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Stem Cell Research, Cloning And Catholic Moral Theology

by

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I. The Bishop as Pastor and as Theologian

I am sure that you are well aware of the controversy in the United States as to whether politicians who profess to be Catholic, yet support abortion as a reproductive right of women, should be refused Holy Communion.

Let's leave aside the question of refusal of Holy Communion and ask about the actions of the politicians in question. It would seem to me that these politicians who disagree fundamentally and publicly with the clear and traditional teaching of the Church on so important a matter put themselves outside the community of the faithful. The claim to be Catholic and a supporter of abortion is a contradiction in terms. This is true of all those who claim to belong to the community of faith, whether they be bishops, laypeople, persons in public life or private citizens.

I am not referring here to the position proposed by Mario Cuomo, when he was Governor of New York, that he was personally against abortion, but as a politician had to accede to the will of the people in a pluralistic, democratic society. This position, adopted as political stratagem by many politicians, is untenable, I believe, but it does not show an out-and-out support of abortion in itself.

When a politician declares his support for abortion, and claims to be a devout Catholic, scandal is caused. The bishop is called upon to correct those who are in error and to ensure that the faithful know and understand the Church's teaching on abortion. He is to instruct Catholic politicians, so that they might have a correctly formed conscience. The bishop is a pastor, a teacher of the faith.

In his post-synodal apostolic exhortation *Pastores Gregis*, Pope John Paul II made reference to the bishop's mission to teach. He says that the bishop's word "strengthens the community of faith, gathers it around the

mystery of God and gives it life" (n.29). The pope points out that in this task the bishop benefits from open dialogue and cooperation with theologians. The theologian's role is to be attentive to the changing historical circumstances, to study them in the light of the gospel message and the teachings of the Church (n. 29). In moral matters, the bishop consults and dialogues with moral theologians, as he attempts to lead the faithful to right action.

In this paper, I refer to the work of moral theologians, as well as scientists. I am grateful to the Canadian Catholic Bioethics Institute for providing me with a thorough explanation of the latest scientific discoveries concerning stem cell research and cloning.

There are two different sources of human stem cells, those taken from an embryo, and adult stem cells. The Church is not opposed to adult stem cell research. Studies have already shown that there are important advantages in using adult stem cells for therapies.

The Church is opposed to research which uses human embryonic stem cells because of the means used. In the process of isolating these cells, the ongoing development of the embryo is arrested, that is, it dies. In light of Catholic teaching about the dignity of the human person from the time of conception until natural death, this procedure is immoral. It is important, then, to examine ethical questions involving the ontological status of the human embryo.

II. Ethical Questions Involving the Ontological Status of the Human Embryo

In 1974, the Congregation for the Doctrine of the Faith said that the matter of whether there is a human person present from the completion of the fertilization process is not a matter that has been proved philosophically. However, since what is present is probably a human person, then the embryo has to be treated as a person from conception. Some have argued that the Church itself is unsure. I think that this is not the case at all. What the Church seems to have been aware of is that endless philosophical argumentation about the status of the embryo would get us nowhere. And in the meantime, human persons would continue to be killed. Therefore, the Church cut the Gordian Knot, as it were, and used another argument based on the solid probability that we have here a human person, and therefore we have to treat that entity as a human person.

If you want a good philosophical argument about the personal status of the embryo, then I would refer you to a monograph by Fr. Jack Gallagher. Fr. Gallagher argues this way: We are our bodies; we are our organisms. When a new person comes to be, then a new organism has to begin to exist. The principle of economy states that we should not employ

fanciful explanations of events when a straightforward explanation is present. Now we know that we have a new organism when the ovum is fertilized by the sperm. We also know that the organism at birth is a person, a baby. There is no evidence that a new organism came into being from the time of conception to birth. Therefore, according to the principle of economy, the same organism is present throughout.

In any case, the Church has been clear in several important moral documents after 1974 that the embryo is a person. See especially *Donum Vitae* (1987) and *Evangelium Vitae* (1995).

A. Responses to the Church's Position

Different responses have been given to the Church's position. Some arguments rest on denying personal status to the embryo. Many feel that the embryo is worthy of respect, but that respect does not override the usefulness of embryonic research in pursuit of cures for some of the more serious illnesses that beset humankind. The possible benefits to others justify the destruction of the embryo. This argument in favor of embryonic research is by far the most common. It seems to be virtually impossible for many people to hold that a tiny embryo is of the same worth as, say, an adult human. The benefits to what they see as an existing human far outweigh any harm done to such a tiny entity. Obviously, for such people the embryo is not a person.

