 2017 Mesoblast Received FDA RMAT Designation For Its Cell Therapy In Heart Failure Patients With Left Ventricular Assist Devices (LVADs)

- RMAT designation grant was based on the completed study data set and related analyses of a 30-patient randomized, blinded, placebo controlled trial in end-stage heart failure patients with LVADs which suggested:
  - Improved native heart function
  - Prolonged the time post LVAD implantation of a first hospitalization for a non-surgical GI bleeding event
  - Improved early survival rates
- 159 patient trial in end-stage heart failure with LVADs has completed enrollment and the primary endpoint will be reached in Q1 CY 2018
- Mesoblast intends to have a multidisciplinary comprehensive discussion as soon as possible with the FDA regarding the development strategy and evidence needed to support approval of its allogeneic MPC product candidate for end-stage heart failure patients with LVAD in an efficient manner

Intellectual Property:

An Extensive Portfolio Covering Mesenchymal Lineage Precursors and Progeny

- Composition of Matter, Manufacturing, and Therapeutic Applications of Potent Immuno-selected mesenchymal lineage precursor and stem cells
- 800 Patents and patent applications across 69 Patent Families. Protection across major markets including the U.S., Europe, Japan and China



December 2017 Mesoblast Concluded Patent Settlement and License Agreement With TiGenix

- Mesoblast granted TiGenix exclusive access to certain of its patents to support global commercialization of the adipose-derived mesenchymal stem cell (MSC) product Cx601 limited to the local treatment of fistulae, including in Crohn's disease
- Mesoblast continues to develop its proprietary bone marrow-derived allogeneic expanded MSC product candidate for intravenous delivery to induce remission in patients with biologic-refractory Crohn's disease
- Mesoblast will receive up to €20 million in payments (approx. US$24 million), with €5 million upfront, €5 million within 12 months and up to €10 million in product regulatory milestones
- Mesoblast will additionally receive single digit royalties on global net sales of Cx601 for fistulae
- Subsequent to the patent settlement and license agreement, Takeda announced its intention to build upon its prior exclusive ex-USA license for Cx601 from TiGenix by acquiring TiGenix for approximately €520 million

Diverse Pipeline of Cellular Medicines

Acute Graft vs Host Disease (aGVHD)

MSC-100-IV for Steroid-Refractory aGVHD

MSC-100-IV: Market Opportunity for aGVHD

Burden of Illness

- Steroid-refractory aGVHD patients have mortality rates as high as 95%[1]
- Refractory aGVHD is associated with significant extended hospital stay costs[2]
- aGVHD - a severe immunological reaction occurring in BMT patients
- Is a major limitation in successful allogeneic hematopoietic stem cell transplants[1]

Minimal Treatment Options

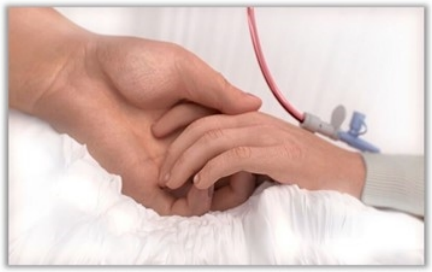
- No regulatory approved treatment for SR-aGVHD outside of Japan
- No broad consensus on off-label second-line agents

Targeting Unmet Need

- Pediatrics: first-line steroid refractory
- Adults: first-line steroid refractory in high-risk (liver/gut disease) patients

Market Opportunity

- ~30,000 allogeneic BMTs performed globally (~20K US/EU5) annually, ~20% pediatric[4,5]
- Our licensee JCR Pharmaceuticals Co., Ltd received full approval in Japan (TEMCELL® HS Inj.) for aGVHD in 2015; reimbursed up to ~$USD195k[3]



1. West, J., Saliba, RM., Lima, M. (2011) Steroid-refractory acute GVHD: predictors and outcomes. Advances in Hematology.
2. Anthem-HealthCore/Mesoblast claims analysis (2016).
3. Based on a ¥JPY = $USD 0.009375 spot exchange rate on as of the market close on November 11, 2016. Amounts are rounded. Source: Bloomberg.
4. Gratwohl A et al Quantitative and qualitative differences in use and trends of hematopoietic stem cell transplantation: a Global Observational Study. Haematologica. 2013 Aug;98(8):1282-90.
5. CIBMTR, Decision resources GVHD Epi Nov 2012.

MSC-100-IV for aGVHD: Product Development Strategy

1. Target ***pediatric*** patients with SR-aGVHD first

   - Extensive safety and efficacy data generated and published with MSC-100-IV in children with SR-aGVHD[1]
   - High economic burden in treatment of children with SR-aGVHD
   - Fast-track designation for MSC-100-IV provides pathway for priority review and rolling review process
   - Submit single, open-label Phase 3 trial via accelerated approval

2. Seek label extension for high-risk ***adult*** patients with SR-aGVHD (liver involvement)

   - This adult subset has the highest mortality and greatest resistance to other treatment agents
   - High economic burden in treating this population subset
   - MSC-100-IV has identified efficacy signals in analyses of this subgroup in a Phase 3 randomized control trial

3. Lifecycle potential in ***chronic*** GVHD (cGVHD)

   - Chronic GVHD represents a distinct GVHD patient population
   - Proof of concept data already published for MSC in cGVHD[2]

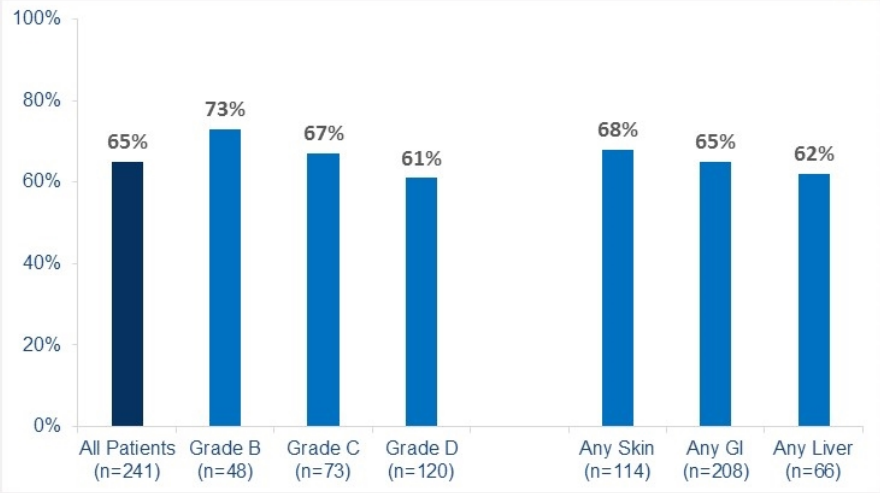
1. Allogeneic Human Mesenchymal Stem Cell Therapy (Remestemcel-L, Prochymal) as a Rescue Agent for Severe Refractory Acute Graft-versus-Host Disease in Pediatric Patients - Biology of Blood and Marrow Transplantation Journal, August 2013. 2. Khandelwal P, Teusink-Cross A, Davies S (2017) Ruxolitinib as Salvage Therapy in Steroid-Refractory Acute Graft-versus-Host Disease in Pediatric Hematopoietic Stem Cell Transplant Patients. Biol Blood Marrow Transplant 23; 1122-1127
2. Weng JY, Du X, Geng SX, Peng YW, Wang Z, Lu ZS et al. Mesenchymal stem cell as salvage treatment for refractory chronic GVHD. Bone Marrow Transplant 45: 1732-1740 (2010)

