

# Differentiation of human pluripotent stem cells into mesodermal and ectodermal derivatives is independent of the type of isogenic reprogrammed somatic cells

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## Abstract

© 2017 Park-media, Ltd. Induced pluripotent stem cells (iPSCs) have the capacity to unlimitedly proliferate and differentiate into all types of somatic cells. This capacity makes them a valuable source of cells for research and clinical use. However, the type of cells to be reprogrammed, the selection of clones, and the various genetic manipulations during reprogramming may have an impact both on the properties of iPSCs and their differentiated derivatives. To assess this influence, we used isogenic lines of iPSCs obtained by reprogramming of three types of somatic cells differentiated from human embryonic stem cells. We showed that technical manipulations in vitro, such as cell sorting and selection of clones, did not lead to the bottleneck effect, and that isogenic iPSCs derived from different types of somatic cells did not differ in their ability to differentiate into the hematopoietic and neural directions. Thus, the type of somatic cells used for the generation of fully reprogrammed iPSCs is not important for the practical and scientific application of iPSCs.

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## Keywords

Hematopoiesis, Human embryonic stem cells, Induced pluripotent stem cells, Methylation, Neurons, Transcription

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