A similar argument claims that only "spare" embryos will be used and that, surely, cannot be a problem for anybody, since they will die anyway. Indeed, in many ways, we are thereby ensuring that the embryos are not wasted or simply discarded. It is as if we are almost doing these embryos a favor by at least "using" them. This argument, too, has great popular appeal. Just recently, a senior researcher from the University of Toronto wrote an article for the *U. of T. Bulletin* (August 23, 2004) saying that almost all existing human stem cell lines were derived from human embryos obtained with the informed consent from the donors undergoing in vitro fertilization. During that procedure, women are given hormones that lead to the production of a large number of eggs. The eggs are then fertilized and "the best" are put into the uterus. The "next best" are frozen for future reproductive purposes and the rest are discarded. Of those that are kept, the suggestion is that they should be used for embryonic research. The researcher then uses language which goes to the heart of the debate over embryonic personhood. She states: "Opponents of the use of stem cell research argue that **any human embryo has the potential to be a human** and so deserves protection from destruction. Realistically, however, these embryos are being discarded and destroyed in IVF programs all the time." A minor point that she makes is that people who are against embryonic research are being unrealistic. The major point, though, is her reference to the embryo as "having potential to be a human."

Concerning "potential," it is important to emphasize that we all undoubtedly have potential for development in all sorts of areas. The embryo has, too. However, just as we remain who we are through the actualizing of potential, so does the embryo. It does not have the potential to become human. It is human by virtue of its very existence. It is truly amazing how often we read misleading statements by researchers still.

A further example of this argumentation is found in an article published in the *Globe and Mail* (August 2004), in which the Director of the Toronto Joint Centre for Bioethics refers to the embryo as "a clump of cells". Technically this is true but we all could be said, in one rather reductionist way, to be a clump of cells, but the point is that the author did not ever refer to the embryo as a human being. Here, there are shades of the earlier abortion debates, when one side talked of "a potential human being" and the other side insisted on discussing "human being with potential." It is surprising that these techniques of description still continue. It is probably also surprising that many people are not alert to the hidden dangers of this type of discussion of embryos, since most of us are not particularly well versed in this relatively new science.

Relevant to this is a warning issued by Dr. Claudia Navarini of the School of Bioethics at the Regina Apostolorum Pontifical University in Rome, noting that there has been what she terms "a resurfacing of false terms in public discourse." In this case it is the use of the term "pre-embryo", which had been used in the 1980s and 1990s as a way of conveying the impression that up until a certain stage of development after conception there is "only" a "pre-embryo." The implications were that research and experimentation could be done on this pre-embryo, since it had not quite reached the "human" stage. The term was also used in the United Kingdom in the Warnock Commission, which dealt with human experimentation and assisted techniques of human reproduction, and also the Ethical Committee of the American Society for Fertility. The scientific community continued to use this terminology, based largely on the coming into existence, at about the fourteenth day of development, of the "primitive streak", the manifestation of a neural organizing capacity. After its "appearance", the existing stem cells lose their totipotential capacity and become differentiated. Much scientific discussion resulted in the more or less universal conclusion that, as Professor Navarini puts it:

In reality, biological research itself has established with certainty that such "progress" in embryonic development does not represent substantial novelties, but is part of the uninterrupted evolution of the organism from the first instant, fertilization, until the last, the person's death.

Her point is important for the present discussion on stem cells, since calling the embryo "a potential human", "a clump of cells", or a "pre-embryo" is again to raise the spectre of murky unscientific language in an arena where scientific as well as ethical clarity are of utmost importance. We have to remember that, as Professor Navarini also advises us:

From the fertilization and after, the human being has some fixed biological properties: coordination – namely the fact of presenting a functionally organized unit according to an established object and autonomously pursued by the organism's genetic programme; gradualness – namely, the progressive constitution through different phases of development of the final form of an individual, according to his/her own identity, individuality and uniqueness.

Until recently, this was adopted by most members of the scientific community, yet of late some inaccurate terminology has reappeared, which seems to be less biologically structured than culturally and politically driven.

