

Establishment of Stem-like Cells from Human Umbilical Cord Vein

Seah Park¹, Kyung Suk Kim², Haekwon Kim¹, Byung Rok Do³,
Hyuck Chan Kwon², Hyun Ok Kim⁴, Jung Ae Im²

Department of Biotechnology, Seoul Women's University¹, Medical Research Center, Major Woman's Care Center², Biotechnology Research Institute, KTBiosys³, Department of Laboratory Medicine, Yonsei University⁴

Adult stem cells can make identical copies of themselves for long periods of time.

They also give rise to many differentiated mature cell types that have characteristic morphology and specialized function. Human adult stem cells are the attractive raw materials for the cell/tissue therapy, however, it is not easy to get from the adult tissues. In the present study, we tried to isolate a cell population derived from human umbilical cord vein which has been discarded after birth. The cells were isolated after treatment of the umbilical vein with collagenase or trypsin. After 3 days of culture, two kinds of cell populations were found consisting of adherent cells with endothelial cell-like and fibroblast-like morphology, respectively. When these cells were subcultured 12 times over a period of 3 months, almost cells appeared uniformly to exhibit fibroblastoid morphology which was different from that of mesenchymal stem cells obtained from human bone marrow. The results of RT-PCR analyses showed distinct expression of BMP-4, oct-4, and SCF genes but not of GATA, PAX-6 and Brachyury genes. On immunohistochemical staining, the cells were negative for the von Willebrand factor(vWF), alpha-smooth muscle actin and placental alkaline phosphatase. From these observations, it is suggested that stem-like cells might be present in human umbilical cord vein.

Key words) *Stem cell, Umbilical cord vein*