

New way to make stem cells avoids risk of cancer

26 March 2009

A team of scientists has advanced stem cell research by finding a way to endow human skin cells with embryonic stem cell-like properties without inserting potentially problematic new genes into their DNA. The team was led by James A. Thomson, V.M.D., Ph.D., of the University of Wisconsin-Madison and supported in part by the National Institute of General Medical Sciences, a component of the National Institutes of Health.

This is not the first time that scientists have endowed differentiated cells like skin cells with the capacity to develop into any of the roughly 220 types of cells in the body, a process known as induced pluripotency. But it is the first time that they have done so without using viruses, which can insert potentially harmful genes into the cells' [genetic material](#) and trigger cancer.

Thomson's new method imports the necessary genes on a small circle of DNA known as a [plasmid](#). Over time, the plasmid disappears naturally from the [cell population](#), avoiding the danger posed by using viruses.

Scientists view pluripotent cells as invaluable to studies of normal and disease processes and to understanding the effects of certain drugs. In the future, doctors might be able to use such cells therapeutically to replace those affected by diseases such as Alzheimer's and Parkinson's or lost to [traumatic injuries](#).

More information: "[Human Induced Pluripotent Stem Cells Free of Vector and Transgene Sequences](#)" by Junying Yu, Kejin Hu, Kim Smuga-Otto, Shulan Tian, Ron Stewart, Igor I. Slukvin and James A. Thomson. The paper will appear online in *Science Express* on Thursday, March 26, 2009.

Source: NIH/National Institute of General Medical Sciences

APA citation: New way to make stem cells avoids risk of cancer (2009, March 26) retrieved 8 March 2021 from <https://medicalxpress.com/news/2009-03-stem-cells-cancer.html>

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