



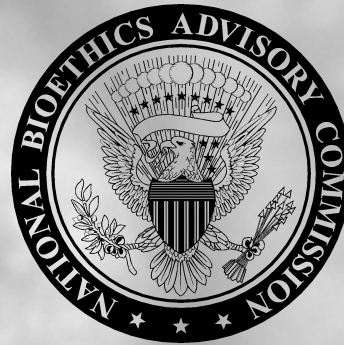
ETHICAL ISSUES IN HUMAN STEM CELL RESEARCH

VOLUME III
Religious Perspectives

Rockville, Maryland
June 2000

The National Bioethics Advisory Commission (NBAC) was established by Executive Order 12975, signed by President Clinton on October 3, 1995. NBAC's functions are defined as follows:

- a) NBAC shall provide advice and make recommendations to the National Science and Technology Council and to other appropriate government entities regarding the following matters:
 - 1) the appropriateness of departmental, agency, or other governmental programs, policies, assignments, missions, guidelines, and regulations as they relate to bioethical issues arising from research on human biology and behavior; and
 - 2) applications, including the clinical applications, of that research.
- b) NBAC shall identify broad principles to govern the ethical conduct of research, citing specific projects only as illustrations for such principles.
- c) NBAC shall not be responsible for the review and approval of specific projects.
- d) In addition to responding to requests for advice and recommendations from the National Science and Technology Council, NBAC also may accept suggestions of issues for consideration from both the Congress and the public. NBAC also may identify other bioethical issues for the purpose of providing advice and recommendations, subject to the approval of the National Science and Technology Council.



**ETHICAL
ISSUES IN
HUMAN
STEM CELL
RESEARCH**

**VOLUME III
Religious Perspectives**

**Rockville, Maryland
June 2000**

National Bioethics Advisory Commission

Harold T. Shapiro, Ph.D., Chair

President
Princeton University
Princeton, New Jersey

Patricia Backlar

Research Associate Professor of Bioethics
Department of Philosophy
Portland State University
Assistant Director
Center for Ethics in Health Care
Oregon Health Sciences University
Portland, Oregon

Arturo Brito, M.D.

Assistant Professor of Clinical Pediatrics
University of Miami School of Medicine
Miami, Florida

Alexander Morgan Capron, LL.B.

Henry W. Bruce Professor of Law
University Professor of Law and Medicine
Co-Director, Pacific Center for Health Policy and Ethics
University of Southern California
Los Angeles, California

Eric J. Cassell, M.D., M.A.C.P.

Clinical Professor of Public Health
Cornell University Medical College
New York, New York

R. Alta Charo, J.D.

Professor of Law and Medical Ethics
Schools of Law and Medicine
The University of Wisconsin
Madison, Wisconsin

James F. Childress, Ph.D.

Kyle Professor of Religious Studies
Professor of Medical Education
Co-Director, Virginia Health Policy Center
Department of Religious Studies
The University of Virginia
Charlottesville, Virginia

David R. Cox, M.D., Ph.D.

Professor of Genetics and Pediatrics
Stanford University School of Medicine
Stanford, California

Rhetaugh Graves Dumas, Ph.D., R.N.

Vice Provost Emerita, Dean Emerita, and
Lucille Cole Professor of Nursing
The University of Michigan
Ann Arbor, Michigan

Laurie M. Flynn

Executive Director
National Alliance for the Mentally Ill
Arlington, Virginia

Carol W. Greider, Ph.D.

Professor of Molecular Biology and Genetics
Department of Molecular Biology and Genetics
The Johns Hopkins University School of Medicine
Baltimore, Maryland

Steven H. Holtzman

Chief Business Officer
Millennium Pharmaceuticals Inc.
Cambridge, Massachusetts

Bette O. Kramer

Founding President
Richmond Bioethics Consortium
Richmond, Virginia

Bernard Lo, M.D.

Director
Program in Medical Ethics
The University of California, San Francisco
San Francisco, California

Lawrence H. Miike, M.D., J.D.

Kaneohe, Hawaii

Thomas H. Murray, Ph.D.

President
The Hastings Center
Garrison, New York

Diane Scott-Jones, Ph.D.

Professor
Department of Psychology
Temple University
Philadelphia, Pennsylvania

CONTENTS

Testimony of Ronald Cole-Turner, M.Div., Ph.D. <i>Pittsburgh Theological Seminary</i>	A-1
Testimony of Father Demetrios Demopoulos, Ph.D. <i>Holy Trinity Greek Orthodox Church</i>	B-1
Testimony of Rabbi Elliot N. Dorff, Ph.D. <i>University of Judaism</i>	C-1
Testimony of Margaret A. Farley, Ph.D. <i>Yale University</i>	D-1
Testimony of Gilbert C. Meilaender, Jr., Ph.D. <i>Valparaiso University</i>	E-1
Testimony of Edmund D. Pellegrino, M.D. <i>Georgetown University</i>	F-1
Testimony of Abdulaziz Sachedina, Ph.D. <i>University of Virginia</i>	G-1
Testimony of Rabbi Moshe Dovid Tendler, Ph.D. <i>Yeshiva University</i>	H-1
Testimony of Kevin Wm. Wildes, S.J., Ph.D. <i>Georgetown University</i>	I-1
Testimony of Laurie Zoloth, Ph.D. <i>San Francisco State University</i>	J-1

Nancy J. Duff, Ph.D., Princetown University Theological Seminary, also provided testimony to the National Bioethics Advisory Commission on May 7, 1999. Her written testimony was not available for this publication.

Testimony of

Ronald Cole-Turner, M.Div., Ph.D.
Pittsburgh Theological Seminary

I want to thank the Commission for the attention that you are giving today to religious perspectives regarding human stem cell research and for the opportunity to speak before you. I come as a member of a mainline Protestant denomination, the United Church of Christ, and although no one individual speaks for our church, I will try to represent the positions we have taken and the concerns that we hold.

Let me begin by saying that we do not have an official position regarding the status of embryos. That is not to say we have no opinion or do not care about their rightful status before God. But officially, we have never declared that we regard embryos as persons. Some of our members would agree with that declaration; many—perhaps most—would not agree, believing instead that embryos have an important but lesser status. But we have, deliberately, I think, avoided any such declarations. On the contrary, we have made statements in which we express our openness to embryo research, given certain conditions, which I will come to in a moment.

I quote at length from a report that served as the background to a 1997 General Synod resolution on the question of human cloning:

Beginning with the 8th General Synod in 1971, various General Synods of the United Church of Christ have regarded the human pre-embryo as due great respect, consistent with its potential to develop into full human personhood. General Synods have not, however, regarded the pre-embryo as the equivalent of a person. Therefore, we on the United Church of Christ Committee on Genetics do not object categorically to human pre-embryo research, including research that produces and studies cloned human pre-embryos through the 14th day of fetal development, provided the research is well justified in terms of its objectives, that the research protocols show proper respect for the pre-embryos, and that they are not implanted. We urge public discussion of current research and future possibilities, ranging from pre-implantation genetic screening of human pre-embryos to nuclear transfer cloning to human germline experimentation. We do not categorically oppose any of these areas of research, but we believe they must be pursued, if at all, within the framework of broad public discussion. In 1989, the 17th General Synod of the United Church of Christ stated that it was 'cautious at present about procedures that would make genetic changes which humans would transmit to their offspring (germline therapy)...We urge extensive public discussion and, as appropriate, the development of federal guidelines during the period when germline therapy becomes feasible'...We on the United Church of Christ Committee on Genetics are opposed to the idea that human pre-embryo research, such as germline experimentation or research involving cloned pre-embryos, should be permitted but left largely unregulated if funded privately, or that there is no federal responsibility for the ethics of such research if federal funds are not used. We believe that this approach merely seeks to avoid the difficult public deliberation that should occur prior to such research. We believe that all such research should be subject to broad public comment and that it should only proceed within a context of public understanding and general public support.¹

And so when it comes to the specific questions before you regarding the ethics of pluripotent human stem cell research and federal policy in this area, my view is that it is broadly consistent with the views of the United Church of Christ that human stem cell research go forward with federal funds. In fact, we go further and encourage reconsideration of the ban on federal funding for embryo research. We are open to the possibility that somatic cell nuclear transfer be used to create embryos for research, but not implantation, under highly defined research protocols, and that this research, too, be done with public funding.

One of the conditions that we attach to the possibility of this research is that a clear and attainable benefit for science and for medicine be indicated in advance. And it is reasonable to think that now, with pluripotent stem cell technology, such benefit is becoming clearer.

Another condition that we attach is that this research should follow a period of intense and open public discussion. In fact—and let me be as clear as I can about this—all that I have said about our support for research in these areas depends upon meeting the condition of advanced public discussion. I believe this is

especially important for this Commission, because it represents one of very few places in our national life where such a conversation can begin.

We stipulate this condition for two reasons. First, we believe that although enormous advances for medicine lie ahead in these areas of research and that we are obliged to work to achieve these advances, our efforts could be undermined, and it could be very bad for science if research proceeds in the short term without broad public understanding and support. Public misunderstanding and public exclusion from discussion could result in public rejection of this and related forms of research.

The second reason why we set forth the condition of advanced public discussion and support is that we value living in a society that makes basic public moral decisions based on the deliberations of informed citizens. As a historic church, our congregational forebears extended congregational decisionmaking to the public square. As a church today, we believe that our views are not the only views worth hearing, but that public policy on morally problematic issues should be the result of honest and sustained discourse during which all views are brought forward in public. This view of a public society is an article of faith with us.

As a commission, you are, of course, under time constraints and must offer your report on specific policy questions. As a church, we offer at least some support for the view that federally funded research in embryonic stem cells, and possible even in embryos, should move forward as quickly as possible. But on the basis of the condition our Church has set on this support, I ask you to do whatever you can in your report to satisfy our condition by helping to bring about a new, open, and sustained national discussion of these difficult questions and issues. Such a sustained discussion may be well beyond your mandate and may require some new institutional platform, but you are one of the key voices in our national life that can urge that this challenge be taken on for the good of research, for the good of public support of research, and for the good of the kind of society in which we want to live.

I will conclude by noting two concerns, both of which involve contextual factors that a church such as ours will bring to the discussion table that I am urging you to help create. The first is social justice. Precisely because this research promises such great benefit, we worry that the benefit will be distributed unevenly and therefore that it will further the position of the rich and the powerful at the expense of the poor and the weak. We believe that the moral test of any system, including our system of medical research and treatment, is how well it treats the least privileged members of society, first of all within our own nation, but also globally. And so we would challenge those who fund and develop these therapies by asking the following question: How will the benefits be shared universally? We are aware that the difficult problems of delivery and cost recovery must be considered, but in offering our support for this research based on the promise of medical benefit, we do not mean that the benefit should be distributed only by market means.

The second concern involves the broader scientific and medical context of research. It is impossible for any of us to offer a moral assessment of human stem cell technology in isolation from other current or pending areas of research, among them somatic cell nuclear transfer and human germline modification. Through these technologies and the combination of these technologies, we are about to acquire a wholly unprecedented level of control over our health, our longevity, and our offspring. And so I urge you to do whatever is in your power not only to create a broad public discussion, but also to define its agenda broadly as involving this wide but inter-related set of emerging technologies.

I conclude with this simple observation: If the question before us is narrowly defined as involving embryos and stem cells, the various religious traditions will take different positions. But if the question is framed in terms of concern for social justice or of our ability to chart our common future in view of the overwhelming changes that lie ahead, the various religious traditions will find there is much upon which to agree. If this is correct, then we might find greater understanding on the narrow issues as we move along the pathway of greater engagement on the contextual issues.

Note

1 “Statement on Cloning’ by the United Church of Christ Committee on Genetics,” in Ronald Cole-Turner ed., *Human Cloning: Religious Responses* (Louisville, KY: Westminster John Knox Press, 1997), 149–151.

Testimony of

Father Demetrios Demopoulos, Ph.D.
Holy Trinity Greek Orthodox Church

An Eastern Orthodox View of Embryonic Stem Cell Research

I would like to thank the Commission for providing me with an opportunity to present an Orthodox view of the ethical problems and challenges associated with human embryonic stem cell research. I would like to emphasize that I do not speak for the Greek Orthodox Church but instead offer comments that I believe are consistent with the teachings and tradition of the Orthodox Church.

The Orthodox Church has a long tradition of encouraging the “medical art” that alleviates unnecessary pain and suffering and restores health. The Church, however, also has reminded us that this art is given to us by God to be used according to His will, not our own, since “the medical art has been vouchsafed us by God, who directs our whole life, as a model for the cure of the soul” and “we ought not commit outrage against a gift of God by putting it to bad use.”¹ What constitutes bad use is what has brought us together here today. An important consideration for the Orthodox is based on our understanding of what it is to be a human person.

Humans are created in the image and likeness of God and are unique in creation because they are psychosomatic, beings of both body and soul—physical and spiritual. We do not understand this mystery, which is analogous to that of the Theanthropic Christ, who at the same time is both God and a human being. We do know, however, that God intends for us to love Him and grow in relationship to Him and to others until we reach our goal of theosis, or deification, participation in the Divine Life through His grace. We grow in the image of God until we reach the likeness of God. Because we understand the human person as one who is in the image and likeness of God, and because of sin we must strive to attain that likeness, we can say that an authentic human person is one who is deified. Those of us who are still struggling toward theosis are human beings, but potential human persons.²

We believe that this process toward authentic human personhood begins with the zygote. Whether created *in situ* or *in vitro*, a zygote is committed to a developmental course that will, with God’s grace, ultimately lead to a human person. The embryo and the adult are both potential human persons, although in different stages of development. As a result, Orthodox Christians affirm the sanctity of human life at all stages of development. Unborn human life is entitled to the same protection and the same opportunity to grow in the image and likeness of God as are those already born.

Given this Orthodox understanding of human personhood and life, I cannot condone any procedure that threatens the viability, dignity, and sanctity of that life. In my view, the establishment of embryonic stem cell lines³ was done at the cost of human lives. Even though not yet a human person, an embryo should not be used for or sacrificed in experimentation, no matter how noble the goal may seem. For me, then, the derivation of embryonic stem cell lines is immoral because it sacrificed human embryos, which were committed to becoming human persons. That the embryos donated for this work were not going to be implanted and had no chance of completing their development cannot mitigate the fact that they should not have been created. *In vitro* fertilization techniques that routinely result in “surplus” embryos that are eventually discarded is immoral for the same reasons I have already mentioned. I believe, then, that the prohibition of research using human embryos should be continued and, if possible, extended to the private sector as well.

Wishing that something had not been done will not undo it. Established embryonic stem cell lines exist, and their use has great potential benefits for humanity, which need not be reviewed here. The Orthodox Church, as I mentioned before, has a long tradition of encouraging the medical arts. We have a long list of healer-saints—physicians who became authentic persons through the practice of medicine. Invariably, they obeyed the commandment of Christ to his apostles, “Heal the sick, raise the dead, cleanse lepers, cast out demons. You received without paying, give without pay.”⁴ Without going into an extensive exegesis of the verse, the intention is clear: Attend not to profit, but to the medical needs of others.

Using our healer-saints as a paradigm, I am concerned about how the existing stem cell lines will be used. Will they be used to heal, or will they be used to maximize profits? Market forces are very strong, and, in my

opinion, are often contrary to the general good. Allowing the cell lines to be owned by private companies that are responsible first to their stockholders and investors rather than to the general welfare may compromise the use of the lines. It is imperative that steps be taken to ensure that the lines be used only for therapeutic procedures that will benefit those in need and not be limited to the few who will be able to afford them. I want to emphasize that the lines must be used only therapeutically, to restore health and to prevent premature death. They must not be used cosmetically or to further any eugenic agenda. None of us is physically perfect, but all are called to be perfected in Christ. Part of our challenge to participate in the Divine Life is to overcome our deficiencies. We must not attempt to re-create ourselves in our own image.

Because stem cell lines have such great potential for healing, efforts should be made to encourage discovery of more morally acceptable sources. A recent report suggests that adult stem cells may be less restricted than previously thought.⁵ It may be possible to develop techniques to culture such cells without the need to sacrifice the donor. Alternatively, because organ donation is viewed favorably by many (but not all) Orthodox Christians, I would accept cell lines derived from fetal primordial germ cells, but only in cases of spontaneous miscarriage. A fetus cannot be killed for an organ, just as an adult cannot. Also, great care must be taken to assure that the mother's consent is truly informed.

In summary, the Orthodox Church promotes and encourages therapeutic advances in medicine and the research necessary to realize them, but not at the expense of human life. The Church considers human life to begin with the zygote and to extend beyond our physical death, as we were promised eternal life by our God and Savior. Recognizing that we are all in a sinful and imperfect state, the Church admonishes us to strive for perfection through God's grace as we strive to become authentic human persons in communion with God. Because we tend to follow our own will rather than God's, we are reminded to be discerning so that we do not commit outrages by putting a gift of God to bad use.

Notes

1 St. Basil the Great, *The Long Rules* 55, M.M. Wagner, tr., *St. Basil: Ascetical Works, The Fathers of the Church*, vol. 9 (Washington, D.C.: The Catholic University of America Press, 1962), 330–37.

2 See also, Nellas, P., *Deification in Christ: The Nature of the Human Person*, Chapters 1 and 2 (Crestwood, New York: St. Vladimir's Seminary Press, 1987) and Breck, J., *The Sacred Gift of Life: Orthodox Christianity and Bioethics*, Chapters 1 and 3 (Crestwood, New York: St. Vladimir's Seminary Press, 1998).

3 Thomson, J.A., Itskovitz-Eldor, J., Shapiro, S.S., Wakninx, M.A., Swiergiel, J.J., Marshall, V.S., and Jones, J.M., "Embryonic Stem Cell Lines Derived from Human Blastocysts," *Science* 282 (1998):1145–1147.

4 Matthew 10:8.

5 Bjornson, C.R., Rietze, R.L., Reynolds, B.A., Magli, M.C., and Vescovi, A.L., "Turning Brain into Blood: A Hematopoietic Fate Adopted by Adult Neural Stem Cells *In Vivo*," *Science* 283 (1999):534–537.

Testimony of

Rabbi Elliot N. Dorff, Ph.D.