MSC-100-IV: Expanded Access Program

Overall Day 28 Response in Pediatric aGVHD Patients Receiving MSC-100-IV as First-line or Salvage Therapy After Failing Steroids

Population: steroid-refractory aGVHD pediatric patients

- 241 pediatric patients undergoing HSCT were enrolled and treated at 50 sites in North America and Europe from 2007-2014
- Ages 2 months – 17 years
- Acute GvHD grades B-D (CIBMTR)
- Failed steroid treatment and multiple other agents
- aGVHD not improving after at least 3 days of methylprednisolone (at least 1 mg/kg/day or equivalent)



- Complete Response was 14%, Partial Response was 51%
- Responses were observed for all GVHD grades and did not differ by baseline organ involvement

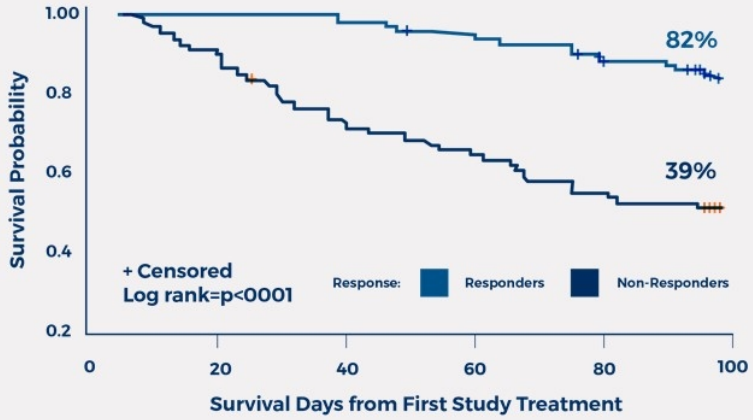
Kurtzberg et al: Presentation Tandem Feb 2016

MSC-100-IV: Expanded Access Program

Correlation of Day 28 Overall Response with Day 100 Survival, Using MSC-100-IV as First-line or Salvage Therapy After Failing Steroids and/or Additional Treatments

MSC-100-IV in Children with SR-aGVHD who failed multiple other modalities

- Survival of Pediatric Patients Treated with MSC-100-IV 28-Day Responders vs Non-responders n=241



- In 241 Children under EAP, **Overall Response** (CR+PR) at Day 28 was **65%** (95% CI: 58.9%, 70.9%)
- **Day 100 survival** correlated with overall response, and was significantly improved in those who responded at Day 28 **(82% vs. 39%, p<0.0001)**

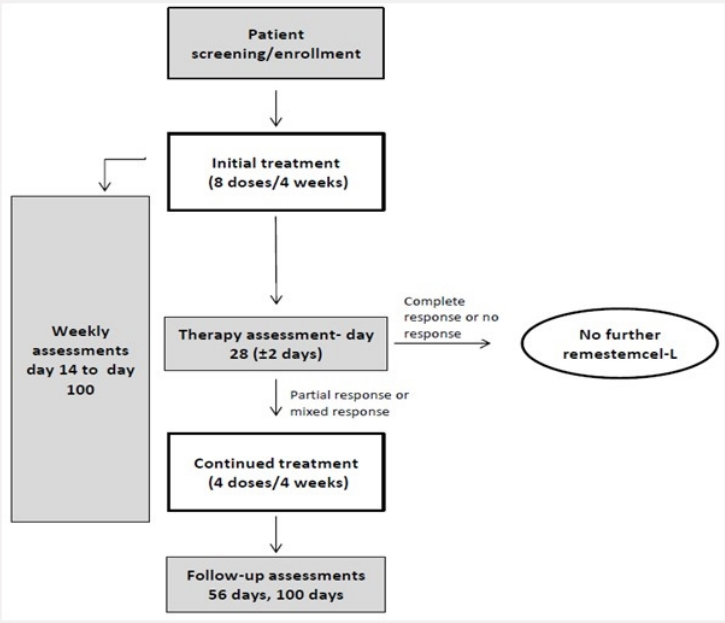
Kurtzberg et al: Presentation Tandem Feb 2016

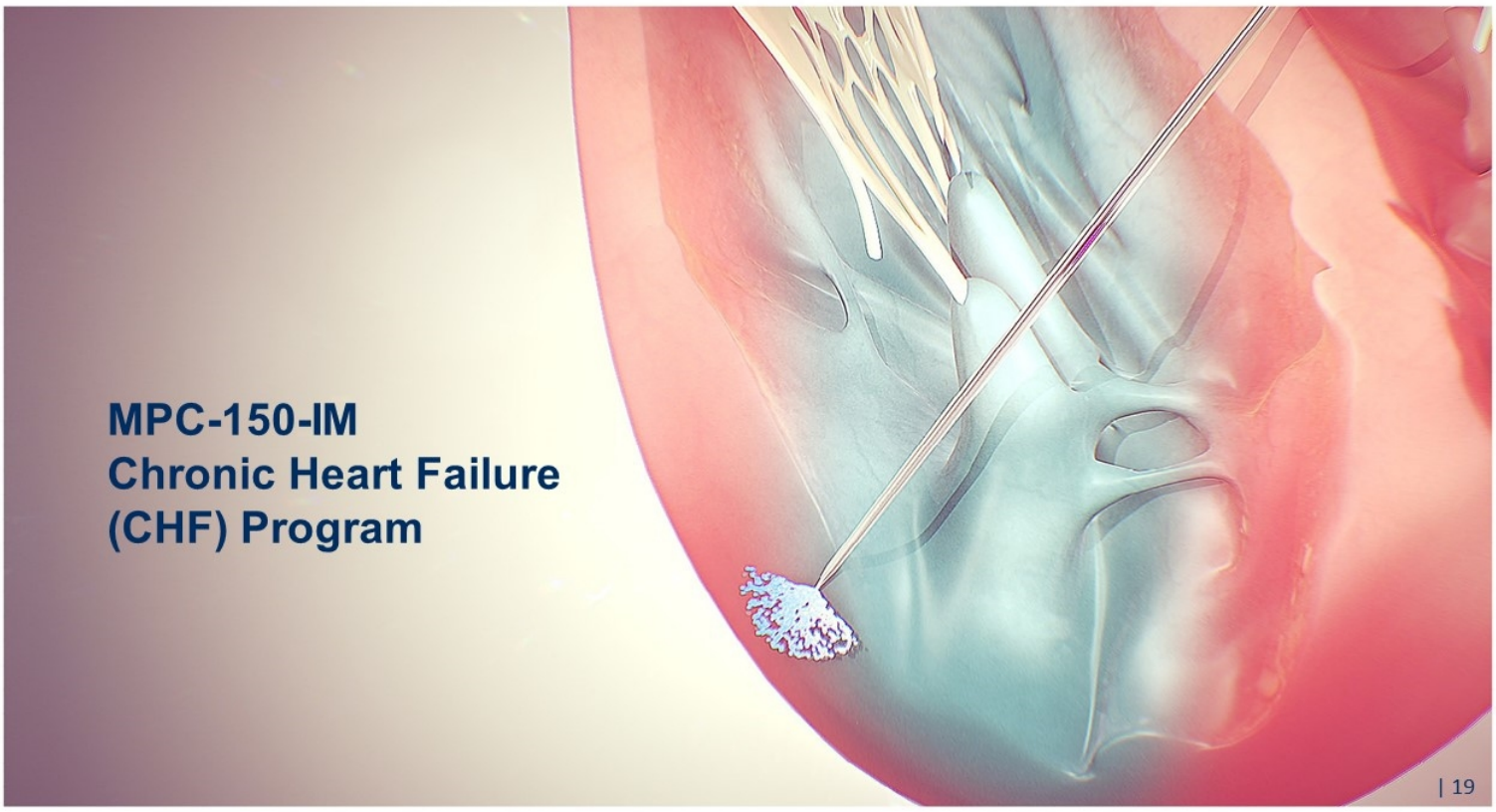
MSC-100-IV:

