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the regenerative medicine company

Annual General Meeting

15 November 2013

CAUTIONARY NOTE REGARDING FORWARD-LOOKING STATEMENTS

This presentation, including any comments made during or following the presentation, may contain forward-looking statements that are inherently subject to risks and uncertainties, some of which cannot be predicted or quantified. 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, Cephalon 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. Actual results may differ from the results anticipated in these forward-looking statements, and the differences may be material and adverse. Factors 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.

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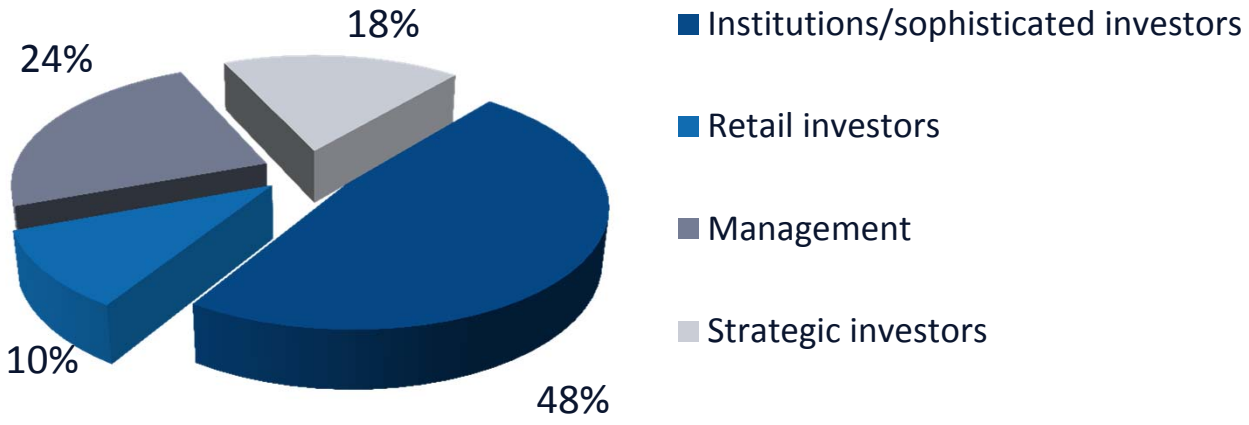
Shareholder value and ownership

Market valuation	
Issued shares	317 million
Current share price (market close, 14 November 2013)	$6.15
Market capitalization, circa	$1.95 billion
Cash reserves (at 30 September 2013)	$292 million

Shareholder ownership



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Financial Results 2013

Results	2013	2012
Total revenue & other income	**34.7M**	**38.3M**
Operating expenses		
R&D	43.1M	36.9M
Manufacturing	20.9M	22.0M
Management	30.7M	28.1M
(Losses)/ profit before tax	**(60.0M)**	**(48.7M)**
EPS basic – cents per share	(21.06)	(25.15)
EPS diluted – cents per share	(21.06)	(25.15)

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Mesoblast's corporate strategy is to:

- Leverage proprietary cell-based and complementary biologic technologies to develop products for unmet medical needs
- Bring multiple products to market within a parallel timeframe
- Enhance the likelihood of commercial success through strategic partnerships
- Underpin our future financial growth through investing in manufacturing operations

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Mesoblast proprietary technologies

- Mesenchymal Precursor Cell (MPC) technology platform (Stro-1/Stro-3 pos cells)
- Culture-expanded Mesenchymal Stem Cells (MSCs)
- Dental Pulp Stem Cells (DPSCs)
- Expanded Hematopoietic Stem Cells (HSCs)
- Soluble factors derived from proprietary cellular platforms

Strategic benefits of acquisition of Osiris' cultured MSC therapeutic business

- Firms up Mesoblast's position as leader in regenerative medicine
- Accelerates Mesoblast's time to first product launch
- Broadens market opportunities with new Phase 3 programs
- Facilitates leveraged build-out of infrastructure, skills and expertise needed for commercializing Mesoblast's MPC products
- Expands reach to Japan through collaboration with JCR Pharmaceuticals
- Acquisition of new intellectual property which is highly complementary to Mesoblast's existing patent estate

Robust mesenchymal cell lineage intellectual property estate

- Mesoblast has ownership of or exclusive rights to 61 patent families, which provide major commercial advantages and long-term protection across mesenchymal cell lineage platforms
- Mesoblast's patents include MPC and MSC compositions-of-matter, manufacturing and use patents protecting the Company's clinical products in key markets including the US, Europe, Japan and China
- Mesoblast acquired Osiris' 35 patent families relating to culture-expanded MSC technology which comprise 110 granted patents through to 2025:
  - 48 granted US patents
  - 21 granted EU patents
  - 9 granted Japanese patents
  - 32 granted patents ROW
  - Patent applications out to 2031

