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the regenerative medicine company

Financial Results for the Nine Months And Third Quarter Ended 31 March 2016

May 2016

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 Quarterly Report on Form 6-K 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 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 Teva Pharmaceutical Industries Ltd, JCR Pharmaceuticals Co., Ltd, and Lonza 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.

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FINANCIAL RESULTS OVERVIEW

REVIEW OF OPERATIONS

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FINANCIAL RESULTS OVERVIEW

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Financial Highlights for the Nine Months Ended 31 March 2016 US$m

- Cash on hand at 31 March 2016 - US$100 million
- Cash outflows for Q3FY2016 were US$22 million. Total cash outflows of the second and third quarters of 2016 were US$42 million, a reduction of 25% in comparison to the total outflows of both the first quarter of 2016 and the fourth quarter of 2015 of US$55 million
- For the nine months ended 31 March 2016, loss before income tax improved by 14% (US$9 million) vs the comparative period in FY15. The main items within this overall loss reduction, which impacted our cash reserves*, were:
  - R&D expenses 19% lower
  - Management & Administration costs 21% lower
- Cash continues to be managed to extend runway and achieve our Tier 1 value inflexion points

* The loss before income tax improvement was also due to reduction in items which did not impact current cash reserves, for example contingent consideration

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Profit and Loss - Expenditure Reduced Over Prior Period US$m

	9 months ending 31 Mar 2016	9 months ending 31 Mar 2015	$ Change	%
Revenue	**15.7**	**15.6**	**0.1**	**1%**
Loss Before Income Tax	**(56.6)**	**(65.7)**	**9.1**	**14%**

Revenue increased by 1% ($0.1) vs comparative period in FY15:

- Milestone revenue of $3.5 recognized on approval of TEMCELL® Hs. Inj., compared with $2.0 in FY15
- First royalties were recognized on the launch of TEMCELL launched on Feb 24th 2016
- Interest is $1.5 lower due to rate as we held more of our cash in USD deposits in line with our needs

Loss before income tax improved by 14% ($9.1) vs comparative period in FY15.

- **R&D expenses 19% lower ($8.6) -** Reduced expenditure on Tier 2 programs/management of labour costs
- **Management & Admin costs 21% lower ($4.6) -** Savings on labour cost, currency impacts and IP
- **Manufacturing Commercialization 32% higher ($5.3)** - Ramp up of production for MSC-100-IV

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Cash Management US$m

	Q3 FY2016 3 months ended 31 Mar 2016	Q2 FY2016 3 months ended 31 Dec 2015	Q1 FY2016 3 months ended 30 Sep 2015	Q4 FY2015 3 months ended 30 Jun 2015
Net Cash Outflows in Operating Activities	**(22.0)**	**(19.8)**	**(28.1)**	**(27.3)**
Cash at the end of the period	**99.9**	**120.8**	**77.8**	**110.7**

Operating cash burn continues to be managed in line with guidance

- In line with previous guidance, aggregate cash outflows for Q3FY2016 ($22.0) and Q2 FY2016 ($19.8) reduced by 25% in comparison to Q1 FY2016 ($28.1) and Q4 FY2015 ($27.3)
- Cash being managed to extend runway and achieve Tier 1 program value inflexion points including in the P3 heart failure program, the P3 chronic back pain program and the P2 rheumatoid arthritis program, and to file with the FDA for approval of our pediatric graft versus host disease product candidate

