

September 26, 2008

New way to make stem cells reported Method reduces risk of cancer, scientists say

By *CAROLYN Y. JOHNSON*

Harvard scientists yesterday reported a new way to turn adult cells into stem cells, without using harmful viruses that can cause cancer.

Using a type of virus employed in gene therapy to deliver genes to mouse cells, researchers were able to transform adult cells into embryonic-like stem cells - capable of developing into any cell in the body. That virus had not previously been used in stem cell production.

"A consequence of this is that you can now make mouse and human [stem] cells that are safer. They don't have genetic alterations, which in mouse models has been shown to be harmful, and cause cancer," said senior author Konrad Hochedlinger of Massachusetts General Hospital and Harvard University.

The work is the most recent in a flurry of discoveries aimed at advancing development of induced pluripotent stem cells, or iPS cells, which are seen as an alternative to the stem cells harvested from human embryos. Japanese researchers first reported two years ago that it was possible to create such cells by infecting adult cells with a cocktail of viruses carrying genes.

A main problem with iPS cells has been that their creation depended on the use of retroviruses, which can integrate into the genome and pose a risk of cancer. The paper, published online in the journal *Science*, offers one way around that problem by using a different type of virus.

Other researchers are actively searching for chemicals that could be substituted for the viruses and genes necessary to trigger the transition. At a Harvard Stem Cell Summit this week, a poster showed researchers have successfully replaced one of the genes used to reprogram cells with a chemical.

The iPS cells have been touted by embryonic stem cell opponents as evidence that research on human embryonic stem cells is unnecessary. Human embryonic stem cell research is compared to murder by critics. Scientists have responded by arguing that continued research on embryonic stem cells is essential because they may prove to be more useful than iPS cells.

Hochedlinger said that until now it was not clear whether the harmful viruses used in iPS cell production were necessary. The question now, he said, is whether iPS cells are as potent as embryonic stem cells.

© Copyright 2008 Globe Newspaper Company.