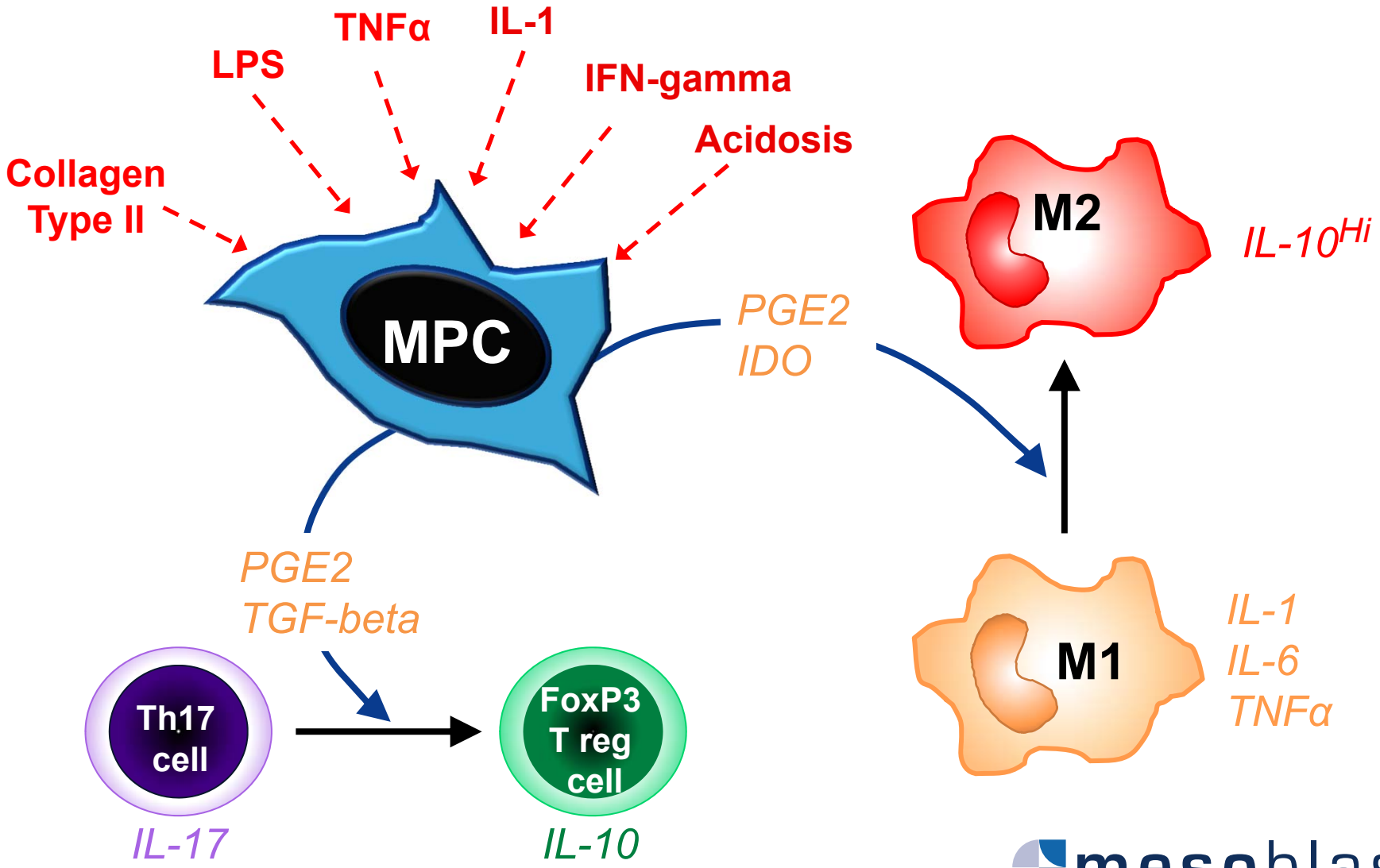
Strategic partnerships

- Focus on cardiovascular and neurological programs in partnership with Teva Pharmaceutical Industries Ltd
- Focus on Graft-versus-Host-Disease (GvHD) programs in children and adults in Japan in partnership with JCR Pharmaceuticals
- Focus on developing a new class of cancer therapeutics combining Mesoblast's cells with RheoSwitch Therapeutic System® platform in partnership with Intrexon Corp. and ZIOPHARM Oncology
- Strategic alliance with Lonza to ensure commercial scale-up and supply, product delineation, COGS reductions, and expansion of clinical manufacturing

Mechanisms of Action (MOA) Drives Product Development

- Mesoblast's strategic product focus is guided by specific MOAs of our cellular therapies.
- The mesenchymal lineage stem cells respond to signals from inflammation and /or tissue damage by releasing a range of factors which:
  - stimulate blood vessel growth and maturation, and reverse endothelial dysfunction
  - increase survival and improve function of cardiac muscle cells, cells of central nervous system, bone-forming cells, and cartilage-producing cells
  - induce polarization of pro-inflammatory monocytes to a non-inflammatory phenotype, and
  - inhibit activated T cells and induce regulatory T cells.

Inflammation-dependent induction of mesenchymal-lineage stem cells and regulation of both macrophages and Th17 cell functions



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Key target areas for proprietary mesenchymal cell-based technologies

The Company's lead product candidates use its MPC or MSC platform technologies to focus on four major and distinct areas:

