The Use of Embryonic Stem Cells
– *recent developments*

Pádraig Corkery

Over the past year there has been great interest, optimism and anxiety in many societies about developments in the use of embryonic stem cells (ES cells). Within the scientific community there has been debate for some time on the merits and ethical implications of using ES cells. The discussion entered the public domain in a decisive way during the past year when there were significant changes in legislation governing the use of such cells in Britain and the United States. These changes contributed to the ongoing debate on the ethical and public policy issues involved in this specific area of research and to the broader question on the limits, if any, to be placed on scientific research.[1]

Stem cells are versatile cells often described as master cells. They have the ability to be directed or manipulated into a whole range of other cells or tissues. These cells are said to be both immortal and pluripotent, i.e. they can renew themselves indefinitely and are capable of being the precursors to a variety of human cell types. They are found in adult bone marrow, umbilical cord, human placenta and the human embryo. This last source – the human embryo – is seen as a particularly potent and readily available source.

It is hoped that stem cell research will enable scientists to develop blood, tissue and indeed whole organs for people afflicted with a range of deadly illnesses including Parkinson's disease, Alzheimer's, spinal cord injuries and many more. In the debates in England and America the scientific community have presented stem cells as holding great promise for the future relief of human suffering. This was very evident in the debate in the House of Commons where several members suffering from serious disorders spoke in favour of the potential benefits to the human family of embryonic stem cell research.[2]

1. E.g. Symposium on Human Primordial Stem Cells, *Hastings Center Report* 29 (March/April 1991), pp. 30-48; John A. Robertson, 'Ethics and Policy in Embryonic Stem Cell Research' in *Kennedy Institute of Ethics Journal* 9 (June 1999), pp. 109-36.

Pádraig Corkery is a priest of the diocese of Cork and Ross. He lectures in Moral Theology at St Patrick's College, Maynooth.

The most radical development was in London where, in December 2001), the Human Fertilization and Embryology Act 1990[3] was amended to allow for the creation of embryos through nuclear cell displacement (cloning) and their subsequent destruction in order to secure ES cells. To facilitate research into the general area of fertility the original Act had allowed both for the use of 'surplus' embryos from IVF programmes (up until 14 days) and for the creation of embryos for the specific and sole purpose of research. The justification for this policy is based on the acceptance by the British authorities of the 'primitive streak' (c. 14 days after fertilization) as the decisive indicator of the presence of individual human life. The recent amendments broadened the area of permitted research to include now research on serious disease and on the development of the embryo. The cloning of human embryos and their subsequent destruction were deemed necessary for such research.

Nuclear cell displacement (cloning) involves the taking of the nucleus from an unfertilized ovum and its replacement by the nucleus of a donor adult cell. The ovum with its new nucleus is then stimulated and an embryo begins to grow. The resulting embryo will have the genetic makeup of the donor of the body cell. The embryo is then allowed to develop for several days before its stem cells are extracted thereby causing its destruction. These cells can be cultured and manipulated to become the cells needed for specific therapeutic purposes. It is envisaged that in the future scientists will be able to develop bloodlines, tissue, etc. from an embryonic clone of the donor who can of course become a recipient of those same tissues. This process it is hoped will reduce or eliminate the possibility of rejection due to genetic incompatibility. This type of cloning is called 'therapeutic'[4] and is distinguished from 'reproductive cloning' where the cloned embryo is placed in a human womb and brought to full term. Currently both EU and American policy prohibit human cloning for any and all purposes.[5]

2. For a brief account of the debate in the Commons and House of Lords see *Bulletin of Medical Ethics* 164 (January 2001), pp. 18-22.
3. See *The Tablet* 23/30 December 2000, p. 1776; 6 January 2001, p. 29; 20 January, p. 95; 27 January, p. 103, 129, for a chronicle of events.
4. The word 'therapeutic' is seen by many as a misnomer since it is not of benefit to the embryo and only yields benefits to other through its destruction. Alternative terms have been proposed: 'cloning for research/transplantation and cloning for birth'.
5. See, for example, Dr Peter Liese, MEP, 'Statement on Cloning' in *Catholic Medical Quarterly* (August 2000), pp. 13-15.