University of Judaism

Stem Cell Research

A. Fundamental Theological Convictions¹

1. The Jewish tradition uses both theology and law to discern what God wants of us. No legal theory that ignores the theological convictions of Judaism is adequate to the task, for any such theory would lead to blind legalism without a sense of the law's context or purpose. Conversely, no theology that ignores Jewish law can speak authoritatively for the Jewish tradition, for Judaism places great trust in law as a means to discriminate moral differences in similar cases, thus giving us moral guidance. My understanding of Judaism's perspective on stem cell research will, and must, draw on both theological and legal sources.
2. Our bodies belong to God; we have them on loan during our lease on life. God, as owner of our bodies, can and does impose conditions on our use of our bodies. Among those conditions is the requirement that we seek to preserve our lives and our health.
3. The Jewish tradition accepts both natural and artificial means for overcoming illness. Physicians are the agents and partners of God in the ongoing act of healing. Thus, the mere fact that human beings created a specific therapy rather than finding it in nature does not impugn its legitimacy. On the contrary, we have a duty to God to develop and use any therapies that can aid us in taking care of our bodies, which ultimately belong to God.
4. At the same time, all human beings, regardless of level of ability and disability, are created in the image of God and are to be valued as such.
5. Moreover, we are not God. We are not omniscient, as God is, and so we must take whatever precautions we can to ensure that our actions do not harm ourselves or our world in our very effort to improve them. A certain epistemological humility, in other words, must pervade whatever we do, especially when we are pushing the scientific envelope, as we are in stem cell research. We are, as Genesis says, supposed to work the world *and* preserve it; it is the achievement of that *balance* that is our divine duty.²

B. Jewish Views of Genetic Materials

1. Because doing research on human embryonic stem cells involves procuring them from aborted fetuses, the status of abortion within Judaism is a subject that immediately arises. Within Judaism, by and large, abortion is forbidden. The fetus, during most of its gestational development, is seen as "the thigh of its mother," and neither men nor women may amputate their thigh at will, because that would be injuring their bodies, which belong to God. On the other hand, if the thigh turns gangrenous, both men and women have the positive duty to have their thigh amputated in order to save their lives. Similarly, if a pregnancy endangers a woman's life or health, an abortion *must* be performed to save her life or protect her physical or mental health, for she is without question a full-fledged human being with all the protections of Jewish law, while the fetus is still only part of the woman's body. When there is an elevated risk to the woman beyond that of normal pregnancy, but insufficient risk to constitute a clear threat to her life or health, abortion is permitted, but it is not required. That is an assessment that the woman should make in consultation with her physician. Some recent authorities also would permit abortions in cases where genetic testing indicates that the fetus will suffer from a terminal disease such as Tay-Sachs or from serious malformations.³

The Jewish stance on abortion, then, is that *if* a fetus was aborted for legitimate reasons under Jewish law, it may be used to advance our efforts to preserve the life and health of others. In general, when a person dies,

we must show honor to God's body by burying it as soon as possible after death. To benefit the lives of others, however, autopsies may be performed when the cause of death is not fully understood, and organ transplants are allowed to enable other people to live.⁴ The fetus, as I have said, does not have the status of a full-fledged human being. Therefore, if we can use the body of a human being to enable others to live, how much the more so may we use a part of a body—in this case, the fetus—for that purpose. This all presumes that the fetus was aborted for good and sufficient reason within the parameters of Jewish law.

2. Stem cells for research purposes also can be procured from donated sperm and eggs mixed together and cultured in a petri dish. Genetic materials outside the uterus have no legal status in Jewish law, for they are not even a part of a human being until implanted in a woman's womb, and even then, during the first 40 days of gestation, their status is "as if they were simply water."⁵ Abortion is still prohibited during that time, except for therapeutic purposes, for in the uterus such gametes have the potential of growing into a human being. Outside the womb, however, at least at this time, they have no such potential. As a result, frozen embryos may be discarded or used for reasonable purposes and so may the stem cells that are procured from them.

C. Other Factors in This Decision

1. Given that the materials for stem cell research can be procured in permissible ways, the technology itself is morally neutral. It gains its moral valence on the basis of what we do with it.
2. The question, then, is reduced to a risk-benefit analysis of stem cell research. The articles in the most recent *Hastings Center Report*⁶ raise some questions to be considered in such an analysis, but I will not rehearse them here. I want to note only two things about them from a Jewish perspective:
 - a. The Jewish tradition views the provision of health care as a communal responsibility, and so the justice arguments in the *Hastings Center Report* have a special resonance for me as a Jew. Especially because much of the basic science in this area was funded by the government, the government has the right to require private companies to provide their applications of that science at reduced rates, or if necessary, at no cost, to those who cannot afford them. At the same time, the Jewish tradition does not demand socialism, and for many good reasons we in the United States have adopted a modified, capitalistic system of economics. The trick, then, will be to balance access to applications of the new technology with the legitimate right of a private company to make a profit on its efforts to develop and market those applications.
 - b. The potential of stem cell research for creating organs for transplant and cures for diseases is, at least in theory, both awesome and hopeful. Indeed, in light of our divine mandate to seek to maintain life and health, one might even argue that from a Jewish perspective we have a *duty* to proceed with that research. As difficult as it may be, we must draw a clear line between uses of this or any other technology for cure, which are to be applauded, as opposed to uses of this technology for enhancement, which must be approached with extreme caution. Jews have been the brunt of campaigns of positive eugenics both here, in the United States, and in Nazi Germany,⁷ and so we are especially sensitive to creating a model human being that is to be replicated through the kind of genetic engineering that stem cell applications will involve. Moreover, when Jews see a disabled human being, we are not to recoil from the disability or count our blessings for not being disabled in that way; rather, we are commanded to recite a blessing thanking God for making people different.⁸ Thus, in light of the Jewish view that all human beings are created in the image of God, regardless of their levels of ability or disability, it is imperative from a Jewish perspective that the applications of stem cell research be used for cure and not for enhancement.

D. Recommendation

My recommendation is that we take the steps necessary to advance stem cell research and its applications in an effort to take advantage of its great potential for good. We should do so, however, in such a way that we provide access to its applications to all Americans who need them and at the same time prohibit the development of applications intended to make all human beings fit any particular model of human excellence. Through this technology, we should seek to cure diseases and to appreciate the variety of God's creatures.

Notes

1 For more on these and other fundamental assumption of Jewish medical ethics, and for the Jewish sources that express these convictions, see Dorff, E.N., *Matters of Life and Death: A Jewish Approach to Modern Medical Ethics*, Chapter 2 (Philadelphia: Jewish Publication Society, 1998).

2 Genesis 2:15.

3 For more on the Jewish stance on abortion, together with the biblical and rabbinic sources that state that stance, see Dorff, *Matters of Life and Death*, 128–133, and Feldman, D.M., *Birth Control in Jewish Law: Marital Relations, Contraception, and Abortion as Set Forth in the Classic Texts of Jewish Law* (New York: New York University Press, 1968), reprinted under the title *Marital Relations, Abortion, and Birth Control in Jewish Law*, Chapters 14 and 15 (New York: Schocken, 1973).

4 For classical sources on this, see Dorff, *Matters of Life and Death*, Chapter 9.

5 Babylonian Talmud, *Yevamot* 69b. Rabbi Immanuel Jakobovits notes that “40 days” in talmudic terms may mean just under two months in our modern way of calculating gestation, since the rabbis counted from the time of the first missed menstrual flow while we count from the time of conception, approximately two weeks earlier. See Jakobovits, I., *Jewish Medical Ethics: A Comparative and Historical Study of the Jewish Religious Attitude to Medicine and Practice* (New York: Bloch Publishing Company, 1959, 1975), 275.

6 *Hastings Center Report*, March-April (1999):30–48.

7 See Gould, S.J., *The Mismeasure of Man* (New York: W.W. Norton and Company, 1996) and Annas, G.J., and Grodin, M.A., *The Nazi Doctors and the Nuremberg Code: Human Rights in Human Experimentation* (New York: Oxford, 1992).

8 For a thorough discussion of this blessing and concept in Jewish tradition, see Astor, C., “...Who Makes People Different:” *Jewish Perspectives on the Disabled* (New York: United Synagogue of America, 1985).

Testimony of

Margaret A. Farley, Ph.D.

Yale University

Roman Catholic Views on Research Involving Human Embryonic Stem Cells

The Roman Catholic moral tradition offers potentially significant perspectives on questions surrounding research on human embryonic stem cells. I use the plural, “perspectives,” because there is no simple, single voice from the Catholic community on such questions. There is, however, a shared “community of discourse,” so that one can easily identify common convictions expressed in a common language as well as specifically divergent views on this and other particular moral issues.

First, then, the common convictions: The Catholic tradition is undivided in its affirmation both of the goodness of creation and the importance of human agency in the ongoing processes within creation. God is actively present in the world, and human persons are called to discern the sacredness of creation and their own responsibilities as, in a sense, co-creators with God. With one mind, Catholics also affirm the importance of both the individual and the community, seeing these not finally as competitors but as essentially in need of each other for the fulfillment of both. It is never possible from this tradition to justify, in an ultimate sense, the sacrifice of an individual to the community or to forget the common good when thinking about the individual. It is also clear to everyone in the Catholic tradition that human persons are responsible for their offspring in ways particular to humans and that future generations matter both in this world and in a hoped-for unlimited future.¹ The Catholic tradition is unified in its belief in God’s active and intimate care for the world and each person in it and in our own correlative obligations to care for those who are in need—preventing unjustified harm, alleviating pain, and protecting and nourishing the well-being of individuals and the wider society. There are deep roots in the Catholic tradition that anchor a commitment to the poorest, the most marginalized, and the most ill, and that in doing so sustain a commitment to human equality in its most basic sense.

At the same time, there are clear disagreements among Catholics (whether moral theologians, Church leaders, or ordinary members of the Catholic community) on, for example, particular issues of fetal and embryo research, assisted reproductive technologies, and the prospects for morally justifiable human stem cell research. These disagreements include conflicting assessments of the moral status of the human embryo and the use of aborted fetuses as sources of stem cells.

That there is so much agreement on fundamental approaches to human morality yet disagreement on specific moral rules is not surprising. For one thing, affirmations of the goodness of creation, human agency, and principles of justice and care do not always yield directly deducible recommendations on specific questions such as stem cell research. Or again, genuine concerns for the moral fabric of society do not by themselves settle empirical questions regarding possible good or bad consequences of the development of particular technologies. There is, for example, often no easy and direct way to determine whether a particular set of choices regarding scientific research will violate the rights of some persons to basic medical care or undermine respect for the dignity of each individual.

At the heart of the Catholic tradition, however, there is a conviction that creation is itself revelatory and knowledge of the requirements of respect for created beings is accessible at least in part to human reason. This is what is at stake in the Catholic tradition’s understanding of natural law. For most of its history, a Catholic natural law theory has not assumed that morality can simply be “read off” of nature, not even with the important help of Scripture. Nonetheless, what natural law theory does is tell us where to look—that is, to the concrete reality of the world around us, to the basic needs and possibilities of human persons in relation to one another, and to the world as a whole. “Looking” (to concrete reality) means a complex process² of discernment and deliberation, and a structuring of insights and determination of meaning, from the fullest vantage point available, given a particular history—one that includes the illumination of Scripture and the accumulated wisdom of the tradition. The limits, yet necessity, of this process account for many of the disagreements about specific matters, even within the faith community.

This brings us, then, to disagreements regarding human embryonic stem cell research. Those who stand within the Catholic tradition tend to “look” to the reality of stem cells and, what is more relevant in this instance, to the realities of the sources of stem cells for current research—that is, human embryos and fetuses. Within the Catholic tradition, a case can be made both against and for such research—each dependent upon different interpretations of the moral status of the human embryo and the aborted human fetus. There are, first, a significant number of Catholics, including present spokespersons for the American bishops,³ who make the case *against*. They argue that human embryos must be protected on a par with human persons—at least to the extent that they should not be either created or destroyed merely for research purposes. Moreover, the use of aborted fetuses as a source for stem cells, while not in one sense different from the harvesting of tissue from any human cadavers, nonetheless should be prohibited because it is complicit with and offers a possible incentive for elective abortion. (If the fetuses in question have been spontaneously aborted, however, some opening is allowed for their use in this research.⁴) Part of the case against embryo stem cell research also rests on the identification of alternatives (the use of adult cells, dedifferentiated and redifferentiated into specific lineages⁵). One can also presume that the case against embryo stem cell research includes a case against cloning, if and insofar as this research incorporates steps involved in procedures for cloning.⁶

But on the other hand, a case *for* human embryo stem cell research can also be made on the basis of positions developed within the Catholic tradition. A growing number of Catholic moral theologians, for example, do not consider the human embryo in its earliest stages (prior to the development of the primitive streak or to implantation) to constitute an individualized human entity with the settled inherent potential to become a human person. The moral status of the embryo is, therefore (in this view), not that of a person, and its use for certain kinds of research can be justified. (Because it is, however, a form of human life, it is due some respect—for example, it should not be bought or sold.) Those who would make this case argue for a return to the centuries-old Catholic position that a certain amount of development is necessary in order for a conceptus to warrant personal status.⁷ Embryological studies now show that fertilization (“conception”) is itself a process (not a “moment”), and such studies provide support for the opinion that in its earliest stages (including the blastocyst stage, when stem cells would be extracted for purposes of research) the embryo is not sufficiently individualized to bear the moral weight of personhood.⁸ Moreover, some of the concerns regarding the use of aborted fetuses as a source for stem cells can be alleviated if safeguards (such as ruling out “direct” donation for this purpose⁹) are put in place—not unlike the restrictions articulated for the general use of fetal tissue for therapeutic transplantation. And finally, concerns about cloning may be at least partially addressed by insisting on an absolute barrier between cloning for research and therapeutic purposes on the one hand and cloning for reproductive purposes on the other (the latter, of course, raising many more serious ethical questions than the former).

We have, then, two opposing cases articulated within the Roman Catholic tradition. It would be a mistake to conclude that what this tradition has to offer, however, is only a kind of “draw.” It offers, rather, an ongoing process of discernment that remains faithful to a larger set of theological and ethical convictions, that takes account of the best that science can tell us about some aspects of reality, and that aims to make one or the other case persuasive on the basis of reasons whose intelligibility is open to the scrutiny of all. I myself stand with the case *for* embryonic stem cell research, and I believe this case can be made persuasively both within the Catholic tradition and in the public forum. The newest information we have from embryological studies supports this case, and I would argue that it can be made without sacrificing the tradition’s commitments to respect human life, promote human well-being, and honor the sacred in created realities. Further, to move forward with human embryonic stem cell research need not soften the tradition’s concerns to oppose the commercialization of human life and to promote distributive justice in the provision of medical care.¹⁰

Our tradition’s ongoing conversation on such matters yields more light than I have time to show here. It is also a reminder to all of us of the importance of epistemic humility, especially if and as we decide to open more and more room for the human control of creation.

Notes

1 This implies that for those in the Roman Catholic tradition, a goal of longer and longer life spans is not an unqualified or in itself absolute good. This has some relevance for arguments for stem cell research that suggest a major goal of a greatly expanded human life span.

2 Hence, the intelligibility of “realities” is not such that their meaning is immediately obvious. What is given to our understanding through experience is not only always partial, but it must always be *interpreted*.

3 See Doerflinger, R., “Destructive Stem-Cell Research on Human Embryos,” *Origins* 28 (1999):769–773; see also “Donum Vitae (Respect for Human Life),” *Origins* 16 (1987):697–711; and Grisez, G., “When Do People Begin?” *Proceedings of the American Philosophical Association* 63 (1990).

4 The difficulty often noted regarding this option, however, is that spontaneously aborted fetuses are frequently not a source for healthy cells or tissue (there is a reason why they spontaneously aborted).

5 See, for example, Pittenger, M.F., et al., “Multilineage Potential of Adult Human Mesenchymal Stem Cells,” *Science* 284 (1999):143–147; and Wade, N., “Discovery Bolsters a Hope for Regeneration,” *New York Times* (2 April 1999). This alternative could prove to be extremely important precisely because it does not involve the harvesting of stem cells either from embryos or from aborted fetuses. Many scientists, however, consider this alternative as too distant (in terms of the research still needed to develop it) to be a realistic competing possibility.

6 There is insufficient time to expand on the relevance of this point. But some stem cell research, at least, does involve the first stages of cloning—although the goal is not to bring a clone to birth.

7 See, for example, Donceel, J., “Immediate and Delayed Hominization,” *Theological Studies* 31 (1970):76–105. The early views on this matter were, of course, based on inadequate knowledge of reproductive biology, and twentieth-century views that hold the presence of potential for personhood from the “moment” of conception are based on more adequate knowledge. The contemporary position on delayed “hominization,” however, is argued on the basis of more recent embryological studies. For the Catholic tradition, science is extremely important for theology, though it is not determinative in every case.

8 See, for example, Shannon, T.A., and Walter, A.B., “Reflections on the Moral Status of the Pre-Embryo,” *Theological Studies* 51 (1990):603–626; McCormick, R.A., “Who or What Is the Preembryo?” *Corrective Vision: Explorations in Moral Theology* (Kansas City, MO: Sheed and Ward, 1994), 176–188; and Cahill, L.S., “The Embryo and the Fetus: New Moral Contexts,” *Theological Studies* 54 (1993):124–142.

9 That is, ruling out the possibility of a woman who elects abortion directly donating fetal stem cells for therapeutic treatment of someone she knows. Other safeguards insist that the investigator also not be the attending physician for an abortion.

10 These and other concerns are urgent in regard to the overall question of human stem cell research. However, there is insufficient time to pursue them, or even articulate them, here.

Testimony of

Gilbert C. Meilaender, Jr., Ph.D.

Valparaiso University

Thank you for the invitation to address your Commission. I had such an opportunity on one previous occasion, and, at the risk of simply repeating myself, I would like at the outset to make clear just a few of the qualifications that must be applied to everything I say here today.

As I understand it, I have been invited to speak specifically in my capacity as a Protestant theologian, and I will try to do so. At the same time, I cannot claim to speak for Protestants generally—alas, no one can. I will, however, try to draw on several theologians who speak from within different strands of Protestantism. I think you can and should assume that a significant number of my co-religionists more or less agree with the points I will make. You can, of course, also assume that other Protestants would disagree, even though I like to think that, were they to ponder these matters long enough, they would not.

Moreover, I have tried not to think of what I am doing as an attempt by some Protestant “interest group” to put its oar into your deliberations. Although I will begin as best I can from somewhere rather than nowhere, that is, from within a particular tradition, its theological language seeks to uncover what is universal and human. It begins epistemologically from a particular place, but it opens up ontologically a vision of the human. You might, therefore, be interested in it not only because it articulates the view of a sizable number of our fellow citizens but also because it seeks to uncover a vision of the life that we share.

Finally, I confess at the outset that the topic before you—human embryonic stem cell research—raises for me complexities that I do not fully understand. As I have tried to follow recent developments, they have often seemed bewildering. You, no doubt, understand them better than I, but perhaps I can also bring an angle of vision that will enrich your deliberations.

To that end I will make three points. For each of the three points, I will take as my starting point a sentence from a well-known Protestant thinker—not in order to claim that theologian’s authority for or agreement with what I have to say, but simply to provide some “texts” with which to begin my reflections.

First, a passage from Karl Barth, perhaps the greatest of twentieth-century theologians, who writes from the Reformed (Calvinist) tradition: “No community, whether family, village or state, is really strong if it will not carry its weak and even its very weakest members.”¹

This sentence invites us to ponder the status of the human embryo—the source of many, though not all, of the stem cells that would be used in research. One of the complexities that I do not fully understand involves the question of whether stem cells are not themselves and cannot develop into embryos. I will assume that they are not and cannot, although perhaps I need to be instructed further on this matter. Even in making this assumption, however, we face the fact that procuring embryonic stem cells for research requires the destruction of the embryo. Hence, we cannot avoid thinking about its moral status.

No doubt in our society it is impossible to contemplate this question without feeling sucked back into the abortion debate, and we may sometimes have the feeling that we cannot consider any other related question without always ending up arguing about abortion. Perhaps there is something to that, and I will not entirely avoid it myself before I am done, but the question of using (and destroying) embryos in research is a separate question. The issue of abortion, as it has been framed in our society’s debate and in Supreme Court decisions, has turned chiefly on a conflict between the claims of the fetus and the claims of the pregnant woman. It is precisely that conflict, and our seeming inability to serve the woman’s claim without turning directly against the life of the fetus, that has been thought to justify abortion. But there is no such direct conflict of lives involved in the instance of embryo research.