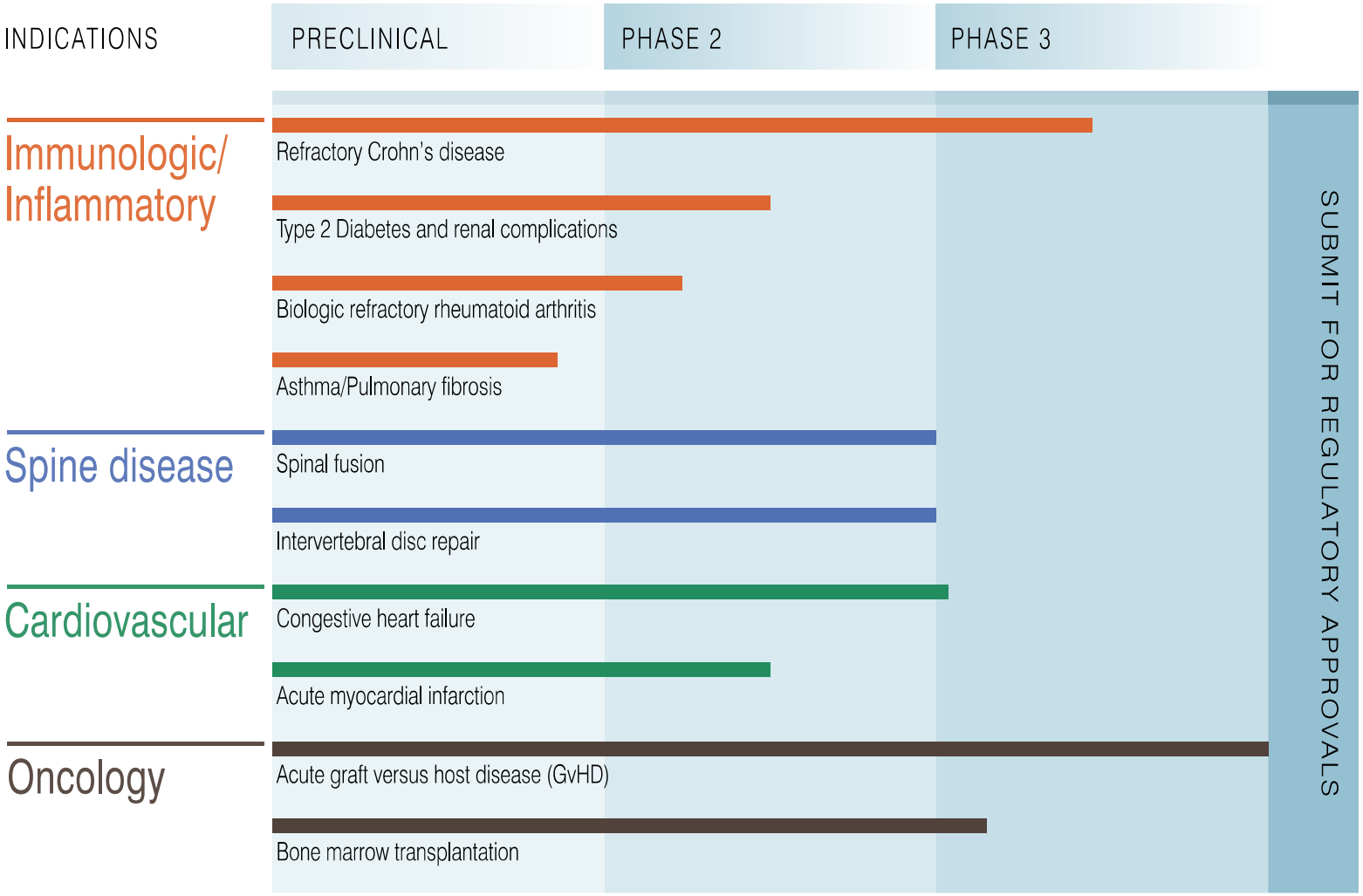
i. Systemic diseases of inflammation and immunity

ii. Orthopedic diseases of the spine

iii. Cardiovascular diseases

iv. Oncology conditions associated with bone marrow transplantation

Clinical development pipeline across four core therapeutic areas



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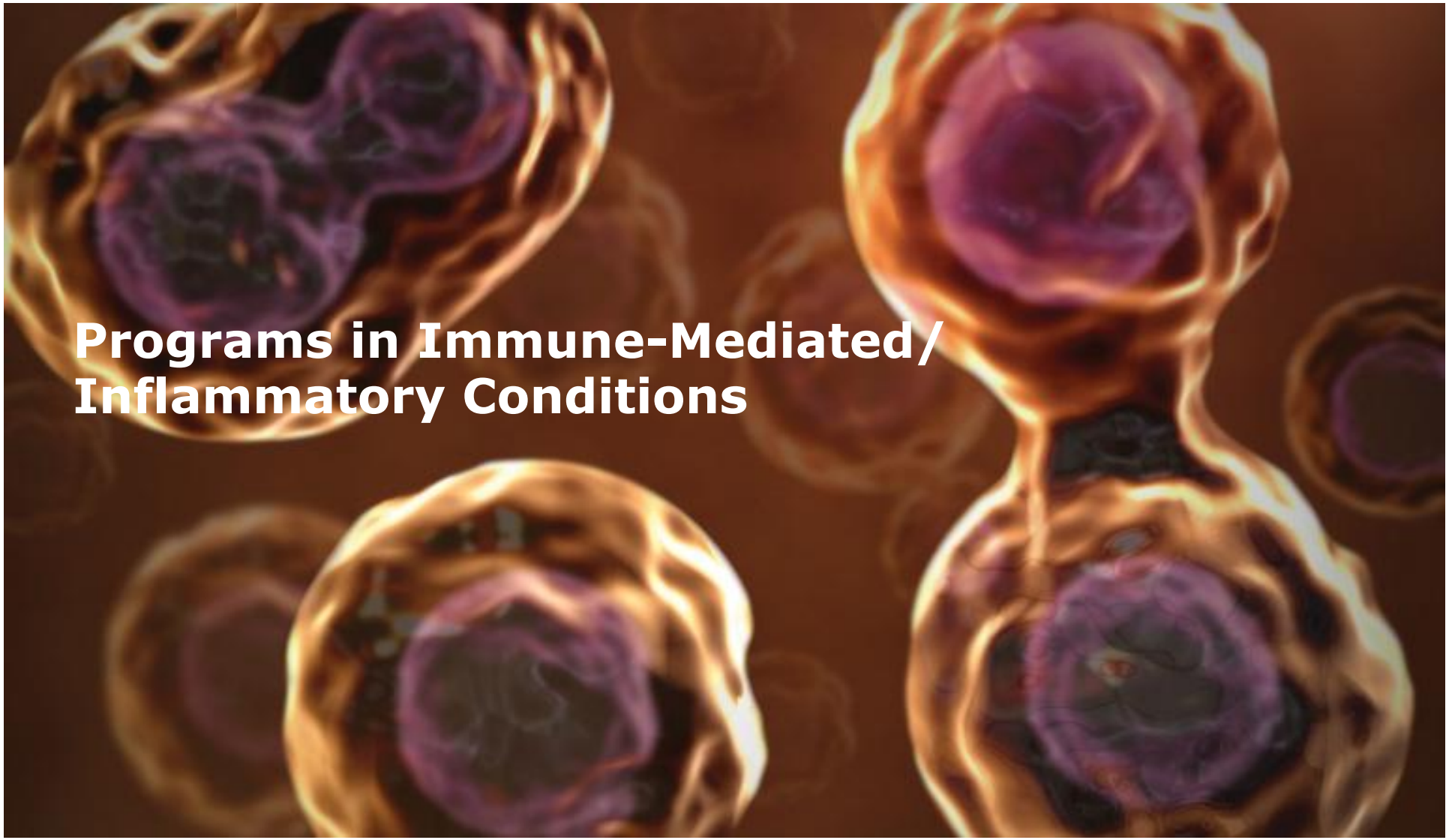