The second development occurred in the United States in August 2001 and involved a change in government policy on the use of federal funding for experiments/research that involve the destruction of embryos. Until this year federal funds were not available for such research. Through private funding such research did, however, take place. In August President Bush in a solemn nationwide address engaged the thorny ethical issues surrounding embryo destruction, human cloning and the use of stem cell lines developed by means of the destruction of embryos.[6] He announced a continuation of the ban on federal funding for research involving embryo destruction and the continued outlawing of human cloning. However he made federal funds available for research on stem cell lines already existing (as of 9 August 2001) that had been derived, through private funding, from the destruction of 'spare' embryos from IVF programmes. In the course of his address the President outlined clearly his personal stance and his reasons for allowing change. He professed belief in human life as a sacred gift from God and expressed concern about a culture that devalues life. He further argued that as President he had an important duty to foster respect for life. On the important issue of the status of the embryo he accepted that each embryo is unique 'with the unique genetic potential of an individual human being'. Finally, though he conceded that 'even the most noble ends do not justify any means', he decided to allow federal funding for these existing stem cell lines because, he reasoned, 'the life and death decision has already been made'.[7] Such a development, he argued, could bring substantial benefits to the human community without sanctioning or encouraging the further destruction of human embryos. He revealed that 'more than 60' of these stem cell lines already exist.

Though the policy changes in Britain and the USA have marked differences they both highlight some significant questions for society; at what stage do we recognize the dignity of human life?; is the relief of human suffering an absolute imperative?; how do we arrive at judgements in ethics?; is cloning an acceptable exercise of human creativity and stewardship?

CHURCH RESPONSE

The Catholic community has reflected over the past several decades on developments in science in general and bioethics in particular. In documents like *Donum vitae* the stance of the Church is clearly articulated. The general principles and insights

6. President Bush, 'Address on Federal Funding of Embryonic Stem-Cell Research' in *Origins* 31 (30 August 2001), pp. 213-215.
7. Ibid., p. 214.

of its vision can be summarized as: science should serve the good of humankind and especially promote and protect the dignity of the person and the common good of society; what is technically possible is not for that reason alone morally acceptable; a good end does not justify bad means; human life in all its stages of development should not be treated as a means to an end.[8]

ES cell research depends on embryo destruction. The question of the status of the embryo is consequently of central importance. Our response to that question will also have a decisive impact on how we look at other issues. This was the primary perspective of the Church in its response to these policy changes. A supporting argument loosely utilized the principle of material co-operation. I will deal with the former briefly since the stance of the Church is unambiguous and well documented. The implications of the latter principle I will tease out at greater length.

RESPECT FOR THE EMBRYO

Through the process of IVF we can now see life at its earliest stage and this inevitably and dramatically raises the question of the status of such life. Catholic teaching argues that human life is a continuum from fertilization to death and should be respected at each stage. In recent years the language of a 'consistent life-ethic' has become part of the Catholic contribution to public debate; we should be respectful of life at all stages of its journey. At fertilization a new reality comes into existence that is different from the ovum and sperm that created it. At this stage the genetic package that will develop into an individual person or persons is already present. Recent Church teaching is very clear on the implication of these scientific facts, 'the human being is to be respected and treated as a person from the moment of conception. and therefore from that same moment her/his rights as a person must be recognized ...'[9] Embryo destruction and non-therapeutic interventions on embryos are clearly an assault on the dignity of the embryo and in violation of its rights.[10] Predictably, Catholic bishops in the US and Britain in their public contributions argued that the deliberate destruction of embryos is gravely immoral irrespective of the good such destruction hopes to achieve.[11] They further argued that such destruction helped to create an ethos in society where human

