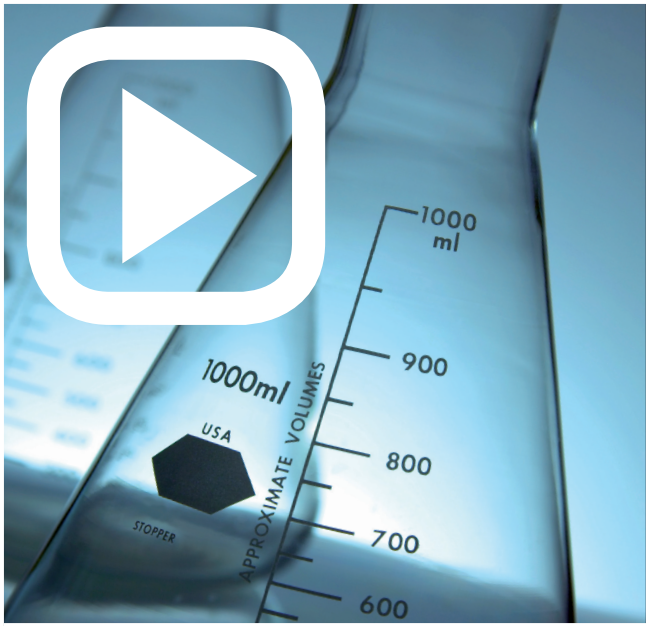

Questions

- If some forms of cloning may be useful in developing new medical treatments, should we be pursuing these techniques?
- Should we be concerned that techniques developed for 'therapeutic' cloning (i.e. the embryo is only allowed to develop for few days before being destroyed) may be unscrupulously used in 'reproductive' cloning, which leads to the birth of cloned babies?
- What about mixing human and animal embryonic material to produce cybrid embryos?
- Should we deliberately produce defective, non-viable human embryos in the lab, for use in experiments? Is this better than using normal embryos in research?

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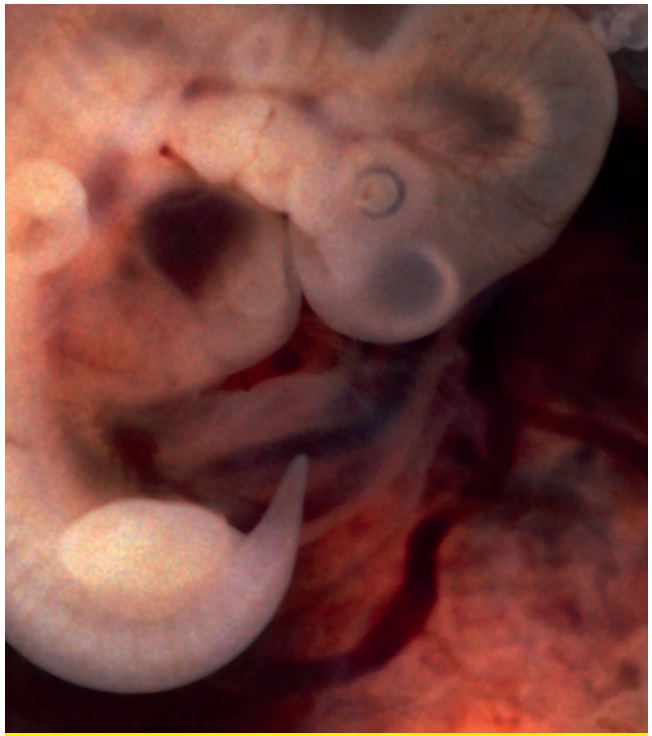
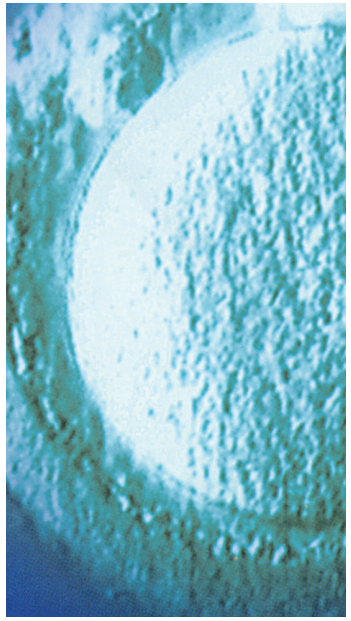
Cloned Embryo Research: Ethical Issues



