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POSITIVE TRIAL RESULTS OF MESOBLAST CELL THERAPY IN POST-TRAUMATIC OSTEOARTHRITIS PUBLISHED IN ARTHRITIS RESEARCH & THERAPY

- Over 250,000 Anterior Cruciate Ligament (ACL) tears occur annually in the United States alone, mostly in young, physically active adults[1]
- By 1 year, more than 30% have radiographic evidence of knee osteoarthritis (OA) and by 10 years, more than 50% have clinical OA (pain and loss of function), irrespective of ACL surgical repair[2,3]
- A single intra-articular administration of Mesoblast's allogeneic Mesenchymal Precursor Cells (MPCs) within 4-6 weeks of ACL repair was associated with reduced cartilage loss and bone changes by 6 months, and in improved pain and function for over 2 years
- The anti-inflammatory and immunomodulatory activities of MPCs may protect against the release of damaging factors in the inflamed knee joint and prevent the breakdown of joint connective tissues, providing a plausible mechanism for the observed clinical findings
- Intra-articular MPC administration after ACL tears as either front-line therapy or as adjunct to surgical repair should be further explored as a potential therapy for the prevention of long-term knee osteoarthritis in this high-risk and active population

New York; USA; and Melbourne, Australia; August 16, 2017: Mesoblast Limited (ASX:MSB; Nasdaq:MESO) today announced that the Phase 2a trial of its Mesenchymal Precursor Cells (MPCs) for prevention of radiographic and clinical features of knee osteoarthritis after traumatic injury has been published in the peer-reviewed journal Arthritis Research & Therapy. The results showed that a single intra-articular injection of Mesoblast's product candidate MPC-75-IA reduced cartilage loss and bone changes by six months, and improved pain and function for over two years, when compared to controls.

The paper, entitled *'Safety, tolerability, clinical and joint structural outcomes of a single intra-articular injection of allogeneic mesenchymal precursor cells in patients post anterior cruciate ligament reconstruction: a controlled double-blind randomized trial',* concluded that MPCs may modulate the inflammation-related pathological processes that are associated with post-traumatic knee osteoarthritis.

The trial's senior author, Professor Flavia Cicuttini, Head Musculoskeletal Unit, Department of Epidemiology and Preventive Medicine School of Public Health and Preventive Medicine at Monash University, Australia, said: "As there are no treatments that slow progression of osteoarthritis, these results are very exciting for a population who are at high risk of developing this crippling condition."

"In this study we found that a single injection of 75 million mesenchymal precursor cells was well tolerated and appeared to slow the onset of a number of the early changes at the knee that are common following knee injury and signify the development of knee osteoarthritis. Larger studies are warranted to confirm whether this treatment will slow or even prevent the development of knee osteoarthritis following early joint injuries," stated Professor Cicuttini.

Trial design and key findings were:

- A double-blind placebo-controlled trial randomized (2:1) 17 patients aged 18-40 who had undergone ACL reconstruction 4-6 weeks earlier to either a single intra-articular injection of 75 million allogeneic MPCs plus hyaluronic acid (MPC+HA, n=11) or hyaluronic acid (HA, n=6)

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alone. Pain, function and quality of life parameters were measured over 24 months using the composite of Knee Injury and Osteoarthritis Outcomes Scores (KOOS) and the Short Form Health Survey (SF-36, a 36-item, patient-reported survey of patient health). Joint space width reflecting cartilage thickness was measured by X-ray, and structural changes in the joint were measured by magnetic resonance imaging (MRI)

- Intra-articular MPC administration post–ACL reconstruction was well tolerated
- Patients who were treated with MPC+HA had significantly greater improvement in KOOS symptoms and pain at 18 months (both p=0.03) and 24 months (p=0.04 and 0.02, respectively), compared with HA controls
- MPC+HA treated patients showed greater improvements in KOOS pain, symptom, activities of daily living, and SF-36 bodily pain scores at 6,12 and 24 months (p<0.05), compared with the HA group
- The MPC+HA group had reduced medial and lateral tibiofemoral joint space narrowing (p<0.05), less tibial bone expansion (0.5% vs 4.0%, p=0.02 over 26 weeks), and a trend towards reduced tibial cartilage volume loss (0.7% vs -4.0%, p=0.10 over 26 weeks) than the HA controls
- The proposed mechanisms of action relevant to this indication include anti-inflammatory and immunomodulatory effects on the injury induced production of inflammatory mediators within joint tissues that cause the clinical symptoms and eventual joint destruction
- The study findings warrant further investigation of MPCs as a potential disease modifying agent for the treatment of early joint injuries

About Post-Traumatic Osteoarthritis

Osteoarthritis (OA) is a common and debilitating disease that affects approximately 27 million people in the United States[4]. Post-traumatic OA of the knee, hip and ankle accounts for approximately 5.6 million cases of OA in the United States[4]. There are approximately 250,000 cases of ACL tears annually in the USA, more than 70% of ACL reconstructions occur in patients under the age of 65 years[4,5]. Despite corrective ACL surgery, as many as 80% of knees post-ACL injury will progress to radiographic and symptomatic OA after 5 to 15 years[6]. Similar outcomes are seen with the approximately 1 million meniscal reconstruction procedures performed annually in the United States[7].