8. *Donum vitae*, Introduction.
9. *Donum vitae*, Chapter 1, Question 1. See also submission to House of Lords by an ad hoc group of Christian theologians; David Jones, *et al*, 'On the Place of the Human Embryo within the Christian Tradition and the Theological Principles for Evaluating its Moral Status' in *Ethics & Medicine* 17 (Fall 2001), pp. 143-153.
10. *Evangelium vitae*, no. 63.
11. E.g. Cardinal Cormac Murphy-O'Conor, 'Human Life and Human Rights' in *Briefing* (16 May 2001), pp. 15-16.

life was being progressively devalued. In the language of *Evangelium vitae* such destruction both reflects and contributes to a 'culture of death'.

It should be noted, however, that the question of personhood is one that is not fixed in the Catholic tradition. As indicated above, *Donum vitae* did not take a position on the complex scientific and philosophical debate regarding the nature of human personhood but rather asserted that the human being should be treated as a person from the beginning of its existence. Rhetorically it asks, how could one be a human being without being a person?[12] Catholic theologian Norman Ford in a scholarly and oft-quoted work questioned whether full individual personal life is present as early as fertilization. He speculates that the appearance of the primitive streak – when the possibility of twinning no longer exists – could be a more reliable starting point. However, Ford also argues that since a doubt exists we are morally obliged to err on the side of caution; treat the embryo as a person – and therefore a bearer of rights including the right to life – from fertilization.[13]

ASSOCIATING WITH THE WRONGDOING OF OTHERS

Given that we live in an imperfect and sinful world the issue of our coming into contact with the wrongdoing of others is as old as life itself. Everyday life generates a host of ready examples: working in a clinic that provides abortion; having diplomatic/sporting links with an evil system like apartheid; the amalgamation of Catholic healthcare facilities with other facilities that provide services contrary to Catholic teaching; handling stolen goods etc. Moral theology has reflected on this reality using the principle of co-operation and the duty to avoid scandal. Recently this form of moral analysis has been applied to the contemporary struggle against HIV infection.[14]

Some authors highlighted different levels of co-operation by drawing upon three examples: the accomplice, the hostage and the taxpayer. Each of these scenarios reveals in an instructive way different dimensions of this moral problem: intention, freedom and distance from the immoral act. The accomplice shares the intention of the principal wrongdoer, the freedom of the hostage is seriously compromised and the taxpayer's involvement in immoral actions (e.g. State-funded euthanasia or abortion) is very remote. The theological tradition distinguished between formal and material co-operation. Formal co-operation is where one shares in the intention of the wrongdoer and is, clearly, always wrong. Material co-operation involves associating with the wrong act of another without having the evil intention of the wrongdoer. Obviously there are many different ways in which we can so co-operate. Moralists identified different levels of material co-operation: mediate, immediate, proximate or remote. These categories and distinctions were created in order to measure both the 'quality' of the co-operating act and its 'distance' from the immoral act. The basic insight is that we should avoid co-operating in the evil actions of others; any involvement needs justification and the closer the co-operating action is to the immoral act the greater the need for justification.[15]

With the production of stem cell lines from embryo destruction at least three kinds of co-operation are evident: the co-operation of the State in providing funding, the co-operation of scientists; the co-operation of those who will benefit through receiving tissue, blood etc from this source. These three different ways of associating with the evil of embryo destruction have been the subject of reflection by the Catholic community and others.

THE PROVISION OF FUNDING

American Catholic bishops welcomed the significant status attached to the embryo by President Bush and lauded his stance on embryo destruction and human cloning. However, they regretted his move on federal funding because, in their analysis, it condoned and gave support to the evil of embryo destruction.[16] Some explicitly invoked the principle of co-operation while others used it implicitly while also drawing on a range of others arguments. Though it was acknowledged that neither President Bush nor his government carried out or approved of the embryo destruction their provision of funds was judged to be an unacceptable proximate material co-operation in others' wrongdoing.[17] In their