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MSC program using Prochymal for refractory Crohn's disease

- Crohn's disease is a chronic inflammatory condition of the gastrointestinal tract
  - Over 700,000 people in the US have Crohn's disease, with 20,000 new cases annually
  - Approx. 60,000 patients in the US alone are intolerant, unresponsive or refractory to existing biologics (e.g. TNF alpha inhibitors)
- Prochymal® is currently being evaluated in a 330-patient Phase 3 trial of Crohn's disease patients with moderate-to-severe treatment-refractory disease
- After an interim analysis for futility, the best performing Prochymal® dose (based on the primary end-point of disease remission) was selected to complete this study

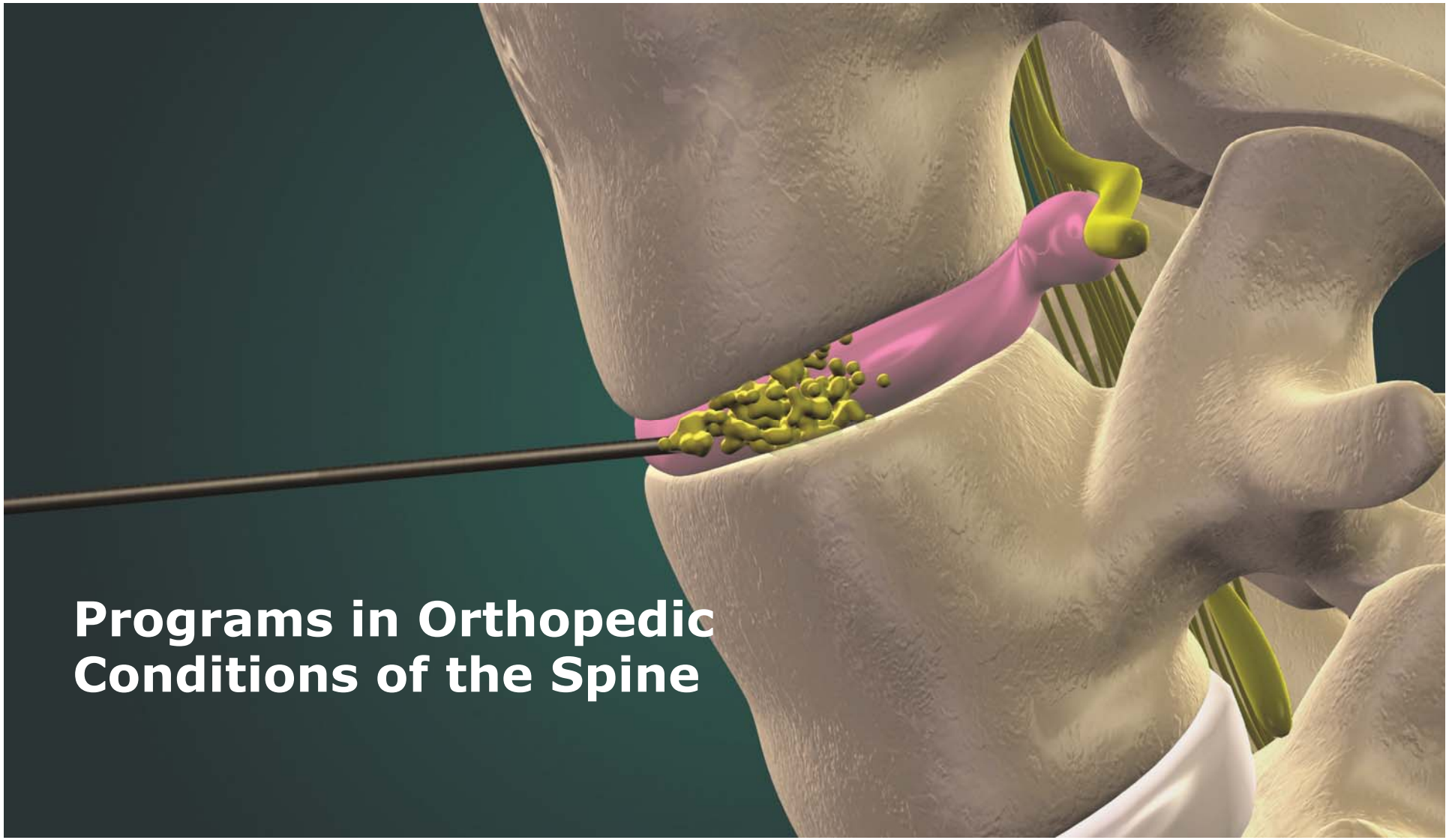
Immune/inflammatory diseases – MPC programs

