



2006

Making Decisions about Embryonic Stem Cell Research

M. Therese Lysaught

Loyola University Chicago, mlysaught@luc.edu

Follow this and additional works at: https://ecommons.luc.edu/ips_facpubs



Part of the [Bioethics and Medical Ethics Commons](#), and the [Religion Commons](#)

Recommended Citation

Lysaught, M. Therese. Making Decisions about Embryonic Stem Cell Research. *Making Health Care Decisions: A Catholic Guide*, , : 19-36, 2006. Retrieved from Loyola eCommons, Institute of Pastoral Studies: Faculty Publications and Other Works,

This Book Chapter is brought to you for free and open access by the Faculty Publications and Other Works by Department at Loyola eCommons. It has been accepted for inclusion in Institute of Pastoral Studies: Faculty Publications and Other Works by an authorized administrator of Loyola eCommons. For more information, please contact ecommons@luc.edu.



This work is licensed under a [Creative Commons Attribution-Noncommercial-No Derivative Works 3.0 License](#).
© 2006 Ron Hamel.

Making Decisions about Embryonic Stem Cell Research

M. Therese Lysaught, PhD

The controversy over human embryonic stem cell research (HESCR) has raged, now, for seven years with no sign of abating. Legislative initiatives crowd state ballots. Human cloning moves forward with proposals for international research consortia. Promises, accusations, hope, and hype are bandied about in the press. Positions seem intractably staked out, with little hope of resolution.

How are faithful Catholics to navigate this rapidly changing scientific and legislative landscape? This chapter is designed to help with that challenge. I begin by providing a brief background on stem cells. I then review the debate on one of the central issues—the moral status of the human embryo and then discuss other ethical considerations that must be taken into account in assessing claims about HESCR in the media and in decisions about federal and state legislative initiatives. While these are currently the main issues, another critical question could emerge if therapies are eventually developed from HESCR. Patients may one day be faced with a decision about whether to use such therapies. This, too, I will consider.

Stem Cells—Embryonic and Otherwise

Human Embryonic Stem Cells

What *is* a stem cell? Stem cells form in the earliest stages of human development after a fertilized egg begins to divide. After seven or eight divisions, the egg is known as a blastocyst—a sphere made up of two types of cells. One type forms a well-defined outer layer destined to become the placenta and the remaining cells cluster together off to one side of the blastocyst. These cells are all the same. That is, they have not started to “differentiate” or become the different tissues that make up the human body and that will eventually develop into a fetus. These “undifferentiated” cells are human embryonic stem cells.

The controversy around human embryonic stem cells began in November 1998 (though researchers have been working with embryonic stem cells from different mammals since 1981) when two researchers—John Gearhart at Johns Hopkins University and James Thompson at the University of Wisconsin—announced that they had figured out how to obtain human embryonic stem cells and make them live and grow in their labs for up to nine months. Thompson derived his cells from week-old human embryos produced by in vitro fertilization. Gearhart isolated his from fetuses aborted at five to nine weeks (Actually, the cells isolated by Gearhart are technically called embryonic germ cells. They are precursors of sperm and egg cells and are very similar to stem cells.) Both Thompson and Gearhart demonstrated that human embryonic stem cells (and germ cells) could be directed to “differentiate” into the three basic types of embryonic tissue and, from there, into any of the over two hundred types of cells in the human body.

Because they can develop into any type of tissue in the human body, human embryonic stem cells, it is argued, have potential to provide significant scientific and medical benefits. Scientifically,

these cells would be ideal for studying human embryonic development, particularly developmental disorders. Medical researchers also anticipate a number of clinical applications. They imagine the possibility of growing organs to use for transplantation as well as tissue to replace damaged tissue, potentially providing therapies for diseases like Parkinson's, juvenile diabetes, Alzheimer's, congestive heart failure, spinal cord injury, arthritis, muscular dystrophy, kidney disease, liver disease, and more. These cells could also be used for testing pharmaceuticals and other chemicals to see if they are toxic or effective.

Cloning

In the process described above, stem cells are obtained from embryos created by "in vitro fertilization" (also known as IVF). These embryos are either specifically created for research or, more frequently, are obtained from fertility clinics. In the latter situation, the embryos are created by couples facing reproductive obstacles who desire to have children. Most often the IVF process results in more embryos than can be implanted, so some are "left over." Many researchers see these "surplus" IVF embryos as a rich source of stem cells.