12. *Donum vitae*, Chapter 1, Question 1; *Evangelium vitae*, par. 60.
13. Norman Ford, 'We don't have to clone' in *The Tablet* (9 December 2000), p. 1672; 'The Human Embryo as Person in Catholic Teaching' in *The National Catholic Bioethics Quarterly* 1 (Summer 2001), pp. 155-60. For a more detailed study see his *When Did I Begin?* (Cambridge University Press, 1991).
14. Kieran Cronin, 'Harm Reduction and Drug Use' in *The Furrow* 52 (March 2001), pp. 154-63; James Keenan and Jon Fuller, 'Condoms, Catholics and HIV/AIDS Prevention' in *The Furrow* 52 (September 2001), pp. 459-67; Keenan and James (ed.), *Catholic Ethicists on HIV/AIDS Prevention* (Continuum, 2000), Section 5: 'Using the Principle of Co-operation', pp. 177-211.
15. Benedict Ashley and Kevin O'Rourke, *Health Care Ethics: A Theological Analysis* 4th ed. (Georgetown University Press, 1997), pp. 193-99; Helen Watt, *Life and Death in Healthcare Ethics* (Routledge, 2000), Chapter 6; Thomas O'Donnell, *Medicine and Christian Morality* 3rd ed. (Alba House, 1996), pp. 34-48.
16. For the statements of a range of American bishops see *Origins* 31 (30 August 2001), pp. 205-12.
17. E.g. Bishop D'Arcy, *Origins* 31 (30 August 2001), p. 208; Bishop O'Malley, *Origins* 31 (30 August 2001), p. 209.

argument the source of the stem cells is morally significant and can't be ignored; it is a morally tainted source that should be avoided. Providing funding will encourage the further destruction of embryonic life by scientists and contribute to the continued erosion of respect for life. Furthermore they predicted that the limits President Bush attempted to set with regard to the further destruction of human embryos would be impossible to maintain.

This could be described as a 'common sense' approach; if we believe that embryo destruction is an abuse of life then any involvement that could be seen to deny that moral claim should be avoided. The provision of federal funding legitimates and gives credibility to the practice of destroying embryos for research purposes. It helps remove the ethical taboo that surrounded such research in the past. The linking of the deliberate destruction of embryos to what could be life-affirming research could also make an objective debate on embryo destruction *per se* more difficult to secure. Finally, it could be argued that the American administration's commitment to promoting respect for life loses credibility and lacks consistency through the provision of this funding.

THE CO-OPERATION OF SCIENTISTS RESEARCHERS

This is not the first time that this type of co-operation has been reflected on by the believing community. Over the past decade there has been a prolonged debate on the use of fetal tissue from abortions for research purposes. It has been argued that abortions happen without the help or approval of the researchers; that the fetal tissue is going to be discarded anyway; and that research on such tissue will bring great good to the human community. Such a use, it is argued, is a sensible and creative response to the tragedy of elective abortions.

Many moralists and Church documents[18] have argued against such co-operation. It is explicitly dealt with in the recently published Directives for Catholic Healthcare Institutions: 'Catholic health care institutions should not make use of human tissue obtained by direct abortions even for research and therapeutic purposes.'[19] The arguments presented are similar to those marshalled against the provision of funding. Abortion is an ongoing reality in society and one's co-operation with the practice would bestow on it a credibility and respectability. It could reasonably be

18. E.g. Peter Cataldo, 'The debate on fetal tissue research' in *Communicating the Catholic Vision of Life*, Russell Smith (ed.) (Pope John Center, 1993), pp. 81-90.

19. United Stales Conference of Catholic Bishops, *Ethical and Religious Directives for Catholic Health Care Services* 4th ed. (2001), Directive 66. See also. no. 45.

interpreted to indicate one's approval of or indifference to the act of abortion. At the very least it compromise one's witness in the public domain on the issue of abortion and the respect due to embryonic life. This could be the source of scandal leading others to view abortion as morally acceptable. Finally, it has been argued that the euphoria surrounding hoped-for benefits from fetal research could contribute to an increase in abortions.