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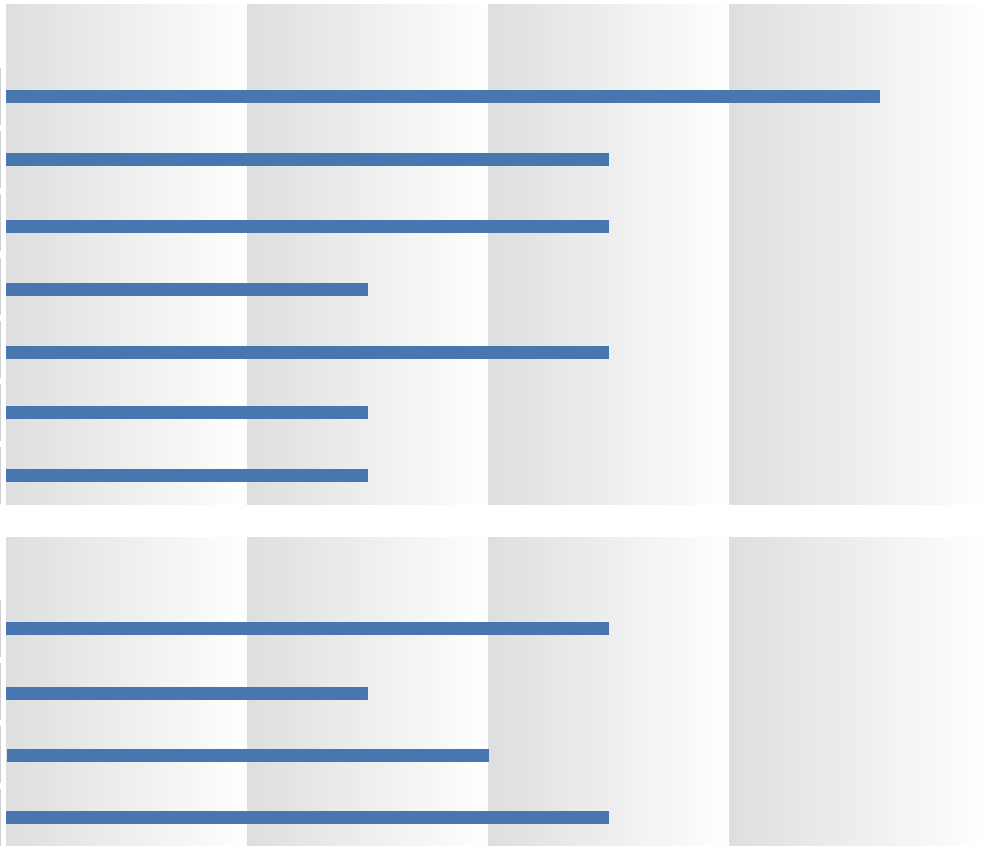
REVIEW OF OPERATIONS

Product Candidates in Major Markets with High Unmet Need

First Product on market - Three Tier 1 Product Candidates in Phase 3 Programs

PRODUCT CANDIDATES	PROGRAMS
TIER 1	
TEMCELL HS INJ.	Acute GVHD (Japan)
MSC-100-IV	Acute steroid-refractory GVHD
MPC-150-IM	Advanced chronic heart failure
	End-stage chronic heart failure
MPC-06-ID	Chronic low back pain
MPC-300-IV	Rheumatoid arthritis (biologic refractory)
	Diabetic nephropathy
TIER 2	
MSC-100-IV	Crohn's disease (biologic refractory)
MPC-25-IC	Acute cardiac ischemia
MPC-25-Osteo	Spinal fusion
MPC-CBE	Bone marrow transplant



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.

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Operational Highlights for the Nine Months Ended 31 March 2016

- MPC-150-IM for Advanced Heart Failure: Phase 3 trial was significantly reduced from 1,165 to 600 subjects following meeting between Teva Pharmaceutical Industries Ltd (Teva) and the FDA. The trial is recruiting well across North America, and expanding to Europe in Q2 CY 2016. The trial's Data Monitoring Committee (DMC) convened in April 2016. After reviewing the clinical data, the DMC recommended that the study should continue according to its protocol.

- MPC-06-ID for Chronic Low Back Pain: The current 360 patient Phase 3 trial continues to expand across US sites. In line with FDA written guidance, the trial uses a composite primary endpoint with thresholds for pain and function and a follow up period of 24 months.

- MPC-300-IV for Biologic Refractory Rheumatoid Arthritis: Top-line Phase 2 results released from the first cohort of rheumatoid arthritis (RA) patients who have previously failed one or more biologic agents showed that a single intravenous infusion of the lower dose of MPC-300-IV resulted in early and sustained clinical responses, with no cell related adverse events.

