

## **Scientist Hopeful About New Stem Cell Studies**

Method May Give Results Without Destroying Embryos

SALT LAKE CITY, Utah, JUNE 8, 2007 (Zenit.org).- New studies done by three independent teams of scientists show promise in producing embryonic-like stem cells without destroying embryos.

The studies, published Wednesday, use ordinary skin cells from mice and reprogram them to act like embryonic stem cells -- that is, capable of being manipulated into most any type of bodily tissue.

Maureen Condic, an associate professor of neurobiology and anatomy at the University of Utah School of Medicine, spoke with ZENIT about the functionality and ethics of these new studies.

"The finding that adult cells can be directly converted into the functional equivalents of embryonic stem cells is very promising," said Condic.

She added: "It is not yet known whether the procedure for generating iPSCs [induced pluripotent state cells] from mice will work in human cells, yet given how simple this procedure is, and how much we know about altering gene expression in cells, it is highly likely that we will be able to apply this same approach to human cells with minor modifications in the near future."

Condic explained an advantage is that "the authors have shown by stringent scientific criteria that the cells they have produced, induced pluripotent state cells, have the same properties as embryonic stem cells, yet they are produced from adult cells without cloning, without the use of oocytes and without the production of embryos."

Condic cautioned, however: "It is important to appreciate that the intrinsic problems associated with ESCs [embryonic stem cells], such as tumor formation, genetic instability, difficulty in controlling differentiation, will apply to iPSCs as well.

"These problems are the reasons I have always been, and continue to be, quite skeptical about the 'therapeutic' value of any ESC-like cell, including iPSCs."

### Circumventing concerns

"This procedure is not only easier than current methods of generating embryonic stem cell lines," Condic explained, "it circumvents the vast majority of ethical concerns raised by embryo-destructive research, human cloning and large-scale harvesting of human oocytes.

"Using this technique, it should be possible to produce human cell lines with all

the properties of embryonic stem cells that are genetically identical to patients, perfectly addressing the problems of immune rejection that have raised such concern for potential ESC-based therapies."

An added benefit, Condic underlined, is that "iPSC lines could also be easily generated from patients with specific genetic diseases and used to study these diseases in the laboratory."

"On a political front, however, iPSCs give scientists everything they have been asking for from human ESC research and so-called 'therapeutic cloning'; that is, pluripotent stem cells that are genetically matched to patients," she said.

Condic concluded that "iPSCs deliver these same features without ethical controversy and with considerably less technical difficulty than current procedures for isolating human ESC lines."

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