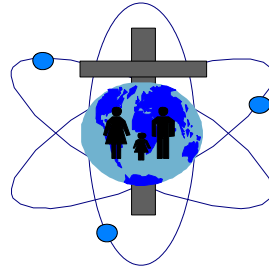


SOCIETY, RELIGION AND TECHNOLOGY PROJECT

Church of Scotland



Ethical Problems with Cloned Embryo Research

The first cloned human embryos were announced by Korean scientists in early 2004. Two UK proposals for research involving cloned embryos to create stem cells have received prominent media coverage. One is from the Newcastle Fertility Centre at Life; the other is expected from Professor Ian Wilmut's group at the Roslin Institute. Such research is formally legal in the UK but ethically controversial. The European Commission's ethical advisory group considered it premature and the European Parliament has voted against it. The Society, Religion and Technology Project has been at the forefront of ethical debates on cloning since 1996, because of its long standing engagement with researchers in the field at Roslin and elsewhere. This information sheet evaluates some of the issues.

Links to Reproductive Cloning

The stated aim of the Newcastle proposal is to improve the efficiency of making cloned human embryos for stem cell research. However, the same technology could equally be applied to reproductive human cloning. Although this is illegal in the UK and many other countries, certain maverick scientists have made much publicity of their intention to make and implant cloned embryos to create cloned babies, regardless of major risks and ethical objections. It seems unwise to allow research would make it easier for them to do so in some other country where there was little or no regulation. The UK bears a moral responsibility to the wider international community for the outcomes of its actions here. The UK regulatory authorities should refuse cloned embryo research applications at least until there is in place a United Nations agreement to ban reproductive human cloning. The Church of Scotland was among the first to call for such a ban in May 1997. A formal proposal was made in 2000 by France and Germany. It would command almost universal approval among the nations, but it is currently stalled by an alternative and controversial proposal to ban all therapeutic and research uses of human cloning, about which there are deep divisions.

Problems with 'Therapeutic' Cloning

The Newcastle research proposal cites as part of its justification that it could eventually lead to so-called therapeutic cloning to treat degenerative diseases. This is the idea of creating cloned embryos from a patient's own body cells. These cloned embryos would then be used to make replacement cells that are genetically matched, and so avoid the possibility of rejection of cells derived from IVF embryos. Substantial doubts have, however, been raised by leading UK scientists about the expense and practicability of applying therapeutic cloning in routine clinical practice. If the method were to benefit the wide range of diseases for which the case for therapeutic cloning was originally made, it would imply creating cloned embryos for perhaps hundreds of thousands of patients. This in turn might require millions of donated human eggs. The donation of intimate tissues by an invasive and sometimes painful procedure on such a scale is without precedent. It could also raise ethical concerns about the pressures that might be put on women to donate. It

unlikely to be practical for routine use. If only a few eggs were available, these therapies would be available only for a select few. This means that, despite the claims made by many about therapeutic cloning, it would not then be a medical breakthrough for humanity as a whole but only a technique for those rich enough to afford it. This concern was raised some years ago by the ethical advisory board of the Geron Corporation which has funded some of Roslin's research in this area, and it has yet to be satisfactorily answered. The case for cloned embryo research for therapy is thus dubious, compared with using stem cells from more readily available spare IVF embryos. In addition many who accept the use of surplus IVF embryos for stem cell research (since these would be destroyed anyway) object to the idea of creating of embryos solely for the purpose of destroying them to extract stem cells. This is seen as too instrumental a way of using human embryos.

Cloning using Cow Eggs and Human Cells

Some have suggested making cloned embryos from human cells and cow eggs. This raises as many ethical problems as it might solve. The Chief Medical Officer's committee on human embryo stem cell research and its ethical issues recommended in 2000 "The mixing of human adult (somatic) cells with the live eggs of any animal species should not be permitted." This view was endorsed by the UK Government who promised primary legislation and "calls upon bodies funding research to make it to clear that they will not fund or support research involving the creation of such hybrids."

Parthenogenetic Embryos

An alternative is the creation of parthenogenetic human embryos as sources of stem cells. This involves chemically inducing an unfertilised human egg cell to divide as if it was an embryo. This is also part of the Newcastle proposal. This is a novel and sensitive issue which was not debated in the Parliamentary debates in 2000/1 and has never been discussed much in public. Some argue that this would overcome the ethical problems with stem cells derived from normal human embryos because, for fundamental genetic reasons, these parthenogenetic embryos would not be able to produce viable human offspring. Others see this as a very dubious argument. Many would hold strong ethical objections to the use of a method which inevitably created human embryos which are so highly defective that they would not be viable. It could also be argued that the creation of inherently unstable and defective embryos is inconsistent with the concept that the embryo has a 'special status', upon which the current Human Fertilisation and Embryology Act was based.

Cloning Embryos for Research

The primary use of cloned human embryos is unlikely to be for routine therapeutic use to treat degenerative disease. The main uses might be in research. This is indeed the real scientific focus of the two proposals. It is to use cloning technology to make disease state cells, to study motor neuron disease in the Roslin proposal, and diabetes in the Newcastle case. Cloned embryos would be created from a patient's cells, and stem cells taken from them to generate a continuous supply of the diseased cells. Would this be justified? A House of Lords select committee concluded that cloned embryos "should not be created for research purposes unless there is a demonstrable and exceptional need which cannot be met by the use of surplus embryos." Speculative research is not enough justification. Are these exceptional cases? It is generally difficult to keep disease cells alive which are taken directly from patients, and some processes of extraction of cells are extremely difficult. The claim is that this would overcome such problems. These claims require a careful medical evaluation of the realistic expectations by comparison with other options. We should not resort to the drastic step of creating cloned human embryos unless it would achieve a major medical breakthrough that nothing else could hope to achieve, and that is by no means clear thus far.

For more about these or other ethical issues in technology, contact :

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