In the news

THE RETURN OF ES CELLS

Human embryonic stem (ES) cells have been successfully generated using somatic cell nuclear transfer (SCNT).

Although once hailed as the future of regenerative medicine, past attempts to use SCNT to derive human ES cells had been unsuccessful, with embryos arresting by the eight-cell stage. And with the realization that somatic cells can be reprogrammed to induced pluripotent stem (iPS) cells, research shifted away from SCNT.

The team of Shoukhrat Mitalipov, Oregon Health and Science University, USA, tested various methods — including virus-induced fusion, electric shock and caffeine — of 'prompting' embryos generated by SCNT to progress to the blastocyst stage. Optimization of this protocol allowed them to extract ES cells from the blastocysts of non-human primates, and, eventually, from human donors. Human ES cells could then be induced to differentiate into distinct somatic cell types. "This is a really important advance," said Dieter Egli, from the New York Stem Cell Foundation, USA, whose laboratory had previously attempted to use SCNT to generate ES cells. "It's something that the field has been waiting for." (TIME, 15 May 2013.)

But how do these cells compare to human iPS cells, which have previously been criticized for not being fully reprogrammed? Mitalipov's team is now directly comparing SCNT-derived ES cells and iPS cells originating from the same donor. But according to Chris Mason, University College London, UK, whatever the result, the field is leaning towards iPS cell research, which "has got a lot of momentum behind it, a lot of funding and a lot of powerful people now." (bbc.co.uk, 15 May 2013.)

Of course, news of these results have sparked the controversy regarding the ethics of human cloning. But John Gearhart, University of Pennsylvania, USA, assured that "there is no intent to do reproductive cloning." (Washington Post, 15 May 2013.)

Rachel David