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SINGLE DOSE OF PROPRIETARY ADULT STEM CELLS REGENERATES DAMAGED PANCREAS AND REDUCES BLOOD GLUCOSE LEVELS IN DIABETES

Treatment for Diabetic Patients A Major New Objective

Key points:

- Single injection of proprietary adult stem cells resulted in increased blood insulin levels and sustained reduction in blood glucose levels
- After three weeks, stem cell treatment induced two-fold increase in total numbers of pancreatic islets, and increase in insulin-producing beta cells
- Results indicate pancreas may successfully be regenerated by proprietary adult stem cells
- Estimated 230 million people worldwide suffer from diabetes; massive commercial opportunity
- Clear path towards clinical trials

Melbourne, Australia; 18 December 2009: Australia's regenerative medicine company, Mesoblast Limited (ASX: MSB), today announced significant preclinical trial results showing that the proprietary adult stem cell platform could be an effective treatment for diabetes.

In a collaborative study performed with Dr Ravi Krishnan, senior scientist at the Queen Elizabeth Hospital in Adelaide, South Australia, a single dose of the patented human Mesenchymal Precursor Cells (MPCs) injected into mice with diabetes resulted in a significant increase in blood insulin levels and sustained reduction in blood glucose levels for the entire three-week period of follow-up. This was due to restoration in the damaged pancreas of the balance between insulin-producing beta cells, which reduce blood glucose, and glucagon-producing alpha cells, which increase blood glucose.

Leading international diabetes expert Professor Michael Horowitz, Director of the Endocrine and Metabolic Unit at The Royal Adelaide Hospital, who has reviewed the results said: "These data are very exciting, and clearly demonstrate the potential of using these unique adult stem cells in the treatment of patients with Type 2 diabetes".

Type 2 diabetes accounts for 90-95 per cent of the 230 million diabetics in the western world, and its prevalence is increasing at an alarming rate. Complications include heart disease, chronic kidney failure, blindness, nerve damage and lower extremity amputations. Injections of insulin are used only as a last resort in Type 2 diabetics because of the risk of lowering glucose levels too greatly and too rapidly (hypoglycemia). Newer treatment modalities for Type 2 diabetes aim to enhance the ability of pancreatic beta cells to produce more insulin in an effort to better control blood glucose.



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In the collaborative study, diabetes was induced by partial chemical destruction of the pancreas in 35 mice that were then randomised to receive either a single injection into the bloodstream of human MPCs or control. Three weeks later, MPC-treated diabetics had two-fold greater numbers of pancreatic islets than diabetic controls ($p=0.0012$), and a ratio of insulin-producing beta cells to glucagon-producing alpha cells which was 29% higher than in diabetic controls ($p=0.005$). MPC-treated diabetics demonstrated a 35% maximal reduction in blood glucose levels ($p=0.012$) and a 34% increase in blood insulin levels ($p=0.04$) compared with diabetic controls over the three weeks of follow-up. No subjects had reduction in glucose levels below normal, indicating that MPCs may have a safer profile than insulin injections with respect to risk of hypoglycemia.

"These results suggest that the MPCs enhanced endogenous pancreatic beta cell regeneration, resulting in safe and sustained augmentation of insulin secretion and reduction in blood glucose levels," Professor Horowitz added.

Mesoblast Executive Director, Professor Silviu Itescu, said: "The Company will move quickly towards the clinic to target what is termed the western world's largest healthcare epidemic.

"We believe there is clear proof of principle to use our patented cells for diabetes and we will work towards translating these results to humans as quickly as possible," he added.

About Mesoblast

Mesoblast Limited (ASX:MSB; USOTC:MBLTY) is committed to the development of novel treatments for orthopaedic conditions, including the rapid commercialisation of a unique adult stem cell technology aimed at the regeneration and repair of bone and cartilage. Our focus is to progress through clinical trials and international regulatory processes necessary to commercialise the technology in as short a timeframe as possible. Mesoblast has the worldwide exclusive rights for a series of patents and technologies developed over more than 10 years relating to the identification, extraction and culture of adult Mesenchymal Precursor Cells (MPCs). The Company has acquired 38.4% of Angioblast Systems Inc., an American company developing the platform MPC technology for the treatment of cardiac, vascular and eye diseases including repair and regeneration of blood vessels and heart muscle. Mesoblast and Angioblast are jointly funding and progressing the core technology. Mesoblast's strategy is to maximise shareholder value through both corporate partnerships and the rapid and successful completion of clinical milestones.

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