

P-24 Characterization of Human Multipotent Stem Cells Isolated from Second-trimester Amniotic Fluid

Kim J¹, Lee Y¹, Kim MR², Hwang KJ², Kim SK³, Cho DJ³, Kim H¹

¹*Department of Biotechnology, Seoul Women's University, Seoul, Korea,*

²*Department of OB/GYN, College of Medicine, Ajou University, Suwon, Korea,*

³*Department of OB/GYN, College of Medicine, Yonsei University, Seoul, Korea*

Background & Objectives: The purpose of this study was to isolate adult stem cells from amniotic fluid obtained by second-trimester amniocentesis.

Method: Mesenchymal stem cell (MSC)-like cells were obtained from amniotic fluid obtained by second-trimester amniocentesis. The phenotypic characteristics of these amniotic fluid-derived MSCs (AFMSCs) were examined using RT-PCR, immunocytochemistry and telomerase activity assay. To examine their differentiation potential, AFMSCs were cultured in specific induction medium for the osteogenesis, chondrogenesis, adipogenesis and neurogenesis. After culture, cell differentiation was assessed by Von Kossa, Oil red O, Alcian Blue and Neu N stainings.

Results: Human AFMSCs were successfully isolated and maintained through 27 passages. RT-PCR analyses of the AFMSC at 9th passage showed the prominent expression of Oct-4, SCF, vimentin, CK18 and BMP-4 genes. Immunocytochemical study after 17 passages demonstrated the distinct expression of collagen I, II, III, IV and XII, fibronectin, HCAM, ICAM-1, PECAM-1, VCAM-1, α -smooth muscle actin, desmin, vWF, TRA-1-60, SSEA-3 and -4. Results of the telomerase activity assay indicated that AFMSC at 5th passage possess the activity. AFMSC cultured in the specific differentiation induction medium exhibited positive staining with each stain, implying that they could differentiate into osteocyte, adipocytes, chondrocyte and neuronal cells under appropriate conditions.

Conclusions: Profiles of gene expression, protein localization and telomerase activity assay of human AFMSC showed typical features of known adult stem cells. Considering their multi-differentiation potential, human AFMSC could be an excellent alternative source for the human cell therapy, replacing MSC and other fetal stem cells.

P-25 Human Amnion-derived Cells Have Mesenchymal Stem/Progenitor Cell Potential

Kim J¹, Koog M¹, Rho WJ², Hwang KJ³, Kim H¹

¹*Department of Biotechnology, Seoul Women's University, Seoul, Korea,*

²*Dr. Roh's OB & GYN Clinic, Seoul, Korea,* ³*Department of OB/GYN,*

College of Medicine, Ajou University, Suwon, Korea

Background & Objectives: The aim of this study was to isolate adult stem cells from the human