

MESOBLAST'S MESENCHYMAL PRECURSOR CELLS INDUCE FUNCTIONAL RECOVERY IN ISCHEMIC STROKE MODEL

Results Presented at Premier Neuroscience Conference

Melbourne, Australia; 11 November 2013: Regenerative medicine company Mesoblast Limited (ASX:MSB; USOTC:MBLTY) today announced positive preclinical trial results which demonstrated that its proprietary Mesenchymal Precursor Cells (MPCs) could improve functional recovery following a stroke. The results of the trial were presented at Neuroscience 2013, the world's largest international conference for neuroscience professionals currently being held in San Diego, United States.

The trial results showed that 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, MPCs increased neuronal activity and reduced the volume of infarct tissue.

In the study, 72 adult male nude rats underwent permanent right middle cerebral artery occlusion (MCAO) which resulted in focal right cerebral infarction and impairment of the contralateral sensorimotor function. Subjects were randomized into 6 groups of 12 animals, and injected intravenously with either media alone (controls) or 1 million human MPCs administered at 6, 12, 24 or 48 hours post-MCAO, or day 7 post-MCAO. A single dose of 1 million human MPCs administered intravenously at 6, 12, 24 or 48 hours post-MCAO significantly improved forelimb and hindlimb recovery compared to controls by day 30 ($p < 0.01$ for all doses). Body swing was similarly improved. Notably, administration of MPCs as late as 7 days post-MCAO significantly improved both forelimb recovery and body swing compared to controls ($p < 0.01$ for both parameters), to similar levels at day 30 as seen with earlier cell administration.

A sub-study was performed in 16 additional subjects using anatomical and functional magnetic resonance imaging (MRI) to evaluate neuronal activity and infarct volume, 7 days after a single intravenous injection of either 1 million MPCs or media was administered 24 hours post MCAO. Using blood oxygen level dependent (BOLD) functional MRI (fMRI) to determine neuronal activity following forepaw or hindpaw stimulation, MPC-treated animals showed a significant increase in neuronal activity compared with controls in both the infarct area ($p < 0.01$) and in the primary motor cortex on the side of the infarct ($p < 0.05$). Using anatomical MRI, MPC-treated animals had a 17% reduction in infarct volume compared with controls ($p < 0.05$). This effect was not seen in the overall group using post-mortem histologic assessment, which may be a less sensitive measurement.

According to the Center for Disease Control and Prevention, stroke is a leading cause of death in the United States and a leading cause of serious long-term disability. Stroke costs the United States 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. Ischemic strokes happen when blood clots block the blood vessels to the brain.

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Thrombolytic agents are approved for lysis of clots, but must be used within the first three hours after a stroke. As a result of this narrow therapeutic window only 5% of ischemic stroke victims in the United States receive treatment with thrombolytic agents. No other drugs are currently approved for the treatment of acute ischemic stroke.

Mesoblast Chief Executive Silviu Itescu said: "These exciting results suggest that our proprietary stem cells have the potential to be used within a broad and clinically meaningful therapeutic time window for neuroprotection and tissue repair after an ischemic stroke."

About Mesoblast

Mesoblast Limited (ASX:MSB; USOTC:MBLTY) is a world leader in the development of biologic products for the broad field of regenerative medicine. The Company's proprietary technologies include its Mesenchymal Precursor Cell and culture-expanded Mesenchymal Stem Cell technology platforms, Dental Pulp Stem Cells and expanded Hematopoietic Stem Cells. Mesoblast's allogeneic or 'off-the-shelf' regenerative medicine products focus on repair of damaged tissue and modulation of inflammatory responses in conditions with significant unmet medical needs. The lead product candidates use its mesenchymal lineage cells in four major and distinct areas - systemic inflammatory conditions, cardiovascular diseases, orthopedic diseases of the spine and oncology conditions. www.mesoblast.com

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