



Stem cell discovery hailed as milestone

By [Elizabeth Weise](#)

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Teams of scientists reported Tuesday that they've succeeded in reprogramming human skin cells so they behave like highly coveted embryonic stem cells. If the work overcomes hurdles, the breakthrough could benefit science without the controversy that has dogged stem cell research.

While these cells don't have every attribute of the infinitely reprogrammable stem cells from embryos, they also don't carry the moral quandary of those cells. Until now, such versatile stem cells could be obtained only by destroying an embryo, which has bogged down the research in a nasty scientific and political quagmire.

The work appeared online in two prestigious journals, *Cell* and *Science*. The *Cell* paper comes from a group led by Shinya Yamanaka of Kyoto University in Japan. The *Science* paper comes from a group led by Junying Yu and James Thomson at the University of Wisconsin-Madison. Five months ago, the Yamanaka group reported similar success with mouse cells, setting the stage for a worldwide effort to get the technique to work in human cells.

"It's a huge deal," said Rudolf Jaenisch, a scientist at the Whitehead Institute in Cambridge, Mass. "You have the proof of principle that you can do it."

Embryonic stem cells can become virtually any kind of cell in the body, offering the promise of replacement tissues to treat ailments such as diabetes and spinal cord injuries. But both groups of scientists say they don't yet know how close to true embryonic stem cells these new cell lines are.

One of the problems with the new technique is the use of retroviruses to get the skin cells to act like stem cells. Retroviruses can insert genetic material into the chromosome of cells but have been linked to cancer.

While the work represents a tremendous scientific milestone and "a new era for stem cells," it doesn't mean that the technique is ready for prime time, said Robert Lanza, chief science officer of Advanced Cell Technology, a company working to derive stem cells from cloned human embryos. "Bottom line: There are very serious hurdles left to overcome," he said. "It could still take years to get this to work in humans in a way that could be used clinically."

Still, news of the feat sparked huge interest, particularly among those who oppose using stem cells derived from human embryos.

White House press secretary Dana Perino issued a statement saying President Bush was pleased: "By avoiding techniques that destroy life, while vigorously supporting alternative approaches, President Bush is encouraging scientific advancement within ethical boundaries." In 2001, Bush limited federal funds to cell lines already in existence.

Others cautioned that the new techniques are merely one step on a long road.

"Because we cannot decide in advance which method will get us there first, and because the lives of these patients must be paramount, we should not gamble their lives on one or another method," said Irving Weissman, director of the Stanford University Institute for Stem Cell Biology and Regenerative Medicine.

Contributing: Associated Press