These arguments can also be applied to the role of the scientist working on stem cells obtained through the deliberate destruction of the embryo.[20] An additional argument is that unlike fetal tissue from abortion some embryos are created solely for research purposes. They are created as a means to an end. The role of the scientist/researcher is indispensable and their refusal to co-operate could focus creativity and energy on utilizing alternative sources of stem cells.

BENEFITING FROM EMBRYONIC STEM CELL RESEARCH

In the near future it is possible that the stem cell lines developed using ES cells will provide substantial benefits to people suffering from a range of serious disorders.

This future probability raises questions for those who see embryo destruction as immoral. Would it be consistent with their moral stance to benefit as a recipient of blood etc? This dilemma has been discussed in the past in relation to the use of fetal tissue from procured abortion to treat Parkinson's disease[21] and the use of a vaccine developed from an aborted fetus. Do these cases imply our complicity in or approval of the original act? Or are they a sensible and creative use of tissue that would otherwise be discarded. In a more general way it has been noted that we all have benefited from the evil acts of others. Two examples are cited; the knowledge gained in the fields of hypothermia, from the Nazi experiments on prisoners; and radiation treatment, from the use of nuclear bombs against Japan. Surely, it is argued, our benefiting from such knowledge does not imply our approval of the original acts? Nor could we be seen to be encouraging similar horrors in the future. How then should we view benefiting from ES cell research?

The vaccine case is instructive and helps to identify differences and key distinctions between the examples given above. In 1994 the Department of Health in Britain decided to vaccinate five- to

20. Pontifical Academy for Life, *Declaration on the Production and the Scientific and Therapeutic Use of Human Embryonic Stem Cells* (CTS, 2000), p. 10. Here the language of 'proximate material co-operation' is used.

21. Julie Clague, 'Abortion and the Use of Foetal Tissue in Research and Treatment: What is the Connection?' in *Ethics in Crisis?*, John Scally (ed.) (Veritas, 1997), pp. 33-42.

sixteen-year-olds in schools against both measles and rubella. Controversy arose when it was revealed that the rubella vaccine had been developed using the lung tissue of a fetus aborted in the 1970s. Many parents worried about the moral implications of consenting to the vaccination of their children in such circumstances. Would agreeing to vaccination imply their approval or indifference to abortion? Would it contribute to an ethos that saw fetal tissue as disposable or as a means to an end?

In their statement on the issue Church leaders argued that though the source of the vaccine was morally problematic there was 'no general obligation to refuse permission for the vaccination to be given'.[22] They suggested that consenting to the vaccine did not condone abortion nor amount to encouraging further abortions. Consequently, parents were free to give the vaccine to their children. How did the Catholic leaders arrive at this conclusion? In the first place they argued that the fetus was not aborted in order to develop the vaccine. Rather, the decision to have an abortion was taken for independent reasons. Secondly they argued that it was a once-off occurrence; the ongoing production of the vaccine did not require any further abortions since the cultured cells reproduce themselves. Thirdly the taking of the vaccine had substantial benefits for the individual and for society as a whole. Finally, the vaccine was the only one available. On this basis they argued that parents could (rather than should) have their children inoculated. Church leaders did encourage the Government to develop a vaccine from another source so as to avoid future controversy. The Church also recognized that refusal of the vaccine could provide a prophetic voice in a society that that did not see abortion as a significant moral issue. Catholic parents and schools exhibited a variety of responses.[23]

Does this case and the response to it by the Catholic Church in Britain cast any light on the one under discussion? It would seem to me that there are two morally significant differences between these cases that could have a bearing on one's analysis. Firstly, embryos are deliberately destroyed for the specific purpose of taking their stem cells. In Britain they will also be specifically cloned for that purpose. This was not so in the vaccine case. Second, embryo destruction for research purposes is an ongoing practice in both Britain and the USA. The practice is supported by a