Type 2 diabetes and renal complications

- Completed enrollment of 60-patient Phase 2 safety study evaluating single intravenous MPC injection in patients with early type 2 diabetes inadequately controlled on oral glucose-reducing agents
- Patients evaluated over 12 weeks for effectiveness of a single intravenous MPC dose on changes in glucose control, and various inflammatory markers
- Actively enrolling patients in Australian Phase 2 trial evaluating effects of single infusion of MPCs over 12 weeks in patients with advanced diabetic nephropathy

Rheumatoid arthritis

- Ongoing Phase 2 program to evaluate intravenously injected MPCs for biologic refractory rheumatoid arthritis



Programs in Orthopedic Conditions of the Spine

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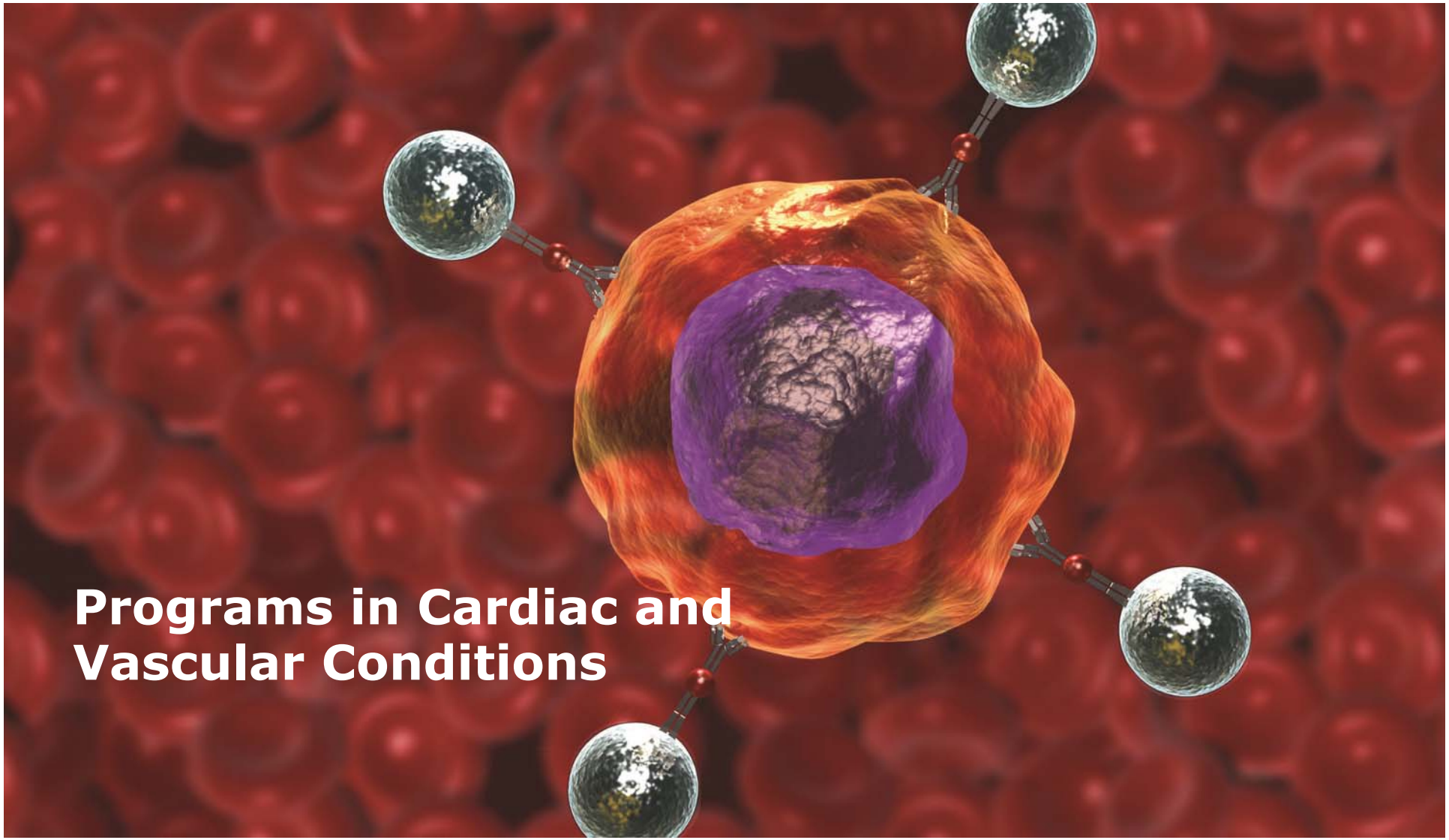
Spine diseases – MPC programs