Operational Highlights for the Nine Months Ended 31 March 2016

- TEMCELL: Mesoblast's licensee in Japan, JCR Pharmaceuticals Co. Ltd., launched the first allogeneic regenerative medicine in Japan, TEMCELL for steroid-refractory acute Graft Versus Host Disease (aGVHD) in children and adults in Q3 FY2016.
    - Japan's National Health Insurance (NHI) has set reimbursement for TEMCELL at ¥868,680 (US$8,100) for 72 million cells
    - A four-week, multi-dose treatment course of TEMCELL for an average adult is expected to be reimbursed at ¥13,898,880 (US$130,000), or at ¥20,848,320 (US $195,000) if symptoms persist and additional dosing is required
    - Mesoblast is entitled to receive royalties and other payments at pre-defined thresholds of net sales; first royalties recognized Q3 FY2016.
- MSC-100-IV: Results from 241 children treated in an Expanded Access Program for children with steroid-refractory aGVHD, conducted across more than 50 sites in North America and globally, demonstrated clinically meaningful responses associated with significantly increased survival.
- MSC-100-IV: Mesoblast is recruiting an open-label single Phase 3 trial in 60 children with aGVHD as first-line therapy after steroid failure.

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Results Highlighted in Public Presentations and Peer Reviewed Articles

- MPC-150-IM and MPC-300-IV: Phase 2 trial results in CHF and Type 2 Diabetes published in leading peer reviewed journals, *Circulation Research* and *Diabetes Care*, respectively.

- Technology developed at Harvard University and exclusively licensed by Mesoblast was shown in a preclinical study in the journal *Stem Cells* to enhance homing properties of mesenchymal lineage cells to sites of inflammation and to induce durable reversal of Type 1 diabetes.

- MSC-100-IV: Data from 241 children presented at the tandem annual scientific meetings of the Center for International Blood & Marrow Transplant Research and the American Society of Blood and Marrow Transplantation in Hawaii in February. These data were also presented at the third International Conference on Regenerative Medicine held within the Vatican in April.

- MPC-75-IA: Results from our Phase 2a trial in patients with post-traumatic knee injury to the anterior cruciate ligament (ACL), showing improvement over 24 months in pain, function, cartilage thickness, and joint structure following a single intra-articular injection of MPC-75-IA, were presented at the 2016 Osteoarthritis Research Society International (OARSI) World Congress.

MPC-150-IM: Chronic Heart Failure (CHF) – Market Opportunity

MPC-150-IM is in development for patients with New York Heart Association Class II-IV CHF

Market opportunity

- 5.7m patients (2% of the population) diagnosed with CHF in the US[1]
- 915,000 new cases diagnosed in the US each year[1]
  - Growing by 2% per annum
- ~1.9m CHF NYHA Class II-IV patients with low ejection fraction (LVEF<40%) in the US alone[2]

Gap in treatment options

- Class II / III CHF patients with low ejection fraction continue to be at high risk of repeated hospitalizations and mortality, despite standard of care pharmacological treatments [3]
- Class III / IV CHF patients only have heart transplant and mechanical support as treatment options

Targeted physician population

- Specialists: Targeted physician audience & commercial footprint
  - Heart failure specialists
  - Interventional cardiologists
  - Cardiac Surgeons

MPC-150-IM is positioned to fill the significant treatment gap in patients with advanced CHF

1. AHA statistical Update – Heart disease and stroke statistics-2016 update Circulation 2015 ;
2. 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.
3. European Heart Journal (2012) 33, 1750–1757 Figure 3