Phase 3 Pediatric Trial Completed Enrollment as First-line Therapy in aGVHD After Failing Steroids

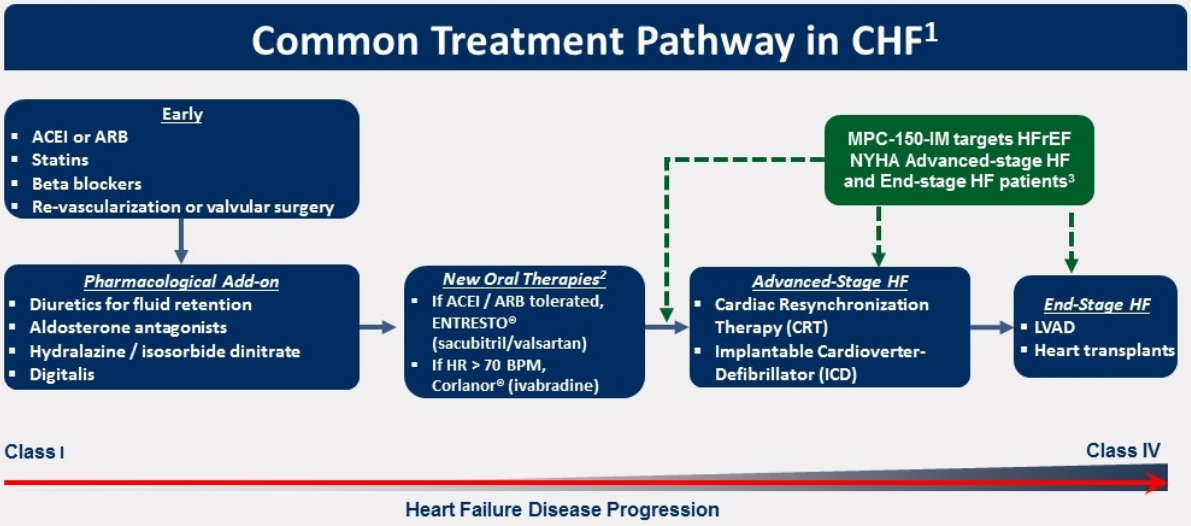
- Multi-center, Single-Arm, Open-Label to evaluate efficacy and safety to day 100 (001) and from day 100 to day 180 (002)
- Up to 60 pediatric patients (2 months to 17 years)
- aGVHD following allogeneic HSCT failing systemic corticosteroid therapy
- Grades C and D aGVHD involving skin, liver and/or GI tract
- Grade B aGVHD involving liver and/or GI tract with or without concomitant skin disease
- Primary endpoint: **Overall response at Day 28**
- Key secondary endpoint: Survival at Day 100 in responders at Day 28
- Interim futility analysis of primary endpoint successful Nov 2016

Trial completed enrollment (Q4 CY17)
Primary Endpoint Day 28 (Q1 CY18)
Day 100 survival data (Q2 CY18)




MPC-150-IM
Chronic Heart Failure
(CHF) Program

MPC-150-IM:
Targeting Patients with Worsening HF Despite Optimal Standard of Care



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.

MPC-150-IM: Product Development Strategy Following RMAT Designation for Heart Failure Patients With Left Ventricular Assist Devices (LVADs)

1. Leverage data for potential near term market entry opportunity for MPC-150-IM in end-stage heart failure patients with LVADs

1. Broaden market potential by creating Bridge to Recovery (BTR) market, representing a high-growth market opportunity for temporary LVAD use and explantation in end-stage, Class-IV heart failure patients

1. Label extension through completion of phase 3 program (DREAM-HF) in NYHA class IIb/III heart failure patients

MPC-150-IM: Class IV Market Opportunity

Burden of Illness

- 250K – 300K patients/yr suffer from advanced systolic HF (NYHA Class IV)[1]
- 50k patients/yr have end-stage heart failure
- Despite optimal medical therapy, 1-year mortality exceeds 50% in end-stage heart failure patients[1]

Minimal Treatment Options

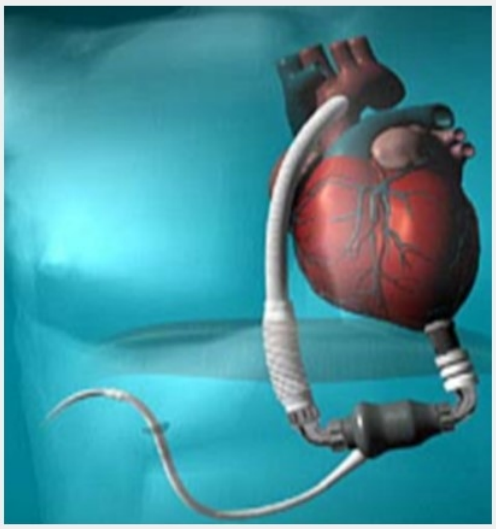
- Only ~2K heart transplants are performed in U.S. annually due to limited donors[2]
- LVADs have improved survival, but 1-year mortality remains at 20-30%[1]
- Number of destination (permanent) LVADs implanted/yr are <5K due to associated high morbidity (e.g. GI bleeding and infection)

Unmet Need

- Strengthen native heart muscle
- Reduce re-hospitalizations
- Increase survival

Market Opportunity

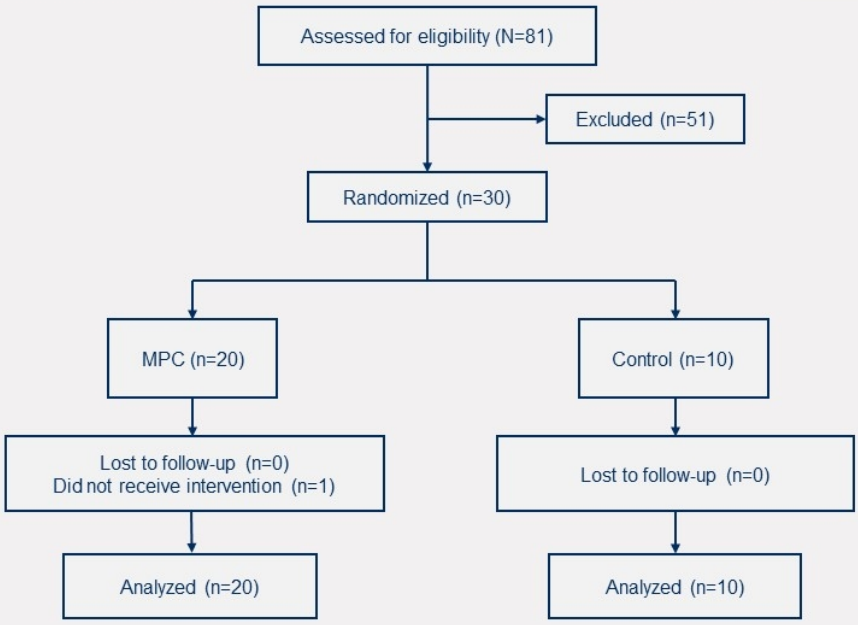
- US LVAD market growing double-digit CAGR[4]
- US targeted commercial footprint (top 40 centers represent 75% of volume) provides low cost market entry[3]