Spinal fusion

- Phase 2 trial in lumbar fusion demonstrated equivalence of MPC treatment at 12 months with autogenous hip autograft in terms of radiographic fusion, pain reduction, and improvement in function
- Data being used in discussions with FDA regarding Phase 3 trial
- If successful, MPC may eliminate need for autograft and its risk of pain, infection, and blood loss at the harvest site

Degenerative disc repair

- Six-month results in pre-specified interim results of first 50 patients showed single low-dose injection of MPCs resulted in significantly greater reduction in low back pain, significantly greater improvement in function, and significantly greater treatment success compared with controls
- Full 12-month results from 100-patient disc repair study expected to be available shortly, and may lead to a Phase 3 trial in 2014



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Heart disease programs

- US FDA cleared commencement of Phase 3 trial of MPCs for chronic congestive heart failure within minimum 30-day period after filing of IND by development and commercialization partner Teva
  - Multi-center, 1700 patient trial being conducted by Teva and includes two interim analyses of efficacy and/or safety
  - Double-blinded, 1:1 randomized, placebo-controlled study is evaluating a single dose of 150m MPCs delivered via transendocardial injection catheter to the left ventricle of heart failure patients with NYHA class II or III disease and an ejection fraction ≤ 40%
  - Primary efficacy endpoint is a time-to-first event analysis of heart failure-related Major Adverse Cardiac Events (HF-MACE), defined as a composite of cardiac related death or resuscitated cardiac death, or non-fatal decompensated heart failure events
  - MPC dose for the Phase 3 trial chosen on results from a Phase 2 trial which showed that patients treated with 150m MPC dose have not experienced any HF-MACE over the three-year follow-up period compared with an HF-MACE incidence of approximately 30 per cent for the control group over the same period
- Phase 2 trials ongoing to evaluate mesenchymal lineage cells for the prevention of heart failure after an acute myocardial infarct (heart attack)

Neurologic disease – MPC program for ischemic stroke

- Stroke is a leading cause of death in the United States and a leading cause of serious long-term disability, costing an estimated $38.6 billion each year.
- More than 795,000 people annually have a stroke in the United States, of which 87% are ischemic when blood clots block the blood vessels to the brain
- Thrombolytic agents are approved for lysis of clots, but must be used within the first three hours after a stroke, limiting use to <5% of patients
- 72 adult nude rats underwent permanent right middle cerebral artery occlusion (MCAO) which resulted in focal right cerebral infarction and impairment of the contralateral sensorimotor function
- Results showed a single intravenous injection of human MPCs significantly enhanced sensorimotor recovery when administered up to seven days after an ischemic stroke in rats
- Additionally in a sub-study of 16 subjects, MPCs increased neuronal activity and reduced the volume of infarct tissue

Conclusion: MPCs have the potential to be used within a broad and clinically meaningful therapeutic time window for neuroprotection and tissue repair after an ischemic stroke

Programs in Oncology Conditions and Bone Marrow Transplantation

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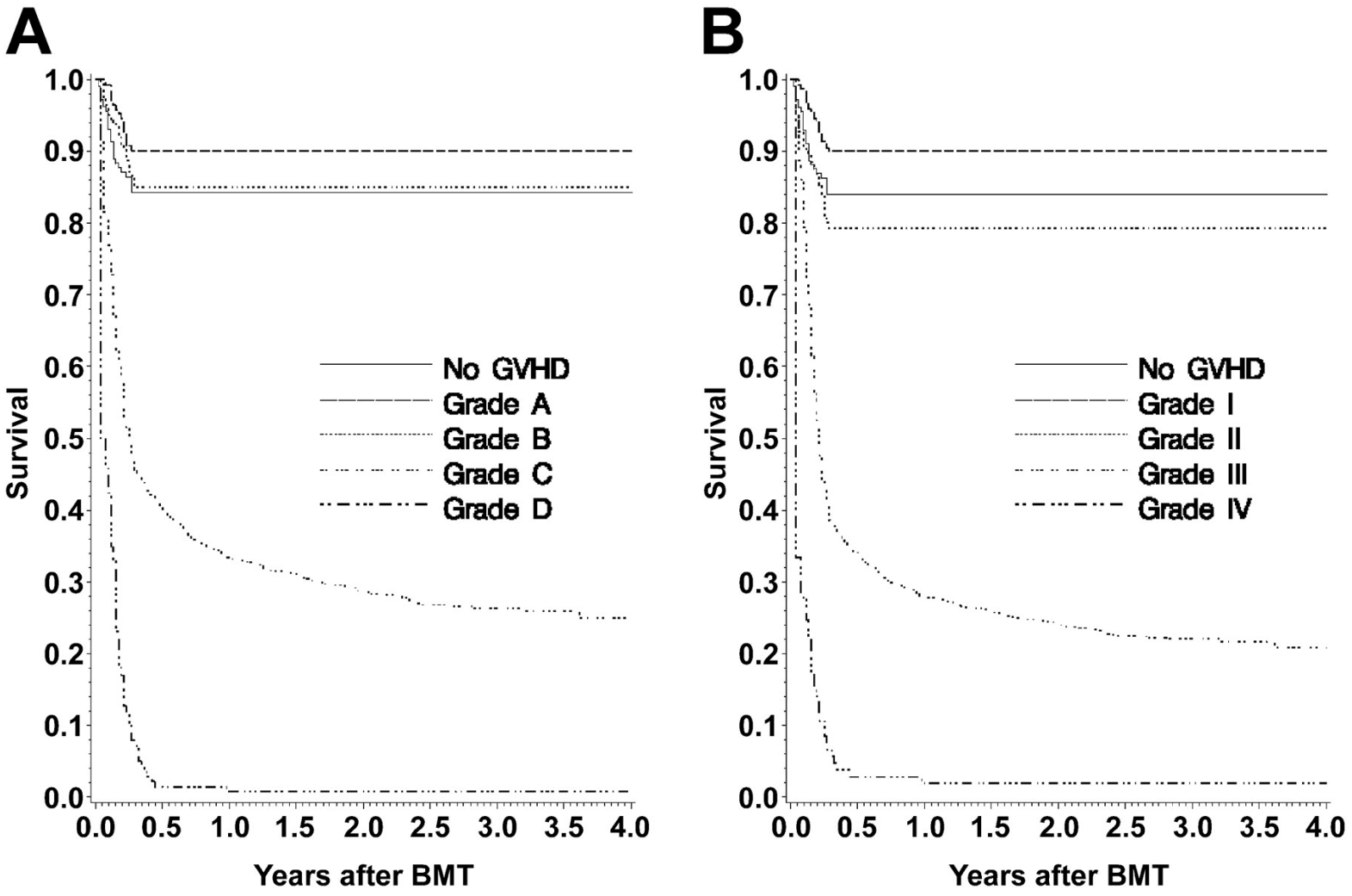
Oncology – bone marrow transplantation
Prochymal® for acute GvHD

