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Thesis Title:

CHARACTERISATION OF MESENCHYMAL CELLS FROM OSTEOPHYTES IN OSTEOARTHRITIS

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Citation:

This thesis has identified and characterized a potential source of stem cells from osteophyte tissues obtained from diseased osteoarthritic environment and has potential clinical application for therapeutic stem cell based tissue regeneration. It has demonstrated that osteophyte derived mesenchymal stromal cells (oMSC) not only had similar properties to bone marrow derived mesenchymal stromal cells (bMSC) in the expression of antigen phenotype, differential potential and suppression of allo-immune response but had higher proliferative capacity and chondrogenic ability. When compared to bMSC, oMSC maintained a higher proliferative capacity due to a retained level of telomerase activity *in vitro*, which accounted for the relatively longer telomeres delaying growth arrest by replicative senescence. Furthermore, oMSC behavior in defects supported chondrogenesis, which implies that cells derived from regenerative tissues can be an alternative source of stem cells and have a potential clinical application for therapeutic stem cell based tissue regeneration.