Here, as in so many other areas of life, we must struggle to think inclusively rather than exclusively about the human species, about who is one of us, and about whose good should count in the common good we seek to fashion. The embryo is, I believe, the weakest and least advantaged of our fellow human beings, and no community is really strong if it will not carry its weakest members.

This is not an understanding shaped chiefly in the fires of recent political debate; rather, it has very deep roots in Christian tradition, and, invited as I have been to address you from within that tradition, I need to

explore briefly those roots. We have become accustomed in recent years to distinguishing between persons and human beings, to thinking about personhood as something added to the existence of a living human being—and then to debating where to locate the time when such personhood is added. There is, however, a much older concept of the person—for which no threshold of capacities is required—that was deeply influential in Western history and that had its roots in some of the most central Christian affirmations. The moral importance of this understanding of the person has been noted recently by the Anglican theologian, Oliver O'Donovan.²

Christians believed that in Jesus of Nazareth, divine and human natures were joined in one person, and, of course, they understood that it was not easy to make sense of such a claim. For if Jesus had both divine and human natures, he would seem to be two persons, two individuals, identified in terms of two sets of personal capacities or characteristics—a sort of chimera, we might say, in terms appropriate to this gathering.

So Christian thinkers turned in a different direction that was very influential in our culture's understanding of what it means to be an individual. In their view, a person is not someone who has a certain set of capacities; a person is simply, as O'Donovan puts it, a "someone who"—a someone who has a history. That story, for each of us, begins before we are conscious of it, and, for many of us, may continue after we have lost consciousness of it. It is nonetheless our personal history even when we lack awareness of it, even when we lack or have lost certain capacities characteristic of the species.

This is, as I noted, an insight that grew originally out of intricate Christological debates carried on by thinkers every bit as profound as any we today are likely to encounter. But starting from that very definite point, they opened up for us a vision of the person that carries deep human wisdom, that refuses to think of personhood as requiring certain capacities, and that therefore honors the time and place of each someone who has a history. In honoring the dignity of even the weakest of living human beings—the embryo—we come to appreciate the mystery of the human person and the mystery of our own individuality.

Second, a sentence from the late John Howard Yoder, a well-known Mennonite theologian: "I am less likely to look for a saving solution if I have told myself beforehand that there can be none, or have made advance provision for an easy brutal one."³

Stem cell research is offered to us as a kind of saving solution, and it is not surprising therefore that we should grasp at it. Although I suspect that promises and possibilities could easily be oversold, none of us should pretend to be indifferent to attempts to relieve or cure heart disease, Parkinson's and Alzheimer's diseases, or diabetes. Suffering, and even death, are not the greatest evils of human life, but they are surely bad enough—and all honor goes to those who set their face against such ills and seek to relieve them.

The sentence from Yoder reminds us, however, that we may sometimes need to deny ourselves the handiest means to an undeniably good end. In this case the desired means will surely involve the creation of embryos for research—and then their destruction. The human will, seeing a desired end, takes control, subjecting to its desire even the living human organism. We need to ask ourselves whether this is a road we really want to travel to the very end. Learning to think of human beings as will and freedom alone has been the long and steady project of modernity. At least since Kant, ethics has often turned to the human will as the only source of value. But C. S. Lewis, an Anglican and surely one of the most widely read of twentieth-century Christian thinkers, depicted what happens when we ourselves become the object of this mastering will:

We reduce things to mere Nature in order that we may 'conquer' them. We are always conquering Nature, because 'nature' is the name for what we have to some extent conquered. The price of conquest is to treat a thing as mere Nature....The stars do not become Nature till we can weigh and measure them: the soul does not become Nature till we can psycho-analyse her. The wresting of powers from Nature is also the surrendering of things to Nature. As long as this process stops short of the final stage we may well hold that the gain outweighs the loss.

But as soon as we take the final step of reducing our own species to the level of mere Nature, the whole process is stultified, for this time the being who stood to gain and the being who has been sacrificed are one and the same. This is one of the many instances where to carry a principle to what seems its logical conclusion produces absurdity. It is like the famous Irishman who found that a certain kind of stove reduced his fuel bill by half and thence concluded that two stoves of the same kind would enable him to warm his house with no fuel at all. . . . [I]f man chooses to treat himself as raw material, raw material he will be.⁴

What Yoder reminds us is that only by stopping, only by declining to exercise our will in this way, do we force ourselves to look for other possible ways to achieve admittedly desirable ends. Only by declining to use embryos for this research do we awaken our imaginations and force ourselves to seek other sources for stem cells—as may be possible, for example, if recent reports are to be believed, by deriving stem cells from bone marrow or from the placenta or umbilical cord in live births. The discipline of saying no to certain proposed means stimulates us to think creatively about other, and better, possibilities.

One such possibility will, however, be almost as controversial as deriving stem cells from embryos, and it must, therefore, be noted here. I refer to the possibility of deriving stem cells from the germ cells of aborted fetuses. I have opposed the use of embryos for stem cell research, and I also want, in the last analysis, to oppose this method of acquiring the cells, but the reasons are not immediately apparent. On the face of it, after all, this is simply another form of tissue or organ donation from a cadaver. It does not use—or create and then use—a living human being solely for research purposes. Obviously, though, it threatens to suck us back into the situation I described earlier: where every problem becomes, ultimately, the abortion problem. And here, I fear, we cannot so easily separate the issues, although there are, of course, various procedural safeguards that can be put in place in order to try to assure ourselves that the promised benefits of research do not in any way encourage abortion.

We can clarify our own judgments on the matter by two simple thought experiments that aim to distinguish the several moral issues interwoven here. Would we object to research using tissue acquired only from spontaneously aborted (miscarried) fetuses? I cannot see why we should—though, of course, it is not really very helpful to propose such a source. Would we object to research using tissue acquired only from those abortions which, though induced and intended, were abortions we thought permissible (however large or small that class might be)? This, at least in my view, is a harder call. But to use for the benefit of others those whom we have already (even if legitimately) condemned to die is so clearly an example of the strong using the weak that I think we should draw back and say no. The life of a human being has been sacrificed in abortion, legitimately, by hypothesis, for the good of someone else. And, as Kathleen Nolan once put it, “a moral intuition insists that being used once is enough.”⁵ We need to challenge ourselves to look for other, better solutions.

Third, a passage from Stanley Hauerwas, a Methodist theologian: “The church’s primary mission is to be a community that keeps alive the language and narrative necessary to form lives in a truthful manner.”⁶

Hauerwas does not mean that Christians are necessarily more truthful than other people. He means that, when they are doing what they ought to be doing, they worry lest we deceive ourselves, lest we fail to speak the truth about who we are individually and communally, and about what we are doing. This is certainly important for our larger society, and I am quite sincere when I say that—whatever this Commission decides to recommend—you can do us all an enormous service if you will speak truly and straightforwardly and if you will help us avoid euphemism and equivocation, so that we may together think clearly about who we are and wish to be.

What, more precisely, do I have in mind? I have in mind matters such as the following: that we avoid sophistic distinctions between funding research on embryonic stem cells and funding the procurement of those cells from embryos; that we not deceive ourselves by supposing that we will use only “excess” embryos from

infertility treatments, having in those treatments created far more embryos than are actually needed;⁷ that we speak simply of embryos, not of the “pre-embryo” or the “pre-implantation embryo” (which is really the unimplanted embryo); and that, if we forge ahead with embryonic stem cell research, we simply scrap the language of “respect” or “profound respect” for those embryos that we create and discard according to our purposes. Such language does not train us to think seriously about the choices we are making, and it is, in any case, not likely to be believed. You can help us to think and speak truthfully, and that would be a very great service indeed.

I have pressed these three points with some reluctance, because I have the sense—as you may well imagine—that I will be taken to be standing athwart history and yelling, “Stop!” But it is a risk worth taking. We may easily deceive ourselves about what we do—especially when we do it in a good cause, with a good conscience. We need help if we are to learn to speak truthfully and to face with truthfulness the choices we make, and, whatever this Commission’s precise determinations, I hope you will give us such help.

Notes

1 Barth, K., *Church Dogmatics*, III/4 (T. & T. Clark, 1961), 424.

2 O’Donovan, O., *Begotten or Made?* (Clarendon Press, 1984), 49–66.

3 Yoder, J.H., “What Would You Do If...? An Exercise in Situation Ethics,” *Journal of Religious Ethics* 2 (1974):91.

4 Lewis, C.S., *The Abolition of Man* (Macmillan, 1947), 82–84.

5 Nolan, K., “*Genug ist Genug*: A Fetus Is Not a Kidney,” *Hastings Center Report* 18 (1988):14.

6 Hauerwas, S., *Truthfulness and Tragedy* (University of Notre Dame Press, 1977), 11.

7 That this is not simply my private suspicion can be seen from the following passage from Andrews, L.B., “Legal, Ethical, and Social Concerns in the Debate Over Stem-Cell Research,” *Chronicle of Higher Education* (29 Jan 1999):B5. “Moreover, as embryos become valuable to biotech companies as sources of cell lines, doctors may increase the dose of fertility drugs to insure that multiple embryos are created—in effect, to manufacture more ‘excess’ embryos.”

Testimony of

Edmund D. Pellegrino, M.D.

Georgetown University

I am grateful for the opportunity to appear before this Commission to present a Roman Catholic perspective on the moral issues involved in stem cell research. I speak as an individual physician, ethicist, and former clinical and laboratory investigator. Because of limited time, I shall confine myself to a summary of the moral issues. I have read and agree with the testimony regarding the legal and moral issues presented by Mr. Richard Doerflinger of the National Conference of Catholic Bishops on April 16 of this year.

I will argue against the moral acceptability of research involving embryonic stem cells obtained from *in vitro*-fertilized blastocysts and embryonic primordial germline cells obtained from aborted fetuses. My objections are grounded in the following: 1) my understanding of the teachings of the Roman Catholic Church about the moral status of the fetus and embryo, 2) the insufficiency of the utilitarian arguments that would justify destruction or discarding of embryos, and 3) the practical difficulties of effectively regulating the practice even if it were morally defensible.

I recognize, as do Roman Catholics generally, the great potential for human therapeutics in stem cell research. I do not oppose stem cell research per se if the cells are obtained from sources such as adult humans, miscarriages, or placental blood. What is morally unsustainable is the harvesting of stem cells by either of two currently proposed methods: 1) the creation and destruction of human embryos at the blastocyst stage by removal of the inner cell mass or 2) the harvesting of primordial germ cells from aborted fetuses. Both cases involve complicity in the direct interruption of a human life, which Roman Catholics believe has a moral claim to protection from the first moments of conception. In both cases, a living member of the human species is intentionally terminated.

In the Roman Catholic view, human life is a continuum from the one-cell stage to death. At every stage, human life has dignity and merits protection. Upon conception, the biological and ontological individuality of a human being is established. Human development unfolds in an orderly way, and each stage of that development must be treated as an end in itself, not as a mere means to other ends, however useful they might be to others.

The Roman Catholic perspective, therefore, rejects the idea that full moral status is conferred by degrees or is achieved at some arbitrary point in development. Such arbitrariness is liable to definition more in accord with experimental need than ontological or biological reality. Terms such as “pre-embryo” or “pre-implantation embryo” seem to be contrivances rather than biological or ontological realities.

Also rejected are socially constructed models that leave moral status to definition by social convention. In this view, moral status may be conferred at different times, or taken away, depending on social norms. This is a particularly perilous model for the most vulnerable among us: fetuses, embryos, the mentally retarded, or those in permanent vegetative states. The horrors of genocide in current events force us to recognize how distorted social convention can become, even in presumably civilized societies.

There is, admittedly, a difference in moral gravity in harvesting cells from aborted fetuses if the act of terminating life is clearly separated from the use of the harvested cells. The moral problem of complicity remains, however, because Roman Catholics believe abortion to be intrinsically wrong. To use tissue from an aborted fetus is morally akin to using the data from unethical human experimentation under dictatorial regimes. For most Roman Catholics, both the fetus and the embryo have the same moral claim to protection of their lives, even though the moral gravity of use of their respective tissues may be different.

In addition to objections to the current sources for stem cells, the moral arguments for permitting embryonic stem cell research are faulty. Only a few of these arguments can be mentioned here. One argument is that the so-called spares (fertilized ova) that result from *in vitro* fertilization will be discarded anyway, so why not use them? But the facts are otherwise: Many spare embryos have been frozen; all have not been destroyed, even though permission may have been given. The fate of spare embryos is, therefore, not as certain as we may suppose.

Even if parents were to consent to use of their spare embryos, this would not change the inherent moral status of the embryo itself. Embryos created specifically for research do not have a different moral status than embryos created for reproductive purposes. In both cases, the embryo would be treated as a means to an end. Its inherent moral status is violated because it must be killed in order to obtain stem cells. There is no moral or legal basis for subjecting any member of the human species to harm or death in nontherapeutic research based on the prediction that it will die anyway, no matter how certain that prediction may be.

The Department of Health and Human Services has argued that funds can be used for research on cells obtained by the destruction of embryos so long as the act of destruction, itself, is not federally funded. I will not address the question of whether this reasoning distorts the intent of Congress in prohibiting use of federal funds for embryo destruction. But it is reasonable to question the logic of moral cleansing of the act of destruction by this artificial separation of killing the embryo and using its cells.

An issue of complicity as well as justice lies in the use of tissues from aborted fetuses or therapies developed from the destruction of embryos. Many Catholics, and probably others, would object, as some already do, to vaccines and transplants derived from the use of those sources in ways they take to be immoral. Catholic hospitals could not on principle use such therapies. Supporting such research from federal funds would impose an injustice on Catholics, who would be forced into complicity through taxation even though they perceive grave moral harm in the practice, however legal it may be.

Even in the general public, there is as yet no overwhelming moral consensus for approval of the destruction of embryonic human life for experimental purposes. Even if there were such a consensus, the moral dilemmas would still exist for many members of our society. Opinion polls and plebiscites do not per se establish moral norms.

Those who favor embryonic stem cell research, like the Human Embryo Research Panel, grant, as have legal opinions, that the embryo should be treated with “respect.” When we inquire into what this means, it seems to be merely an assurance that these embryos will be destroyed only in “...research that incorporates substantive values such as reduction of human suffering.”¹ This is a fragile form of respect, since it makes the embryo’s dignity and value conditional on something other than its intrinsic value.

Even if these and many other ethical issues were surmountable—as I think they are not—much of the argument for embryonic stem cell research rests on the promise to control abuses by appropriate legal regulation. How is it possible to separate “spare embryos” from embryos intentionally produced as stem cell sources? The temptation to make “spares” is obvious. In any case, we cannot, and should not, post monitors in every laboratory. Morality has always depended on character, not on legal regulation.

The temptation to stretch the moral envelope is already apparent. Clearly, a major biological problem is how to direct pluripotential stem cells to take a desired direction—let us say, towards myocytes rather than osteocytes. The question of whether cells a little further along in differentiation might not be more successful already has been raised. The pressure to use somewhat more mature cells will mount, if only to test the hypothesis. Furthermore, it is not at all certain that frozen spare cells will actually function the same way as “fresh” cells. The temptation to create, or “find,” spare cells during *in vitro* fertilization will be strong. Finally, it is still uncertain that pluripotential cells are not totipotential and capable of developing into a complete human embryo.

There are also the obvious complications of profits and patents and the close association of the current research with the biotechnology industry. It is not unfair to question the “protection” provided by ethics review boards appointed by and serving corporate entities. This is not to impugn their motives, but only to recognize the conflicts of interest that occur when profit and prestige are at stake.

I believe the Commission would serve the public welfare and the cause of morality best if it were to reject any attempt to legitimize embryonic stem cell research from *in vitro* fertilized-blastocysts or from aborted

fetuses, the moral, legal, and practical impediments of which are of such great magnitude and complexity. The Commission should instead strongly encourage the funding and development of alternate sources of stem cells—those that do not depend on the destruction of living human embryos or make use of cells from induced abortions. In light of the rapid developments in this field, the possibility and probability of the development of morally acceptable sources of stem cells is a reality. Therefore, both scientific and ethical prudence would dictate a delay in the implementation of any policy covering such research.

Like all scientific research, stem cell research has tremendous potential for human benefit. But without ethical constraints, it can easily overshadow the very humanity it purports to benefit. As presently conceived, human stem cell research goes beyond the boundaries of moral acceptability.

Note

1 Geron Ethics Advisory Board, “Research with Human Embryonic Stem Cells: Ethical Considerations,” *Hastings Center Report* March/April (1999):32–33.

Testimony of

Abdulaziz Sachedina, Ph.D.

University of Virginia

Islamic Perspectives on Research with Human Embryonic Stem Cells

Thank you very much for inviting me to give an Islamic perspective on human stem cell research. I do not represent a particular school of thought (“church”) in Islam; rather, I speak for the Islamic tradition in general, which is a textual tradition. I have been able to examine a number of primary and secondary sources that have been produced by scholars representing different schools of thought. Two major sects or schools of thought, the Sunni, who form the majority in the Muslim community, and the Shi`ite, who form the minority, do not represent an Orthodox/Reform divide; instead, they are both “orthodox” in the sense that both base their arguments on the same set of texts that are recognized as authoritative by all of their scholars. And yet, it is important to keep in mind the plurality of interpretations displayed by the “traditionalists” and “conservatives” on the one hand, and the “liberals” on the other.

The ethical-religious assessment of research uses of pluripotent stem cells derived from human embryos in Islam can be inferentially deduced from the rulings of the Shari`a, Islamic law, that deal with fetal viability and the sanctity of the embryo in the classical and modern juristic decisions. The Shari`a treats a second source of cells, those derived from fetal tissue following abortion, as analogically similar to cadaver donation for organ transplantation in order to save other lives, and hence, the use of cells from that source is permissible. For this presentation, I have researched three types of sources in Islamic tradition to assess the legal-moral status of the human embryo: commentaries on the Koranic verses that deal with embryology; works on Muslim traditions that speak about fetal viability; and juridical literature that treats the question of the legal-moral status of the human fetus (*al-janin*).

Historically, the debate about the embryo in Muslim juridical sources has been dominated by issues related to ascertaining the moral-legal status of the fetus. In addition, in order to provide a comprehensive picture representing the four major Sunni schools and one Shi`ite legal school, I have investigated diverse legal decisions made by their major scholars on the status of the human embryo and the related issue of abortion in order to infer religious guidelines for any research that involves the human embryo.

Let me repeat here, as I did when I testified to the Commission about Islamic ethical considerations in human cloning, that since the major breakthrough in scientific research on embryonic stem cells that occurred in November 1998, I have not come across any recent rulings in Islamic bioethics regarding the moral status of the blastocyst from which the stem cells are isolated.

The moral consideration and concern in Islam have been connected, however, with the fetus and its development to a particular point when it attains human personhood with full moral and legal status. Based on theological and ethical considerations derived from the Koranic passages that describe the embryonic journey to personhood developmentally and the rulings that treat ensoulment and personhood as occurring over time almost synonymously, it is correct to suggest that a majority of the Sunni and Shi`ite jurists will have little problem in endorsing ethically regulated research on the stem cells that promises potential therapeutic value, provided that the expected therapeutic benefits are not simply speculative.

The inception of embryonic life is an important moral and social question in the Muslim community. Anyone who has followed Muslim debate over this question notices that its answer has differed at different times and in proportion to the scientific information available to the jurists. Accordingly, each period of Islamic jurisprudence has come up with its ruling (*fatwa*), consistent with the findings of science and technology available at that time. The search for a satisfactory answer regarding when an embryo attains legal rights has continued to this day.