Professor Navarini does not mince words. She claims that "we are before a great and conscious lie." For those of us who are accustomed to being on the alert in these areas, we may consider ourselves warned that the war of words will continue, with important consequences in terms of persuading the public, and subsequent legislation.

In fact, the horse has already bolted in Canada. Legislation has been passed recently that will regulate all forms of reproductive technology and human embryo research. Scientists may apply for a license to do research with human embryos. They will be allowed to do research on so-called "spare" embryos if it has clear benefit for future human health. The legislation bans the creation of embryos solely for research purposes, as well as the creation of embryos by somatic cell transfer (that is, cloning) for any purpose. Interestingly, the legislation has a clause which allows for the possible revision of the rules as technologies develop and societal responses change. We can see how the wind blows in those quarters.

Presently, Canadian researchers are working with existing embryonic stem cell lines, which provokes at least two further ethical questions. First, are we far enough removed from the derivation of the cells that the use of cell lines is permissible? Second, may we use discoveries gleaned from this research, particularly cures for serious illnesses? We can see that research on embryonic stem cells has implications for all of us, and we must be able to know what moral decisions to make.

B. Ethical Issues Concerning Cloning

Regarding cloning, Catholic teaching is clear that the procedure itself is immoral, since it separates the unitive and procreative aspects of

the marital act. This foundational teaching affects nearly every question raised by reproductive technology, and it is important to restate this as the primary reason why the Church teaches that all these procedures, including in vitro fertilization, are immoral.

The use of cloned embryos is likewise forbidden. Arguments such as those raised recently by the former First Lady of the United States, Nancy Reagan, appealing for embryonic stem cell research using cells from any embryonic source, including clones, in the search for a cure for Alzheimer's, can obviously sway us in our attempts to relieve suffering. And who is not affected by the plight of the late Christopher Reeves, also pleading for a cure and asking scientists to use any means, including cloned embryos, to find cures for serious illnesses or conditions? Celebrity power is evident in many areas of life, and individual situations move us to compassion. It is difficult to maintain our ethical position, when most of society seems to be heading in a different direction. Nonetheless, we have a clear duty to do so. The basis for respect for the embryo, therefore, must be constantly restated by us. No matter what size, no matter what stage of development, a human embryo is to be treated as a person from conception.

Other ethical issues arise concerning cloning, for example, the need for responsible conduct in research, since there have been many attempts at making clones by several rather charlatan groups. The World Health Organization has noted that

... responsible biomedical researchers not only engage in thorough laboratory and animal studies before proceeding with human subjects, but also submit their work to scientific appraisal through open dissemination of their results in scientific meetings and peer-reviewed journals. Such transparency has been largely lacking in the reproductive cloning experiments announced so far.

Another ethical issue is that a person's DNA could be used to create one or more clones, or copies, without that person's consent or even knowledge. Also, a cloned individual may suffer psychologically from being regarded as a "copy" of someone else, instead of experiencing the wonder of true individuality. The clone may also be constrained by expectations put upon him or her by virtue of being someone's "copy."

The World Health Organization makes some pertinent remarks about the dignity of a clone. They claim that it is clear that an asexual mode of reproduction is "unnatural" for humans, since clones will not have two genetic parents, and family relationships could easily be distorted. It notes in a paragraph almost worthy of the Vatican that "cloning furthers an instrumental attitude towards human beings, that is, that persons exist to

serve purposes set by other people,” and further, “cloning risks turning human beings into manufactured objects.”(p.4)

Overall, the World Health Organization takes the position that “the use of the replication of human individuals is ethically unacceptable and contrary to human dignity and integrity.” It does not, however, carry this approach through to forbidding cloning to obtain stem cells. This same “disconnect” is made often. A recent editorial in a national newspaper states: “We accept in law the use of contraception in the form of the morning-after pill which effectively kills embryos. It is very difficult to make an argument against therapeutic cloning when it relies on spare eggs, a by-product of IVF treatment that would otherwise be destroyed or used for research. It will perhaps be five or ten years before scientists find out if the science works.” These three sentences illustrate the mentality that views embryos, cloned or otherwise, as simply something to be used for others’ benefit, with no question of their having any personal or moral status whatsoever.