- Approx. 25,000 allogeneic hematopoietic stem cell transplants (HSCTs) are performed each year for the treatment of diseases including hematologic malignancies, certain forms of anemia, and immunological deficiencies
- GvHD is a potentially life threatening complication that arises in approximately 50% of all patients who receive an HSCT and affects the skin, gastrointestinal tract, and liver
- In patients with liver and gut complications, mortality can reach 85%
- In Phase 3 trials, Prochymal® :
  - significantly improved overall responses in the adult subset with gut or liver GvHD and resulted in improved survival
  - significantly improved overall responses and survival in children with severe GvHD

Life threatening GvHD in children – Prochymal®

- Peer-reviewed publication in November 2013 issue of Biology of Blood and Marrow Transplantation showed significantly improved response rates and survival benefit in Prochymal®-treated children with severe GvHD following bone marrow transplantation
  - Allogeneic Human Mesenchymal Stem Cell Therapy (remestemcel-L, Prochymal®) as a Rescue Agent for Severe Refractory Acute GvHD in Pediatric Patients– J. Kurtzberg et al BBMT Nov 13 in press http://www.bbmt.org/article/PIIS1083879113005065/fulltext
- The study comprised 75 children, median age 8 years old, with life-threatening GvHD due to inadequate responses to standard of care treatment in the United States, United Kingdom, Australia, Italy, Finland, and New Zealand, who were treated with Prochymal® under a United States Food and Drug Administration (FDA) Expanded Access Program (EAP) protocol (Clinicaltrials.gov:NCT00759018)
- 88% had aggressive grade C-D GvHD, 60% grade D disease, 91% had major organ involvement (87% severe gastrointestinal involvement, 36% liver involvement)
- Grade D GvHD survival historically reported as low as 5% at day 100

Historical controls—Low probability of survival in grades C-D or III-IV GvHD.



Cahn J et al. Blood 2005;106:1495-1500

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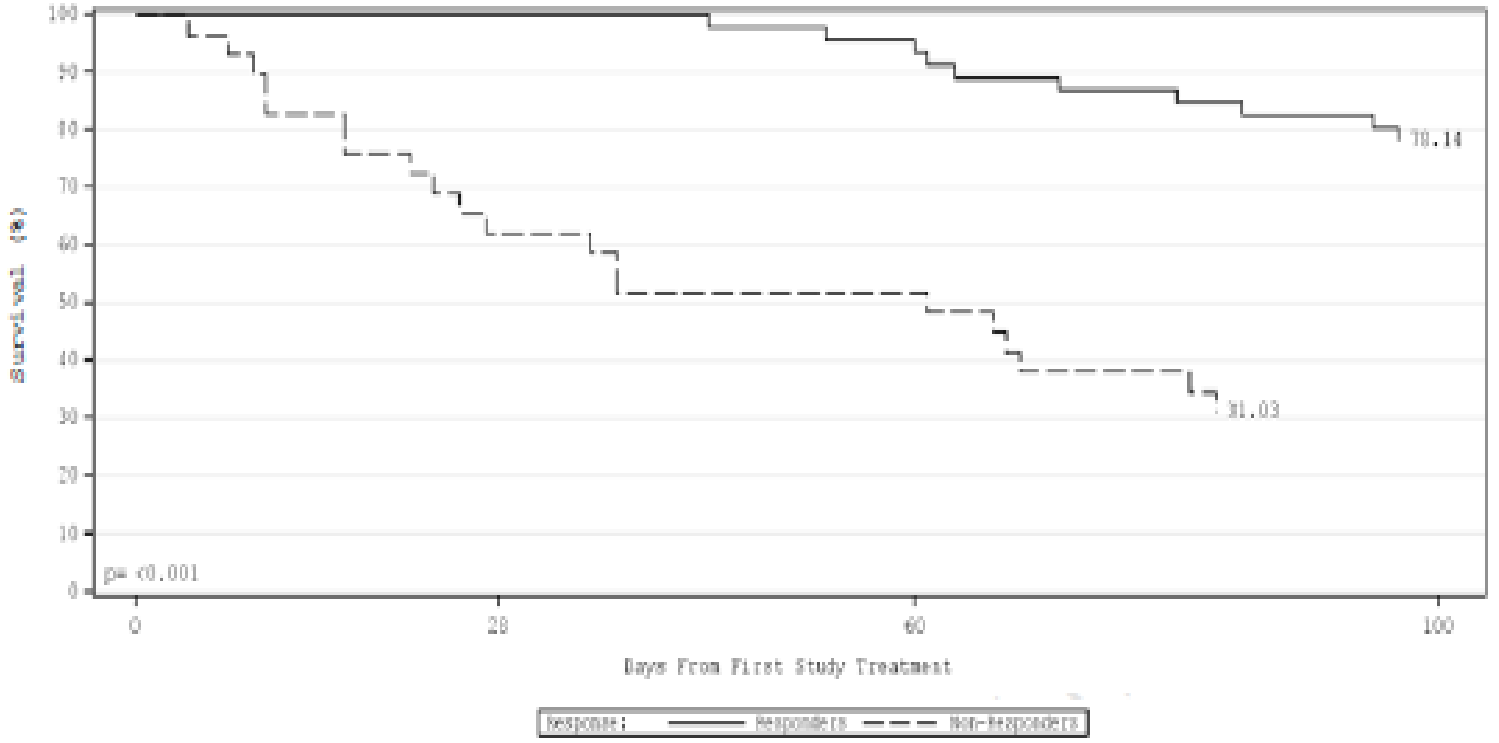
Life threatening GvHD in children – Prochymal®

