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## Mouse Skin Cells Reprogrammed to Act Like Embryonic Stem Cells

Functioning cardiac cells have been created from mouse skin cells reprogrammed to have the same unlimited differentiation characteristics of embryonic stem cells, say researchers at the University of California, Los Angeles.

This is the first study to show that induced pluripotent stem (iPS) cells, which don't involve the use of embryos or eggs, can be directed to develop into the three types of cardiovascular cells needed to repair the heart and blood vessels, the researchers said.

The finding could help lead to new treatments for heart attack, heart failure and atherosclerosis.

The UCLA team also differentiated the iPS cells into several types of blood cells, something that may one day help in treating blood diseases and in bone marrow transplantation.

The study was published online in the May 1 issue of *Stem Cells*.

"I believe iPS cells address many of the shortcomings of human embryonic stem cells and are the future of regenerative medicine," senior author Dr. Robb MacLellan, a researcher at the Eli and Edythe Broad Center of Regenerative Medicine and Stem Cell Research, said in a prepared statement.

"I'm hoping that these scientific findings are the first step towards one day developing new therapies that I can offer my patients. There are still many limitations with using iPS cells in clinical studies that we must overcome, but there are scientists in labs across the country working to address these issues right now," said MacLellan, an associate professor of cardiology and physiology.

While it's believed that iPS cells are very similar to embryonic stem cells, further research must be done to confirm the differentiation potential of iPS cells. This finding that iPS cells can become cardiovascular cells is an important step in that confirmation process.

"Theoretically, iPS cells are able to differentiate into 220 different cell types. For the first time, scientists from UCLA were able to induce the differentiation of mouse iPS cells into functional heart cells," Dr. Miodrag Stojkovic, co-editor of *Stem Cells*, said in a prepared statement.