Despite the sentiments expressed by the World Health Organization, at least 67 national academies worldwide, including the United Kingdom’s leading academic institution, the Royal Society, have urged the United Nations to ban the cloning of babies, i.e., reproductive cloning. Yet they make no ruling on prohibiting use of the same technology for making clones to be used as a source of stem cells for medical research. The United States is one of the few major powers pushing for a ban on both therapeutic and reproductive cloning. The Catholic Church has taken that stance since the beginning and continues to speak out against these practices. In a recent document called “Communion and Stewardship: Human Persons Created in the Image of God,” issued in September, 2004, the International Theological Commission, headed by then Cardinal Ratzinger, said that “... human beings do not have ‘a right of full disposal’ over their biological natures.” Rather, it continues, “The sovereignty we enjoy is not an unlimited one. We exercise a certain participated sovereignty over the created world and, in the end, we must render an account of our stewardship to the Lord of the universe.” The document refers to areas where it considers the biological integrity of human beings may be threatened, and states clearly that human cloning is “an infringement of the person.”

III. May a Catholic Institution Participate in Embryonic Stem Cell Research?

The role of a Catholic health care institution can be difficult to determine at times and the moral imperative difficult to fulfill. The institution, in its pursuit of moral truth in the area of health care provision, must follow Catholic moral teaching. The local bishop, as pastor of the diocese, must ensure that institutional practice is in conformity with Church teaching.

Part of the work of a health care institution is research, an area which gives rise to many intricate moral questions. I know that there are Catholic hospitals which are asking whether it is moral to take part in research employing embryonic stem cells, but where existing stem cell lines only are involved. The ethics committees of the hospitals are quite clear that they accept the Church's teaching which states that an embryo is to be treated, from the moment of conception, as of equal dignity with every other human person. At the same time, they seem to have concluded that the use of embryonic stem cell lines established sometime beforehand does not contradict the dignity of the embryo.

For our purposes here, I will consider three main questions only:

Question 1: Is there a difference between making use of an embryo frozen as surplus to requirements for in vitro fertilization and making use of an embryo created for the purpose of research?

Question 2: What cooperation in evil is involved in the matter of using embryonic stem cells from existing stem cell lines?

Question 3: May a Catholic institution offer a medical benefit or cure that has been derived from embryonic stem cell lines?

My answers to these three questions are as follows:

Question 1 answer: Whether the embryo is "spare" or "surplus," or whether it is created to derive stem cells from it, makes no difference to the essential moral response: Because of its moral status, its human dignity, the embryo may not be used and, in this case, "use" actually means destruction of the embryo itself.

Question 2 answer: Since stem cell lines already exist and are being used for research in other centers, does a Catholic institution have to distance itself completely from such use or, if it uses stem cell lines, would it be cooperating in evil?

A. Cooperation in Evil

I will here give a brief summary of the principles of cooperation in evil.

Over a rather long period of time, the "rules of engagement" with respect to cooperating in the evil enacted by another have been worked out by moral theologians, involving a series of distinctions. Not all theologians are agreed on the precise meaning that should be given to the distinctions.

The primary distinction is that between formal and material cooperation. Formal cooperation consists in participation in the evil action and approval (reluctant or not) of the evil perpetrated by the principle agent. By definition, formal cooperation is always immoral. For example, a boyfriend supplies money for a private abortion so that both the mother and he may not be burdened with the consequences of having a child.

There is a controversy as to whether cooperation may be implicit as well as explicit. A well-known Catholic philosopher, Germain Grisez, says that all formal cooperation is explicit, since it deals with intention. This accords, of course, with what Pope John Paul II talked of in *Veritatis Splendor* – “From the perspective of the acting person.” What others consider implicit is either the result of deception (of self or others) or is the result of error. Other authors do admit to implicit formal cooperation, claiming that the difference between implicit formal cooperation and immediate material cooperation consists in the presence or absence of duress. It seems to me that the distinction is not helpful. If it can be shown that the cooperators through their own actions have to be in favor of the act of the principal agent, then the cooperation is formal, whether the cooperators declare themselves blameless or whether they are in error.

Material cooperation implies some cooperation with the action itself, but without approval of the action. Material cooperation in evil is never a good thing in itself, of course, but sometimes it is morally permitted in our sinful world. Otherwise, life would be impossible. This kind of cooperation may be proximate or remote, where a more serious reason would be demanded the more proximate the cooperation is to the action itself. The notions of remote and proximate cooperation are not based entirely on temporal distance from the evil act but on the wider context.