When used for pharmaceutical testing or studying human development, the source of the stem cells is not terribly important. For purposes of potential therapeutic application, however, the source can be critical. With stem cells as with any other type of tissue or organ transplantation, rejection can occur. Consequently, much of the interest has shifted to cloning as a source of stem cells. Cloning, it is argued, would provide human embryonic stem cells tailored to individual patients, thereby eliminating the risk of tissue rejection.

Cloning is now often referred to as "somatic cell nuclear transfer," abbreviated SCNT. To make a clone, researchers must obtain

an ovum and remove the nucleus (the center of the cell where most of the genes reside). Then a cell (for example, a skin cell) is taken from the body of a different adult, in this case the patient. Since it comes from the patient's body, it is referred to as a "somatic" cell (*somatic* meaning "body"). The nucleus of this skin cell is also removed and then injected or "transferred" into the enucleated ovum. The ovum is then stimulated with an electrical charge, chemicals, and hormones, and the materials from the two different cells fuse. The ovum now has a full complement of genes and it begins to act like it has been fertilized. It begins to divide and grow and become an embryo.

At this point in the cloning process, two things could happen. The embryo could be implanted into the uterus of a woman and brought to term. The President's Council on Bioethics names this process "cloning to produce children." Alternatively, the embryo could be used as a source of stem cells that would be an exact genetic match to the tissue of the patient who donated the skin cell. Therefore, if these stem cells could be used to grow tissues or organs or derive other therapies, the products generated from the stem cells would not be rejected by the patient. The President's Council names this process "cloning for biomedical research." The President's Council prefers these two phrases over those more commonly heard in the media—particularly, "reproductive cloning and therapeutic cloning"—which they believe mask any attempt to "solve moral questions by artful redefinition."

Adult Stem Cells

Embryos are not the only source of stem cells. Although somewhat more difficult to locate and isolate, stem cells are found in all tissues in the human body—in the liver, bone marrow, brain, and so on. Stem cells, as noted earlier, give rise to all these different tissues. But when they do, reservoirs of undifferentiated stem cells remain in

order to replenish tissue over our lifetime and to repair damage to tissue when it occurs. These stem cells can be culled out of the various tissues in which they reside and then cultivated and used for therapeutic purposes. Although they are found in infants as well, these cells are referred to as “adult stem cells.”

Adult stem cells have been used therapeutically for over forty years. What used to be referred to as a “bone marrow transplant” is now referred to as a “stem cell transplant,” because the therapeutic agent in the transplant consists in stem cells in the bone marrow. The therapeutic potential of adult stem cells has also been demonstrated in the treatment of other diseases, including diabetes, advanced kidney cancer, heart disease, and more. Many clinical trials are currently underway to assess the therapeutic effectiveness of adult stem cells against a variety of conditions. That adult stem cell research has advanced to and through the stage of clinical trials is highly significant.

The flexibility of adult stem cells is as yet unclear. Until recently, it was believed that adult stem cells were limited in their ability to be transformed into any type of tissue in the body. It was believed that they were too specialized—for example, blood-forming stem cells could only form blood cells; liver stem cells could only form liver cells, and so on. As more research has been conducted on adult stem cells, however, it appears that they may be far more flexible than previously thought. Adult stem cells offer patients the same advantage as that proposed for cloning—they are an exact genetic match to the patient, eliminating the risk of rejection.

Stem Cells from Umbilical Cord Blood

One final source of stem cells is umbilical cord blood. The blood in the umbilical cord and placenta is unique because it contains large numbers of blood-forming stem cells. For almost twenty years, cord blood has been used in lieu of bone marrow in what is now

recognized to be stem cell transplants, as noted above. Cord blood banks have grown over time, recruiting expectant mothers to donate their baby's umbilical cord blood for research and transplantation. Since the advent of interest in human embryonic stem cells, the stem cells from cord blood are being studied in a new way as an alternative source of stem cells for developing treatments for life-threatening diseases.

With almost four million babies born every year in the U.S. alone, cord blood represents an extraordinary resource for obtaining stem cells. Again, as in the case of cloning, these stem cells would be an exact genetic match to the donor (the baby), but could also be used to treat nonrelated patients. Cord blood banks are currently growing, nationally and internationally.