22. Briefing Paper, 'Consenting to Vaccination for Rubella' in *Briefing* 24 (3 November 1994), pp. 6-8. See also Guild of Catholic Doctors, 'Use of Fetal Cell Lines in Vaccine Production' in *Catholic Medical Quarterly* 14 (November 1994), pp. 26-28.
23. *The Tablet* 248 (29 October 1994), p. 1393; *The Tablet* 248 (5 November 1994), pp. 1423-4.

philosophy that sees the pre-implanted embryo as disposable tissue to be used to bring benefit to others. For these reasons benefiting from such work could credibly be seen as condoning and encouraging the practice. Successfully treating people from this source could also bestow on embryo destruction a lifesaving aura and further contribute to a culture where the embryo is seen as a means to an end and deserving of little respect. Benefiting in this way could also morally damage the recipient? while physically healing her/him, by dulling his/her sensitivity to the moral claims of the embryo.

Finally in both countries the bishops and others strongly argued that recent findings make embryo cloning and destruction unnecessary. Adult stem cells and those in placenta/umbilical cord now appear to be as versatile as ES cells.[24] Critics appeal to an impressive collection of new scientific literature that views the harvesting of stem cells from these sources as carrying great potential.[25] President Bush in pledging 250 million dollars for further research using these sources acknowledged both their potential and that their use does not 'involve the same moral dilemma'.[26] This availability of alternative sources is also morally significant if not morally decisive.

It seems to me that these are very powerful arguments against benefiting from ES cell therapies. The ongoing nature of embryo destruction and the availability of other sources of stem cells are morally decisive facts. The past two decades have witnessed a progressive erosion of respect for the embryo. We have gone rapidly from embryo freezing to experimentation to cloning. Cooperating with such destructive procedures can only encourage the viewing of the embryo as devoid of intrinsic value. It acquires significance through being 'wanted' or 'useful'. This surely has to be contrary to the stance of someone who views the embryo as possessing an inalienable dignity. On the other hand a refusal to avail of the benefits could help challenge and renew contemporary culture by raising its awareness of the issues involved. Such actions could be truly prophetic.

These recent developments raise some profound questions for

24. E.g. *Briefing* (13 December 2000), pp. 114-15, and 17 January 2001, pp. 113-14; Pontifical Academy for Life, *Declaration on the Production and the Scientific and Therapeutic Use of Human Embryonic Stem Cells* (Catholic Truth Society, 2000), pp. 6-8; Richard M. Doerflinger, 'The Ethics of Funding ES Cell Research: A Catholic Viewpoint' in *Kennedy Institute of Ethics Journal* 9 (1999), pp. 137-50, at 143-5.
25. Secretariat for Pro-Life Activities, United States Conference of Catholic Bishops, 'Scientific Experts Agree: Embryonic Stem Cells are Unnecessary for Medical Progress' at www.nccbuscc.org/prolife/issues/bioethic/fact401.htm
26. Bush, *Origins*, p. 214.

society about how we view human life in the early stage of its development. At another level – ultimately maybe more significant – it raises questions about our attitude to scientific 'progress'. How do we evaluate such progress? Ought we to identify progress with good ends without reflecting on the means used? Has the good end of relieving human suffering been elevated to a 'supreme imperative' that justifies every means?[27] Here the wisdom of the Christian tradition has a lot to contribute. It cautions us against simplistically identifying 'progress' in the domain of science with human flourishing. It urges us to evaluate scientific proposals by their impact on individual and communal well being. It encourages us to have a sense of awe, respect and wonder for human life at all stages. It proposes that actions in pursuit of good ends may not be in harmony with human dignity and the moral law. It invites us to embrace a model of responsible stewardship with regard to the use of our knowledge and creativity. These insights should act as a brake to an uncritical acceptance of all scientific proposals as both inevitable and for our good.

27. Gilbert Milaender, 'The Point of a Ban: Or, How to Think About Stem Cell Research' in *Hastings Center Report* 31 (2001), pp. 9-16.