At this point, I would like to make another distinction. One cannot cooperate with an action that has already taken place. One's own actions now have no bearing on the accomplishing of the evil act once completed. That does not mean, however, that one's present actions and intentions have no connection to the completed evil action. If one makes use of the results of the evil action, one is implicated somehow in the evil, sometimes remotely, sometimes more proximately. If one's present actions imply necessary approval of the evil action, one is guilty of **complicity** in the action. Here, complicity is closely connected to formal cooperation. If one's actions do not imply approval, one is simply implicated in the evil, perhaps justifiably so.

There is an important aspect that is sometimes overlooked with respect to this whole discussion. The rules surrounding cooperation and complicity have been worked out from cases involving goods and evils. Over a period of time, however, it is possible that the rules take on a life of their own in people's minds, and reality is forced to comply with the rules and where the goods and evils involved receive lip service at best. For example, a nurse who

works in the operating theater of a hospital which performs abortions cannot simply deal with the rules of cooperation as set out in the works of authors. He or she should rather work from a valuing of human life and a horror of its destruction in the case of the most helpless human beings. His or her presence in the theater is a statement in itself about the disvaluing of life. Further, if one's actions are considered in isolation from the whole context, it can easily be forgotten that they help foster a social consciousness that is unconcerned with the value at stake.

B. Catholic Hospitals and the Use of Stem Cell Lines

Let's return to the second question. First, we should look at the use of embryonic stem cell lines in themselves, leaving aside questions of contribution to further killing of embryos and questions of scandal. If the question were set in a context of a ban on all further killing of embryos by anyone, then there could be disagreement as to whether complicity is involved in the deaths of the embryos which gave rise to the stem cell lines or whether there is a more remote kind of implication in the evil which is able to be justified in terms of the great hope for cures. Theologians do in fact disagree about this question.

The question, however, is abstract, because it is necessarily set in the present context of further killing of embryos for the sake of research. Even if the Catholic hospital researchers intend to restrict themselves to the use of stem cell lines resulting from past killing of embryos and will not be implicated in any further killing of embryos, their use of these stem cell lines implies **complicity** in the deaths of the early embryos, because the whole context here is the ongoing deaths of embryos for research. If you want to test this claim, substitute some other group of people who were killed because of their genetic makeup and the necessity of research. May a Catholic hospital use the biological material that came from these killings? May they do so when the killings continue and almost certainly will increase? The embryos were killed precisely to obtain their stem cells. (This is not incidental. It is a factor which essentially differentiates this procedure from the use of aborted fetuses, though this procedure is problematical in itself. The fetuses, though, were not aborted to provide biological material.) But since the embryos were killed precisely to develop stem cell lines, subsequent use of these stem cell lines is rather obviously complicity in the act of killing. The world context in which this complicity is taking place is a world where the fetus is killed for all sorts of reasons, frivolous or not, and where the embryo is considered simply a useful source of important biological matter. In these circumstances, complicity by a respected Catholic institute of health care in the killing of embryos would be both gravely immoral and scandalous.

There is a further abstraction implied in the question. There is an implied understanding that stem cell lines are stable enough to be useful

for ongoing and lengthy research. Recent research suggests that this is not the case. For the research to be valid, there will be need for more and more embryonic stem cells derived from more destroyed embryos.

So far I have been speaking about complicity. I think that the use of these stem cell lines derived from past killings involves the researchers in cooperation also. It is not a matter of their cooperating in the past deaths of embryos, but of their cooperating in the present and future deaths of embryos. Remember that I am speaking here about researchers who are determined not to make use of stem cells other than those of stem cell lines established in the past from embryos killed precisely to obtain their stem cells. Even were they able to restrict themselves to the use of these stem cell lines, they would be part of a context where more and more people, experts and others, see the embryo simply as a wonderful source of biological matter that will provide for research which will result in cures for many ills. In other words, in terms of the whole picture, the hospitals would be cooperating with the present and future deaths of embryos. One may refer to this as material cooperation, but it would be proximate material cooperation because it is necessarily embedded in a context of ongoing unjust killing of embryos.

The cures that may result from research on embryonic stem cells most probably will involve the insertion of embryonic stem cells into the patient. We know that vast numbers are needed in each case. To obtain these, more and more embryos will have to be killed. This certainly involves researchers in formal cooperation in the killing, when they are aware that their discovered cure demands more deaths.