The life of a fetus inside the womb, according to the Koran, goes through several stages, which are described in a detailed and precise manner. In the chapter entitled “The Believers” (24), we read the following verses:

We created (*khalaqna*) man of an extraction of clay, then We set him, a drop in a safe lodging, then We created of the drop a clot, then We created of the clot a tissue, then We created of the tissue bones, then we covered the bones in flesh; thereafter We produced it as another creature. So blessed be God, the Best of creators (*khaliqin*) (K. 24:12–14)!

In another place, the Koran specifically speaks about “breathing His own spirit” after God forms human beings:

Human progeny He creates from a drop of sperm; He fashions his limbs and organs in perfect proportion and breathes into him from His own Spirit (*ruh*). And He gives you ears, eyes, and a heart. These bounties warrant your sincere gratitude, but little do you give thanks (K. 41:9–10).

And your Lord said to the angels: ‘I am going to create human from clay. And when I have given him form and breathed into him of My life force (*ruh*), you must all show respect by bowing down before him’ (K. 38:72–73).

The commentators of the Koran, who were in most cases legal scholars, drew some important conclusions from this and other passages that describe the development of an embryo to a full human person. First, human creation is part of the divine will that determines the embryonic journey developmentally to a human creature. Second, it suggests that moral personhood is a process and achievement at the later stage in biological development of the embryo when God says: “*thereafter* We produced him as another creature.” The adverb “thereafter” clarifies the stage at which a fetus attains personhood. Third, it raises questions in Islamic law of inheritance as well as punitive justice, where the rights and indemnity of the fetus are recognized as a person, whether the fetus should be accorded the status of a legal-moral person once it lodges in the uterus in the earlier stage. Fourth, as the subsequent juridical extrapolations bear out, the Koranic embryonic development allows for a possible distinction between a biological and moral person because of its silence over a particular point when the ensoulment occurs.

Earlier rulings on indemnity for homicide in the Shari`a were deduced on the premise that the life of a fetus began with the appreciation of its palpable movements inside the mother’s womb, which occurs around the fourth month of pregnancy. In addition to the Koran, the following tradition on creation of human progeny provided the evidence for the concrete divide in pre- and post-ensoulment periods of pregnancy:

Each one of you possesses his own formation within his mother’s womb, first as a drop of matter for forty days, then as a blood clot for forty days, then as a blob for forty days, and then the angel is sent to breath life into him (*Sahih al-Bukhari* [d. 870] and *Sahih al-Muslim* [d. 875], *The Book of Destiny [qadar]*).

Ibn Hajar al-`Asqalani (d. 1449) commenting on the above tradition says:

The first organ that develops in a fetus is the stomach because it needs to feed itself by means of it. Alimentation has precedence over all other functions for in the order of nature growth depends on nutrition. It does not need sensory perception or voluntary movement at this stage because it is like a plant. However, it is given sensation and volition when the soul (*nafs*) attaches itself to it (*Fath al-bari fi sharh al-Sahih al-bukhari, kitab al-qadar*, 11:482).

A majority of the Sunni and some Shi`ite scholars make a distinction between two stages in pregnancy divided by the end of the fourth month (120 days) when the ensoulment takes place. On the other hand, a majority of the Shi`ite and some Sunni jurists have exercised caution in making such a distinction because they

regard the embryo in the pre-ensoulment stages as alive and its eradication as a sin. That is why Sunni jurists in general allow justifiable abortion within that period, while all schools agree that the sanctity of fetal life must be acknowledged after the fourth month.

The classical formulations based on the Koran and the Tradition provide no universally accepted definition of the term “embryo.” Nor do these two foundational sources define the exact moment when a fetus becomes a moral-legal being. With the progress in the study of anatomy and in embryology, it is confirmed beyond any doubt that life begins inside the womb at the very moment of conception, right after fertilization and the production of a zygote. Consequently, from the earliest stage of its conception, an embryo is said to be a living creature with sanctity whose life must be protected against aggression. This opinion is held by Dr. Hassan Hathout, a physician by training, who was unable to be here today. This scientific information has turned into a legal-ethical dispute among Muslim jurists over the permissibility of abortion during the first trimester and the destruction of unused embryos, which would, according to this information, be regarded as living beings in the *in vitro* fertilization clinics. Some scholars have called for ignoring the sanctity of fetal life and permitting its termination at that early stage.

A tenable conclusion held by a number of prominent Sunni and Shi`ite scholars suggests that aggression against the human fetus is unlawful. Once it is established that the fetus is alive, the crime against it is regarded as a crime against a fully formed human being. According to these scholars, science and experience have unfolded new horizons that have left no room for doubt in determining signs of life from the moment of conception. Yet, as participants in the act of creating and curing with God, human beings can actively engage in furthering the overall good of humanity by intervening in the works of nature, including the early stages of embryonic development, to improve human health.

The question that still remains to be answered by Muslim jurists in the context of embryonic stem cell research is, When does the union of a sperm and an ovum entail sanctity and rights in the Shari`a? Most of modern Muslim opinions speak of a moment beyond the blastocyst stage when a fetus turns into a human being. Not every living organism in a uterus is entitled to the same degree of sanctity and honor as is a fetus at the turn of the first trimester.

The anatomical description of the fetus as it follows its course from conception to a full human person has been closely compared to the tradition about three periods of 40-day gestation to conclude that the growth of a well-defined form and evidence of voluntary movement mark the ensoulment. This opinion is based on a classical ruling given by a prominent Sunni jurist, Ibn al-Qayyim (d. 1350):

Does an embryo move voluntarily or have sensation before the ensoulment? It is said that it grows and feeds like a plant. It does not have voluntary movement or alimentation. When ensoulment takes place voluntary movement and alimentation is added to it (*Ibn al-Qayyim, al-Tibyan fi aqşam al-qur’an*, 255).

Since there is no unified juridical-religious body representing the entire Muslim community globally, different countries have followed different classical interpretations of fetal viability. Thus, for instance, Saudi Arabia, might choose to follow Ibn Qayyim; while Egypt might follow Ibn Hajar al-`Asqalani. We need to keep in mind that the same plurality of the tradition is operative in North America when it comes to making ethical decisions on any of the controversial matters in medical ethics. Nevertheless, on the basis of all the evidence examined for this testimony, it is possible to propose the following as acceptable to all schools of thought in Islam:

1. The Koran and the Tradition regard perceivable human life as possible at the *later* stages of the biological development of the embryo.

-
2. The fetus is accorded the status of a legal person only at the later stages of its development, when perceptible form and voluntary movement are demonstrated. Hence, in earlier stages, such as when it lodges itself in the uterus and begins its journey to personhood, the embryo cannot be considered as possessing moral status.
 3. The silence of the Koran over a criterion for moral status (i.e., when the ensoulment occurs) of the fetus allows the jurists to make a distinction between a biological and a moral person, placing the latter stage after, at least, the first trimester of pregnancy.

Finally, the Koran takes into account the problem of human arrogance, which takes the form of rejection of God's frequent reminders to humanity that God's immutable laws are dominant in nature and that human beings cannot willfully interfere to cause damage to others. "The will of God" in the Koran has often been interpreted as the processes of nature uninterfered with by human action. Hence, in Islam, research on stem cells made possible by biotechnical intervention in the early stages of life is regarded as an act of faith in the ultimate will of God as the Giver of all life, as long as such an intervention is undertaken with the purpose of improving human health.

Testimony of

Rabbi Moshe Dovid Tendler, Ph.D.
Yeshiva University

Stem Cell Research and Therapy: A Judeo-Biblical Perspective

I. Pre-Introduction

There is something unreal about this National Bioethics Advisory Commission meeting at which the focus is on religious views on the humanhood of stem cells or of pre-embryos. The death-dealing silence of the leaders of organized religion as to the humanhood of men, women, and children subjected to murder, rape, exile, torture, and hunger, raises the question of “who cares?” Do the views of religious leaders mean anything to anybody anymore? Ambiguity and indecision in the face of crimes against humanity is an admission that organized religion has failed in its mission to humanize animal-man. The amorality of this silence may indeed be more destructive of the moral fabric of society than the immorality of the perpetrators of the crimes.

The prophet Elija cried out in exasperation (Kings I 18:21), “How long will you vacillate between G-d and idolatry?” If you would but take a stand I could then hope to influence you with the truth and beauty of our faith. Ambiguity and indecision are fatal to any social order based on morals and ethics.

II. Introduction

The chronology of American laws that affect the funding of fetal cell research represents a record of ambiguity regarding the “humanhood” of the embryo.

- 1) 1973 - *Roe v. Wade* conferred a constitutional right on women who decide to have an abortion during the first trimester of gestation.
- 2) 1988 - In March, a National Institutes of Health (NIH) panel concluded that existing regulations permitted federal support for fetal transplantation research, such as using fetal brain cells to treat Parkinsonism. The Reagan administration imposed a moratorium on the grounds that fetal cell research would encourage abortion by ameliorating the heinous nature of the crime if some good would come from the abortus.
- 3) 1992 - President Clinton enacted into law the NIH panel recommendations with the provisions that the decision to have an abortion is determined independently from the research; that no fees are paid to women to donate the abortuses; and that no selection of the recipient by the donor is permitted.
- 4) 1998 - On October 21, Congress passed an Appropriations Act ordering that no funds can be used for any research in which embryos are destroyed or exposed to significant risk.
- 5) 1999 - On January 15, The Department of Health and Human Services Counsel advised that federal law permits NIH to support research conducted with stem cells obtained from embryos despite the ban on destroying or injuring embryos.

III. The Moral Status of the Embryo

There are two sources of human embryonic stem cells:

- 1) The inner cell mass of the blastocyst, consisting of approximately 140 cells 14 days post-conception. The Judeo-biblical tradition does not grant moral status to an embryo before 40 days of gestation. Such an embryo has the same moral status as male and female gametes, and its destruction prior to implantation is of the same moral import as the “wasting of human seed.” After 40 days—the time of “quickening” recognized in common law—the implanted embryo is considered to have humanhood, and its destruction is considered an act of homicide. Thus, there are two prerequisites for the moral status of the embryo as a

human being: implantation and 40 days of gestational development. The proposition that humanhood begins at zygote formation, even *in vitro*, is without basis in biblical moral theology.

2) Human embryonic germ cells are derived from gamete ridge tissue removed from an approximately eight-week-old aborted fetus. These cells, like human embryonic stem cells, are assumed to be pluripotent and immortal. The theological and secular moral concerns expressed in the long-running abortion drama that has for years disregarded the principle of separation of church and state is relevant to the use of human embryonic germ cells.

Biblical law as practiced for 3,500 years views the destruction of an eight-week-old fetus as tantamount to homicide. It is permitted only to save the endangered life of the mother. However, an abortus from a spontaneous or medically necessitated abortion may be used to further research for the benefit of mankind.

In the United States, the right of a woman to obtain a first trimester elective abortion is protected by our constitution. Surely, if all concerned give “fully informed consent,” the use of cells from such abortuses to provide life-saving therapy must be declared legal. In the Jewish tradition, which declares abortion after 40 days of gestation to be homicide, the use of the abortus in life-saving therapy is not precluded. An illicit act does not necessarily result in a prohibition to use the product of that act. For example, biblical law prohibits cross-breeding any two species of animal, such as a horse and a donkey. The product of such an illicit mating, the mule, may be used for the benefit of the owner, even though a biblical prohibition was transgressed (Maimonides Laws of Cross-Breeding [Klayim] 9:3).

In stem cell research and therapy, the moral obligation to save human life, the paramount ethical principle in biblical law, supersedes any concern for lowering the barrier to abortion by making the sin less heinous. Likewise, the expressed concern that this research facilitates human cloning is without merit. First, no reputable research facility is interested in cloning a human, which is not even a distant goal, despite the pluripotency of stem cells. Second, those on the leading edge of stem cell research know that the greater contribution to human welfare will come from replacement of damaged cells and organs by fresh stem cell products, not from cloning. Financial reward and acclaim from the scientific community will come from such therapeutic successes, not from cloning.

IV. Fences Around the Law

Jewish law consists of biblical and rabbinic legislation. A good deal of rabbinic law consists of erecting “fences” to protect biblical law. Surely our tradition respects the effort of the Vatican and fundamentalist Christian faiths to erect fences that will protect the biblical prohibition against abortion. But a fence that prevents the cure of fatal diseases must not be erected, for then the loss is greater than the benefit. In the Judeo-biblical legislative tradition, a fence that causes pain and suffering is dismantled. Even biblical law is superseded by the duty to save lives, except for the three cardinal sins of adultery, idolatry, and murder.

The commendable effort of the Catholic citizens of our country to influence legislation that will assist in preventing the further fraying of the moral fabric of our society must not impinge on the religious rights and obligations of others. Separation of church and state is the safeguard of minority rights in our magnificent democracy. Life-saving abortion is a categorical imperative in Jewish biblical law. Mastery of nature for the benefit of those suffering from vital organ failure is an obligation. Human embryonic stem cell research holds that promise. The recently announced joint effort between Geron Corporation and Roslyn Labs of Scotland (of Dolly fame) has its focus on the use of human embryonic stem cells to bolster a failing heart or liver, without need for immunosuppressive drugs or dependency on organ donors.

V. Ethical Concerns

If abortion and cloning are excluded from the analysis of the moral and ethical status of stem cell research and therapy—as they should be—what ethical concerns must be addressed? A succinct listing should suffice for those conversant with medical ethics literature.

1) Risk/Benefit Evaluation

If immunosuppressive therapy is needed after stem cell transplantation, the dangers inherent in “transplantation sickness” must be weighed against the benefit to be achieved. In general, only cases of fatal disease, such as vital organ failures, would justify such therapy.

The hope that human embryonic stem cells can provide cells or organs that are genetically identical with the patient via the Roslyn-Dolly technique would greatly expand the list of those eligible for such therapy.

2) Allocation of Scarce Resources

The decision to fund stem cell research must be weighed against other demands for governmental financial support. What funding must be redirected to this project? How many will benefit from such research, and how many will be deprived of funding for competing services such as preventive medicine, drug rehabilitation, and assisted reproductive technology?

Failure to fund human embryonic stem cell research will not stop this research. The private sector has already declared its readiness to support this research in return for the great profits that may accrue to investors. Decisions that prevent government support guarantee the financial success of the private sector and will surely result in hundreds of patents that will restrict other scientists from free access to the developing technology. Without government involvement in this area of research, “Wild-West” ethics will prevail. It is government guidelines that establish ethical principles for research that affect the private sector.

3) Fully Informed Consent

Fully informed consent can be a “can of worms,” given the different educational and social backgrounds of the parents who decide to abort, especially if permission for research use is requested in addition to any clinical application.

A broad-based educational effort directed at the clergy of the religious denominations that are represented in our great country, as well as at the schools, can help even this field.

4) Financial Reward

Should the donors share in the financial gains that may result from the research done with the donated stem cell lines that will be established? Surely altruism should not be demanded only of the cell line donor!

However, the critical contribution to any clinical application of human embryonic stem cell research is that of dedicated biomedical researchers. Cell lines can be obtained from any number of individuals; however, brilliant and dedicated biomedical research is the domain of the gifted few.

Testimony of

Kevin Wm. Wildes, S.J., Ph.D.

Georgetown University

Let me begin by thanking the Commission for undertaking its important work in the area of human embryonic stem cell research. As a Georgetown University faculty member, it is an honor to welcome you to Georgetown University, which was founded, in part, to foster dialogue between religious faiths and civil society on important matters.

In my brief testimony I would like to identify two important, though different, areas of profound moral concern of the Roman Catholic community regarding stem cell research using human embryos: the source of the stem cells used in the research and issues of social justice.

The Roman Catholic Bishops of the United States have made known their opposition to stem cell research, opposition that is based on the need to destroy human embryos in order to conduct this type of research.¹ Because the Bishops work from an assumption that the human embryo should be treated as a human person, destruction of the embryo to conduct research is morally problematic. If one begins with this assumption, then many of our commonly held views on research ethics come into play. Research ethics are grounded in an understanding of respect for persons that views the consent of the research subject as essential to the moral appropriateness of the research itself. Furthermore, any research that is undertaken should minimize the risks and harms to research subjects. In research involving human stem cells, consent cannot be obtained, and it is certain that harm will come to the embryos because they must be destroyed so that the research might take place.

The use of embryos in stem cell research, whether they be “spare” embryos or embryos created for research, presents a moral roadblock to that research, because the use of the embryos involves the destruction of human life for the sake of the research itself. Although the status of the embryo is clear in hierarchical statements about the embryo, this is a far-from-settled matter in our society, which is deeply divided over the moral standing of early human life. As Glenn McGee and Arthur Caplan have noted, “Embryonic and germ cell status is not a scientific matter. There is neither consensus nor fact from which to deduce the social meaning of different embryonic or fetal tissue.”²

Another possibility for obtaining stem cells for research is to develop them from fetal tissue. However, if the tissue comes from an aborted fetus, this, of course, leads to an immediate problem in the Roman Catholic tradition, because such a situation puts the research and the researcher in a compromised position. Here we have traditionally used the language of cooperation or complicity with evil to describe such situations. Since abortion is viewed as the destruction of human life, one cannot “profit” from evil or immoral actions. Indeed, this has been the position held on the use of fetal tissue in other types of experimentation. As an alternative, fetal tissue from spontaneous abortions could be used as a source for stem cell research. However, I am led to think that such tissues have not proven to be good sources for this type of research.

This latter point leads me to make clear something that may be too easily lost. That is, I do not think one can argue that there is, in Roman Catholic thought, opposition to stem cell research itself. The crucial moral issues and stumbling blocks are the problems of the derivation of the stem cells used in the research itself. That is, the destruction of embryos or the use of fetal tissue from abortion are the key moral problems. If you think that embryos should be treated as human persons, then it makes sense to argue that they should not be destroyed for purposes of research. However, if there were a way to conduct stem cell research without destroying human life, either embryonic or fetal, I do not think the Roman Catholic tradition would have a principled opposition to such research. Indeed, Richard Doerflinger closed his testimony before this Commission by saying: “This commission should urge the National Institutes of Health to devote its funds to stem-cell techniques and other promising avenues of research that in no way depend upon such killing.”³

It is important to point out, however, that there is no single Roman Catholic “position” on this topic or many moral topics. Like many issues in Catholic moral thought, there has been a long line of reflection on the moral standing of early human life.⁴ It is hard to see how one can speak of human personhood in the totipotent stage. Within the Roman Catholic tradition, how one views the status of the early embryo is often tied to

one's views about authority within the Church. The assumptions made about authority shape the arguments, positions, and premises one holds.

The second area of moral concern that comes from the Roman Catholic tradition is the concern that questions involving morality cannot be asked in isolation. Rather, such questions must be situated in the larger context of society and its just organization. That is, if we were to proceed with stem cell research, what type of review and oversight would be in place (in the way that we now review the use of human subjects in research and experimentation)?⁵ In addition, if one thinks with a Roman Catholic imagination, one must also ask about the questions of justice in devoting resources, especially national resources, to such research when there are so many other basic medical and health needs that are unmet. Issues of social and distributive justice are not easy to discuss in American society. Nonetheless, I would argue that the Roman Catholic tradition would say that such questions must be included in any discussion about how we organize our medical research and delivery.

