Cite this as: Jing Zhao, Wen-jie Jiang, Chen Sun, Cong-zhe Hou, Xiao-mei Yang, Jian-gang Gao, 2013. Induced pluripotent stem cells: origins, applications, and future perspectives. *Journal of Zhejiang University-SCIENCE B (Biomedicine & Biotechnology)*, **14**(12):1059-1069. [doi:10.1631/jzus.B1300215]

Induced Pluripotent Stem Cells: Origins，Applications and Future Perspectives

诱导型多能干细胞：起源，应用和展望

Key words: Induced pluripotent stem cells, Origin, Peripheral blood cells, Application, Potential issues

关键词： 诱导型多能干细胞，起源，外周血细胞，应用，潜在问题

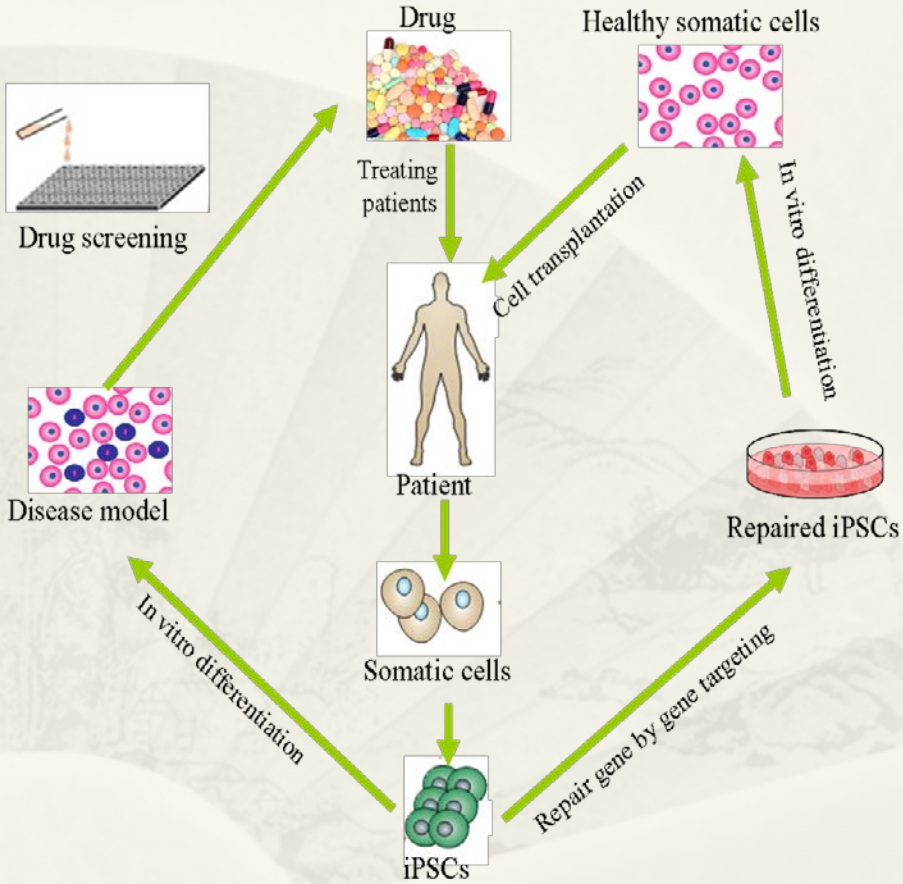
Generations of iPS Cells

诱导型多能干细胞的起源

- In 2006, Yamanaka *et al*. first reprogrammed mouse embryonic fibroblasts into ES cell-like cells called induced pluripotent stem (iPS) cells.
- In 2007, Yamanaka *et al*. and Thomson *et al*. independently reprogrammed human somatic cells to iPS cells.
- Recently, small-molecule compounds have been used to generate mouse iPS cells from somatic cells

Applications of iPS Cells
诱导型多能干细胞的应用

* Disease Modeling
  （疾病模型）
* Regenerative Medicine
  （再生医学）
* Drug Discovery
  （药物研发）



Future Perspectives
展望

- The whole area of iPS cells is a hot topic in biomedical research and is rapidly approaching its clinical utilization.
- The future clinical application of iPS cells needs a more comprehensive knowledge of the reprogramming process.
- Along with the improvement of iPS cell technology, clinical therapy based on iPS cells will be put on the agenda in the foreseeable future.