1. Gustafsson G, Rogers J. (2017) Left ventricular assist device therapy in advanced heart failure: patient selection and outcomes. European Journal of Heart Failure 19, 595-602., 2. Agency for Healthcare Research and Quality: HCUPnet: ICD-9 principal procedure code 27.51 2014., 3. Medicare provider charge inpatient-DRGALL-FY2014., St. Jude Medical-2016-analyst and investor day

MPC-150-IM Proof of Concept Randomized Controlled Phase 2 Trial Which Successfully Supported RMAT Designation: Trial Design

- 57.4 yrs (±13.6)
- 83% Male
- LVEF 18.1% (± 4.3)
- 37% Ischemic, 63% Non-ischemic
- 67% Destination, 33% Bridge to Transplant
- Treatment Randomization 2:1 (25M MPCs vs control media)[1-2]



1. Source: Ascheim DD et al. Circulation. 2014;129:2287-2296.
2. Study is sponsored Mt. Sinai and funded by the United States National Institutes of Health (NIH) and Canadian Institutes for Health Research , and conducted by the NIH-funded Cardiothoracic Surgical Trials Network (CTSN).

MPC-150-IM Proof of Concept Randomized Controlled Phase 2 Trial Which Successfully Supported RMAT Designation: Trial Results

- 25M cell dose, no cell-related safety events observed
- Median time to first hospitalization was 91 days in the MPC group vs 51 days in the control group
- 50% of MPC vs. 20% of control patients tolerated temporary wean at 90 days despite low dose of cells deployed
- Total number of temporary weans tolerated by MPC group was more than double that of the control group
- Using Bayesian approach, posterior probability that MPCs increased likelihood of successful wean at 90 days was 93%
- At 90 days, 30% (3/10) of controls expired compared to 0% (0/20) treated patients

1. Source: Ascheim DD et al. Circulation. 2014;129:2287-2296.

MPC-150-IM:

Phase 2b Trial Evaluating 150M MPCs in End-Stage Heart Failure Patients with LVADs

- The 159-patient, double-blind, placebo-controlled 2:1 randomized trial, is evaluating the safety and efficacy of injecting MPC-150-IM into the native myocardium of LVAD recipients
- Enrollment completed in Q3, CY2017
- Key safety and efficacy endpoints of the study:
  - Number of temporary weans from LVAD tolerated
  - Time to re-hospitalization
  - Patient survival
  - Various quality of life measurements
- Study is sponsored by Icahn School of Medicine, funded by the United States National Institutes of Health (NIH) and Canadian Health of Research Institute, and conducted by the NIH-funded Cardiothoracic Surgical Trials Network (CTSN)

- **RMAT designation for end stage heart failure with LVADs granted December 2017**
- **End stage heart failure trial six-month primary endpoint Q1 CY18**
- **End stage heart failure trial full data read-out Q3 CY18**

MPC-150-IM: Class III Heart Failure Market Opportunity

Burden of Illness

- Globally, 17-45% of heart failure patients die within 1 year of hospital admission
- Majority die within 5 years of admission[1]
- MPC-150-IM to target advanced HFrEF NYHA Class II-III with the objective of reducing major cardiovascular events (e.g. mortality and hospitalizations)

Minimal Treatment Options

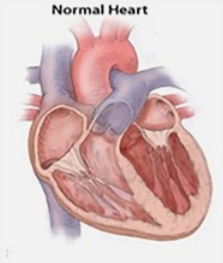
- Despite recent advancements in pharmacotherapy, limited treatment options are available for patients with advanced NYHA Class II-IV Heart Failure with Reduced Ejection Fraction (HFrEF)[2]

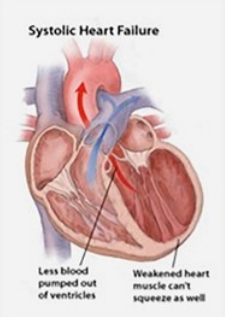
Unmet Need

- Therapy that reduces major cardiovascular events (e.g. mortality and hospitalizations) in patients with advanced HFrEF NYHA Class II – III

Market Opportunity

- NYHA Class II-IV patients with LVEF<40% in the US alone3
- Over $60.2bn/yr in U.S. direct costs when this illness is identified as a primary diagnosis[4]
  - $115bn as part of a disease milieu[4]; hospitalizations result in ~69% of expenditures[5]





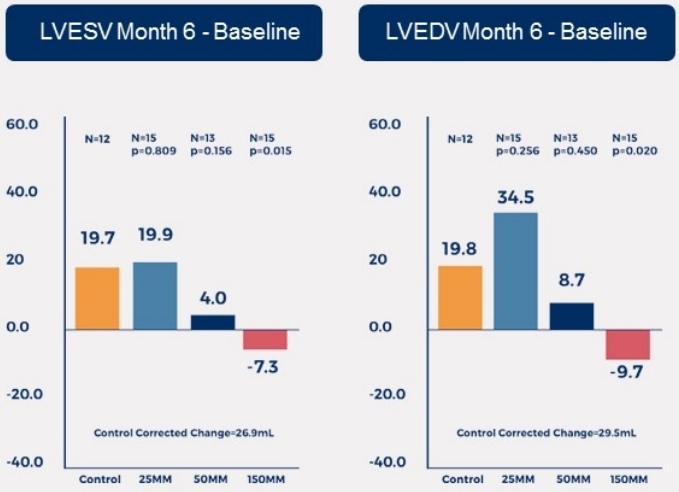
1. Heart Failure: Preventing disease and death worldwide – European Society of Cardiology 2014., 2. ACC/AHAHFSA Focused Update on New Pharmacological Therapy for Heart Failure: An Update of the 2013 ACCF/AHA Guideline for the Management of Heart Failure., 3. Gurwitz JH, Magid DJ, Smith DH, et al. Contemporary 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.,

MPC-150-IM:

Phase 2 Randomized Placebo Controlled Trial in 60 Patients HF Class II/III and LVEF<40%

Objectives

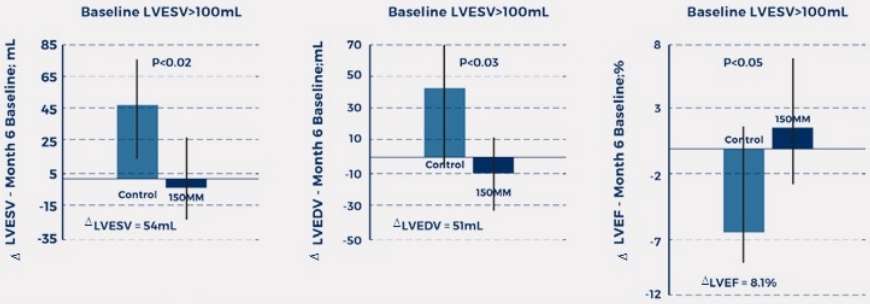
- Identify a dose response and an optimal therapeutic dose
- Identify optimal target population for therapeutic effect
- Placebo vs. 25, 75, 150M MPCs injected by endomyocardial catheter
- At 6 months: Dose-dependent effect seen on left ventricular remodeling, with 150M cell dose (MPC-150-IM) showing greatest effect vs. controls



Source: Circ Res. 2015; 117:576-584. Perin E et al. A Phase II Dose-Escalation Study of Allogeneic Mesenchymal Precursor Cells in Patients With Ischemic or Non-Ischemic Heart Failure.