The reality of stem cell research at Catholic hospitals is that they have to be involved with more and more stem cell lines, even if they declare that they will use only stem cell lines from temporally distant killings. The simple fact is that they cannot restrict themselves to stem cell lines that are derived from killings of embryos which took place in the distant past. This being so, surely the hospitals cannot stand around with outstretched hands awaiting a new batch of cells, all the while quietly protesting their disapproval of the killings of the embryos. This is blatantly deceptive behavior. **It involves complicity in the more recent deaths of the embryos and formal cooperation in their present and ongoing killing.** (Some authors may refer to the latter as proximate material cooperation, which they consider to be immoral in the present case.) Moreover, in the case of grave evil, silence is not sufficient. The hospital should, if it disapproves of the killings, be doing all in its power to put an end to them, even if such an outcome is unlikely.

Question 3, reiterated: Is a Catholic health care institution permitted morally to make use of a "cure" which was discovered by immoral means (i.e., through research involving embryonic stem cells)?

The answer depends partly on what the cure implies.

A. First Possibility: If the cure demands the insertion in the patient of embryonic stem cells obtained precisely by killing the embryo for this purpose (which seems likely), then that cure should not be allowed in a Catholic institution. To employ the cure in this case would be formal cooperation in the killings of the embryos.

B. Second Possibility: What, however, if the cure were to involve procedures based on embryonic stem cell research but which would not use further embryonic stem cells in the therapy in question? (This is hypothetical, since it does not apply at present.) Would the use of such a cure not fall under the "complicity argument" outlined above? This is a difficult question. Isn't knowledge, however it is obtained, part of the human heritage, and so able to be used for the betterment of people?

Again, if we were to abstract from the actual situation and consider some hypothetical case, in which we abstract from the actual situation, in which the cure was discovered from the use of stem cell lines established in the past and where no further embryos are being killed, then an argument could be made for the use of the cure. In the actual situation, however, the discovery of the cure occurs in a context of ongoing experimentation on stem cells obtained by present killings of embryos and involves complicity in these killings.

It is doubtful, though, if many people could understand this in a situation where they are presented with a method which could successfully treat their own illness or that of a loved one, and in a climate which is dismissive of the status of the embryo. In this case, I do not think that a Catholic institution should be compelled to avoid the use of such cures. There would have to be widespread intellectual and moral conversion with respect to the embryo and its status before discussion of the implications of employing such cures be attempted. I am aware that this way of thinking could help embed the immorality of killing embryos into the social and cultural fabric of society. On the other hand, by continually emphasizing the moral status of the embryo and by forbidding obvious formal cooperation in their deaths or complicity in their deaths, a firm statement will be made about the dignity of the embryo. With respect to the cures I have just spoken about, the faithful would be left in good faith on a matter which would seem to me to be beyond general understanding and general moral capacity.

Conclusion

Let me summarize my position briefly:

1. The climate is heavily pro-embryonic stem cell research. Attempts to oppose this research are often seen as the oddities of religious fundamentalists.
 2. On the premise that an embryo is a being with fully human status, direct killing of this person is immoral. Formal cooperation in these killings is immoral.
 3. The use of stem cell lines has to be considered in the context of the ongoing killing of embryos and involves, therefore, complicity in the deaths of the embryos which gave rise to the lines and formal cooperation in the ongoing killings of embryos, or, as some would argue, illicit material cooperation. This would be so even if the researchers in a particular case were to restrict their research to stem cell lines established in the relatively distant past.
 4. Since some stem cell lines are unstable, there will be a need to use more embryos to obtain new ones. Otherwise the research would be of doubtful validity.
 5. The employment of cures resulting from research on embryonic stem cells which involve the use of further embryonic stem cells is immoral.
 6. The use of cures which arose from embryonic stem cell research but which do not involve the use of embryonic stem cells is immoral in the present climate of ongoing killing of embryos to find cures. Official teaching on this matter, however, would require a wider recognition of the fully personal status of the embryo.
 7. I will end by emphasizing the difference between research on embryonic and adult stem cells. Success in the field of adult stem cells is a timely reminder that there are other ways for researchers to find cures for illnesses which allow for respect for the dignity of human embryos.
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