EMBRYONIC STEM CELLS: WHERE DO WE STAND AT THE MOMENT?

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Stem cells are functionally defined as cells that have the ability to self-replicate and generate differentiated cells. They can generate multiple differentiated cell types (multipotent or pluripotent) or produce one type of differentiated cells (unipotent) depending on the replication capacity and potency of stem cells. Today stem cells might have potential application in regenerative medicine, transplantation, treatment of autoimmune, chronic and progressive diseases, as well as disease modelling. Now we are faced with a dilemma between the two types of stem cells, which are more suitable for research and therapeutic use, which will be Embryonic Stem Cells (ESC) or Induced Pluripotent Stem Cells (iPSC)? ESCs represent the gold standard of pluripotency in vitro, which compares all other types of stem cells, but iPSC are more convenient in autologous transplants because of the avoidance of tissue rejection and without ethical concerns. The aim of this paper is presenting the most important characteristics of the ESCs which have therapeutic significance.


Key words: embryonic stem cells, legislation, therapy