The Moral Status of the Embryo

The debate on the morality of HESCR centers, of course, on the destruction of human embryos. For many who consider embryos to be living human beings, this in and of itself raises insurmountable moral barriers to this type of research. Others, however, view embryos differently. Four primary positions have emerged on this question.

Embryos Are Not Human Life

A first position denies that the blastocyst qualifies as "human" life. Some view the blastocyst as simply human tissue, a cluster of cells, insufficiently organized to qualify as a "living being." Others argue that the mode of origination makes a difference. Since, in the case of in vitro fertilization and especially SCNT (somatic cell nuclear transfer—cloning), the natural process of human fertilization is bypassed, the blastocyst or embryo should not be considered the same as other embryos. SCNT, rather than creating a new human

life, simply “extends and expands the donor’s cell mass” and should therefore be seen as an extension of the donor to be used as she or he wishes. Often, the products of these technological processes are referred to as “clonates” or “recombinant embryos.” Thus, if the embryo is simply human tissue or is relocated into a different category of identity, the moral question simply goes away. As the President’s Council noted, however, one should always exercise caution in the face of new language.

Embryos Are Not Human Persons

A second position grants that the blastocyst qualifies as human life but argues that because it lacks certain characteristics (most often, consciousness and self-awareness), it does not count as a human *person*. Embryos may certainly have the *potential* to become human persons, it is argued, but since that potential is not yet realized, they cannot yet be accorded the same respect due a person and do not have the rights of a person.

Similarly, some Catholic moral theologians argue that the blastocyst is too undeveloped to be counted as a human person. Before it implants (ten to fourteen days after fertilization), a blastocyst is still open to the possibility of splitting in two—in other words, of becoming twins. As long as a blastocyst is open to this possibility, an important precondition of personal identity—namely, individuality—is not yet established. Thus, they argue that the blastocyst cannot be considered a human person and therefore, although it deserves “respect,” it does not deserve the level of respect that must be accorded to embryos that have been implanted (rarely is there any specification of what such “respect” concretely entails). Therefore, embryos can potentially be used or treated in ways that other human beings who have attained the status of “persons” cannot.

Human Life Versus Human Life

A third position theoretically accepts that human embryos might rightly be considered living human beings but then takes a utilitarian line of reasoning. Typically it weighs the loss of a minimal number of human embryos against the “millions” (the number often given) of human lives that could potentially be saved or helped should HESCR and cloning bear therapeutic fruit. This position emerges especially in relation to the fate of “surplus” IVF embryos. Many argue that since these embryos are going to be discarded anyway, they should be used for research and the development of therapies that could (theoretically) relieve the suffering of other human beings. The moral benefits of the research, they argue, outweigh the moral costs.

Many proposals put forward in favor of HESCR almost universally draw the line at fourteen days. But importantly, once those arguments are deemed acceptable—namely, that embryos are not “persons” because they lack some characteristic—then that line becomes quite fragile. What is to prevent that line from being extended into the fetal or even preterm stages if it were found that cells at those stages are more usable for therapies? How will one hold the line against this type of argumentation if one has admitted its acceptability elsewhere, especially against the overriding imperative of relieving suffering?

Embryos Are Living Human Subjects

A fourth position, one that shapes official Catholic teaching, argues that blastocysts and embryos are indeed living human subjects with a right to life whose dignity is to be respected from fertilization to death. This position holds that at conception a unique individual is created, one with a unique genetic endowment that organizes and guides the expression of both its shared human identity and its own individual character. That which gives it its own unique identity is

already “realized” in its genetic makeup. This position is radically egalitarian, seeing each human life equal in worth and dignity to other human life, regardless of one’s social, intellectual, or physical condition. Moreover, it highlights the fundamental Christian conviction captured in the important principle of the “preferential option for the poor”—that we are to provide *greater* protections toward those who are weak, vulnerable, and not self-sufficient, not less. Thus, research that destroys human embryos is gravely immoral, regardless of the positive outcomes or the intention to help others.

Further Moral Considerations

The concern for the dignity of the human person does not exhaust the moral analysis. Rather, it interfaces with other moral considerations that further express the Church’s commitment to human life and dignity. I shall now consider some of these.

