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## DIFFERENTIATION OF HUMAN MESENCHYMAL STEM CELLS INTO MESANGIAL CELLS IN POST-GLOMERULAR INJURY MURINE MODEL

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**Aims:** Adult human bone marrow contains a population of mesenchymal stem cells (MSC) that contributes to the regeneration of tissues such as bone, cartilage, muscle, tendon, and fat. In recent years, it has been shown that functional stem cells exist in the adult bone marrow, and they can contribute to renal remodelling or reconstitution of injured renal glomeruli, especially mesangial cells. The purpose of this study is to examine the ability of MSC isolated from human bone marrow to differentiate into mesangial cells in glomerular injured athymic mice.

**Methods:** MSC were isolated from human bone marrow mononuclear cells based on plastic adherent properties and expanded in vitro in the culture medium. Human mesenchymal stem cells (hMSC) were characterised using microscopy, immunophenotyping, and their ability to differentiate into adipocytes, chondrocytes, and osteocytes. hMSC were then injected into athymic mice, which had induced glomerulonephropathy (GN).

**Results:** Test mice (induced GN and infused hMSC) were shown to have anti-human CD105(+) cells present in the kidneys and were also positive to anti-human desmin, a marker for mesangial cells. Furthermore, immunofluorescence assays also demonstrated that anti-human desmin(+) cells in the glomeruli of these test mice were in the proliferation stage, being positive to anti-human Ki-67.

**Conclusion:** These findings indicate that hMSC found in renal glomeruli differentiated into mesangial cells in vivo after glomerular injury occurred.