Notes

1 Doerflinger, R., "Destructive Stem-Cell Research on Human Embryos," *Origins* 18 (1999):770–773.

2 McGee, G., and Caplan, A., "What's in the Dish?" *Hastings Center Report* 29 (1999):36–38.

3 Doerflinger, 773.

4 See, for example, Donceel, J., "Immediate and Delayed Hominization," *Theological Studies* 31 (1970):76–105; Shannon, T.A., and Walter, A.B., "Reflections on the Moral Status of the Pre-Embryo," *Theological Studies* 51 (1990):603–626; and Cahill, L., "The Embryo and the Fetus: New Moral Contexts," *Theological Studies* 54 (1993):124–142.

5 Tauer, C.A., "Private Ethics Boards and Public Debate," *Hastings Center Report* 29 (1999):43–45.

Testimony of

Laurie Zoloth, Ph.D.

San Francisco State University

The Ethics of the Eighth Day: Jewish Bioethics and Genetic Medicine

A Jewish Contribution to the Discourse

Introduction

When the first serious work in genetics became possible, the initial public reaction to the exploration of the genetically coded structure of the human being and the research on that code was a curious mixture of fascination and fear. The fascination has driven an intense public interest in each new genetic advance, project, or claim, as well as support for research projects that appear to have the potential for therapeutic use. The fear has prompted both initial caution and legislation to limit that very research.

Limits on the clinical use of genetic interventions and limits on research and testing were created for three reasons. First, technical barriers themselves made the successful manipulations of genetic material for reliable medical use highly risky endeavors. Hence, regulators and theorists focused on the issues of safety and avoidance of the clearly foreseeable chances for harm, understanding that even with the best of intentions, unforeseen error and unintended consequence were unavoidable. Second, the mere activity of intervention into human DNA was viewed with alarm, since such research seems to tamper with what are understood as the basic building blocks of human life itself. Third, since much of the proposed research on human molecular biology called for the use of gametes or early embryonic tissue and since such use involved questions at the heart of the most volatile issue in American political life, that of abortion, the scientific use of the human embryonic tissue to explore and manipulate human DNA was seen as a violation of essential moral limits.

Hence, political and legal “bright lines” were erected to prohibit certain experimental trajectories, and political and religious pressure was exhorted to prohibit research and curtail intellectual discourse in various aspects of the field. Additionally, the problems of informed consent and refusal that are raised by all sorts of medical research seemed uniquely daunting in this research, surrounded by both great and desperate hopes and sobering uncertainties. Given this, public funding sources available to researchers were limited, as Congress and the administration reflected on the issues, curtailing active searches for new techniques in this area. In particular, research on human embryos has been limited by federal bans on funding, and research on the manipulation and alteration of germline DNA for therapeutic medical purposes has been constrained by federal law.

But the enormous potential of such genetic intervention is a powerful incentive for this research, particularly as our understanding of disease has unfolded and the claim strengthened for a genetic etiology of many complex human disorders. Furthermore, as the practical technical skills of genetic scientists have improved, the ethical issues at the margins of genetic research have been raised for reconsideration. Private companies have continued to fund university researchers, and work on the human genome and embryonic cellular manipulation has continued. In fact, the research in human embryonic stem (ES) cells (the search for the “Holy Grail” of genetic research, itself a religiously freighted term¹) and the possibility of successful germline intervention have proceeded swiftly, and recent breakthroughs in this technology have again raised questions about the ethical implications for such interventions in the clinical context.

I have been asked to comment on the *halachic* and moral and historical context for such genetic research and to provide an analysis of how the field of Jewish bioethics might respond to the technologies being proposed in order to conduct this research. The National Bioethics Advisory Commission hearings are particularly important in reflecting on the use of human ES (hES) cells, and this testimony will focus on both the specific ethical issues regarding the use of hES cells and human embryonic germ (EG) cells, as well as the emerging and congruent issues that such cells allow us to consider. These are notes toward such a consideration that will serve to delineate the types of questions (rather than specific answers) that further work in bioethics will need to address.

Note on Methodology

In the Jewish ethical-legal tradition (*halachah*), which functions methodologically as a discursive community in which the justification is created by the force of moral suasion, no single authoritative voice or one particular council of authority speaks for the entire tradition or the community. Judaism itself is divided into four distinctive movements, each with a varying degree of allegiance to rabbinic and textual authority.² Hence, in confronting emerging ethical issues, what will serve best in beginning to frame a coherent Jewish understanding of these issues is the widest possible call for inquiry and the widest possible response.

This paper is a preliminary contribution in that direction, in which I raise what I argue are the framing questions for further debate. This is a broader step than a strictly halachic review, because I want to raise a wider set of questions in addition to the halachic ones, although my allegiance is to a halachic sensibility in my research. At stake in the halachic method of reasoning is the finding of cases that, while not having all of the same features as the case before us, have distinguishing moral appeals that might be similar to our case. Thinking broadly about the multiple dimensions of genetic research will allow us to capture and creatively debate which features will be the relevant ones that will then allow us to create normative outlines for social policy. In this, halachic reasoning is a form of linguistic, definitional analysis in which the parties to the debate seek epistemological commonality as a first step. However, as an important caveat, it is critical that we remember that the new terrain upon which we now find ourselves bears scant analogy to the terrain of the rabbinic world. The biology of the Talmud was still couched in terms later retracted, gamete reproduction was still not fully understood, and microbiological techniques were not even imagined.

There is another critical methodological point at which Jewish thought can be said to be distinctive. For Jewish ethics, the framing questions will be those of obligations, duties, and just relationships to the other, rather than the protection of rights, privacy, or ownership of the autonomous self. Because much of our thinking in contemporary American bioethics is rights based and relies on a model of intricate semi-legal contracts carefully made between autonomous and anonymous strangers, the idea of centering our obligations rather than worrying about our rights can seem simple-minded or naive. But the other-regarding binding gesture, this commanded act of justice, responsibility itself, is the first premise of Jewish ethics.³

In general, there are three categories we need to consider in thinking the issues through. The first is the general issue of whether the act that we are considering—that of allowing for the research, manipulation, and use of hES cells—is itself a good act. The research on stem cells—on the possibility of manipulating them, pushing them toward differentiation, or from pluripotency to totipotency, away from differentiation, and growing and collecting vast amounts of them—raises issues of use and meaning. Are human persons collections of potentially deconstruct-able and dismantle-able other parts, or even other selves?⁴ Here we need to address issues of goal, meaning, moral status, and the ontological nature of the person; the meaning and scope of medical intervention; the question of what constitutes disease and what normalcy; the relationship between God and human partners; the tension between faith and science; and the issue of safety. In general, these are problems of *telos*.

The next genre of question, important in a religious legal system such as Judaism, is whether the technical aspects of the complex manipulation required are themselves permitted. Here we need to address questions of origin, informed consent, the use of assisted reproductive technology (ART), such as *in vitro* fertilization (IVF), cell harvesting, the use of third parties, extra-coital reproduction, the perimeters of the family, contracts, the effect on the character of the researchers, and the issue of limits on the applications and participants. In general, these are problems of *process*.

The last category of questions, and one that is, I argue, critically important in Jewish thought, includes the issues of justice, access, and distribution, and the implications of the work on the human community in which we will share an altered medical and social universe. In general, these are problems of *context*.

Part I: Issues in the Use of Primordial Stem Cells—hES Cells and Human EG (hEG) Cells

A Statement of the Issue: Technological Summary

ES cells are the cells that are present in the early stages of all animal development. After fertilization, the fertilized egg splits into two and then into several identical cells. In the human, this occurs as the egg tumbles toward the uterus for implantation. In the first few days, it changes into a hollow ball of approximately 140 cells, called a blastocyst. The outside of this ball will form the placenta and chorionic villi of the animal, with cells on the inside and at the top of the ball eventually developing into the organism itself. Each of these ES cells has certain characteristics critical to our discussion. Each cell is pluripotent, meaning that it can develop into any of the body parts that will be required for development (for example, some will develop into cardiac cells, some into neural cells, and some into gametes). Each cell is immortal, meaning that it can theoretically continue its development indefinitely. A critical feature of hES cells is that they can repopulate themselves while remaining in their undifferentiated state, thus creating colonies that once begun are self-sustaining. Each cell is malleable, meaning that its DNA can be manipulated and the cell function will continue. Each cell is re-insertable. It can be moved into another blastocyst, where it will continue its development within the organism. Finally, each cell is telomerase expressive. The cells produce high levels of telomerase, which is the enzyme that stimulates cells to grow continually. When telomerase production ceases, the cell will stop growing (the aging process) and will die, and when telomerase production is overactivated, the cell will proliferate (cancer). All of these qualities make the study of these cells and their potential use extremely important for medical science. At an early stage, the entire blastocyst can be divided into multiple parts (resulting in spontaneous twinning/multiple births), and each part would develop into a complete individual being. At this point, what causes individual ES cells to differentiate, form into organs, and specialize is not understood. One of the reasons, in fact, that research is called for so forcefully in the scientific community is this very lack of knowledge of this basic science.

Given these unique characteristics, ES cells have attracted significant attention for therapeutic uses. If ES cells could be taken from the blastocyst and allowed to grow and differentiate into specific tissue in a culture medium, sheets of specific tissue could be grown. Such tissue could then be implanted into humans to correct conditions in which tissue is lacking or damaged. For example, individual cardiac cells might be placed into a heart in which cardiac tissue is damaged, islet cells could be introduced into a pancreas that is unable to correctly produce insulin, or stem cells could be introduced into bone marrow that lacks the immune system response (as in Severe Combined Immunodeficiency). Tissue cultures instead of human subjects could also be used to test drugs or could be used to study little-understood areas of cell death, as in Parkinson's disease and Alzheimer's disease, for example.

Before 1998, researchers were able to harvest ES cells from rats, mice, rhesus monkeys, chickens, cows, and pigs. Using this and other technologies, researchers were able to alter the DNA in a few cells, replace the cells into a developing animal embryo, and create a chimera animal, with DNA from two species. When these fused-DNA animals are mated, after several generations they become purebred carriers of the new genetic material, able to pass the characteristics reliably on to their offspring. Thus, permanent genetic changes are introduced into the animal. Applications include altering milk in cows to produce useful proteins needed for certain drugs and altering organs of animals in such a way that when they are transplanted into a human, the proteins that identify them as "pig," for example, would no longer be present, reducing the problem of graft-versus-host disease.

But collecting, harvesting, isolating, and growing hES cells are difficult processes. In part, this has been because obtaining human blastocysts has been ethically and technically problematic. Two recent developments have altered this landscape, however. One is the growth of IVF clinics. When human eggs are fertilized *in vitro*,

many blastocysts are created, only some of which will be implanted into the womb of the recipient. Others may be frozen for future use, and still others are deemed unusable or damaged and are discarded. These blastocysts are “graded” by physicians into ranked groups according to their presumed viability. Grades I and II are used for therapeutic purposes, but grades III and IV are discarded.⁵ It is to these blastocysts designated to be discarded that researchers initially turned their attention in developing this technology.

A second change is the insight that the cells that *would* have developed into germ cells in human fetuses, hEG cells, are very much like ES cells. They are pluripotent, possibly totipotent, and immortal. These cells can be collected from the primordial genital ridge that is destined to develop into the testes or ovaries of aborted fetuses from five to nine weeks of age.

The harvesting of this fetal tissue raises other ethical issues. The first step in the harvesting process is obtaining the informed consent from a woman who is having an early elective abortion to use the tissue of her aborted fetus.⁶ Then, the abortion is performed, the age of the fetus is established, and its physical integrity is checked. The fetus must be between the ages of 5 to 8 weeks postconception (which means 7 to 10 weeks since the last menstrual period or 3 to 5 weeks since the woman became aware that she missed a cycle). That is, the fetus must be between 35 and 56 days old (a precise number that will have implications for our later halachic discussion). The fetus must be large enough and well developed enough that its primordial genital ridge can be located, and yet not so large that the abortion itself could damage the very small fetal parts. Human EG cells have been collected and grown in tissue culture in the same manner as hES cells, and they have undergone laboratory testing that indicates there may be promise in using them as stem cell origin culture.

Our understanding of these cells has grown rapidly since they have been successfully grown in culture. One feature of this research is that the basic science is itself rapidly evolving, and hence the ethical reflections that follow the science are changing as well. For example, the lower grade embryos can now be more successfully used in reproduction, making the distinction between embryos that would be discarded and ones that are viable for reproductive use a false one. Since the embryos that were used for research could technically be used for implantation, our halachic reasoning based on their status as “doomed” is no longer satisfactory. This technology then raises the ethical issue of whether we should be permitted to create embryos solely for research. Most recently, there have been questions regarding the distinction between thinking of these cells as totipotent or pluripotent. In the work of Nagy, et al., in mouse stem cells,⁷ for example, mice were successfully gestated from a cluster of stem cells placed in a trophocytic matrix (to simulate the placenta-forming cells) and then into a mouse uterus. Hence, in theory, if given the correct matrix, stem cells can make all of the parts of a living organism, at least in mice. If all stem cells could potentially become embryos if given the right sort of cellular environment, then what exactly does one have when one has a stem cell cluster? Is it a canonical cell line? Or is it actually also a potential human fetus? Finally, if stem cell technology develops in tandem with nuclear transfer technology (cloning), then cells could potentially be programmed not only to differentiate into specific tissue types, but could be histocompatible, tailored for each transplant recipient. It is a stunningly important technology, potentially eliminating graft-versus-host/host-versus-graft disease and saving millions of lives. However, such technology raises the problem of reproductive uses, moral status, and instrumentality. And, if such nuclear transfer could be done, surely the DNA of the transferred nucleus could be manipulated as well, raising the complex problem of inadvertent or deliberate germline intervention, yet another ethical issue that will require reflection.

In part, this difficulty in understanding the moral meaning of these implications is a problem with the language we use, which is one of discourse about human reproduction that emerges from the classic understanding of gametes, families, sexual reproduction, debates about abortion, birth control, privacy, rights, and sanctity. However, as we contemplate a world of cellular replication and reproductive potential without gametes, we will need new language to describe what we intend, its moral meaning, and what we find fitting.

Part II: Ethical Questions in the Pursuit of hES Research— The Secular Discourse

Secular concerns are of concern to Jewish discourse for several reasons. The first is that secular anxieties create a specific social context to which religious communities respond. Cultural zeitgeist, cultural practices, and aesthetic sensibilities create the landscape upon which the locus of Jewish discourse, the *Beit Midrash*, meets. Medical theory creates the horizon of possibility for the ethical consideration of the issue at hand. Ethical theory emerges as a result of casuistic debate. Jews confront the dilemmas of all aspects of modernity, and when questions or cases emerge in the ordinary activity of the world, Jewish laypersons are directed to turn to their rabbinic leadership for advice based on traditional texts. If the question is a new one, or one concerning an emerging or contended topic, the question is framed as a formal one, a *poskin*. Such *poskinim* are then responded to by leading national authorities with expertise in a particular area. These may be answered with formalized written *responsa*. Such debates are then further discussed and debated. The questions themselves, however, as in this case, are generated not only by ritual transgressions, but by all ethical concerns.

It is in this spirit that we turn to the specific problems raised by the research that might be raised in any secular or civic context.

A. The Problem of Telos

1. What Is the Meaning and the Goal of This Process?

One stated goal of this research is the replacement of diseased, damaged, or absent tissue. This end appears to be benevolent and straightforward. Yet, the use of genetically altered tissue could also be desired for conditions that are only marginally defined as “illness.” In the current bioethics discourse, many authors have focused on precisely this difficulty. If we understand that the telos of this work allows consideration of enhancement of human capacities, then how are the ethical considerations altered? The secular issues focus on two premises that have marked discontent about nearly every medical advance. (In these debates, one is reminded of the struggles surrounding the use of anesthesia, in which the essential link between childbirth and pain or surgery and pain was challenged, thus raising ontic questions for religious thinkers.) A second use for hES/hEG cells is the need for basic research in human embryonic development. It is for this reason that adult stem cells cannot be substituted for hES/hEG cells derived from embryonic tissue. With a clearer understanding of human development, we will be able to more clearly understand how to prevent many disorders.

2. Could Evil Uses Be Made of hES/hEG Cells?

Ends cannot be controlled without close regulation and enforcement of research. Is this feasible? It is difficult to imagine how it could be made so. In this technology, one is not intending to create new persons, only new personal parts. Yet, all genetic alteration is surrounded by public fear of such alteration, marginalization, and use of unwarranted power in the hands of a malevolent state. Is this the first step in an unacceptable alteration of human species by genetic means? Because the hES cells can become anything, they could also be altered, and with technological issues resolved, they could be used in the construction of new embryos. Furthermore, it is conceivable that new blastocysts could be manufactured using hES cells and nuclear transfer. If this is the case, then this technology is close to the process of cloning.

In the sober consideration of this technology, it is critical that we distance ourselves from such concerns and linkages. Here, the parallel use of transplants is a useful analogy. As ethicists, it will be a key part of our shared discourse not only to worry about possible abuses of power, but also to raise concerns about unwarranted fears that might unduly block research efforts.

3. The Problems of Origins and Moral Status

What is the moral status of the human stem cell? By moral status, we mean how we describe the standing of an entity relative to other moral agents and the obligations and relationships that other moral agents have toward this entity. In the work of philosopher Mary Ann Warren, if a being has moral status, then “we cannot just treat it any way we please.”⁸ If hES cells are understood as tissue or as organic nonhuman life forms, then it might be permissible to use them even instrumentally for very compelling reasons and just ends. But if hES cells are to be considered human entities, our obligation toward them shifts sharply.

One suggestion about the determination arises from some arguments that derive from some commentators within the Catholic moral theological tradition.⁹ In this formulation, one can differentiate between the embryo at the time before and after the appearance of the primitive streak, a line of division in the embryo that is the first step in the formation of a spinal cord of one individual. It is at this point in embryology that the blastocyst can no longer split into two identical portions and become monozygotic twins. It is argued by some scholars (Shannon) that it is at this moment that one individual with a particular subject-life narrative begins. Further, it is this moment in development that represents a limit, the line beyond which we cannot take cells from the new organism (the child-to-be) unless we are subject to the same kind of constraints that we would place on pediatric research. The definition of moral status is important in medical research in large measure not only because of the nature of our obligation to another entity, but because of the issue of consent of the subject itself, if in fact we are dealing with a “subject.” And this line of reasoning creates substantive problems in regulation. Research on human subjects is carefully regulated by international codes, national legislation, and considerable case law. In the case of research on embryos, to whom should we turn for guidance if we have a “subject?” Then, in what sense is that subject an entity to which one can claim patent rights? What is the meaning of a subject blastocyst generated by nuclear transfer, with no parents in the normative sense?

Another genre of questions of origin arises in considering whether there is a difference when the tissue that is generated is obtained as ES or EG cells. Each site of tissue origin raises significant problems. ES cell collection will destroy what might potentially become a human person; EG cell collection uses aborted fetuses, with the entire attendant debate about abortion at play.

4. Can We Breach Essential Creaturely Limits?

The next problem of the moral meaning of this work is how it challenges the idea that there are firm limits to what humans should do. It raises the question of whether there are limits in the creation of life or of other essential biological boundaries that now define the meaning, scope, and purpose of human existence. Such limits are often marked by our uneasiness when certain biological “bright lines” are crossed, for example, the change in the meaning of aging after a “normal” human life span, the replacement of human parts, the ability to reproduce after a certain age, the number of infants in a pregnancy, or the extension of life with sophisticated machinery. Many of these bright lines have been broached in the last decade as a result of the steady development of medical technology. We accept revolutionary challenges to creaturely limits,¹⁰ and, after initial concerns about safety and efficacy and the standard Food and Drug Administration challenges, each medical change in our creaturely limits is ultimately first feared, then celebrated, and then seen as an entitlement, becoming the new norm for community medical practice.