The Church’s Commitment to Healing and Research

The Catholic Church has long been at the forefront of the human obligation to heal and care for the sick. From the gospels onward, healing has been recognized as something central to the activity of Christ, to the presence of God in the world, and therefore to the work of the Church and to the meaning of Christian discipleship. This commitment is embodied in the extensive network of Catholic hospitals and health care-related facilities worldwide.

Moreover, the Church has long supported and promoted scientific research for the benefit of humanity through various Vatican offices that focus on questions of science and technology as well as through the extensive network of Catholic colleges, universities, and medical schools around the globe. While the Church has traditionally encouraged investigation in the fields of medicine and biology, with the goal of curing diseases and improving the quality of life for

all, it does maintain that such research and clinical care must be respectful of the dignity of the human being.

Thus, faith and rigorous science and medicine are not mutually exclusive. Nonetheless, pursuit of healing and research must be situated within a broader moral framework that can direct these tools toward the common good. Without this, they become ends-in-themselves, a form of idolatry. The Church's position on HESCR, therefore, must be situated within the broader context of its longstanding and ongoing commitment to quality medical care and rigorous research.

Risks of Harm

In evaluating any new, experimental interventions one must also consider the balance between the probable benefit versus probable harm. But this must be done with care. As we have seen, a utilitarian view suggests that the harm done to embryos is outweighed by the potential benefit to those stricken with diseases. Here the burdens or harms fall on one population (the embryos that are "sacrificed") and the benefits accrue to another population (future patients). History has recognized the dangers of calculating harm and benefit in this way. Generally, harms are permitted to fall on populations that lack power or voice, while the benefits accrue to those most similar to the ones making the calculation.

Furthermore, given the probability that therapeutic applications, if they occur at all, are likely to take three to five decades to develop, the harm/benefit analysis is unbalanced. The "harms" (if one counts the destruction of human embryos as a serious moral consideration) are real harms being incurred now, while the possible benefits remain future and hypothetical. They may well never be realized. Those who are sensitive to the issue of who bears the harms—a serious justice issue and one which does not occur with adult stem cells—would counsel against HESCR.

Profits and Products

Over the past thirty years or so, biotech research has come to be fueled much more by profits and commercialization than by altruistic motives. Consequently, no HESCR initiative can be assessed apart from considerations of the commodification and commercialization of human tissue—that is, of turning human body parts into products to be traded, objects to be bought and sold.

Interestingly, much of the controversy over HESCR since 1998 has concerned funding, particularly the use of federal funds, that is, tax-payer dollars. As with all new biotech developments, one must ask who stands to profit? Profitability is clearly a primary driving force behind this research. The company that funded Thomson's and Gearhart's work (Geron), for example, now holds an exclusive license on their techniques. Those who wish to develop stem cells for research or potential therapies have to pay Geron a fee. Typically, with each new step of research along the way, there is a rush to patent, even when the research is publicly funded. Ironically, those who "donate" the "raw materials" (eggs and sperm) to make cloned embryos or those who donate their "surplus" IVF embryos cannot be paid (though egg donors can be compensated for their "inconvenience"). Apart from the profit motive and the related commercialization of human tissues is the issue of commodification. Most of the legislative efforts that have been advanced in favor of cloning propose that the manufacture of embryos as material for research or therapy be overseen by the FDA, thereby classifying human embryos as marketable "biological products." What does such language assume and convey? How is our understanding of nascent human life—as well as the rest of human life—transformed when we change our terms and begin speaking of embryos as "products"?

If we assume that HESCR or cloning for research actually becomes clinically useful, providing benefits to "millions" of patients as is often promised, the process of creation (whether cloned or

created through IVF), destruction, and trading of nascent human life would need to be institutionalized in a systematic and large-scale manner. Human lives would by necessity become products of a manufacturing technique. How would this affect the dignity of the human person broadly speaking? Would it be possible to treat one embodiment of human life in this manner without it affecting how we view human life as a whole? That HESCR is so deeply implicated in the profit motive and commodification raises serious questions for its impact on the dignity of human life in general and, therefore, on the common good.

Social Justice

The Catholic social justice tradition raises another set of questions, as Joseph Cardinal Bernardin reminds us, “life” issues and social justice issues are parts of a single piece. While not unique to stem cell research, one must always consider the deep contradiction in our culture, that is, when so many resources are mustered to gain funding for one particular initiative—one that may take decades to bear fruit—while we lack the political will to make basic, real therapies available to people who need them now.

