Isolation and characterization of mesenchymal stem cells from amniotic fluids

Hyun Ju Lee[2], Jin Kim[2], So-Hee Kim[2] and Chang Hun Song[1,2]

[1]Department of Obstetrics and Gynecology, College of Medicine, Chosun Univ.

[2]JB Stem Cell Institute, Inc.

Mesenchymal stem cells (MSCs) represent a promising tool for new clinical concepts in supporting cellular therapy. Bone marrow (BM) was the first source reported to contain MSCs. However, for clinical use, BM may be detrimental due to the highly invasive donation procedure and the decline in MSC number and differentiation potential with increasing age. Recently, umbilical cord blood (UCB), attainable by a less invasive method, was introduced as an alternative source for MSCs. Also, discoveries of stem cell populations in amniotic fluid (AF) have postulated that the amniotic fluid is a promising alternative source of fetal stem cells for cellular therapy. In this study, We compared MSCs derived from these sources regarding morphology, expansion potential, differentiation capacity and immune phenotype. No significant differences concerning the morphology, immune phenotype and differentiation capacity of the MSCs derived from these sources were obvious. The results of this study suggest that amniotic fluid is an easily accessible, expandable source of mesenchymal stem cells and may be used in future cellular therapies.