

## What's good for the mouse is good for the monkey: Skin cells reprogrammed into stem cells

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Scientists have successfully created the first induced pluripotent stem (iPS) cell lines from adult monkey skin cells. The research, published by Cell Press in the December issue of the journal *Cell Stem Cell*, demonstrates that the method of direct reprogramming is conserved among species and may be useful for creation of clinically valuable primate models for human diseases.

Although previous work has shown that induction of four key transcription factors can reprogram adult mouse and human skin cells into iPS cells, creation of iPS cells in other species has not been demonstrated. "We sought to generate monkey iPS cells from skin cells isolated an adult male rhesus macaque using the predicted monkey transcription factors OCT4, SOX2, KLF4 and c-MYC," explains Dr. Hongkui Deng from the Key Laboratory of Cell Proliferation and Differentiation at Peking University in Beijing, China.

Dr. Deng and colleagues used retroviruses expressing these four factors to infect adult monkey skin cells. This technique led to creation of cells which displayed multiple hallmarks of embryonic stem (ES) cells. Specifically, the cells exhibited physical characteristics associated with ES cells, expressed genes appropriate for ES cells and possessed the ability to develop into multiple types of differentiated cells. These results reveal that monkey iPS cells can be generated using the same four transcription factors that have been used to successfully create mouse



and human iPS cells.

The work has multiple exciting applications. "As the rhesus macaque is the most relevant primate model for most human diseases, highly efficient generation of monkey iPS cells would allow investigation of the treatment of various diseases in this model," offers Dr. Deng. "In addition, direct reprogramming with the four transcription factors could be a universal strategy for generating iPS cells in other species."

Source: Cell Press

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