In November 2004, the people of California passed a proposition to fund embryonic stem cell research with a three billion dollar bond issue that will actually cost them six billion dollars in principal and interest. Yet seven million Californians and forty-five million Americans have no health insurance coverage. Twelve million children in the U.S. live in poverty. Worldwide, twenty-eight thousand children per day—over ten million children per year—die from preventable diseases. One person dies every six seconds from a disease for which we have vaccines. Is it just to redirect resources of this magnitude away from real needs that could be met now with readily available resources to fund a line of research that might never bear fruit? Against the claim of proponents of HESCR that it will

one day relieve enormous human suffering stands a sea of real, immediate human suffering that could easily be addressed with readily available interventions. Moreover, should HESCR ever bear therapeutic fruit, will these same children who are dying in the millions, these same people who lack access to vaccines or drugs, have access to high-tech therapies developed from HESCR or cloned embryos? Probably not. We must ask: Is HESCR or human cloning the best place to invest if economic resources are limited? What will go unfunded so that HESCR can move forward?

A second social justice question concerns the source of the raw materials for this research. IVF and human cloning require human eggs. Current legislation requires that embryos and ova be “donated” for research. Women cannot be paid for them, though they can be compensated (approximately \$2,400) for the “inconvenience” egg donation entails, which is considerable. With the goal being to maximize efficiency and harvest as many eggs as possible from each round, is there a risk that women might be prescribed excessive doses of fertility drugs so that they can produce more eggs?

In addition, were HESCR or cloning to bear therapeutic fruit, there will be a large-scale need for ova. It is not farfetched to imagine that underprivileged women in the U.S. or abroad might find the “compensation” offered for egg donation hard to resist. And should egg harvesting go “off shore,” as has so much industrial production in recent years, it is likely that any safeguards that are in place in the U.S. will be pushed aside and any compensation offered will mirror the dollar a day that foreign workers make in free-trade zones. It is extremely difficult to enforce ethical guidelines in the face of the overwhelming pressure to create results, to fulfill the scientific imperative. These social justice questions should raise some of the most critical (though unfortunately often overlooked) concerns for the practice of HESCR.

The Use of Therapies Derived from Human Embryonic Stem Cells

One final question must be asked. In the event that human embryonic stem cell research or cloning bear therapeutic fruit, would it be morally licit for a Catholic to use those therapies? If, in other words, one has a therapy derived using means considered to be immoral by the Church, is the use of that therapy then likewise considered morally problematic?

Appropriation and Complicity

The answer to this question will depend in large part on the mode and infrastructure of production of such therapies. While patients in these cases might not be directly or even indirectly involved with the wrongdoing itself, what moral judgment can be offered about those who knowingly “appropriate” the outcomes of evil actions? If someone were to give you a pile of money that you knew had been robbed from a bank, would you not be “ratifying” the wrong done if you kept and used it? Would the use of therapies, especially the regular use of therapies in a chronic condition, render one complicit in some way? When I benefit over and over again from a wrong while simply ignoring the wrong itself, do I entrench myself in an established relationship with that wrong whether I approve of it or not?

Within the Catholic tradition, levels of complicity are determined in part by the degree of distance one can achieve between one’s own action and the wrongdoing. Such distance can be achieved in a number of ways. One is time. If two actions are separated by a significant amount of time, the later one may be justifiable or, at least, the moral taint may be minimized. A second is the degree of separation or the number of steps intervening between a present act and a prior act. A third is whether or not the original evil act or practice is ongoing. A fourth is whether refusal to participate in a

set of practices due to their link with prior evil would, if practiced broadly, effectively unravel the social fabric and be detrimental to the common good.

Given the current status of stem cell research, it is doubtful whether one could establish sufficient distance between any therapies and the destruction of embryos. Researchers continue to develop new stem cell lines. Furthermore, if therapies are ever developed, their utilization would fuel the ongoing practice of stem cell derivation; it would create a demand, and given the probable high cost of these interventions, it would likewise create a market. Indeed, it would require and create an industrial-level institutionalization of the destruction of embryos, thereby encouraging, providing a supportive alliance, or even lending legitimacy to the destruction of human life based on the premise of healing. The only reason for destroying the embryos is to gain the stem cells and there would be few intervening steps between the embryo and the therapeutically applied tissues.