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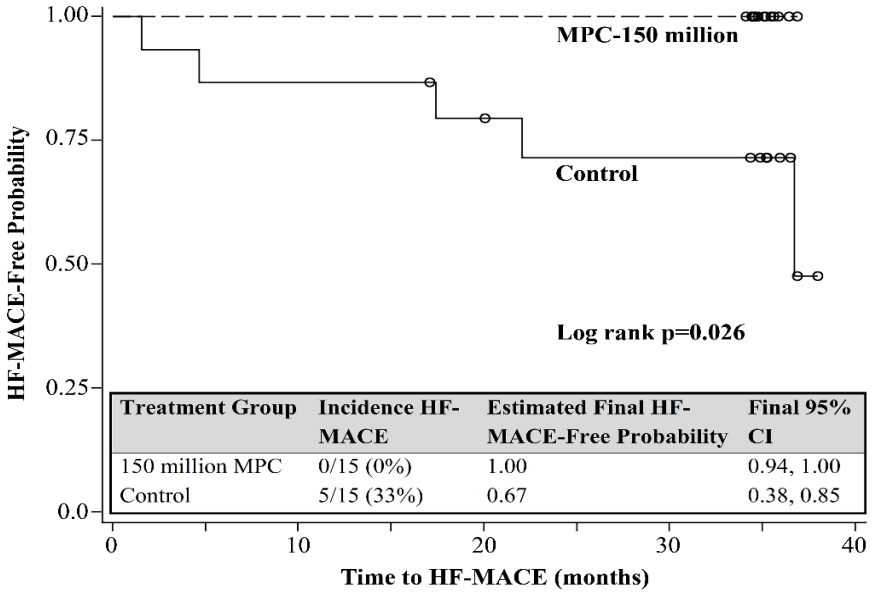
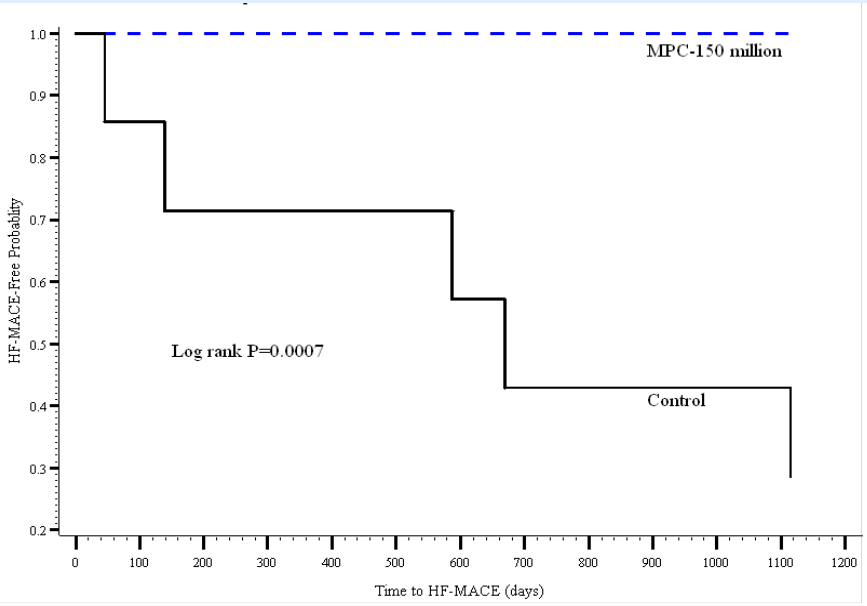
MPC-150-IM: Phase 2 Results Show Promise in the Prevention of HF-MACE*

HF-MACE Kaplan-Meier Curve over 36 months following treatment in all patients



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



- 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 150 M MPCs (p=0.0007)
- No cell related safety issues were seen

* HF-MACE is defined as a composite of cardiac related death or non-fatal heart failure hospitalisations.

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

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MPC-150-IM: Phase 3 Trial Targets Advanced Heart Failure Where Medical Need Is Greatest

- Patients with large baseline LVESV and advanced heart failure are at highest risk of HF-MACE
- For these patients existing therapies are inadequate and economic burden is greatest
- To confirm that MPC-150-IM reduces HF-MACE in patients with advanced heart failure, the ongoing Phase 3 trial is designed to enrich for patients with high risk of HF-MACE

MPC-150-IM: Phase 3 Trial Operational Update

- Phase 3 trial for 600 total patients with advanced heart failure is recruiting well across North American sites
- The trial's primary endpoint is a comparison of recurrent HF-MACE between MPC treated patients and controls
- During Q2 CY 2016:
  - European sites will be initiated for current Phase 3 trial
  - Updated timelines will be provided for completion of the current Phase 3 trial, FDA and EMA regulatory submissions, and overall program completion, including a confirmatory trial
  - Under our agreement, Teva may review its participation in the program

MPC-150-IM: Recommendation Of The Data Monitoring Committee (DMC) and Upcoming Clinical Milestones

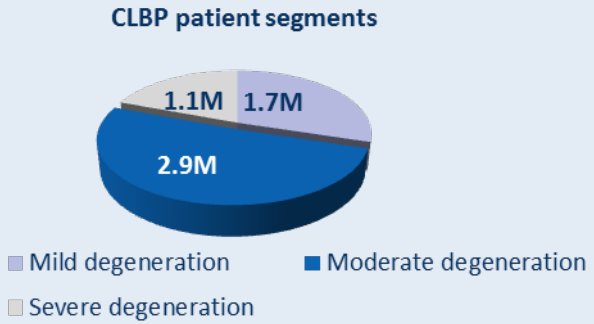
- The trial's DMC convened on April 4th 2016 to review the safety of the trial based on clinical data from the first 175 patients
- After reviewing the data, the DMC recommended that the study should continue according to its protocol
- A futility analysis based on the trial's primary endpoint will be performed when approximately 50% of the total HF-MACE events have occurred
- Interim trial results, whether based on surrogates or the primary endpoint markers, will not be disclosed in order to protect the integrity of the trial, in accordance with the FDA's written guidance