While existing treatments for post-traumatic OA predominantly focus on reducing pain and inflammation, none have been shown to restore joint structural changes or delay the onset and/or progression of OA.

ACL reconstruction is considered to be a cost-effective treatment strategy, however in the United States there is still a significant annual cost of about $2.8 billion attributable to the long-term development of OA[8]. An innovative therapy that demonstrates disease modifying effects on OA development or progression would be expected to deliver significant annual societal cost savings.

[1] https://www.cdc.gov/injury/erpo/icrc/2009/1-r49-ce001495-01.html

[2] Arthritis & Rheumatology; Early Knee Osteoarthritis Is Evident One Year Following Anterior Cruciate Ligament Reconstruction: A Magnetic Resonance Imaging Evaluation; Adam G. Gulvenor, et al; April 2015

[3] American Journal of Sports Medicine; The long-term consequence of anterior cruciate ligament and meniscus injuries;35:1756–69, Lohmander LS, Englund PM, Dahl LL, Roos EM.; 2007

[4]Thomas A, Hubbard-Turner T, Wikstrom E (2017) Epidemiology of Psttraumatic Osteoarthritis. Journal of Athletic Training 52(6): 491-496

[5] Abrams G, Frank R, Gupta A (2013) Trends in Meniscus Repair and Meniscectomy in the United States, 2005-2011. The American Journal of Sports Medicine: 1-7

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[6] Simon D, Mascarenhas R, Saltzman B (2015) The Relationship between Anterior Cruciate Ligament Injury and Osteoarthritis of the Knee. Advances in Orthopedics: 1-12
[7] Verdonk R, Verdonk P, Huysse W (2011) Tissue in Growth After Implantation of a Novel, Biodegradable Polyurethane Scaffold for Treatment of Partial Meniscal Lesions. The American Journal of Sports Medicine: 39:774-782.
[8] Mather R, Koenig L, Kocher M (2013) Societal and Economic Impact of Anterior Cruciate Ligament Tears. The Journal of Bone and Joint Surgery: 95:1751-9

About Mesoblast

Mesoblast Limited (ASX:MSB; Nasdaq:MESO) is a global leader in developing innovative cell-based medicines. The Company has leveraged its proprietary technology platform, which is based on specialized cells known as mesenchymal lineage adult stem cells, to establish a broad portfolio of late-stage product candidates. Mesoblast's allogeneic, 'off-the-shelf' cell product candidates target advanced stages of diseases with high, unmet medical needs including cardiovascular conditions, orthopedic disorders, immunologic and inflammatory disorders and oncologic/hematologic conditions. For more information, please visit www.mesoblast.com.

Forward-Looking Statements

This press release 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. 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. Forward- looking statements include, but are not limited to, statements about: the initiation, timing, progress and results of Mesoblast's preclinical and clinical studies, and Mesoblast's research and development programs; Mesoblast's ability to advance product candidates into, enroll and successfully complete, clinical studies, including multi-national clinical trials; Mesoblast's ability to advance its manufacturing capabilities; the timing or likelihood of regulatory filings and approvals, manufacturing activities and product marketing activities, if any; the commercialization of Mesoblast's product candidates, if approved; regulatory or public perceptions and market acceptance surrounding the use of stem-cell based therapies; the potential for Mesoblast's product candidates, if any are approved, to be withdrawn from the market due to patient adverse events or deaths; the potential benefits of strategic collaboration agreements and Mesoblast's ability to enter into and maintain established strategic collaborations; Mesoblast's ability to establish and maintain intellectual property on its product candidates and Mesoblast's ability to successfully defend these in cases of alleged infringement; the scope of protection Mesoblast is able to establish and maintain for intellectual property rights covering its product candidates and technology; estimates of Mesoblast's expenses, future revenues, capital requirements and its needs for additional financing; Mesoblast's financial performance; developments relating to Mesoblast's competitors and industry; and the pricing and reimbursement of Mesoblast's product candidates, if approved. You should read this press release together with our 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, and 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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