MPC-150-IM: Therapeutic Benefit on LV Remodeling Enhanced in Phase 2 Subjects with LVESV >100ml

- Placebo corrected benefit of 150M cell dose on cardiac volumes and ejection fraction at 6 months was greatest in patients with more advanced heart failure as defined by baseline LVESV>100ml at baseline



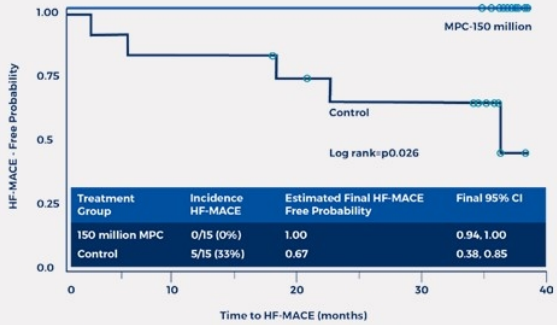
	Change (Entire cohort) Month 6 minus baseline			Change (LVESV>100mL) Month 6 minus baseline			
	PBO (n=15)	150M MPC (n=15)	Δ, PBO corrected	PBO (n=7)	150M MPC (n=11)	Δ, PBO corrected	P-values
LVESV	+20	-7	-27	+46	-8	-54	<0.02
LVEDV	+20	-10	-30	+41	-10	-51	<0.03
LVEF	-2.3	+0.6	+2.9	-6.4	+1.7	+8.1	<0.05

Source : Perin et al., Journal of Cardiac Failure 2015; Vol 21(8): S107; 19th Annual Scientific Meeting of the Heart Failure Society of America, Emerson et al.

MPC-150-IM:

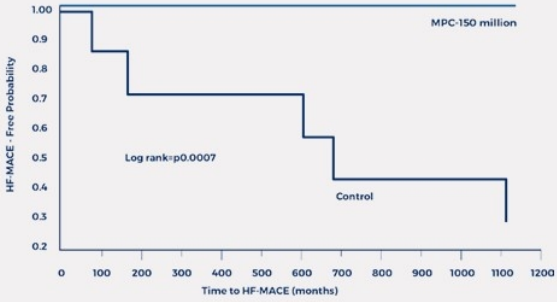
Durable (36 Months) Protection Against HF-MACE[1] in Phase 2 Trial Following Single Dose in NYHA Class II/III With Reduced Ejection Fraction

% HF-MACE Kaplan-Meier Curve over 36 months following treatment in all patients[1]



Treatment Group	Incidence HF-MACE	Estimated Final HF-MACE Free Probability	Final 95% CI
150 million MPC	0/15 (0%)	1.00	0.94, 1.00
Control	5/15 (33%)	0.67	0.38, 0.85

HF-MACE Kaplan-Meier Curve over 36 months following treatment in patients with LVESV>100ml[2]



- Over 36 months, patients receiving 150M MPC had significantly greater probability of remaining free of a first HF-MACE vs. controls (0% vs. 33%, p = 0.026 by log-rank)
- All HF-MACE events occurred in controls with baseline Left Ventricular End Systolic Volume (LVESV)>100ml, where the treatment effect size was even greater (0% vs. 71%, p = 0.0007 by log rank)
- Controls with baseline LVESV>100ml had 11 total/recurrent HF-MACE events over 36 months vs. 0 in matched patients receiving 150M MPCs (p=0.0007)

1. HF-MACE is defined as a composite of cardiac related death or non-fatal heart failure hospitalisations. 2. Circ Res. 2015; 117:576-584. Perin E et al. A Phase II Dose-Escalation Study of Allogeneic Mesenchymal Precursor Cells in Patients With Ischemic or Non-Ischemic Heart Failure 3. Journal of Cardiac Failure 2015; Vol 21(8): S107; 19th Annual Scientific Meeting of the Heart Failure Society of America, Emerson et al.

MPC-150-IM:
Phase 3 Trial Targets Advanced Heart Failure

NYHA class II/III patients with large baseline LVESV and advanced heart failure are at highest risk of heart failure-related major adverse cardiac events (HF-MACE)

- Have increased likelihood of having recurrent HF hospitalizations
- Existing therapies are limited and economic burden is greatest

The ongoing Phase 3 trial is enriched for HF patients with high risk of HF-MACE

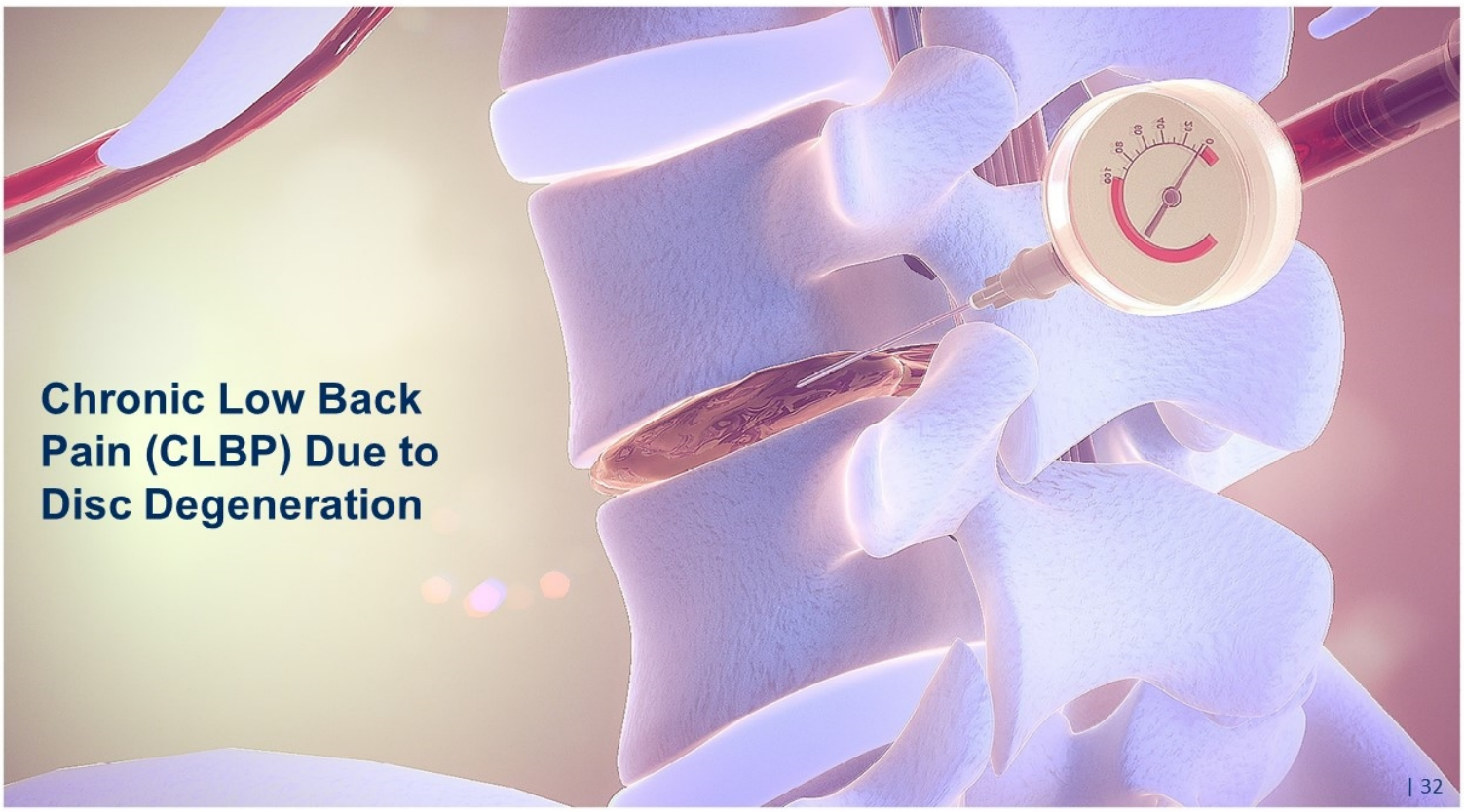
- Enrichment for these patients based on heart failure hospitalization in the past 9 months and/or significantly elevated baseline NT-proBNP