MPC-06-ID: Chronic Low Back Pain Due to Disc Degeneration (CLBP) – Market Opportunity

MPC-06-ID is in development for the treatment of CLBP lasting >6 months as a result of moderate degenerative disc disease

Market opportunity

- Prevalent CLBP population to grow to 21.9m patients in the U.S. by 2022[1]
- 55% of CLBP population seek treatment[1]
- ~40% of CLBP patients have a discogenic cause



Gap in treatment options

- For patients who fail conservative treatment (rest and analgesia) and epidural steroids, treatment options are limited to highly invasive therapies such as spinal fusion or artificial disc replacement
- Surgeons report ~40% of patients ultimately fail back surgery [2]

Targeted physician population

Specialists: Targeted physician audience & commercial footprint
- Pain management specialists and anesthesiologists
- Orthopedic / spine surgeons

We believe MPC-06-ID is positioned to fill the significant treatment gap in patients with moderate to severe CLBP after conservative treatment options have failed

1. LEK & NCI opinion leader interviews, and secondary analysis
2. Shapiro CM Phys Med Rehabil Clin N Am 2014

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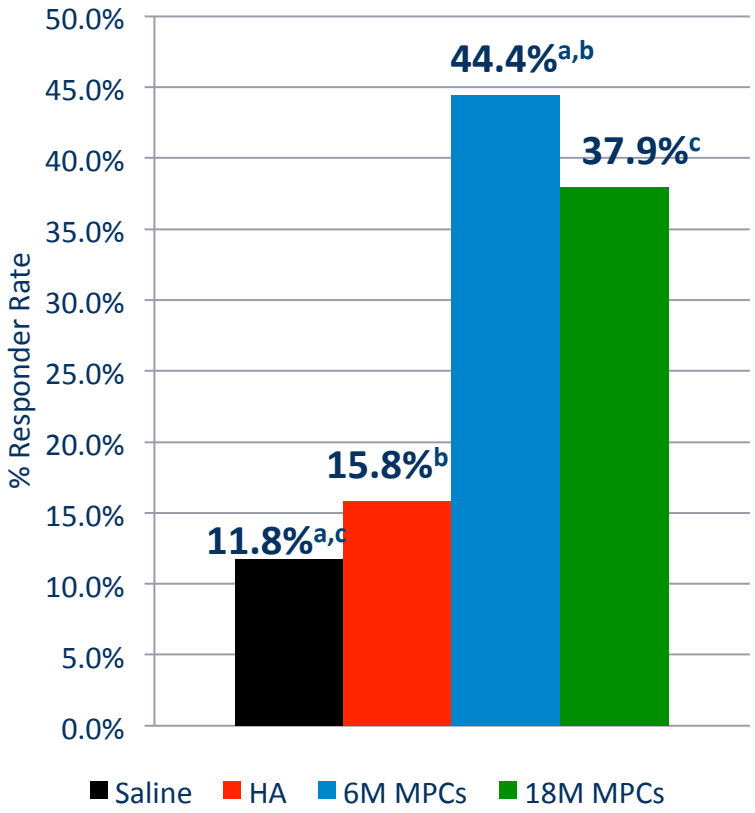
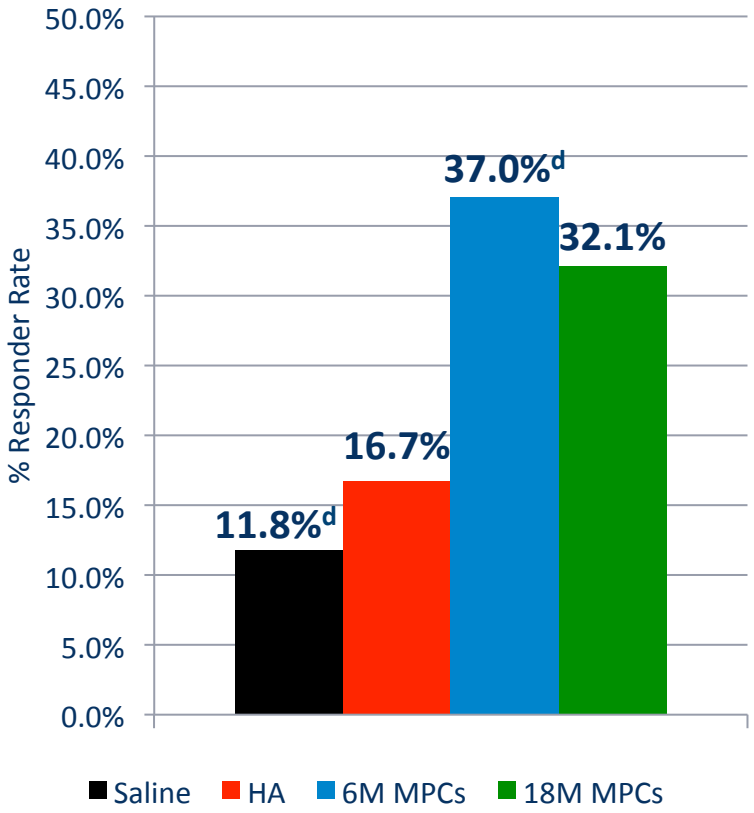
MPC-06-ID: Composite Endpoint For Both Pain and Function Over 24 Months – Phase 2 Data