5. The Problem of Interpretation: Language and Meaning of the Self

The issue of exactly what we are doing when we “touch” DNA or alter cellular development is of concern at the level of meaning and language. We lack a coherent theory that allows broad philosophic agreement on the issues of definition of disease and normalcy. What is a coherent self? In framing the issue in this way, we encounter other issues, such as that of the permissibility of altering fundamental features of human reproduction. But is such work a change in kind or in efficacy? In other words, is our ability to create *de nova* tissue for

use in disease intervention or repair so significantly different from our use of transplants of cadaver organs? Such a problem is compounded by the interlocking issues of the marketplace as raised above, such as owning, patenting, and selling human DNA patterns or processes.

6. *The Question of Interpretation*

Over all of this technology lies the complex social surround of the marketplace, in particular the pharmaceutical industry. At the present time, the medical model supports the ideological construction of the self as an entity that is basically intact, but that is besieged by alien germs that must be confronted with drugs that will kill them (antibiotics), or as a self that merely lacks a chemical that could be also nicely be supplied by a drug company (insulin). Hence, the marketplace endeavors to supply these commodities. But if the self-qua-self can be altered to change the underlying proteins that control the immune system, for example, or the production of enzymes, then externally offered drugs will not be needed daily. Such a shift represents both a significant marketplace change and a significant change in the meaning of the self.

We understand the “self” in philosophic and in religious terms as a creature with specific boundaries and specific obligations based on this creaturely fragility and wiliness. But all genetic speculation raises deep anxieties and corresponding hopefulness about the way that this notion of the self could be altered. For example, Jewish ethics calls for a self that is extraordinarily “other-regarding” (relative to Western secular traditions). This ethical stance derives its power from the constancy of the need of the stranger. But what of this obligation in a world free—or freer—from the constancy of illness or the reality of disabling difference?

7. *Immortality and Meaning*

The telomerase-expressive ability of these cells remains one of the most compelling and fascinating aspects of their nature and the one that could most fundamentally alter how we think about aging, illness, and death. More reflection will be needed on the various issues this raises in our essential framing of what it is to be a self at play in a limited mortally and morbidly bound universe. But Jewish thought is framed in terms of both the reality of aging and the limits of mortality. Changing the embodied experience of aging has important and interesting implications for intergenerational obligations.

B. The Problems of the Process

1. *Is the Informed Consent Process Adequate for the Donors of the Fetal Tissue/Blastocyst?*

Classic issues of informed consent for adult donors are traditionally addressed by using the formal consent process, including discussion and a carefully constructed consent form. But is this adequate? The women from whose bodies the eggs come are already participating in a heavily freighted dilemma and are in many cases at the end of a year-long process of increasingly intricate and invasive technology to achieve a desperately yearned for pregnancy. The women from whom the aborted fetuses come are similarly at risk, only they are enmeshed in the medical care system because of (at least) stressful and (at most) tragic options. It is at this junction that they are confronted with signing this consent form and speaking about research protocols. Can any decision that is made under these circumstances really be a considered, reflective decision?

2. *How Can We Address the Inevitability of Errors?*

All medical interventions are fraught with error. Errors in diagnosis, prognosis, and treatment occur far more often than is commonly supposed by the lay public, high rates of error and failure exist in genetic research, and there may be special problems associated with this particular technology. In agriculture, ES cell research has been used to create advantageous mutations, beginning with the stem cells and allowing them to grow and divide in the compromised and altered environment of the laboratory. A higher-than-normal level of mutagenic effects would be expected, some of which will develop into useful organisms. Thus, in this application, the

mutation is useful and desired. But in medical therapy, we want stable and predictable cellular division, although some mutations might not reveal themselves until the organism is fully mature. How are we to evaluate this problem? Some mutations reveal themselves only later in the process. It is unknown exactly how cellular replication works or what causes cells to differentiate. Telomerase is implicated in cancer and in tetatomas in laboratory animals. How will this affect the use of these tissues in transplantation? How can we quantify such risks?

We can anticipate that despite our best efforts, we are sure to err and that human loss will be the result of such error. What we cannot know is exactly what will occur or when. Now, we know that this is the case in many situations in ordinary life, but we can calculate the relative benefits and proceed.

3. The Problem of Unintended Consequences

The process is one of experimentation, in which a product is developed whose uses are unclear, but profound. We cannot know what will happen as we develop this technology, but we do know that it will have both intended and unintended consequences. While we can debate the intended consequences, are we willing to accept the uncertainty of the unknown? Even if we do not err badly, even if we carefully follow all of our protocols and do not “fail,” we could still create a chain of events that leads to complex interactions and social changes that we do not intend but that we cannot ignore. By definition, human experimentation will provoke both intended and unintended events.

C. The Problem of Context

1. The Problem of Application and Distribution: Justice and the Marketplace’s Use of the Process

Medical intervention in the United States takes place within an elaborate system that is a construction of class, race, and geography, creating deep problems of justice in the very construction of the context of our questions. Here we can see clearly the intersection between the civil commons of medicine and the religious concerns for justice for the vulnerable. The issues of access to a new technology and of simultaneous protection from it are considerably freighted. Such a technology, if it becomes practical after enormously expensive development, will create paradoxical shifts offering, for example, a one-time solution to chronic illness or disabling life-long conditions that now require large quantities of social, human, and financial resources.

The essential issue is that this technology is highly technical and, at least initially, very expensive. How would the developed world’s access to this material benefit the emerging economies of the underdeveloped world? Linked to this are the issues of the broad general marketplace, such as the patenting authority of the process, the ownership of the tissue, and the relationship of the veracities of profit, corporation, shareholders, and other third-party sponsors of the enterprise itself. These issues become more acute precisely because the federal government is not the primary sponsor of the research, as noted above. To what extent does the private sector, whose fiduciary responsibility is to the shareholders, have to be held to humanitarian concerns? Why is this different from pharmaceutical companies? (Note, Viagra.)

2. The Specter of History: What of the Problem of Evil Uses of This Technology?

Of all the considerations in medicine that evoke the specter of the Holocaust (*Shoah*), including physician-assisted suicide, abortion policy, treatment of the disabled, and research policy, none raise the issue more definitively than the idea of genetic engineering to create an altered human self. The historical link to “race” enhancement, the nomenclature of eugenics, and the marking of some as genetically “inferior” is unavoidable and lead us to sober consideration of the role of state power in medical ideology. In many ways, the gross indignities of the state’s use of genetic technology seem less a hazard than the temptations of medicine itself. The link between somatic improvement, class standing, and subsequent power has been made in other work.¹¹

But critical issues, such as the meaning of difference, the meaning of ethnicity, and the responsibility of a whole society to bear the vulnerability that illness and disability carries, will be raised by the possibilities inherent in this technology. How will the dynamics of power drive, for example, research funding for interventions? How will private uses of emerging technology be controlled?

Further questions of context and norms arise: How will aesthetics, physical progress, and advantage create a climate of approval for genetic changes that allow or disallow regulations? (Consider here the link between funding and mandated testing for genetically borne diseases of the neonate, such as PKU, and the lack of fully funded support for a child bearing the disease itself in many states.)

D. Commodification and Commercialization

Critical issues of how the marketplace treats the “products” that are generated by stem cell research need to be more fully addressed. In the sphere of organ donation, we do not allow the buying and selling (in this country) of body parts. But gametes have been treated differently, with a marketplace approach guiding their sale. Can we avoid the pressures to sell, patent, and barter this tissue to the highest bidder? Or should we allow for a spontaneous organization of the market in this field? How will each decision change our research interests?

Part III: Jewish Halachic Responses Raise Other Questions

Jewish consideration of issues in bioethics is, of course, textually based and is based in the casuistry of halachah in which specific considerations are addressed by textual recourse. Halachic reflection on all innovative scientific research is constrained by the fact that none of the specific issues raised by new technology is directly addressed by Talmudic conversations compiled in the first centuries of the common era, nor in the elaborate medieval commentary that carries the most considerable weight in the classic tradition. Moreover, in researching the halachic conversations that touch upon this arena, we can note that what the rabbinic culture understood as central is not necessarily what moderns consider most salient. For example, the rabbis were concerned that we act *more* like God might in many ethical and social/political arenas, as in helping the poor, creating justice, and healing the sick, rather than having a re-occurring horror of “acting like God.” Sexuality and procreativity were cheerfully and enthusiastically promoted by social and chemical means, and the use of all available means to aid health was promoted.

What follows is an account of the essential halachic concerns and questions that might be primary in assessing hES cell research. Some of these issues will seem odd in the context of modern discussions, but I have raised these topics to provide a comprehensive account of the kinds of issues that might be raised. Some of the questions that we as moderns consider important will be absent from the medieval debates found in the rabbinic and responsa literature, such as the issue of the autonomy as a part of moral status, or the consideration of saliency, or the considerations of individual rights, all of which have a tangential or weak moral appeal in the tradition. This is to be expected. Other issues, such as the primary value placed on relationships, family, or community; the considerations of justice; and the obligations to the poor and the stranger, I will address as we continue our work together.

A further note on method: Jewish reasoning does not entail simply setting out of a list of principles and then deciding whether they are applicable or not in a facile binary sense. Rather, it is a series of open-ended arguments intended to include the broad and creative use of history, text, and culture, with many interrupting voices representing competing narratives. What I have done here is to provide a series of such framing questions to elicit such responses from a range of perspectives.

Of note here and critically important to our thinking is the essential premise of the halachic system itself—that of full, frank, and, I might add, contentious discourse. To that end, I have come to understand that the widest possible discourse is a vital part of that process.

Modern concerns shape the context for the contemporary use of classic sources in the current deliberation. However, the rabbinic discourse on medicine raises substantively different concerns, and hence, particular responses, than do secular ones. What follows are the results of my first discussions and a review of the published literature that bears on this problem. Since this research has not been the focus of medical questions that have arisen for patients, and since Jewish law is case driven (no cases, no responsa), the literature is as yet thin. The intent of this work is to direct specific attention to this emerging issue and to stimulate serious inquiry in this direction.

Of importance to note is that Jewish law, unlike American secular law, in which something is permitted or prohibited, describes four categories for possible action that are based on the relationship between morality, halachah norms, and the laws of the secular nation-state. An action may be permitted, or at least unpunishable under the halachic code, but morally undesirable; an action may be permitted and desirable; an action may be prohibited (even if desirable); and an action may be permitted by Jewish law, but prohibited by the secular state (and thus not be permitted in Jewish law, since “the law is the law of the land,” “*dinah d’malchuta dinah*”).

A. The Problems of Telos

1. The Prominence of Life-Saving or Life-Extending Medical Intervention

The first responses to hES/hEG cell research seem to indicate a general sanguinity with the procedure when it is framed as breakthrough medical therapy for life-threatening conditions. This general response is based on the clear mandate to save life whenever possible, even if the saving of life requires the violation or suspension of other commanded acts. This entire category of response stems largely from the defining moment in the Talmud in which the rabbinic authorities debate whether one can violate the mandate to rest and to sanctify the Sabbath in order to rescue a man trapped in the rubble of a collapsed building. From this vivid (and, I might add, graphically obvious) source text springs a whole set of cases that are then defined as like being trapped—by illness, catastrophe, hunger, war, or threat. This has provided the warrant text for virtually all experimental therapy, including genetic research. (Limiting factors include the calculus of risk—if the therapy itself is more likely to threaten a life than to save it, as in the first organ transplants, then the case is altered, and the intervention not permitted.) Hence, even if otherwise proscribed actions are involved (taking the organs of the dead, for example), the use is permitted if the life can be reliably saved. Jewish medical ethics is nearly entirely constructed around the principle of *pikuach nefesh*, to save a life. To save even one life, the halachah states, it is permissible, and in fact mandated, that all other *mitzvot* can be abrogated (except for the case of the prohibitions against murder, adultery, and idolatry). Using this consideration alone, the technology could be considered ethical, since, as we have demonstrated above, it does not involve the mere taking of one life to save another, but the use of the cells of one, albeit special, type of tissue.

This is a consideration upon reflection that can be advanced about nearly all the technologies that are suggested by this research. If the full use were possible for this tissue, millions of persons would be afforded years of productive life. While no technological fix should be regarded as, in the words of Christian ethicist Stanley Hauerwas, enabling us to “get out of life alive,”¹² the work of repair, patching, transfusing, and replacing damaged tissue would alleviate human suffering without altering the essential self of the recipient. Moreover, the use of this tissue as a front-line test for newly developed drugs would be a remarkable advance. In speaking to several commentators about this issue, this consideration was the trumping issue in all subsequent discussions.

Some have suggested (Karen Lebacqz¹³) that allowing longer life expectancy or allowing some to live who might otherwise die of, say, fatal cardiac dysfunction, has disturbing implications. It should be noted that classic halachic considerations would not address such concerns.

2. Moral Status and the Issue of Temporality: What Age Is the Embryo?

While moral status of the embryonic tissue is the threshold question for many religious traditions, I will argue that it is of secondary importance to the question of the life-saving consequences of this technology, given the textual tradition and the Jewish position on the developmental status of the embryo and fetus. Like nearly all discourse in this field, Jewish understanding of moral status derives from the abortion debate. At stake is whether the fetus is an independent entity or a part of the body of the mother (*ubar yerikh imo*¹⁴). The biblical text that grounds the literature is as follows:

If two men fight, and wound a woman who is pregnant (and is standing nearby) so that her fruit be expelled, but no harm shall befall (her) then he shall be fined as her husband assesses, and the matter placed before the judges. But if harm befall her, then shalt give life for life (Exodus 21:22).

By this, the text is understood to mean that if the woman herself is not harmed, then the only harm, that of the miscarriage and loss of the pregnancy, is a loss of lesser importance. It can be made whole by monetary compensation, unlike the taking of a human life.¹⁵

The moral status of the embryo in Jewish considerations of abortion, the main textual location for discussion of embryos in the Talmud, is based on age and proximity to independent viability. Central to all understanding of embryology in the Talmud and subsequent halachic responsa is that before the 40th day after conception, the embryo and fetus are to be considered “like water.”¹⁶ The rabbis were close observers of fetal development because it fell within their purview as decisors to examine genital emissions, including spontaneous abortion, to answer questions of *niddah* (the period during the monthly cycle when a husband and wife are not permitted sexual relations) and the use of the *mikvah* (the ritual immersion following the *niddah*). At stake here is the understanding that the relationship of a woman to her community was closely tied to the moral status of the delivered fetus: Was this a stillbirth or a late menstrual period? Would the woman be in *niddah* for 14 days or 6 weeks?

In that capacity, there are discussions about the nature and character of the contents of the womb at various stages of embryonic and fetal development. There are other considerations, such as quickening (the development of a spinal cord) and the external visual changes in a woman’s body that also warrant differing social responses and a different consideration of the pregnancy. This developmental understanding of moral status is not limited to how the halachah considers moral status of fetuses. There is ample precedence for the rabbinic understanding of changing obligations, even life-saving obligations, based on the temporal standing of the human person. Liminal times exist not only at the beginning, but also at the end of life, and there are well-established norms that permit the instrumental consideration of an entity, clearly a human person, and clearly alive, based solely on this understanding of developmental moral statutes.

Let us turn to classic examples. When a person is in a state called *terefah*, one who is inevitably dying, our obligations to save his life and his life relative to others is altered. For example, there is a discussion in the texts about categories of persons to whom one might be differently obligated to protect in a crisis, such as a siege or a hostage taking. A category exists in rabbinic thought for the person who is already condemned by a court to death. Elliot Dorff, who noted the importance of this category in the work of Daniel B. Sinclair,¹⁷ found it of importance in the problem of both discontinuation of treatment and allocation of the scarce resource, and by analogy, I would argue its use here.

The term *gavra ketila* occurs four times in the Babylonian Talmud. According to Sanhedrin 71a, once a person has been sentenced to death, he is immediately a *gavra ketila*, a killed person. Because of that, Sanhedrin 81a deals with the possibility that one might think a person sentenced to one of the more lenient forms of execution, since immediately presumed dead,

could not be subsequently sentenced to a harsher form of execution for another crime. It rejects that conclusion, but in the meantime reaffirms the description of a doomed person as a dead one. Sanhedrin 85a adds the consideration that one sentenced to death, since considered an already killed person, is no longer ‘abiding among your people’ in the terms of Exodus 22:27. And, perhaps the most relevant for our purposes, Pesahim 110b says that a person who drinks more than 16 cups of wine is a *gavra ketila*. There it is medical, rather than judicial, factors that make the person thought of as dead.¹⁸

Dorff linked to this another category of person—the terefah, a person with an incurable, fatal organic disease. This category emerges both in Talmudic texts to describe persons and animals that have a fatal organic defect or a diagnosis thought to lead to death in 12 months. Dorff noted that since the death of a terefah is by definition inevitable, the killing of this person does not “count” as murder in quite the same way, nor is the civil obligation toward him exactly the same as if he were not doomed to die. The rabbis allow for the deserted wife of a terefah to remarry, for example, when the deserted wife of a man may not remarry unless there is clear proof of his death, or for the killer of a terefah to be exempt from the death penalty. The intentional killer of such a person is still subject to divine punishment and moral sanctions, but the legal status of the terefah is analogous to that of a dead person.

The view of this critical liminal state involves a definition of the period at the end of life and a highly nuanced view of personhood. The terms are different linguistic attempts at characterizing the process of dying. Why this is extremely difficult to understand is due in part to the modern attachment to the “moment of death.” It is important in clinical medicine to have such a moment, because it is at that moment that everything about the person as patient changes. The language of rabbinic ethics reflects sensitivity to death as process, with the person as “person” retaining certain aspects of personhood even beyond the cessation of cardio-respiratory function and losing other aspects as personhood prior to clinical death. The rabbis struggled to define these states, just as moderns do, and used different vocabularies in an attempt to describe with accuracy a difficult and essentially mysterious boundary of human life.

A parallel in rabbinic categorization exists in the case of the beginning of personhood and the debate that surrounds abortion. Here too, Jewish law suggests a liminal status for the fetus and, exempt from the death penalty, its destruction. If a woman is injured by standing near two men fighting, for example, the *Mishnah* records the penalties for her injury (life for a life, eye for an eye) differently than the death of the embryo or fetus who is regarded as property and whose loss is compensated as is all lost property, by money. The fetus is further considered property of the husband in this text in the *Mishnah*, but specifically not the property of the husband in a later text, *Arakin*, but a part of the woman’s body—an interesting technicality in our debates.

Subsequent rabbinic commentary regards the fetus as “a part of the woman’s body” until the moment at which the head or the greater part of the breech is delivered out of the birth canal. Until that moment, a pregnancy can be terminated and the fetus allowed to die to save the life or health (mental or physical) of the woman. In fact, a classic early text allows the killing of a fetus to prevent it from being born in the grisly and queer case described if a near-term pregnant woman is scheduled to be hung, to prevent the woman the “shame” of delivery and blood in her death.

After infants are born, their moral status is still in a process of development, albeit of a less dramatic nature. Children are not named or admitted to community (public) membership until the eighth day of life. And if a child dies before the thirtieth day of life, the necessary rituals of death are not performed, *Shiva* is not observed, and the *Kaddish* is not said for the requisite year of mourning. All of these considerations frame our ability to consider the moral status of the pre-implantation embryo as a nonensouled entity that deserves special consideration and respect and is not a human person within the mutually binding halachic system.

