

Review on chemical generated pluripotency of stem cells and its applications

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Currently, stem cells and their applications in the clinic has triggered a great interest in the field of regenerative medicine. However, there are still many challenges that are awaiting a definitive solution, like scarcity of stem cell availability on a large scale, difficulty in controlling stem cell fate once reintroduced inside the body and their guided delivery to the site of injury. In this regard, recent technological advancements and scientific achievements in cellular reprogramming to produce induced pluripotent stem cells for more readily accessible and versatile cell types are a potentially very important breakthrough. However, the transgenic approach in such reprogramming has raised serious concerns related to safety, efficacy and feasibility of the applications and hence a complementary approach needs to be identified. In this regard, small molecule based reprogramming involving defined signaling pathways and significant epigenetic processes offers

powerful options for guided cellular trans-differentiation, manipulation of cellular fate and speedy reprogramming. This review is intended to discuss the applications of small molecules (pharmaceutical type chemicals) in promoting pluripotency. We also highlight the recent progress in a variety of applications of iPSCs (induced pluripotent stem cells) such as drug screening, disease modelling, toxicity analysis, etc.

Biography

Ila Tewari pursued her Master's Degree as a Microbiologist at Amity University, India. Later on she worked in a stem cell based industry on Autologous and Allogenic blood transplant XXXXXX and then started working at University of Malta as PhD student as well as Research Support Officer II where, she has continued her research. Currently, she is working in Department of Anatomy, Faculty of Medicine and Surgery at University of Malta.

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