

METHOD FOR PREPARING MESENCHYMAL STEM CELLS FROM HUMAN
PLURIPOTENT STEM CELLS AND MESENCHYMAL STEM CELLS
PREPARED THEREBY

【ABSTRACT】

5 The present invention relates to a method for preparation of mesenchymal
stem cells from human pluripotent stem cells and, more particularly, to a method for
preparation of mesenchymal stem cells, wherein mesenchymal stem cells
differentiated from embryoid bodies of a certain size in a xeno-free and serum-free
environment are prepared, whereby the mesenchymal stem cells exhibit increased
10 safety and maintain their own characteristics for a long period of time. A method
for preparation of mesenchymal stem cells from human pluripotent stem cells
according to the present invention employs a feeder cell-free, xeno-free, and serum-
free culture environment to solve the problem of contamination with a foreign
animal-derived material and allow the preparation of highly safe mesenchymal stem
15 cells. In addition, the method utilizes spheroidal embryoid bodies to form mature
embryoid bodies uniform in shape and size, thereby improving the differentiation
efficiency to mesenchymal stem cells and exhibiting an exceptional effect of stably
maintaining mesenchymal stem cell characteristics even after a long-term subculture,
such as 20 or more passages, through which human pluripotent stem cell-derived
20 mesenchymal stem cells can be prepared in a large amount. Therefore, the
invention is advantageous for commercializing cell therapeutic agents superb in
safety and efficiency.