

Generation of human-induced pluripotent stem cells in the absence of exogenous Sox2.

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Public Summary:

Induced pluripotent stem cell technology has attracted enormous interest for potential application in regenerative medicine. Here, we report that a specific glycogen synthase kinase 3 (GSK-3) inhibitor, CHIR99021, can induce the reprogramming of mouse embryonic fibroblasts transduced by only two factors, Oct4 and Klf4. When combined with Parnate (also named tranylcypromine), an inhibitor of lysine-specific demethylase 1, CHIR99021 can cause the reprogramming of human primary keratinocyte transduced with the two factors, Oct4 and Klf4. To our knowledge, this is the first time that human iPS cells have been generated from somatic cells without exogenous Sox2 expression. Our studies suggest that the GSK-3 inhibitor might have a general application to replace transcription factors in both mouse and human reprogramming.

Scientific Abstract:

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