Key findings in the trial were:

- At day 28, 61% of patients were responders to Prochymal® (improvement in at least one grade of organ involvement)
- Responses to Prochymal® were seen across all disease grades and involved organs
- In 87% of patients, no new therapy for acute GVHD was introduced after Prochymal®
- Response at day 28 to Prochymal® therapy was a significant predictor of improved survival at day 100 ($p<0.001$)
- Day 100 survival was 76% in Prochymal® responders, compared to 28% in non-responders (p value <0.001, log rank test)
- Excellent safety profile, only 2 reactions reported across more than 500 MSC infusions

Acute GvHD - Prochymal®

Patients who responded to therapy by day 28 had a higher Kaplan-Meier estimated probability of 100-day survival than patients who did not respond (78% vs. 28%, p<0.001)



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The year ahead, what we expect:

- Active recruitment in Phase 3 trial for congestive heart failure
- Continued recruitment in Phase 3 trial for biologic-refractory Crohn's disease
- Commencement of Phase 3 trial in orthopedic spine disease
- Continued recruitment in Phase 3 trial for cord blood expansion
- Active discussions with regulatory authorities in major jurisdictions regarding filings for GvHD product approvals
- Clinical results in Phase 2 trials of early type 2 diabetes and diabetic nephropathy
- Continued recruitment in Phase 2 trial for AMI patients
- Continued recruitment in Phase 2 trial for biologic-refractory RA patients
- Additional partnering opportunities – optimal timing

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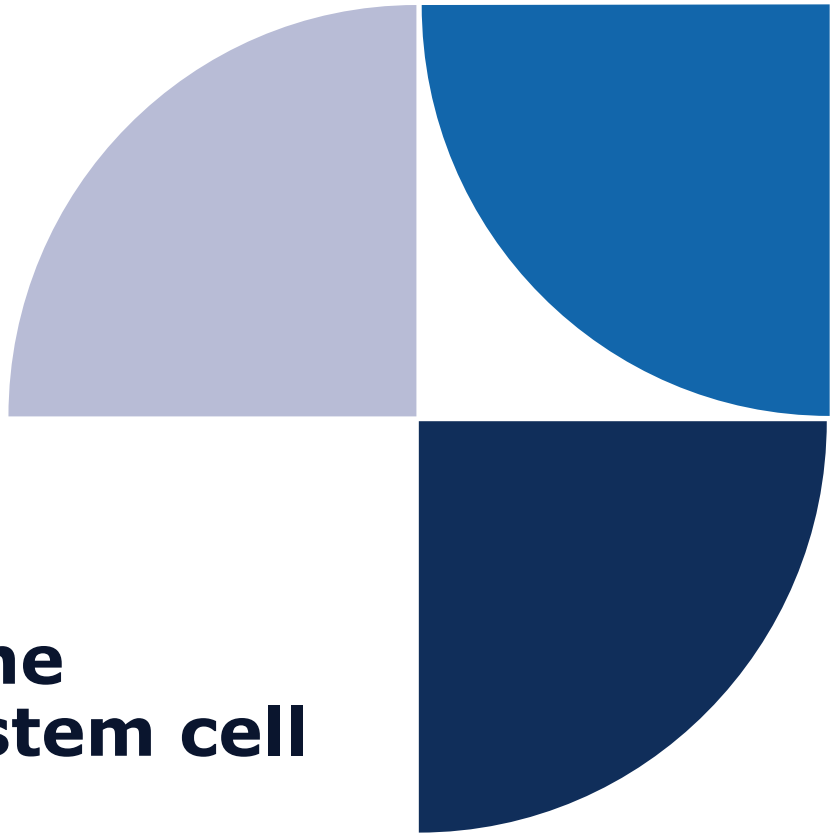

Leading the world in the development of adult stem cell therapies