- Primary endpoint is a comparison of recurrent non-fatal HF-MACE between cell-treated NYHA class II/III patients and controls
- Terminal events (such as death, implantation of a mechanical heart assist device or a heart transplant) are also being analyzed as they relate to non- fatal recurrent HF-MACE

MPC-150-IM:

Operational Update for Phase 3 Trial in NYHA Class II-III Advanced CHF Patients

- Trial has enrolled more than 400 of approximately 600 patients
- In April 2017, a pre-specified interim futility analysis of the efficacy endpoint in the Phase 3 trial's first 270 patients was successfully achieved
- After completing the interim analysis, the trial's Independent Data Monitoring Committee (IDMC) formally recommended the trial be continued as planned
- Phase 3 trial targeted enrollment completion (2H CY18)


Chronic Low Back Pain (CLBP) Due to Disc Degeneration

MPC-06-ID: A Non-Opioid Alternative for Chronic Low Back Pain Due to Degenerative Disc Disease

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

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)

Unmet Need

- Disease modifying therapy for durable improvement in pain and function has potential to prevent progression to opioid use or surgical intervention

Market Opportunity

- In 2016, over ~7m U.S. patients are estimated to suffer from CLBP due to degenerative disc disease (DDD)[3,4,5]
- MPC-06-ID development program targets over ~3.2m patients

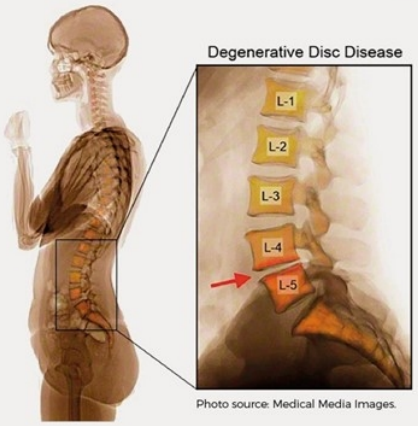


Photo source: Medical Media Images.

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. Simon, J., McAuliffe, M., Shamim, F. (2015) Discogenic Low Back Pain. Phys Med Rehabil Clin N Am 25 (2014) 305–317., 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. HealthCare Utilization and Cost of Discogenic Lower Back Pain in the US – Anthem/HealthCore.,

The Opioid Epidemic

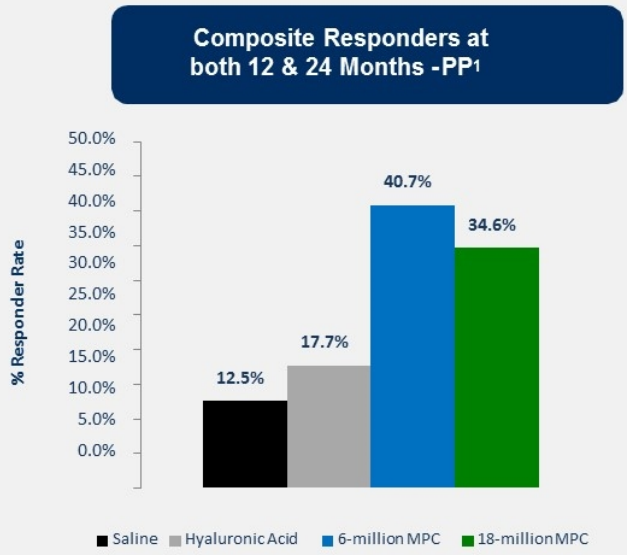
- 50% of opioid prescriptions are for chronic low back pain (CLBP)
- Over 1,000 people are treated in U.S. emergency departments everyday for misusing prescription opioids
- Over 33,000 people in the U.S. died of prescription opioid related overdoses in 2016
- Opioid epidemic declared a public health emergency by U.S. President Trump in October, 2017
- A non-opioid solution for CLBP is imperative

The 21st Century Cures Act includes measures to combat opioid dependence and accelerated approval for non-opioid pain reducing drugs

Information derived from Centers for Disease Control and Prevention, National Center for Health Statistics. Underlying Cause of Death 1999-2015 on CDC WONDER Online Database, released December, 2016. Available at: http://wonder.cdc.gov/ucdicd10.html. Substance Abuse and Mental Health Services Administration. Key Substance Use and Mental Health Indicators in the United States: Results from the 2015 National Survey on Drug Use and Health. Online Database, released September, 2016. Available at: https://www.samhsa.gov/data/sites/default/files/NSDUH-FFR1-2015/NSDUH-FFR1-2015/NSDUH-FFR1-2015.htm
Jones CM. Heroin use and heroin use risk behaviors among nonmedical users of prescription opioid pain relievers - United States, 2002-2004 and 2008-2010. Drug Alcohol Depend. 2013 Sep 1;132(1-2):95-100. doi: 10.1016/j.drugalcdep.2013.01.007.Epub 2013 Feb 12.

MPC-06-ID: Phase 2 Trial Results Support Phase 3 Program

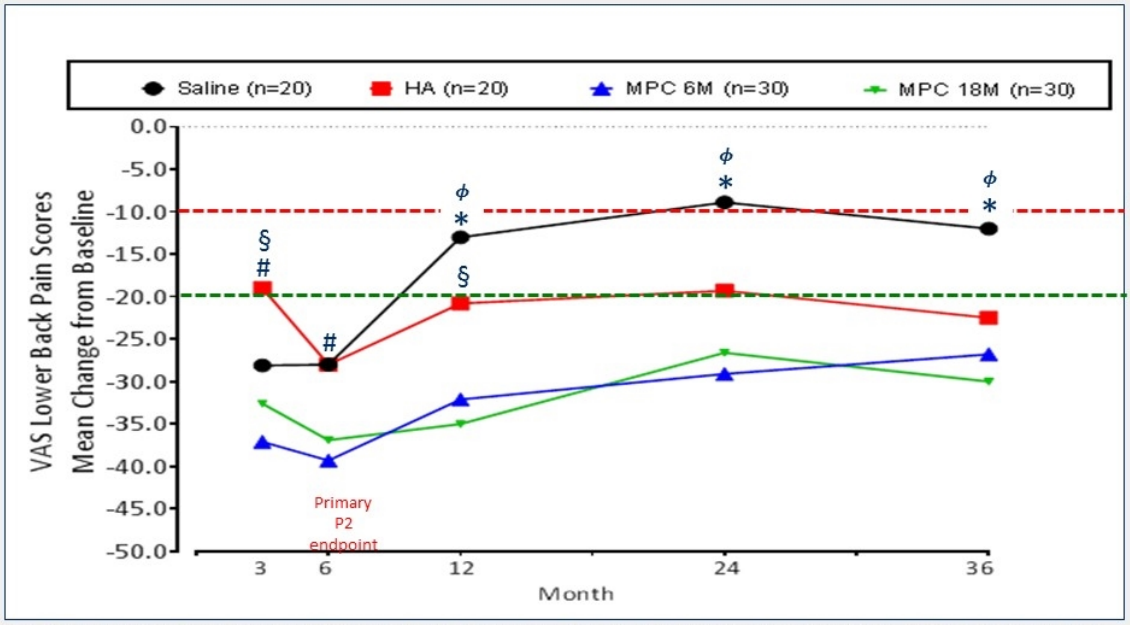
- 100 patients with >6 months of CLBP due to DDD and unresponsive to conservative therapies (incl. opioids and epidural steroids) were evaluated in a blinded, randomized, placebo controlled Phase 2 trial
- Primary endpoint composite over 24 months was achieved by 41% of patients who received 6 million MPCs, 35% of the 18 million MPC group, 18% of the hyaluronic acid group, and 13% of the saline group, using the pre-specified PP population



