

LIST OF FIGURES

Figure	Page
2.1	Structure of articular cartilage 7
2.2	Chondrocytes in the pathogenesis of osteoarthritis 9
2.3	Isolation, expansion, and differentiation of MSCs 13
2.4	A schematic of the process of chondrogenesis 15
2.5	Multiple signaling pathways regulate the expression and activity of Sox9 during chondrogenesis 19
3.1	Characterization of hWJ-MSCs 54
3.2	Chondrocyte characterization by ICC 55
3.3	Gene expression analysis of chondrocyte by qPCR, <i>Sox9</i> , <i>Runx2</i> , <i>Col2a1</i> , <i>Col10a1</i> , <i>ACAN</i> and β - <i>Catenin</i> genes 56
3.4	Type X collagen protein expression analysis of chondrocyte differentiated cells on day 28 by immunoblot 57
4.1	Experimental design of cell transplantation 67
4.2	The cells stained with CFDA-SE fluorescent dye 70
4.3	The osteoarthritis scores of each group were examined by (A-E) India ink staining and (F) macro-scopic score 71
4.4	Cell tracking after transplantation 72
4.5	Histological examination by H&E staining 73
4.6	Histological examination by Safranin O staining 74
4.7	Cartilage damage scores based on the Mankin criteria 74
4.8	Immunohistochemistry for type II collagen 75
4.9	Immunoblot analysis after protein bands were isolated by gel electrophoresis 76
4.10	Intensity changes of type II collagen, type I collagen and MMP13 proteins in guinea pig cartilage and human cartilage with osteoarthritis 77