This is defensible on two counts. First, since the blastocyst only exists in the pre-40 day period, its status is as “water.” Further, if we can determine a distinction in the moral status of the pre- and post-40-day embryo, then surely we can determine a distinction between the pre- and postimplantation embryo. Thus, the considerations that evolve around the primal streak are consistent with this genre of moral reasoning. Since the entity that we are discussing could at this point in its normal development still be a variety of individuals, it is hardly the case that we are altering the life narrative of a specific individual. It is of great importance that the intervention occurs after the first restriction in this developmental view and before the time when the cells can no longer split into several individuals. The cells have already divided into blastomere and placental cells; hence the cells are not totipotent (each cell cannot be a whole person on its own), but pluripotent. Other considerations in the developing moral status of the fetus include the development of a spinal cord or the time of quickening.

Second, the blastocysts that are being used to initiate this process, when first considered by researchers, were ones that had been deemed by physicians to be “nonviable” or not useful for reproductive purposes. There were visible differences between embryos, and many thought that these differences would render some embryos unsuccessful candidates for implantation and development into human persons in any case. It was the initial understanding of this author that the researchers who are involved in this technology use only blastocysts that are in any case not viable and hence that are analogous to a terefah or a gavra ketila. Paradoxically, this allowed for an argument that “we are allowing a particular genetic expression and an immortality” to the embryo that we would destroy. However, as this paper is written, the technology that might enable even grade III and IV blastocysts to be used from reproduction is advancing. In some cases, grade I and II blastocysts might be used for successful implantation. However, at the same time, other research proceeded that made implantation with fewer eggs, or even one egg, far more successful. This means that many more eggs and embryos might be generated for the purpose of treatment of infertility than could be used by any one couple. This raises further questions: These are “extra” blastocysts in that they are considered as such by the couples no longer needing them to achieve pregnancy. Should they be discarded? Donated to other couples? Should they be donated for research? In what sense are these socially nonuseful, “excessive” blastocysts considered “not viable” and thus likened to a person doomed to die? This problem needs more study. What if these entities could be donated for implantation in other women? Would this change their moral status?

It is important to clear up the impression that the technology involves the use of a few cells found in the blastocyst that if taken during a normally developing pregnancy would not endanger the life of the organism (as they would be, for example, in genetic testing of the chorionic villi at nine weeks of development). This technology is based on destroying the blastocyst by removing the outer membrane (preplacental cells) and taking the blastomere (inner cell mass) and placing it in the cell culture to grow.

In reflecting on the possible abuses of a blastocyst that might be created by the use of nuclear transplant (cloning) and then the subsequent use of stem cell techniques, theologian and legal scholar Ze'ev Falk raised the issue of whether one could even consider the entity that would be such a blastocyst created by nuclear transplant or the stimulation of the EG cells to be a human, since it was not created by sexual intercourse at all. In his reflections on this topic, Falk noted that the origin of this tissue would make it distinctive from a naturally occurring pregnancy in a womb, interrupted by science and taken out of its course of development.¹⁹

Further issues emerge about the legal status of the tissue cell lines themselves: Are they to be regarded as part of a woman's body for as long as they exist? How does ownership accrue to them? Since the rabbis did not have a halachic category for cells that can live ceaselessly and are, perhaps, capable of asexual reproduction, it will require further research to claim anything about the halachic status of this tissue.

3. Is the Pursuit of Genetic Research a Mandated Healing?

The task of healing in Judaism is not only permitted, it is mandated. This is supported and directed not only in early biblical passages (“you shall not stand idly by the blood of your neighbor,” and “you shall surely return

what is lost to [your neighbor]”), but in numerous rabbinic texts as well.²⁰ The general thrust of Jewish response to medical advances has been positive, even optimistic, linked to the notion that advanced scientific inquiry is a part of *tikkun olam*, the mandate to be an active partner in the world’s repair and perfection. Judaism is not, after all, a nature-based religion; the very assertion of circumcision rests on the notion that the body is not sacred or immutable. There is no part of the body that is sacred, or untouchable. But disfigurement of the body (for example, piercing and tattoos) is not permitted, and the belief that the personal body is a property that belongs to the “self” alone is a late and nontraditional response to medical decisionmaking. But nearly all commandments can be abrogated to permit acts of lifesaving intervention or healing. Characteristically, “Judaism does not interfere with physicians’ medical prerogative, providing his considerations are purely medical in character.”²¹

The permission and the obligation to heal come directly from the Torah text of Exodus and Deuteronomy, as interpreted by the Talmud:²²

The school of R. Ishmael taught and heal he shall heal (Exodus 21:19). This is [the source] whence it can be derived that the authorization was granted [by God] to the physician to heal.

And further:

How do we know [that one must save his neighbor from] the loss of himself? From the verse: And thou shall restore him to himself (Deut. 22:2).

There is a positive attitude toward medicine, which stresses that the recourse to prayer and faith alone is incomplete without the complete resourcefulness of which humans are capable. This capability is a God-given gift, part of the work of stewardship to which persons are entasked in Genesis.

As many commentators have noted, there is another text that directs the general attitude of Jewish theologians toward the medical endeavor. The physician’s work is legitimate, and in fact, obligatory, as can be seen in the following story. Rabbi Akiva and Rabbi Ishmael are walking in Jerusalem and encounter an ill person who asks for their expertise in finding a cure. They tell him, but the man is puzzled: After all, are not the rabbis transgressing the will of God who made him sick in the first place by curing him? They answer by asking him about his work. He is a farmer, who works in the vineyard created by God: Does he not alter the world that God created by his work? The text continues as follows:

[He answers to them] ‘If I did not plow, sow, fertilize, and weed, nothing would sprout.’ Rabbi Akiva and Rabbi Ishmael said to him, ‘Foolish man...Just as if one does not weed, fertilize, and plow, the trees will not produce fruit, and if fruit is produced but is not watered or fertilized, it will not live but die, so with regard to the body. Drugs and medicaments are the fertilizer, and the physician is the tiller of soil.’²³

Hence, there is a mandate for humans to be partners with God in creation, and Dorff, for example, generally acclaims genetic engineering as “one of the wonders of modern medicine.” While he notes the potential for eugenic uses, “the potential benefits to our life and our health are enormous,” and hence research should continue.

There are no specific texts that address the issues of the use of research science specifically, although the Talmud is replete with stories about the general ability of the rabbis to examine closely the abortus itself or to observe closely specific medical conditions. On the other hand, there are no halachic texts that forbid basic research either. David Bliech notes that these phenomena are characteristic of several modern problems in medicine, ones where there are no clear textual referents.²⁴ In recent work, he has used texts that refer to the necessity to build fortification around cities. The community must build walls in the face of danger, but the

obligation that the community has to protect itself against “imminent danger” does not extend to danger that exists in the not-yet-existing future. Hence, by extrapolation, genetics work that promises the very real chance of saving a life is an obligation to pursue even in the face of other theoretical dangers. In Blicch’s view, the premise is clear. The science as promised offers enormous potential to cure horrific and fatal diseases. Further, scientists who do medical research should be assumed to be working for the welfare of humanity. Blicch notes that in terms of Jewish responsa literature, the possibility of “hard science” was a relatively recent one. No significant commentary emerges until the mideighteenth-century, and here only vague reference to basic research is found.

Given such positive halachic responses, the nearly universal communal response to all genetic advances that can promote health and increase fertility has been enthusiastically positive in the Jewish world. The absolute mandate to heal and the firm rejection of the claim that to intervene would counter God’s will are clear features of rabbinic Jewish thought. Further, it is mandated to use the best and most advanced methods available as soon as they are proven to be efficacious and not dangerous to the patient. Using this argument, prohibiting the exploration of this field might create legal concerns as well.

4. Does It Assist in the Mitzvah of Procreativity?

Much of the impulse for genetic research, and in large part its justification, has rested on the premise that working on the edge of permitted research is allowed to assist in the *mitzvah* of procreativity and fecundity. “Where there is a rabbinic will, there is a rabbinic way” is a folkloric summary of the methodology of halachic discourse itself; nowhere are the rabbinical decisions more creative in their use of text than to support new reproductive technologies. At stake here is how this use of the IVF process will be affected by this technology. Here, the compelling reasons for the use of the technology are even stronger, since they may allow us to save a specific life. But how far can we allow this reasoning to carry us? Is there any risk of a purely instrumental creation and then destruction of blastocysts for this use? How is this better or worse as an instrumentality than the idea of the use of blastocysts created for fertility and then not used? This would take careful new research in Jewish law, history, and context.

5. What Do We Mean by Normalcy and Disease?

For Jews, the ideas of the normal have been historically used to mark Jews (Jewish blood, Jewish noses, Jewish “gaze” and gait) as different, deviant, and dangerous. Hence, mapping, marking, and altering the physicality of difference were linked to altering the social and psychological situation and finally the mental health of the Jew.²⁵ Is the alteration of the diseased “type” of the Ashkenazi Jew, now used as a marker population in a number of genetic diseases, a similar case? What are the implications if that is the case? How does the specific history of the Jew and the fate of the Jewish community at the hands of a state-supported German scientific community inform our discourse on this point—a position that has been explored in a number of European countries?

Classically, permission to alter the physical body has been linked to the way that the “disfigured” body has affected the mental health of the person—linking the intervention to a medicalized end. Will this be the warrant for genetic intervention? If this is the case, then a far larger window of possibility might open for the use of this technology.

B. Problems of Process

A different sort of ethical concern is raised by the process of the research.

1. Can We Use Drugs to Stimulate Ovulation?

This issue has been debated in early questions about the development of ART and has been resolved. Medications to stimulate fertility (mandrakes) are spoken of in biblical literature approvingly. The problem of

biblical infertility is resolved on the spiritual level, but there is no prohibition against the use of all medical interventions that could help a couple achieve the commandment to raise at least two children.

2. Can We Harvest Eggs from a Woman for IVF?

This question, too, has been raised. Eggs are part of a body, but they do not have the status of fully moral entities even when fertilized *in vitro*, since before 40 days, the embryo is “like water.” (See the lengthier discussion of this point in the section on hES cell research.)

3. Can We Use Donor Sperm to Perform IVF?

Here we find the first problems in the use of ART as a part of the process. Two issues are of concern: The first is whether it is adultery if the sperm of another man is used inside a woman’s body (as is done in artificial insemination), and the second is whether a prohibited marriage could occur through the offspring of two families marrying by chance. (Prohibited marriage would include marriage to one’s half-sibling, a remote but interesting theoretical possibility.) For this reason, some orthodox rabbinic sources prohibit the use of donor sperm for artificial insemination. Even for the use of the husband’s sperm, or in some cases, the use of a mixture of sperm sources to meet the halachic requirements, there are special considerations. Sperm is not to be wasted (the sin of Onan), so elaborate collection devices have been created to allow for coital stimulation and collection of sperm.²⁶ But on this point there is sharp disagreement, even among Orthodox rabbinic commentators. (“You cannot commit adultery with a hypodermic syringe. Even if a woman uses donor sperm against the will of her husband it has no consequences for the child.”²⁷)

4. Can We Use DNA Splicing Technique?

As we consider the future implications that this research suggests, we turn to other considerations. Responses to the question of using DNA splicing technique have focused on animals, where the prohibitions concern interspecies genetic transfer. Alteration within species, or enhancement of certain characteristics within species, has been accepted. (See above.) Hence, the concerns have been outcome driven. But in looking at the process, contemporary rabbinic response has been largely theological and not legal. Discussion refers to the mandates of Genesis 1-3, in which issues of creation, stewardship, and limits are described.

Immanuel Jakobovitz suggests a general response in his reflections on the problems of human cloning. Jakobovitz recalls that human holiness for Jews rests on cessation and not merely creation. Here he argues that Shabbat, not only for humans, but for God, represents this limit on production, creativity, and alteration of the world. Except for action needed to save lives in an immediate sense, even good human work is suspended in recognition of God’s sovereignty.²⁸ Cognate cases include the theological limits on the boundaries of the *mishkan*, or tabernacle, the restrictions of *kashrut*, or kosher norms, and the general idea in Jewish thought that appetite, desire, business, and acquisition are to be limited and constrained by the social realities of a particular situation. The tension between unlimited freedom and social imperatives is discussed repeatedly in rabbinic debate.

5. Is It Disrespectful of the Dead?

If hES cells originate from the germ cells of aborted fetuses, then the halachic consideration is a separate one. Here, we have two questions. The first is when the abortion is actually performed. If it is performed within the 40-day halachic limit, it is considered differently than if it is done after. (See above.) Timing is essential for both the researcher and the halachic authority, since the cell must be collected prior to its differentiation. A second question arises about the use of the body parts of a fetus who is the subject of an abortion and who is past 40 days after (what the rabbis would consider) conception if the use is for medical purposes. To address this problem, I turned to the protracted debate about autopsy in the halachic literature. It seems clear here that the cutting, dissecting, and use of fetal tissue borders on the prohibitions about desecration of the dead. But

several factors mitigate this problem. First, is the fetus given the same consideration as the stillborn child? If not, why not? Next, in the case of the permitted autopsy, the procedure is permitted in the case described above, *puchach nefesh*. While some decisors need to be assured that a specific life will be saved by the medical information derived from the procedure, many allow autopsies for the understanding of a disease process that affects a category of ill persons.

Unlike the hES cells, the issue of moral status for hEG cells is less troubling, since the cells are taken from the gamete ridge of an already dead fetus. Hence, the use of this tissue is closer to the use of other sorts of human cadaver tissue, such as the use of cadaver skin for grafting in burn victims or cadaver kidneys for transplantation. This autopsy model yields important results in our moral theory as well. While we may have qualms about the origins of the aborted fetus and while we may not like or may even abhor the circumstances of the death of the fetus, we understand that we may use the tissue for important and good ends. In thinking about this, we may make an extreme comparison by considering the use of tissue from the aborted fetus as exactly the same as we might allow the use of the kidneys or skin of a victim of a drive-by shooting. The use of the tissue is in no way seen in the second case as an endorsement of drive-by shootings, and the use of the tissue in the first case is not an endorsement of abortion.

6. Is It an Improper Mixing of Two Kinds?

The biblical prohibitions against mixing two types of things, or *shatnes*, might be another concern. For example, it is not permitted to use two animals of different species to plow a field or two kinds of animal hair to make a garment. This issue is seen in legal arguments about grafting, in particular, certain types of grafting that create new species. This was at first prohibited, then permitted (nectarines, for example), and now the deliberate breeding of interspecies is permitted. Some justify this as an extension of biblical tricks of breeding, as in the eugenic use of goats by Jacob (to create his new herd of spotted, robust goats.) It is the kind of question that does not readily occur to a modern audience (we tend to use the technical term for unease: the “yuck factor”), but it is an important halachic one: Is the stimulation of hEG cells to initiate a process using nuclear transfer such a mixing? Is the use of this and related technology that used human DNA inserted into animal cells to create chimerical species prohibited under this consideration? Would the prohibition against animal-human sexual liaisons stand in the case of the use of interspecies nuclear transplant?

In this specific technology, the transplantation is limited to human-to-human “mixing.” Here, we might raise questions of further problems in the use of animals in further considerations and advances. If saving a life can trump all other factors, we are on slippery ground. This was a consideration in the early reflections on transplantation and has been resolved using the principle of *puchach nefesh*.

7. Does Its Collection Shame the Woman?

The dignity, reputation, and integrity of her body and the risk of immodest exposure to the woman who carries a fetus were all significant considerations for the rabbinic authorities, who, as in the text mentioned above, were deeply concerned about the protection of a woman’s body from any event that would force her into shame. In this discussion, the consideration is close to the feminist stance that understands the gametes as a part of the self of a woman and not as her property to be sold. In fact, the texts make this clear even in the most extreme cases.

In this way, we need to reflect carefully on the informed consent process. The later texts are clear that the embryo and fetus are not the property of the husband. As such, since the fetus is considered part of the woman’s body, the woman’s mental status must be carefully considered, as well as the circumstances surrounding the collection of the egg.

In thinking about the steps of such therapy, we might also raise concerns here: Is the process of having one’s pregnancy manipulated externally in the extreme way envisioned by this technique a violation of the bounds of dignity (“modesty”) for a woman?

8. Does Informed Consent Involve Making a “Nonbinding Contract”?

As noted above, special consideration must be given to the mental state of the woman who donates the tissue. But also important for our careful reflection is the problem of a coerced and therefore unenforceable contract—a specific entity in Jewish law. It has been noted for centuries of legal debate that some contracts are not valid because they require an unnatural (in the rabbinic sense) act of imagination or will and cannot be enforced justly. Contracts that are clearly not in the best interest of the person who makes it are not valid. Is the agreement to donate blastocysts or fetuses such a contract? Does the consent for the use of fetal tissue or of embryos involve such contracts?

Linked to this are other possibilities for source texts: Perhaps in the laws regarding the use of slaves and limits on the use of female slaves or of captives one might find useful ideas for how we think of instrumental relationships between persons of differing levels of power. Here again, careful work will need to be done to research such relational issues.

9. Can an Analogy Be Made Between This Case and Any Other Case in History?

Rabbinic reasoning works by analogy. In thinking about any new case—for example, the invention of electricity, the exploration of America, the use of anesthesia in surgery—the rabbinic authorities had to seek parallel cases that offered precedent. In this case, the framing of the analogous case will be of central importance. For example, is the development of hES cell technology more like cloning or more like transplantation? Is the relationship of hES cell growth to other forms of tissue cultivation and transfer like the relationship between fire and the light switch? In other words, are they enough alike so that the same halachic prohibitions apply (as in the Orthodox view), or different enough that their use is permitted in situations where fire is not (as in the Conservative view)?

Should we look at moments in history in which new medical advances were developed or at periods of the discovery of new geographic terrain? Such a search will allow us to explore the range of limits and challenges in the halachic method. For example, Judaism presents a long history of possibilities and many possible textual venues for this work. However, Jewish responsa literature works like American legal systems, by considering all questions asked. If no one thought of an advance as problematic, then there are, perhaps, no textual precedents. But all such avenues need to be explored, a task beyond the scope of this paper. Often the rabbinic law works by an analysis of the separation of each part—if each step in the process is permitted, then the whole is allowed.

Part IV. Further Questions from Contemporary Jewish Bioethics

Not all questions that have arisen in the field of Jewish bioethics are ones that are raised by the normative halachic problems. Other considerations have emerged in the academic field of bioethics that have stimulated debate and then a distinctive response from the Jewish location(s).

I have chosen to address the critical issues of halachic regard of moral status and other immediate concerns. In the halachic method, it will be the framing of the question that will determine the critical reflection that will emerge. Hence, it will be critical to lay claim to these considerations as well as the standard discourse on the use of gametes and DNA that is found in the literature. In this section, I turn methodologically toward what we might call narrative ethics, or in Jewish ethics, what I call “*aggadic ethics*.” In this, we are justifying our approach with derived ethical norms suggested by extra-legal sources (narrative, literature, and history).

A. Is This a Just Use of Technology?

Much of Jewish law and codes is concerned with the problem of justice in an unjust world. In this, the problem of how to create a world of just order is a clear preoccupation of the biblical and rabbinic argument about

the meaning and goals of a society that lives in a covenantal relationship with God. For justice to have real meaning, the civilization that is constructed will need to account for the primacy of this relationship.

