Inducing iPSCs to escape the dish.

Journal: Cell Stem Cell

Publication Year: 2011

Authors: Bonnie Barrilleaux, Paul S Knoepfler

PubMed link: 21816362

Funding Grants: Molecular mechanisms governing hESC and iPS cell self-renewal and pluripotency

Public Summary:
Here we gave perspectives on how to translate iPS cell technology to the clinic by addressing the key roadblocks.

Scientific Abstract:
Induced pluripotent stem cells (iPSCs) hold great promise for autologous cell therapies, but significant roadblocks remain to translating iPSCs to the bedside. For example, concerns about the presumed autologous transplantation potential of iPSCs have been raised by a recent paper demonstrating that iPSC-derived teratomas were rejected by syngeneic hosts. Additionally, the reprogramming process can alter genomic and epigenomic states, so a key goal at this point is to determine the clinical relevance of these changes and minimize those that prove to be deleterious. Finally, thus far few studies have examined the efficacy and tumorigenicity of iPSCs in clinically relevant transplantation scenarios, an essential requirement for the FDA. We discuss potential solutions to these hurdles to provide a roadmap for iPSCs to "jump the dish" and become useful therapies.