1. Source Mesoblast Ltd; PP = Per Protocol population. A Composite Responder must have an optimal pain (50% reduction in VAS) AND function (15 point reduction in ODI) response AND no additional intervention.

MPC-06-ID: Phase 2 Clinical Trial Results:

Substantial Reduction in Low Back Pain Through 36 Months After Single Dose



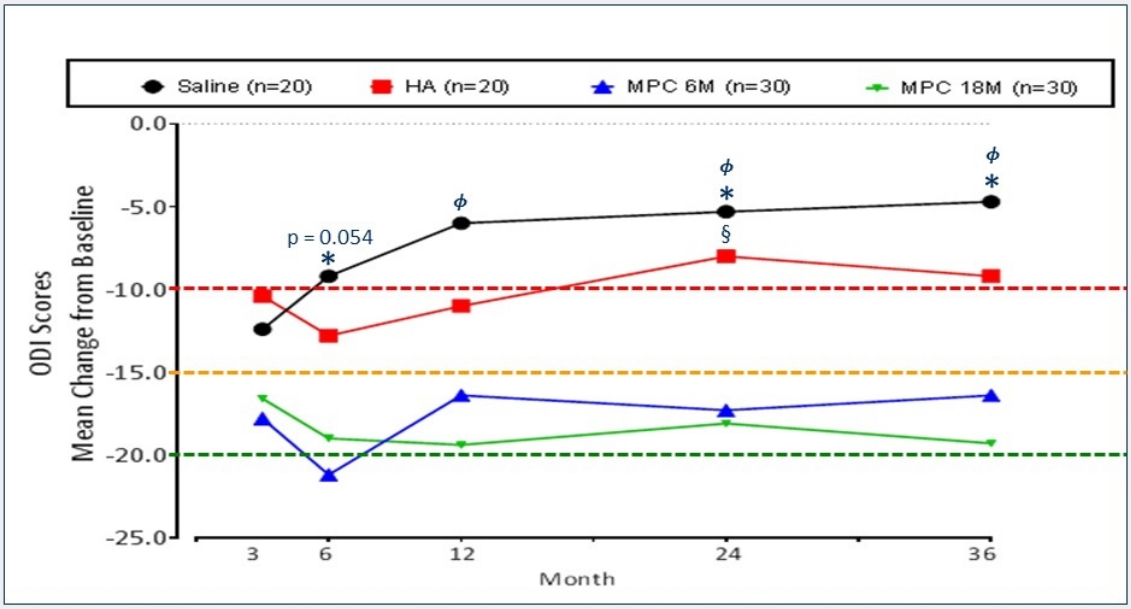
p ≤ 0.05

- ∗ MPC 6M *vs.* Saline
- ϕ MPC 18M *vs.* Saline
- # MPC 6M *vs.* HA
- § MPC 18M *vs.* HA

1. ITT Population. Subjects failing therapy due to intervention had BOCF imputed for all visits after the intervention. Patients with missing data were considered treatment failures, so BOCF imputed for all missing values.
2. Abdel Shaheed Christina, Maher Chris G, Williams Kylie A, Day Richard, McLachlan Andrew J. Efficacy, Tolerability, and Dose-Dependent Effects of Opioid Analgesics for Low Back Pain: A Systematic Review and Meta-analysis. JAMA Internal Medicine. American Medical Association; 2016 Jul 1;176(7):958-68.

MPC-06-ID: Phase 2 Clinical Trial Results

Reduction in Functional Disability Through 36 Months After Single Dose



p ≤ 0.05

∗ MPC 6M *vs.* Saline
ϕ MPC 18M *vs.* Saline
§ MPC 18M *vs.* HA

Minimal Difference[2]

FDA Functional Improvement Threshold

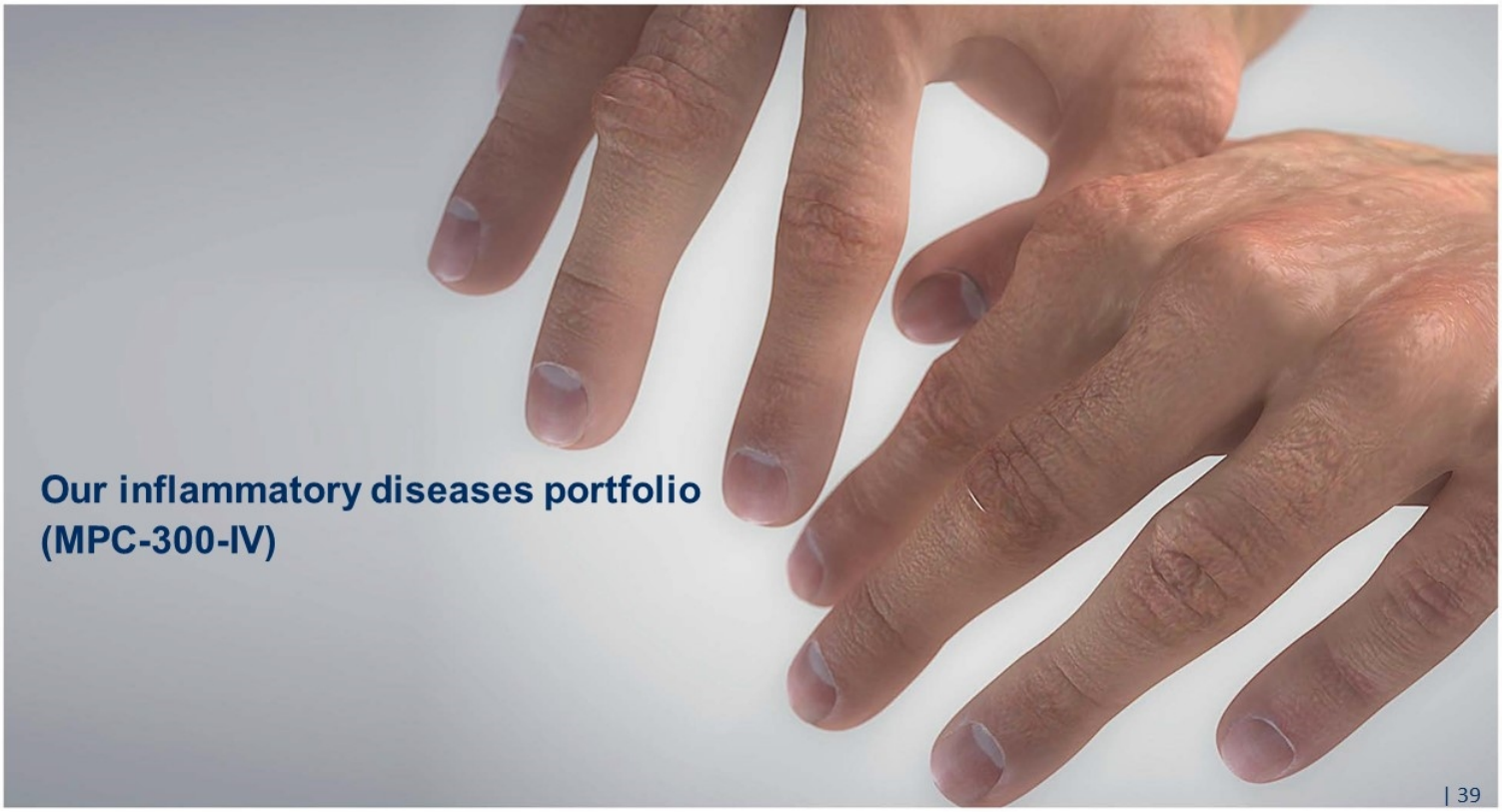
Substantial Clinical Improvement[2]