% Patients with treatment success at 6 & 12 months



% Patients with treatment success at 12 & 24 months



Treatment Success Composite Endpoint
50% VAS back pain reduction AND 15 point ODI improvement AND no intervention at the treated level

a. p=0.044 6M MPC vs. saline
b. p=0.058 6M MPC vs. HA
c. p=0.090 18M MPC vs. saline
d. p=0.090 6M MPC vs. saline

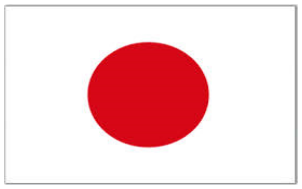
MPC-06-ID: Phase 3 Trial Update, including Recently Implemented FDA Guidance

- Current 360 patient Phase 3 trial continues to expand across US sites

- FDA has provided written guidance:
  - Use of a composite primary endpoint is acceptable for approval
  - Agreed thresholds for pain (50% decrease in VAS) and function (15 point improvement in ODI)
  - Two time points (12 and 24 months) for meeting pain and functional improvement criteria
  - No intervention at the treated level through 24 months

- Interim Analyses
  1. 80% patients completed 12 months of follow up
  2. Bayesian Analysis when all patients have completed 18 months of follow up

Japan: an important Commercial Opportunity



Japan is the 2nd Largest Established Healthcare Market

First Product Launched

- Mesoblast licensee, JCR Pharmaceuticals received full approval (non-conditional) and launched TEMCELL for treatment of aGVHD in Japan in February 2016; the first allogeneic cell-based product to receive full approval in Japan
- Treatment course of TEMCELL in an adult Japanese patient to be reimbursed between approx. US$130,000 - US$195,000

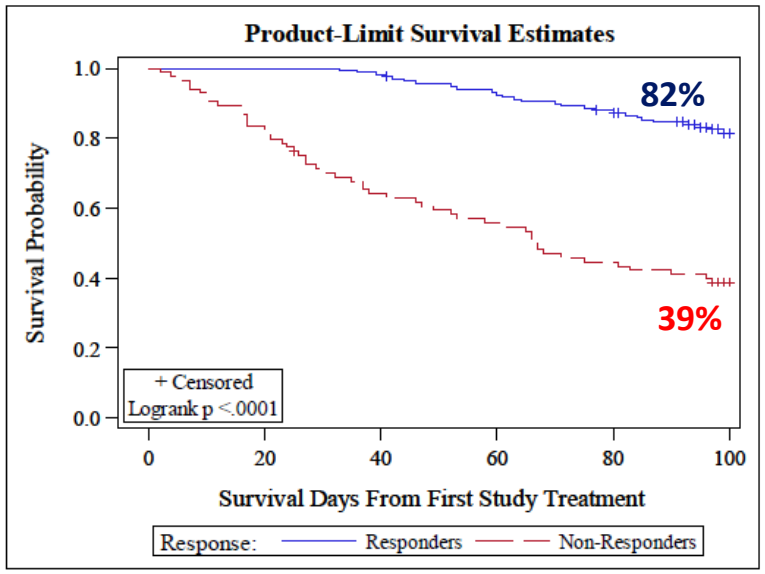
Additional Commercial Opportunities for Mesoblast's product pipeline under the new legislation

