9th Yazd International Congress and Student Award on Reproductive Medicine with 4th Congress of Reproductive Genetics

Key Lectures

K-16
Derivation of pluripotent cells from mouse spermatogonial stem cells (SSCs)

Azizi H.
Faculty of Biotechnology, Amol University of Special Modern Technologies, Amol, Iran.
Email: hosseinazizi1358@gmail.com

Although testis-derived embryonic stem cell-like (ES-like) cells have been obtained in several studies, the time window for the shift to pluripotency is not clear yet. Here we describe, that only during a special time window (41 until 125 days) after initiation of germline stem cell (GSCs) cultures from neonate and adult promoter-reporter Oct4-GFP transgenic mouse the spontaneous appearance of germline-derived pluripotent stem (gPS) cells from both neonate and adult GSCs occurred. The isolated and long-term cultured (more than one year) GSCs which were isolated by a morphology-based selection procedure expressed germ cells markers and exhibited a similar morphology with a high nucleus/cytoplasm ratio in comparison to undifferentiated spermatogonial stem cells (SSCs) in vivo. The generated gPS cells expressed pluripotency marker, in-vitro differentiated into all three germ layer lineages, formed complex teratoma after transplantation in SCID mice and produced chimeric mice. Although the exact mechanism of the development of gPS cells from GSCs is still unclear, this new information could provide an ideal strategy for scheduling natural conversion mechanisms of ES-like cells from mouse testis.