

In the news

REPROGRAMMING REVITALIZED

Somatic cell nuclear transfer has been used successfully for the first time to generate human pluripotent stem cells.

Although nuclear transfer has been successfully used to generate stem cells in other species, including mice and sheep, human oocytes manipulated through nuclear transfer arrested before the blastocyst stage. Dieter Egli and colleagues from the New York Stem Cell Foundation, USA, now report that this is because removal of the oocyte genome also depletes the cell of factors that the somatic nucleus cannot compensate for. By retaining the oocyte genome, they were able to bypass this block, allowing the cells to continue dividing until the blastocyst stage. Egli and his team could then isolate pluripotent stem cells from these blastocysts.

One limiting issue is that these cells are triploid. As commented by Egli, the key aim now is to “find a way of removing the genome of the oocyte without removing the function that it performs in terms of development.” (*The Independent*, 6 Oct 2011.) Importantly, the isolated stem cells were fully reprogrammed and did not retain signs of epigenetic memory, unlike induced pluripotent stem cells.

Because they are genetically abnormal, and the technique is inefficient, “these cells are not therapeutically relevant at the moment,” said Scott Noggle, first author in the study (*The New York Times*, 5 Oct 2011). However, the group hopes that further work will ultimately enable them to use this approach to generate patient-specific cells to treat debilitating diseases. Although there has been some concern regarding the ethics of paying women for their oocytes, Jan Helge Solbakk, a professor of medical ethics at the University of Oslo, noted in a related commentary in *Nature* that this is “the first step towards acknowledging women as genuine participants ... in the generation of new knowledge.”

Rachel David