



# KIDNEY DISEASE

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## IN VITRO DIFFERENTIATION OF MESENCHYMAL STEM CELLS INTO MESANGIAL CELLS WHEN CO-CULTURED WITH INJURED MESANGIAL CELLS

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Mesangial cells are one of the three major cell types of the kidney glomerulus that provide physical support for the glomerular capillary lumen of the kidney. Loss of mesangial cells due to pathologic conditions, such as glomerulonephritis and diabetic nephropathy, can impair renal function. Mesenchymal stem cells (MSC) are attractive candidates for kidney repair therapy since they can enhance recovery and protect against kidney failure. MSC can differentiate into mesangial cells in vivo. We have investigated the ability of MSC to differentiate into mesangial cells in vitro; they were co-cultured with oxidant-injured mesangial cells before being analysed by flow cytometry and for contractility. MSC co-cultured with injured mesangial cells had a mesangial cell-like morphology and contracted in response to angiotensin II. They expressed CD54<sup>-</sup> CD62E<sup>+</sup> in direct contrast to the CD54<sup>+</sup> CD62E<sup>-</sup> of pure MSC. In conclusion, MSC can differentiate into mesangial cells in vitro when co-cultured with injured mesangial cells.