

---

6/6/07

**Note: Leading embryonic stem cell researcher Dr. Sean Morrison of the University of Michigan has reviewed the research papers issued this week saying researchers have been able to create mice embryonic stem cells using mice adult stem cells. His conclusion is that this development, while “exciting” in his words, does not mean states and the federal government should stop moving toward examining all forms of stem cell research, including embryonic stem cell research using embryos from in vitro clinics that would otherwise be discarded. Here is an excerpt of his views, putting the new developments in perspective:**

These are exciting papers that report that pluripotent cell lines can be derived from mouse fibroblasts by forcing the fibroblasts to express four genes associated with embryonic stem cells. This is a remarkable achievement that contributes important new insights to our understanding of pluripotency. Nonetheless, it would be premature to conclude that this represents a replacement for traditional embryonic stem cell research. First, it is not yet clear that this would work as well with human cells. Second, I worry about the stability of the reprogrammed fibroblast cell lines. One concern is that the forced over-expression of genes in cells increases the risk that these cells could turn into cancer cells. Indeed this was observed in the Yamanaka paper. A second concern is that the induced pluripotent state may be less stable over time when induced by the over-expression of these four genes. Additional work will be required to address this.

Despite these concerns, if this approach can be made to work with human cells it might represent an attractive alternative to nuclear transfer, at least for certain applications. Nuclear transfer is made difficult by its dependence on access to human eggs. The ability to transform fibroblasts from specific patients to a pluripotent state would achieve the same thing, if it works with adult human cells.

These are exciting and important results that continue to emphasize the need to perform research using both adult and embryonic stem cells, as well as alternative approaches for the derivation of pluripotent cell lines. It remains uncertain which approaches will be most fruitful for the development of new therapies. We owe it to those that may one day be helped by these therapies to use all of the weapons at our disposal in the fight against disease. That means not delaying research on embryonic stem cells that we know can be done today, in favor of potential future alternatives that may or may not work well in human cells. None of this work lessens the imperative to loosen federal and state restrictions that currently slow progress in this area.