

Scientists turn skin into blood (w/ Video)

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McMaster Stem Cell and Cancer Research Institute stem cell isolation expert, Marilyne Levadoux-Martin, operating the FACS Aria II, a high-speed cell sorter used to isolate human stem cells

(PhysOrg.com) -- In an important breakthrough, scientists at McMaster University have discovered how to make human blood from adult human skin.

The discovery, published in the prestigious science journal *Nature* today, could mean that in the foreseeable future people needing [blood](#) for surgery, [cancer treatment](#) or treatment of other blood conditions like anemia will be able to have blood created from a patch of their own skin to provide transfusions. Clinical trials could begin as soon as 2012.

Mick Bhatia, scientific director of McMaster's Stem Cell and Cancer Research Institute in the Michael G. DeGroot School of Medicine, and

his team of researchers have also shown that the conversion is direct. Making blood from skin does not require the middle step of changing a skin stem cell into a pluripotent stem cell that could make many other types of human [cells](#), then turning it into a blood stem cell.

"We have shown this works using human skin. We know how it works and believe we can even improve on the process," said Bhatia. "We'll now go on to work on developing other types of human cell types from skin, as we already have encouraging evidence."

The discovery was replicated several times over two years using human skin from both young and old people to prove it works for any age of person.

"The pioneering findings published today are the first to demonstrate that [human skin cells](#) can be directly converted into [blood cells](#), via a programming process that bypasses the pluripotent stage. Producing blood from a patient's own skin cells, has the potential of making [bone marrow transplant](#) HLA matching and paucity of donors a thing of the past," said Christine Williams, PhD, Director of Research in the Canadian Cancer Society Research Institute.

Provided by McMaster University

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