

STANFORD UNIVERSITY

Stanford Researchers Say New Stem Cell Method Has Promise

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Researchers from Wisconsin and Japan announced today they had reprogrammed adult human cells to act like embryonic stem cells, a discovery that researchers at Stanford University School of Medicine are calling a big step toward new therapies for disease.

The work marks the first time researchers have taken adult human cells and used them to create genetically identical stem cells that can then become a wide range of cell types. This technique eliminates the need to use human eggs and create embryos before harvesting the stem cells, overcoming what, to some people, is an ethically troubling aspect of the research.

“This is a truly wonderful discovery,” said Irving Weissman, MD, director of Stanford’s Institute for Stem Cell Biology and Regenerative Medicine.

Today’s news comes a week after researchers at the Oregon Health & Science University announced creating embryonic stem cells from adult primate cells using nuclear transfer, a technique that requires creating an embryo to extract genetically identical stem cells.

“Both methods give the promise that one can capture in a stem cell line the genetic diseases of the patients that donate the body cells,” said Weissman. Stem cells created from the cells of a person with multiple sclerosis, for example, could provide researchers with a way of understanding how that disease develops and eventually lead to new ways of preventing or treating the disease.

Cells that are genetically identical to a person could also be transplanted to treat a disease such as Alzheimer’s without triggering an immune reaction.

Both Weissman and Renee Reijo Pera, PhD, director of human embryonic stem cell research and education, say they intend to continue pursuing all avenues of embryonic stem cell research. “We should not gamble on which method will prove best because patients who may have a narrow window of time for therapies depend on us to use the method that will get us there faster and best,” Weissman said.

Reijo Pera added that for studying the earliest steps in the developing embryo, her particular focus, nuclear transfer is still the only option. The technique announced today generates stem cells but doesn’t mimic the first days of human development, an area of study that could lead to advances in treating infertility or preventing birth defects.

“There’s a lot of need to understand those earliest stages for women’s health and infertility,” she said.