Some argue that to shun this research will undercut the common good by preventing the development of therapies that could benefit large numbers of people. At this juncture, the benefits are theoretical and will most likely not be produced for decades, if at all. Many an embryo will be sacrificed from which no good will come. If the goods are not immediate, there remains the question of alternatives. Given the promise of adult stem cells and cord blood, the active pursuit of these alternatives would not only avoid the issue of complicity entirely but would provide a powerful counter-practice that would largely render moot the topic at hand.

Conclusion

One positive outcome of the debate over HESCR that emerged in 2005 is that some scientists have been earnestly looking for alternative ways to develop embryonic stem cells without destroying human life. Some are doing this simply because they do not want their work to be caught up in controversy. Others are doing it because they care deeply about respecting human life. Within the past year, two possibilities have been put forward. One proposes to limit current pre-implantation genetic techniques in order to make possible the remove of a single stem cell from an embryo without destroying it. Another suggests a mechanism similar to SCNT, but altering the ovum ahead of time so that when fused with the adult body cell, it has no possibility of ever developing into an embryo. These alternatives may raise their own issues, but it is heartening to see that science can indeed respond to moral argument and can then do what it does best—creatively pursue new and less morally grave avenues to achieve worthy goals.

In the end, addressing HESCR requires the virtue of prudence. Most forms of moral reasoning, including Catholic moral reasoning, hold that if one is presented with two courses of action, one of which is morally less controversial or noncontroversial, one ought to choose that option. It may well be more complicated, less efficient, more time-consuming, and so on, but generally, prudence would counsel the morally safer course. Thus, alternative sources of stem cells provide a noncontroversial way to pursue the real goods promised by regenerative medicine. They also provide more realistic hope for therapeutic benefit.

The Christian tradition has long held that the cultivation of one virtue simultaneously engages the cultivation of others. In the case of HESCR, we must remain attentive to the role of virtues in

our discernment and relationship to this practice. The virtue of honesty will call us to “fair and accurate” language in our descriptions of these processes and entities. The virtue of hope will push us to foster realistic hope rather than raising false hope through hype. The virtue of justice will sharpen our radars for how these technologies impact the poor and vulnerable. The virtue of fortitude may well be required should one decide to choose against a therapy that could save one’s own life yet would enmesh one too deeply in a morally problematic infrastructure. And so on.

The Christian tradition has much to offer those seeking to navigate the often confusing terrain of HESCR. Through a richer understanding of the moral life, of the human person, of moral analysis, and its deep commitment to healing and knowledge, the Christian tradition provides a sound and hopeful way forward.

Questions for Discussion

1. Do you agree with the Church’s and the author’s position that the destruction of human embryos to obtain stem cells is morally wrong, even when done in the hope of eventually relieving human suffering? Why? Why not?
2. What view of the moral status of the embryo do you hold? Why?
3. Do you believe it is morally permissible to destroy “spare embryos,” that is, frozen embryos left over from in vitro fertilization, in order to obtain stem cells?
4. Do you think that too much money is being spent on embryonic stem cell research when that money could be used to provide basic health care to many people who are without it?
5. Do you agree with the author that if therapies are ever developed from human embryonic stem cell research, it would not be ethical to use them?

For Further Reading

Branick, V., and M. Therese Lysaught, "Stem Cell Research: Licit or Complicit?" *Health Progress* 80, no. 5 (September–October 1999): 37–42.

Do No Harm: The Coalition of Americans for Research Ethics. For an organization of scientists opposed to human embryonic stem cell research, see <http://www.stemcellresearch.org>.

Pontifical Academy for Life, "Declaration on the Production and the Scientific and Therapeutic Use of Human Embryonic Stem Cells" (August 2000). See <http://www.vatican.va>.

President's Council on Bioethics at <http://www.bioethics.gov>.

Shannon, Thomas A., and James J. Walter. *The New Genetic Medicine: Theological and Ethical Reflections*. Lanham, Md.: Rowman & Littlefield, 2003, 120–160.

Snow, Nancy, ed. *Stem Cell Research: New Frontiers in Science and Ethics*. Notre Dame, Ind.: University of Notre Dame Press, 2003.

United States Conference of Catholic Bishops. For more information on adult stem cell research and other questions about stem cells, see the Web site of the USCCB at <http://www.nccbuscc.org/prolife>.