B. What Will Be the Effect on the Poor?

The poor are to be protected not only out of a vague sense of compassion, but as a part of how the natural and agricultural world is structured. Our texts remind us that the structure of harvest is understood to include the provision of parts of the field and parts of the yield for the poor. In fact, essential economic decisions (such as how to plant, what to harvest, and when to refrain from planting) are mediated by this consideration. Limits are placed on the entire society to ensure that the widow, orphan, and stranger are provided for with full dignity. Hence, the concern for the sabbatical year, in which all production is suspended to allow for the use of the field by the disadvantaged, for the harvest to be organized to allow for gleaning, and for the corners of the field to be proscribed for one's own use and to be reserved for the use of the poor. Technological advances, even clever and expedient ones, cannot be permitted if persons or even animals might be unjustly used—hence the concern for the yoking of unlike animals for plowing.

C. Is This a Good Instance of Tikkun Olam or an Over-Reaching of Human Power? Is the Intuitive Uneasiness a Measure of a Greater Sense of Inequity? (Is This Use Like the Creation of the Golem?)

There are two important texts that recall a broad general concern for all of technology. The first is the creation of the *Golem*, a humanoid creature, by the manipulation of text and spells. This theme recurs frequently in the tradition. According to Moshe Idel, its most influential mention is in the Talmud:

Rava said: If the righteous wished, they could create a world, for it is written: 'Your inequities have been a barrier between you and your God.' For Rava created a man and sent him to R. Zeira. The Rabbi spoke to him but he did not answer. Then he said: 'You are from the pietists: Return to dust.'²⁹

What is occurring here? Rava demonstrates that creation of some type of human life is possible: The man moves and walks, but he does not talk. The work is flawed because of some inequity that must exist in Rava, the creator. The creation is undone, sent back to dust. In commentary on the text, Rashi notes that this sort of magical enterprise (in a way, the basic science of the time) was achievable by the manipulation of the letters of the name of God, the building blocks, as it were, of the Creator as known by humans.³⁰ The commerce is language: the word, the letters. In fact, in later Golem tales (the legend persists), the Golem has the Hebrew letters of the word "truth," *emet*, carved on his forehead. By removing the aleph, the first letter in one of God's names, the Hebrew word "death," *met*, is formed instead, and the Golem vanishes. Further legends link the Golem not only with the chimera of "truth" but play with the Golem: all body, no spirit. The Golem in later tales is a revenging and powerful force: Unlike the caricatured and vilified Jewish body—small, stooped, and awkward—the Golem of Prague legend is tall, muscular, and powerful, wreaking havoc on the gentile enemy. The Golem of Prague emerges to protect the Jews from the wrath of the Gentiles on the eve of Passover 1580, when the blood libel charges historically increased and led to pogroms.

Yet, as appealing as this image is to a persecuted people, we are warned of the essential error in the pursuit of this particular type of creationist research: The manipulation of the whole by pieces of the whole does not lead to "truth," but to the excesses of spiritless power, unguided by faith, and ultimately dangerous. The texts are cautionary, but apparently not absolutely prohibitive: Otherwise the persistence of the story would not be evident.³¹

The second text is the *midrash* (metaphorical narrative) on the construction of the Tower of Babel. Here the rabbis struggle with the problem of why the construction of a joint human project is seen as problematic, even when the ostensible reason for the construction is to “reach up to God.” Finding nothing in the direct text, they describe a theoretical scene:

When a worker was killed, no one wept, but when a brick fell, all wept.³²

What is occurring here? The rabbinic caution was that the use of humans instrumentally in a technologically impressive human project leads to a dismantling of the distinction between persons and things. It took a long time to make a brick, which then became more precious than the human self. It was perhaps this de-centering of the human and the reification of the thing that was the catastrophe that felled the enterprise, suggests this text, as much as the hubris of trying to “pierce heaven.” It is not just that they have breached a limit between what is appropriate to create and what is not. It is that the process of the creation must be carefully mediated, with a deep respect for persons, over the temptations of the enterprise. Such a text elaborates on the tension between repairing the world in acts of *tikkun olam* and acts that claim that the world is ours to control utterly.

D. Do We Have an Obligation to Pursue This Research?

Given all this caution, should we halt or ban such research? What if the halachic considerations lead us toward supporting a ban on genetic research on human embryos? What would this mean for public policy? What would be lost and gained by such an approach? By the same token, what if we understood the Jewish position as mandating this research in an uncertain political climate? Would our stand imply an activist role for our leadership? Does a general obligation to “heal” include all possible avenues, and are we obligated even if the consideration of justice would mandate that other research be pursued? In other words, it is not enough for us to consider the question theoretically. If the work is a mandated healing, then the correct role would be to consistently argue and advocate for such a position, for to do any less might be the neglect of a commanded act. In so doing, we must recall that this action, that of mandated healing, is surely not the only place for commanded acts toward the health of our fellow Americans.

We must, for example remember that we speak out of our context of limited access to research funding and lack of health care for all Americans, much less to the needs of a wanting world in which infant diarrhea is still a leading cause of (preventable) death.

E. What of the Problem of Safety to the Persons on Whose Behalf We Intervene?

When Steptoe and Edwards first advanced the idea of IVF for purposes of reproduction, initial Jewish British reaction warned against the possibility of creating monster children or children who would suffer later effects of interventions that were thought to be life-saving at the time. For the Jewish American community, which was heavily affected by the “life-saving” reproductive intervention of 1950–1970, DES, the lessons are particularly acute. Further work will have to be explored regarding the issue of possible harm to specific others.

The issue of safety is critical. The hES/hEG cells are by their nature unstable, and we are only now learning about their unique properties. But clearly, some of what makes them interesting could make them dangerous in ways that may not be expressed for generations. For example, the highly telomerase expressive quality of these cells means that they can proliferate and are “immortal.” But this is a quality shared with cancer cells. Will these cells retain this characteristic in higher percentages when used *in vivo*? Another question arises relative to the mutability of the stem cell. Will implanted hES/hEG cells have a far higher rate of mutability? How will we be able to test for such effects?

F. Will This Negatively Affect the Researcher Who Performs the Action?

In the consideration of genetic interventions in all cases, we must reflect on what in Hellenistic theory would be called “virtue theory.” (Jewish sources include Maimonides and others.) How would the performance of the act of “harvesting” aborted fetal cells and all that this entails affect the scientists involved? What must be considered to protect the researcher from becoming indifferent to the human tissue involved in the use of the blastocyst? How can research scientists, by design removed from patients to protect the informed consent process, still act as though they are healers, motivated in the ways that must inform and direct the research? How will the significant monetary incentive affect this commitment? What is the effect on society if we create a “bank” of canonical cell lines, considering the potential of each cell and its special status? Here we raise the problem of the commodification of the tissue, or the denigration of its moral status.

G. Will This Have Implications for Evil Uses of Genetics (the Question of the Shoah)

The Shoah (Holocaust) changed the entire landscape of genetic research. While not only Jews have reason to raise deep concern about the evil specter of genetics, Jews certainly must do so as a primary consideration. Our firmness in remembering history and our disciplined stand to avoid any chance of repetition cannot overcome all efforts at new genetic research. However, the associations with genes, Jews, difference, and danger are extraordinarily strong. Here, we see the broadness of method that will be required. Halachic norms do not directly address this question, yet history matters for our account of whether such action should be permitted or prohibited.

H. What of the Marketplace Pressures on This Technology?

The field of ART is marked by its unrestrained use of the marketplace. Without oversight, fees, the nature of the contract, the standards for clinics, and the lengths that are permitted for individuals to pursue are unlimited. With new technology that will powerfully extend human life and potentially alter moral meaning necessarily, can we offer ethical guidelines to inform policy in this arena? How can the use of contract law, or the rabbinic prohibitions on marketplace exchanges, or rabbinic limits on the instrumental use of the body of another be used to regulate this arena? In other words, what rabbinic norms that are found in sources removed from medical consideration, but related to civil law and justice, might be mobilized to assist our thinking about the just use of technology?

I. Is Genetic Manipulation and Use of hES Cells an Instrumental Use of the Potential Human?

Here we have a classic example of the limits of halachic method. Like many scientific advances in medicine, we will simply not find a clear law to tell us, in a linear fashion, what to do when science discovers new capacities.

There are three possible responses: One is simply to describe classic commitments and familiar texts in Jewish medical ethics (saving life above all else, the duty to heal, the partnership with God to act as stewards in the world, or the general mandate to produce children). Using this mandate might allow nearly all technology that can be defended as “life-saving” to be permitted. In fact, this has operated in medical technology in a general, genial way.

Another response is to allow the general sensibilities of liberal theory to be bootlegged into Jewish thought, justifying such a move as necessary since no specific halachic norm exists for this new case. Another would begin an open and creative process of reflection on the several issues that I have raised. This would first entail a commitment to asking if these four basic texts are enough for us as we consider a response. It is my contention that, as medicine faces a critical junction, they do not go nearly far enough.

Part V: Next Steps

Remarkable advances in biotechnology and genetic medical interventions are fundamentally changing our most basic understanding of what it means to be human, of what the proper limits should be on research, and on the moral status of the essential components of human biology itself. For example, when cloning the human person became even remotely possible, the American press and public immediately understood the event to be one of religious importance and turned to its religious leadership for their responses. Such fundamental shifts call for significant reframing of what cases and narratives will stand for us as we reflect on the theological meaning and ethical choices within different faith traditions.

For scholars within the Jewish tradition, new science presents us with new challenges. We will be increasingly asked in the next few years about the permissibility, the telos, the moral meaning, and the appropriate limits of genetic intervention. For scholars within the field of bioethics, such calls are already emerging from scientists at the brink of new discoveries.

A Call for Research and Discourse Within the Jewish Tradition

Judaism is distinctive in foregrounding the text as rationale of its normative judgments. Hence, the casuistry that supports ethical response is based on exegetical reasoning that is debated over a prolonged temporal period. New developments in the field, however, call for innovations within this tradition. First, the presence of four major denominations has historically offered significant challenges to how Jewish academics and theologians can create scholarly discourse that is critical to developing and considering how we should reflect on the truly historic changes in science that will reconstruct not only medicine but also the basic view of the self. Second, scientific developments we are currently facing call for an imperative and a deeply informed discussion that is responsive to the rapidity with which new advances in genetic research emerge.

The textual method of Jewish thought takes place within a particular context—that of a larger discussant or discursive community. For centuries, Jewish law was based on a Beit Midrash—a discursive international community in which competing narrative justifications were offered to community leaders. Our careful and collaborative reflection on the topic will allow us to take a broader view of the issues before us.

Scholars of religion, theologians, and bioethicists have been asked to carefully reflect on the breathtaking and sweeping changes in medicine and research science. But our role, if prudently undertaken, cannot occur without a thoughtful and contextual account of the field of genetics as a whole. Learning about and approving each technology is akin to studying the elephant in small, and blinded groups—feeling trunk, legs, and tusk—each part understandable, but the larger whole incomprehensible. We will need to ask tough questions about how the use of any specific technology will relate to other pieces of research, such as reproduction technology, nuclear genetic transfer, and inheritable human genetic manipulation (“germline” intervention). As bioethicists, exploring the new technological beasts will take both courage and moral imagination. By this I mean the courage to resist a rush toward a swiftly moving future and the courage to believe that ethical and justice considerations must be taken into account at all stages of research, as well as the moral imagination to see beyond the perimeters of what we are given to what we might do and who we should become.

The Jewish textual tradition insists on the notion that the whole of the intellectual proposition of ethics is linked both to practicality and to prophesy, which means that one’s epistemology must be sound, but one’s vision intact. An Exodus tradition insists on the idea that what is given and what is now a fixity can be changed, healed, and imagined beyond. It is the act of moral imagination that this research calls us to make. But the leap from the present to the possible future will require, in that same tradition of Exodus, certain conditions.

First among these is the passion for just citizenship, for the idea that broad social liberation must take place

in a responding and listening community. Next is the consideration for the vulnerable stranger. Finally, Jewish thought reminds us that the world we stand in now is ours only as stewards—and we will need to reflect carefully beyond the rhetorical flourish of that phrase to core issues of regulation and tough standards of enforcement. How will we set limits on research? How will a large public and plural discourse be assured? How will public justice, the passion for science, and the competing needs of the marketplace contend for our attention?

Our first, careful thinking about this new technology and our sober reflections and our tendency toward caution—which I argue are good and prudent responses—should not blind us to the extraordinary event that this discovery has been. This is a stunningly important moment in the history of medicine, one with the potential to save and sustain human life. The work that I have seen—the cardiac cells beating steadily in the laboratory, the nerve cells spinning out their tendrils—is impressive and bold work that challenges us to imagine beyond what is into what is possible. It challenges our moral sensibilities and our moral imaginations. It is work that reminds us that there is a special blessing that is said when one sees a wise secular scholar pass by, in praise of a Creator who makes human wisdom tangible:

Blessed are You, Ruler of the Universe, who has given of Your knowledge to human beings.

In our cautionary deliberations of telos, process and meaning, and justice, we will need to foreground the essential ethicist's question of whether this is a "right act" and what makes it so, the essential Jewish question of how this act can repair a broken world, or the question of justice, of whether this research might ultimately not find a place in a world so broken. But at this moment in the process of scientific potential, we cannot forget our conjoint responsibilities: first, to be careful and thoughtfully reflective about the ends, goals, and norms of research, and second, to honor and support the extraordinary gesture of creative science that such a discovery represents. Both deliberation and a certain degree of radical awe frame the moral response of Jewish ethics in the assessment of human stem cell research.

Notes

1 Regalado, A., "The Troubled Hunt for the Ultimate Cell," *Massachusetts Institute of Technology Magazine, Technology Review* July/August (1998):35–41.

2 For the purposes of disclosure, this author is a member of a Modern Orthodox community.

3 For more on this topic, see E. Levinas, in numerous works, such as *Difficult Freedom: Essays on Judaism* (Baltimore, MD: Johns Hopkins University Press, 1990).

4 It raises the very interesting concept of persons as "text" with multiple "embedded narratives." Note here how we then conceptualize the human person in a postmodern way: a text with the potential for alternative narratives.

5 Biotechnology is a moving target. As this paper is being written, there are verbal reports of changes in techniques that might allow the use of these "lower" grade blastocysts for implantation.

6 The process of obtaining an abortion in Maryland, where this research is located, always involves a physician who will state that the abortion is undertaken for therapeutic reasons, either the physical or mental health of the woman being at stake. The consent for use of the fetal tissues is carefully worded. The researchers in the hEG cell project have no contact with the physicians treating the women. For a precise wording of the form, see "Research with Human Embryonic Stem Cells: Ethical Considerations," *Hastings Center Report*, March-April (1999):31–35, by the Geron Ethics Advisory Board.

7 Nagy, et al., "Derivation of Completely Cell Culture-Derived Mice from Early-Passage Embryonic Stem Cells," *Proceedings of the National Academy of Science USA* 90 (1993):8424–8428.

8 Warren, M.A., *Moral Status: Obligations to Persons and Other Living Things* (New York: Oxford University Press, 1998).

9 See the work of T. Shannon in *Genetics: Issues of Social Justice*, T. Peters, ed. (Cleveland, OH: Pilgrim Press, 1998). This alternative perspective is not the official position of the Vatican on this matter.

-
- 10 Here sits the ethicist, wearing glasses, having had children in her 40s, after having visited her 80-year-old father after his angioplasty.
- 11 Gilman, S.L., *The Jew's Body* (Bloomington: Routledge Press, 1995).
- 12 Hauerwas, S., *Dispatches from the Front: Theological Engagements with the Secular* (Durham, NC: Duke University Press, 1997).
- 13 See background paper on Jewish ethics and issues of moral status: unpublished, for internal use of the Geron Ethics Advisory Board, 1998. Each board member was asked to reflect on this issue from her/his particular faith perspective.
- 14 Literally, "part of the thigh of the mother." See Hulin 58a, Gittin, 23b. Talmud Balvi. (London: Soncino Press, 1958).
- 15 The Greek translation, from which the Christian tradition emerges, is different and assumes the exact opposite. The word in question is *ason*, which we have rendered as "harm." But the Greek renders the word as "form," yielding something like "if there yet be no form, he shall be fined, but if there be form, shalt thou give life for life." The "life for life" clause was thus applied to the fetus instead of the mother. This is of critical importance here. See Aptowitz, V., as noted in Feldman, D.M., *Birth Control in Jewish Law: Marital Relations, Contraception, and Abortion as Set Forth in the Classic Texts of Jewish Law* (New York: New York University Press, 1968), 257.
- 16 See Feldman, 270–273, for an extensive reconstruction of this argument.
- 17 Sinclair, D., a doctoral dissertation, as quoted in Dorff, "A Jewish Approach to End-Stage Medical Care," *The Journal of Conservative Judaism* (1991):43.
- 18 Talmud Balvi. Pesahim 110b., as noted in Dorff.
- 19 In a discussion with the author, July 11, 1998. Philadelphia.
- 20 For an extensive listing, see Dorff, 1999, *Jewish Medical Ethics: Life and Death Decision Making*, Chapters 1–3. Jewish Publication Society.
- 21 Ibid. Also Jacobovitz, I., in *Jewish Medical Ethics: A Comparative and Historical Study of the Jewish Religious Attitude to Medicine and Practice* (New York: Bloch Publishing Company, 1997).
- 22 Dorff, "A Jewish Approach to End-Stage Medical Care."
- 23 Ibid.
- 24 In phone conversation with the author, November 1994. This conversation was in reference to the Human Genome Project.
- 25 Zoloth-Dorfman, "Mapping the Normal Human Self" in *Genetics*, T. Peters, ed. (Cleveland, OH: Pilgrim Press, 1998). See the extensive and masterful work of Sander L. Gilman here, for example, *The Jew's Body* (Bloomington: Routledge Press, 1995), or *Making the Body Beautiful: A Cultural History of Aesthetic Surgery*, by the same author (Princeton, NJ: Princeton University Press, 1999).
- 26 Such practices lead Orthodox feminist Blu Greenberg to observe, "where there is a rabbinic will, there is a rabbinic way." Greenberg, B., *How to Run a Traditional Jewish Household* (New York: Simon and Shuster, 1985).
- 27 The Jerusalem Report, April 16, 1998.
- 28 Ibid.
- 29 Talmud Sanhedrin, 65b, as quoted in Idel, M., *Golem* (New York: State University of New York Press, 1990).
- 30 Idel, op cit. It is a subject of a novel by Marge Piercy, *He, She and It* (New York: Ballentine Publishing Group, 1991). The tales reoccur in the eighteenth century, and in the texts of the responsa literature (Zevi Askenazi, She'elot u-Teshuvot, no. 93). In one such text, the question is raised about whether the Golem can be included in a prayer quorum, minyon. At stake is the issue of murder. If the Golem is a man, then is it not killing to "return him to dust?" (One thinks here of the legal cases involving the destruction of embryos.) The text resolves this in an odd way, not by claiming the humanity or countable status of the Golem, but of decrying the waste of a creature with "a purpose." Sherwin also comments on this text and notes that Askenazi's son, Jacob Emden, argues with this distinction. Emden is an important commentator on other issues in medical ethics.
- 31 This entire section is from Laurie Zoloth-Dorfman, "Mapping the Normal Human Self."
- 32 *Midrash Rabbah*, Bereshit, Soncino Edition, London. This is a collection of traditional narratives redacted from rabbinic sources, including the Babylonian Talmud.