- Potential for conditional product approvals based on Phase 2 results showing safety and signal of efficacy
- Small, bridging studies in Japanese patients
- Conditional approvals will allow sales of each product candidate for up to 7 years
- Conditionally approved products can be reimbursed

Our mature pipeline means we are well positioned in Japan for a range of indications

MSC-100-IV: Phase 3 Trial In Children With Steroid Refractory Acute Graft Versus Host Disease (SR-aGVHD)

MSC-100-IV in children with SR-aGVHD who failed multiple other modalities[1]



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

MSC-100-IV as first line therapy in children with SR-aGVHD[2]

Response at Day 28	Randomized Placebo Controlled Trial		Open-label Expanded Access Program
	Placebo	MSC-100-IV	MSC-100-IV
Responder	3/14 (21.4%)	9/14 (64.3%)	29/36 (81%)
Non-responder	11/14 (78.6%)	5/14 (35.7%)	7/36 (19%)
	p-value = 0.0014		

Compared with placebo control patients, MSC-100-IV produced markedly superior overall response at day 28, a clinically meaningful endpoint (p=0.0014).

- Evidence that MSC-100-IV is effective when used as first line therapy in children with SR-aGVHD
- FDA agreement on 60 patient open label Phase 3 trial for accelerated US approval pathway
- Enrollment criteria: MSC-100-IV offered as first line therapy in children with SR-aGVHD

Source: 1. Kurtzberg et al: Presentation Tandem Feb 2016; 2. Kurtzberg et al, 2015 BMT/Tandem (n=160)

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TIMELINES

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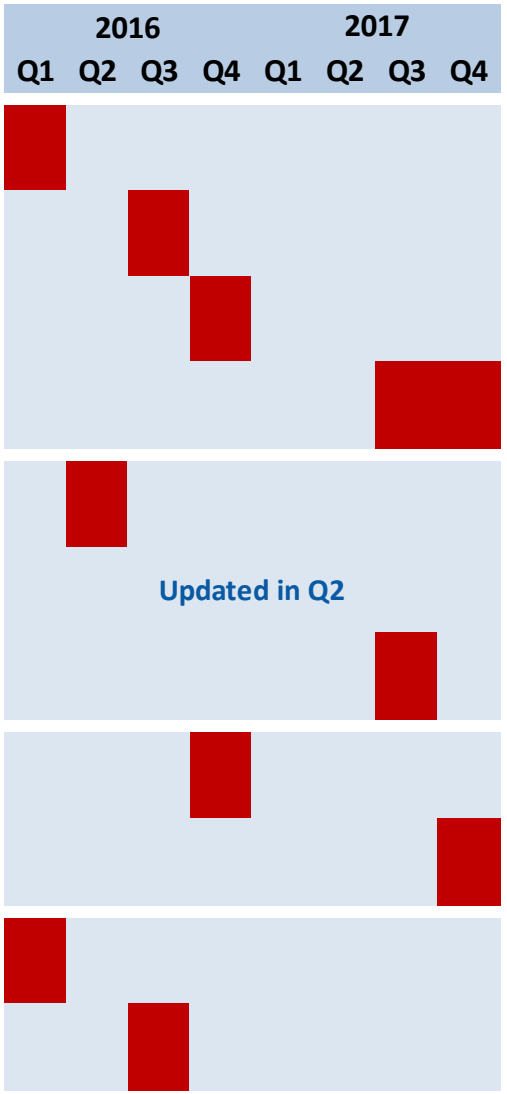
Tier 1 Product Candidate Deliverables (Calendar Year)

Product Candidate	Programs	Milestones
MSC-100-IV / Temcell® HS Inj.	Acute Graft Versus Host Disease	Temcell® HS Inj. Launched in Japan Interim Results Phase 3 Top Line Results US Approval
MPC-150-IM	Class II and III Heart Failure Class IV Heart Failure Requiring LVAD	DMC review and Interim Results Phase 3 - futility & efficacy analysis Phase 2b trial results
MPC-06-ID	Chronic Low Back Pain Due to Degenerative Disc Disease	Phase 3 enrollment complete Phase 3 Interim Analysis
MPC-300-IV	Rheumatoid Arthritis (Biologic Refractory)	Top line data first cohort released Full trial Results



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