

CASE STUDY

HARNESSING STEM CELLS TO REPAIR BONE

Two leading researchers of the Centre for Stem Cell Research have been instrumental in developing a therapy that is likely to have a **significant impact in the treatment of spinal fusion, osteoarthritis, congestive heart failure, heart attacks, eye diseases, diabetes and bone repair.**

Professor Stan Gronthos and Professor Andrew Zannettino, based within SA Pathology, have conducted an innovative project which has led them to become co-inventors of a Mesenchymal Progenitor Cell (MPC) therapy that is now a step closer to the clinic after being commercialised by Mesoblast Ltd, a world leader in the development of regenerative medicine products.

The research has identified different mesenchymal stem cell (MSC) populations that live in adult bone marrow, peripheral fat and dental pulp tissue. These stem cells have the capacity to differentiate into connective tissue cell types and form the tissues from which they were initially derived.

The research formed the basis of the development of several patents encompassing the isolation and expansion technologies and use of different MSC preparations for various tissue engineering based applications.

"In mid 2010, the Australian Therapeutic Goods Administration issued a licence to our commercial partner, Mesoblast Ltd, approving the use of autologous MPC for the repair of skeletal tissues," says Professor Zannettino.

Under this licence, Mesoblast will provide doctors and hospitals across Australia with the manufactured MPC products.

"Mesoblast will initially target major bone repair markets, including long bone fractures after trauma, stress fractures following sporting injury, and vertebral fractures due to osteoporosis," says Professor Gronthos.

"The cells will be manufactured under an agreement between Mesoblast and the TGA-licensed contractor Cell Therapies Pty Ltd."

This research provides a significant leap forward in the treatment and regeneration of bone and joint conditions, an area that has traditionally been difficult to treat after significant damage or disease.

