

Ethics watch

GOOD SCIENCE AND GOOD ETHICS: WHY WE SHOULD DISCOURAGE PAYMENT FOR EGGS FOR STEM CELL RESEARCH

Five years ago I published an article¹ in this journal in which I predicted that we would soon witness an exploitative global market in human eggs for stem cell research. That prophecy came one step nearer on 11 June this year, when the New York Stem Cell Foundation (NYSCF) ethics committee voted to allow payment for research eggs². Their rationale was that US federal law already allows payment for human ova used in fertility treatment, so why not for research purposes?

That argument rests on a loophole in the US Anatomical Gift Act of 1987, which generally forbids payment for organs but, in my opinion wrongly, exempts gametes — both eggs and sperm — as renewable tissue. Although sperm is renewable, it is generally accepted that eggs are not³. Egg sale for *in vitro* fertilization (IVF) is now widespread in the United States⁴, which makes it seem a 'normal' phenomenon to which the New York board could liken egg sale for research.

Human eggs are needed for only one type of stem cell research: somatic cell nuclear transfer (SCNT), in which an enucleated egg is fused with an adult somatic cell in the hope of producing a stem cell line that is tissue-matched to the donor of the somatic cell. This technique demands large quantities of human eggs. Over 2,200 eggs are now known to have been used by South Korea's Hwang Woo Suk in his vain attempt to produce tissue-matched cell lines⁵.

'Harvesting' large quantities of eggs requires shutting down a woman's menstrual cycle using a drug that can have serious side effects, followed by stimulation to produce unnatural numbers of eggs. This carries a risk of ovarian hyperstimulation syndrome, which can be fatal⁶. In the light of these risks and of the gargantuan number of eggs required, it has been argued that it is only fair to pay women who donate eggs for research. Proponents of payment argue that it is actually unjust and exploitative not to pay⁷.

Nevertheless, the US National Academies of Science guidelines state that "no payments beyond reimbursements, cash or in-kind, should be provided for donating oocytes for research purposes"⁸. Other US states with major stem cell research programmes, such as California, also ban payment for eggs used in research⁹. A European Union directive forbids the sale of eggs for IVF but omits eggs

for research, which was not a major issue when the directive was passed.

It is odd that the NYSCF board should choose this moment to opt for payment: induced pluripotent stem cells (iPSCs) — adult somatic cells that are reprogrammed into a pluripotent state — now seem to offer more promise than SCNT research. Because iPSCs are tissue-matched to their donor, they may yield, as was hoped for SCNT, cell lines that could serve as a personal 'spare-parts kit'. But iPSCs do not require women to undergo the dangerous process of donating eggs.

For this reason, President Obama's new guidelines for US National Institutes of Health funding will direct federal money into iPSC rather than SCNT research. These guidelines note that SCNT techniques "require women to donate oocytes, a procedure that has health and ethical implications"¹⁰. The bioethicist David Jones has said: "I think Obama's stand is very helpful, as he is both regarded as a champion of stem cell research ... and as someone with an ethical vision." (D. Jones, personal communication.) Recently the California Institute for Regenerative Medicine, one of the largest US state funders, also refused to fund SCNT proposals and channelled more resources into iPSCs instead¹¹. There might be ethical issues concerning iPSCs¹², but the process is not as risky or potentially exploitative as SCNT.

Payment for eggs used in research raises even greater issues of international justice than the existing phenomenon of 'reproductive tourism'. In contrast to eggs used for IVF, the genetic content of eggs used for SCNT research is immaterial, as the eggs are enucleated. Here, the NYSCF decision falls into the same potential trap as the 2006 International Society for Stem Cell Research guidelines, which oppose paying women who are already undergoing IVF to have some of their eggs diverted to research but do sanction payment for eggs that are expressly donated for research. These guidelines have been accused of setting up a two-tier system by protecting women who are already undergoing IVF — who are likely to be in developed countries — but leaving the door open for an international eggs-for-research market, which is more likely to exploit economically disadvantaged women in developing countries¹³.

The potential development of an exploitative global market is a genuine



concern, but my ethical qualms about payment for eggs are broader. I see payment for eggs — for either research or IVF — as putting women at unacceptable risk and as contributing to the commercialization of the human body⁴. Thanks to the development of iPSCs, however, it seems that we are now in the fortunate position of not having to choose between good science and good ethics.

As Jesse Reynolds of the Center for Genetics and Society has written: "After almost a decade of attempts in labs and debates in legislatures, cloning-based stem cell research [SCNT] is dying a quiet death due to its lack of progress, particularly compared to new methods of cellular reprogramming."¹⁴ Those who have opposed SCNT research on ethical grounds can no longer be branded as against scientific progress, and the dwindling band of researchers who favour it can no longer claim that we face a choice between that and no stem cell research at all. And my prophecy of an exploitative global market may not come true, which causes me no disquiet whatsoever.

Donna Dickenson
Emeritus Professor of Medical Ethics
and Humanities, Birkbeck College,
University of London, UK.
e-mail: d.dickenson@bristol.ac.uk

REFERENCES ¹Dickenson, D. The threatened trade in human ova. *Nature Rev. Genet.* **5**, 86 (2004) | ²Statement on the Compensation of Oocyte Donors. *New York State Stem Cell Science* [online], http://www.stemcell.ny.gov/docs/ESSCB_Statement_on_Compensation_of_Oocyte_Donors.pdf (2009) | ³Liu, Y. et al. Germline stem cells and neo-oogenesis in the adult human ovary. *Dev. Biol.* **306**, 112–120 (2007) | ⁴Dickenson, D. *Body Shopping: Converting Body Parts to Profit* (Oneworld, Oxford, 2009) | ⁵Hwang, W. S. et al. Patient-specific embryonic stem cells derived from human SCNT blastocysts. *Science* **308**, 1777–1783 (2005) | ⁶Rogers, L. Dying for a baby: the lethal risks of donating eggs. *Sunday Times* (2 Aug 2009) | ⁷Hyun, I. Fair payment or undue inducement? *Nature* **442**, 629–630 (2006) | ⁸Guidelines for Human Embryonic Stem Cell Research. *The National Academies* [online], <http://www.nap.edu/catalog/12260.html> (2008) | ⁹Dickenson, D. & Alkorta Irdiaz, I. Ova donation for research: an international comparative perspective. *Int. J. Fem. Approaches Bioeth.* **1**, 125–144 (2008) | ¹⁰Guidelines on Human Stem Cell Research. *National Institutes of Health* [online], <http://stemcells.nih.gov/policy/2009guidelines.htm> (2009) | ¹¹Wood, S., Jimenez, R. & Lee, J.-W. Dramatic changes in stem cell funding by the California Institute of Regenerative Medicine: implications for the future of stem cell research. *International Society for Stem Cell Research 7th Annual Meeting* [online], http://www.isscr.org/ScriptContent/ISSCR09_PB_FRIDAY.pdf (2009) | ¹²Hyun, I. Stem cells from skin cells: the ethical questions. *Hastings Cent. Rep.* **38**, 20–22 (2008) | ¹³Baylis, F. & McLeod, C. The stem cell debate continues — the buying and selling of eggs for research. *J. Med. Ethics* **33**, 726–731 (2007) | ¹⁴Reynolds, J. New York: OK to pay for eggs for stem cell research. *Biopolitical Times* [online], <http://www.biopoliticaltimes.org/article.php?id=4684> (2009)