1. ITT Population. Subjects failing therapy due to intervention had BOCF imputed for all visits after the intervention. Patients with missing data considered treatment failures, so BOCF imputed for all missing values.
2. Abdel Shaheed Christina, Maher Chris G, Williams Kylie A, Day Richard, McLachlan Andrew J. Efficacy, Tolerability, and Dose-Dependent Effects of Opioid Analgesics for Low Back Pain: A Systematic Review and Meta-analysis. JAMA Internal Medicine. American Medical Association; 2016 Jul 1;176(7):958-68.

MPC-06-ID: Phase 3 Trial Update

- A 360-patient Phase 3 trial across U.S. and Australian sites
- Targeted to complete recruitment early Q1 CY18
- FDA has provided written guidance:
  - Use of a composite primary endpoint at 12 and 24 months is acceptable
  - Agreed thresholds for pain (50% decrease in VAS) and function (15 point improvement in ODI)
  - No additional intervention at the treated level through 24 months

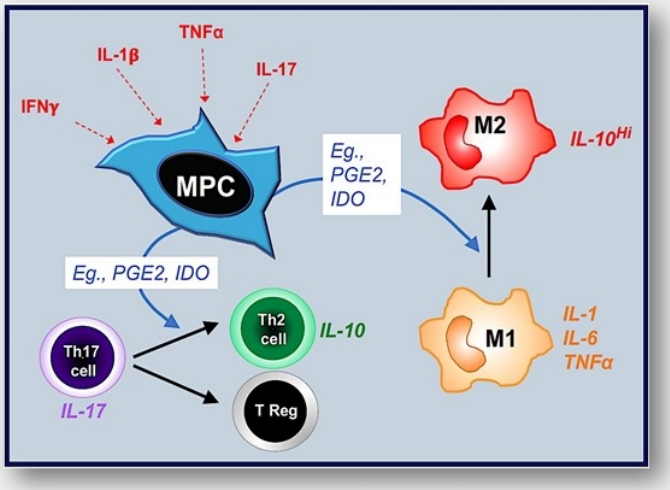
If the P3 results replicate P2 results in pain and function, leverage this product candidate as a potential non-opioid treatment option for chronic low back pain



Our inflammatory diseases portfolio (MPC-300-IV)

MPC-300-IV:

Being evaluated in immune mediated diseases where the cellular product candidate responds to multiple inflammatory signals by releasing factors that modulate the immune response



Phase 2 Clinical Data in Immune Mediated Diseases

- **60 patients, type 2 diabetes with inadequately controlled glucose:**
  - Randomized, placebo controlled dose-ranging study completed
  - Positive dose-dependent effects seen on reduction in HbA1c at 3 months[1]
- **30 patients, diabetic kidney disease:**
  - Randomized, placebo controlled dose-ranging study completed
  - Positive effects seen on glomerular filtration rate and on inflammatory biomarkers over 6 months[2]
- **48 patients, biologic-refractory rheumatoid arthritis**:
  - Randomized, placebo controlled, dose-ranging study over 52 weeks

1. Allogeneic Mesenchymal Precursor Cells in Type 2 Diabetes: A Randomized, Placebo-Controlled, Dose-Escalation Safety and Tolerability Pilot Study - Diabetes Care, July 2015
2. Allogeneic Mesenchymal Precursor Cells (MPC) in Diabetic Nephropathy: A Randomized, Placebo-controlled, Dose Escalation Study - E BioMedicine, October 2016

MPC-300-IV:

Phase 2 trial in biologic refractory Rheumatoid Arthritis shows early and durable effects after single dose

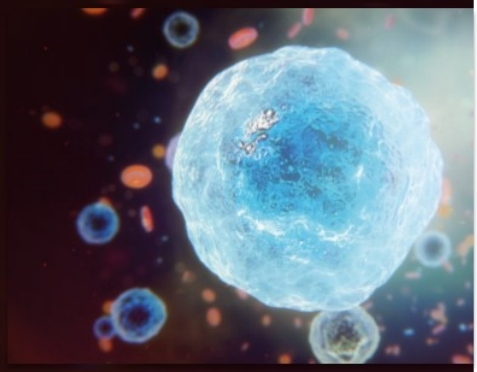
- Infusions were well-tolerated and there were no treatment-related serious adverse events reported, with the safety profile comparable among the placebo and two MPC treatment groups.
- A single intravenous MPC infusion in biologic refractory RA patients resulted in dose-related improvements in clinical symptoms, function, disease activity and patient-reported outcomes. Efficacy signals were observed for each of ACR 20/50/70, ACR-N, HAQ-DI, SF-36 and DAS-28 disease activity score.
- 2 million MPC/kg dose showed greatest overall treatment responses. Onset of treatment response occurred as early as 4 weeks, peaked at 12 weeks, was sustained through 39 weeks, and waned by 52 weeks.
- Greatest benefits over 52 weeks were seen in patients who had failed less than 3 biologics (1-2 biologic sub-group) prior to MPC treatment, identifying this as a potentially optimal target population

- **Phase 2 trial clinical responses along with the safety profile position MPC-300-IV as an early treatment option in RA patients who are resistant or intolerant to anti-TNF or other biologics**
- **Future studies will evaluate whether higher doses can induce even greater rates of low disease activity or remission within 12 weeks**

Milestones

Targeted Upcoming Milestones and Catalysts

- **MSC-100-IV for Pediatric Acute GVHD**
  - Day 28 primary endpoint data read-out (Q1 CY18)
  - Day 100 survival data (Q2 CY18)
- **MPC-150-IM for Advanced and End-Stage Heart Failure**
  - Phase 2B Class IV trial six-month primary endpoint reached (Q1 CY18)[1]
  - Phase 2B Class IV trial full data read-out (Q3 CY18)[1]
  - Phase 3 trial for Class II/III targeted enrollment completion (H2 CY18)
- **MPC-06-ID for Chronic Low Back Pain**
  - Phase 3 trial expected to complete enrollment (Q1 CY18)
- **Potential Corporate Partnerships**



1. Study is funded by the United States National Institutes of Health (NIH) and the Canadian Health Research Institute (CHRI), and conducted by the NIH-funded Cardiothoracic Surgical Trials Network (CTSN).