Discussion Points

Cloned Embryo Research: Ethical Issues



Research using cloned human embryos is formally legal in the UK but remains ethically controversial. The European Commission's ethical advisory group considered the generation of cloned human embryos 'premature' and the European Parliament has voted against it. The Society, Religion and Technology (SRT) Project has been at the forefront of ethical debates on cloning since 1996, because of its long standing engagement with researchers in the field.

Use of Embryos

There are 2 main experimental uses of cloned embryos: therapeutic or reproductive. 'Therapeutic' cloning refers to the generation of early embryos with the intention that these should not develop beyond 14 days in order to use them, for example, for stem cell research. These cloned embryos are created from a patient's own body cells and could then be a source of stem cells to make genetically matched replacement cells therefore avoiding the possibility of rejection. Research proposals involving therapeutic cloning cite as part of their justification that they could eventually lead to treatments for degenerative diseases.

However, cloning techniques such as these could equally be applied to the other form of cloning, namely 'reproductive' human cloning, which is intended to result in the birth of a baby. This is illegal in the UK. The Church of Scotland was among the first to call for an international ban on human reproductive cloning in May 1997 and continues to do so.

Problems with 'Therapeutic' Cloning

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 a wide range of diseases it would require large numbers of donated human eggs in order to create hundreds of cloned embryos. The donation of intimate tissues by an invasive, painful and sometimes dangerous procedure on such a scale raises concerns about the pressures that might be put on women to donate eggs. Therapeutic cloning on such a scale seems impractical for routine use. On the other hand if therapeutic cloning is done in a reduced scale the knowledge derived would benefit only those rich enough to afford it. The case for cloned embryo research for therapy is thus dubious, compared with using stem cells from more readily available spare IVF embryo which may otherwise be destroyed.

Cloning using Cow Eggs and Human Cells

Due to the practical difficulties of obtaining suitable human eggs, it has been proposed that an alternative source of embryonic cells should be cytoplasmic hybrids, also know as cybrids. This technique involves making cloned embryos using genetic material from human cells and eggs from cows or other mammals. This practice also raises ethical problems. The Chief Medical Officer's committee on human embryo stem cell research recommended in 2000 that 'the mixing of human adult somatic cells with the live eggs of any animal species should not be permitted.' This view had previously been endorsed by the UK Government. However, following intense pressure from some members of the scientific community, the position of the government was reversed. The Human Fertilisation and Embryology Act 2008 allows the creation of human - animal cybrids.

Parthenogenetic Embryos

Another suggested 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 were an embryo. Some argue that this would overcome the ethical problems with stem cells derived from normal human embryos, because these parthenogenetic embryos would not be able to produce viable human offspring. Others see this as a very dubious argument. Many would hold strong objections to the use of a method which deliberately 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 Human Fertilisation and Embryology Act is based.

The General Assembly of the Church of Scotland in 2006 resolved to 'oppose the creation for research or therapy of parthenogenetic human embryos, animal-human hybrid or chimeric embryos, or human embryos that have been deliberately made non-viable'.

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, for example to make disease state cells, to study motor neuron disease or diabetes. 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 thus 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. Some researchers would claim that embryonic stem cell cloning techniques would overcome such problems. These claims require a careful medical evaluation of the realistic expectations by comparison with other options, such as induced pluripotent (IP) stem cells or umbilical cord blood cells. We would urge that care should be taken in any decisions which result in making cloned human embryos.