SPECIAL SECTION

STEM CELL RESEARCH: LICIT OR COMPLICIT?

Is a Medical Breakthrough Based on Embryonic and Fetal Tissue Compatible with Catholic Teaching?

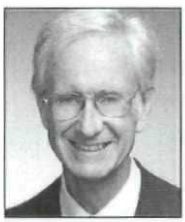
BY VINCENT BRANICK, PhD, & M. THERESE LYSAUGHT, PhD

In November 1998 researchers at Johns Hopkins University, Baltimore, and the University of Wisconsin–Madison announced a biological coup: They had isolated human stem cells from embryonic and fetal issue and cultivated them in the laboratory for as long as nine months.[1]

Excitement in the biological research community was palpable. Stem cells, biologists believe, promise significant medical benefits because of their ability to develop into any kind of human tissue or organ—bone, muscle, blood, or brain tissue. Medical researchers envision using stem cells to replace damaged organs and to restore tissue destroyed by Parkinson's disease, diabetes, or even Alzheimer's disease. The news media was soon caught up in the excitement, describing stem cells as "the biological motherlode" and "the humans' repair kit."[2]

The euphoria quickly faded, however, in the face of a sobering fact: Since 1994, Congress has explicitly prohibited the use of federal funds for research involving human embryos (extending a decades-long de facto ban).[3] Could funds from the National Institutes of Health (NIH) be used to support stem cell research? If not, this new Holy Grail seemed certain to remain out of reach. Many biologists looked to Harold Varmus, director of the NIH, for the answer.

In January, Varmus announced that the NIH would, despite the ban on federal funding of embryo research, fund research on stem cells—or, more specifically, on "cell lines" derived from embryonic stem cells.[4] For those familiar with the politics of NIH policy-making, Varmus's



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Summary In November 1998 biologists announced that they had discovered a way to isolate and preserve human stem cells. Since stem cells are capable of developing into any kind of human tissue or organ, this was a great scientific coup. Researchers envision using the cells to replace damaged organs and to restore tissue destroyed by, for example, Parkinson's disease, diabetes, or even Alzheimer's.

But, since stem cells are taken from aborted embryonic and fetal tissue or "leftover" in vitro embryos, their use raises large ethical issues. The National Institutes of Health (NIH) recently decided to fund research employing, not stem cells, but "cell lines" derived from them. The NIH has essentially made an ethical determination, finding sufficient "distance" between cell lines and abortion. Can Catholic universities sponsoring biological research agree with this finding?

Probably not. In Catholic teaching, the concept of "complicity" would likely preclude such research. However, Catholic teaching would probably allow research done with stem cells obtained from postpartum placental tissue and from adult bone marrow and tissue. These cells, which lack the pluripotency of embryonic and fetal stem cells, are nevertheless scientifically promising and do not involve the destruction of human life.

announcement was not in itself surprising. What was interesting was his argument. There is a difference, he said, between conducting research on embryos themselves and conducting research on cells derived from embryos. Therefore, although researchers could not use federal money to isolate and cultivate stem cells from embryonic or fetal tissue, they could use it to conduct stem cell research if private funds had been used to derive the cells in the first place.

In making this argument, Varmus offered an intriguing secular variant of one of the most complex issues in Catholic morality, the issue of complicity. The NIH has essentially determined there is sufficient legal "distance" between the source of the stem cell lines and the cell lines themselves. Working with cell lines of embryonically derived tissue does not, in the NIH's view, involve one in human embryo research funded by federal money.

But is there sufficient moral distance? Since stem cells are derived from aborted embryos and fetuses, or from "leftover" in vitro embryos, will those who conduct such research (or those who might benefit medically from them) be complicit in an act of abortion—in, that is, the destruction of human life? This remains an important question for Catholic universities sponsoring biological research and for Catholic researchers.

The recent NIH decision makes the question even more pressing. The funding issue changes the landscape dramatically. The stem cell work announced in November 1998 relied exclusively on funding from private biotech firms. Now that the federal floodgates are opening, stem cell research projects will multiply exponentially. As the fruits of this research are translated into the therapeutic armamentarium, Catholic healthcare institutions and their patients will find themselves dealing with therapy that lies under a shadow. Those who take their Catholic identity seriously will have to grapple with the question: *What level of involvement with stem cell research and the products therefrom constitutes complicity?*

Trouble at the Source

How is stem cell research related to the destruction of human life? The answer to this question varies. In some instances, the connection between the cells and such destruction is unmistakable, in others it is clearly absent, and in still others it remains disputed.

The connection is obvious in the work published in November by the Johns Hopkins University research team. John Gearhart and his colleagues obtained five- to-nine-week-old embryos and fetuses immediately following abortions and derived stem cells from them. The harvesting of these stem cells depended on abortion.

Working with cell lines of embryonically derived tissue does not, in the NIH's view, involve one in human embryo research funded by federal money.

However, this need not always be the case. Findings from other studies suggest that stem cells can be also obtained from postpartum placental tissue and from adult bone marrow, brain, and other organs.[5] Although such cells do not possess the same pluripotency as embryonic and fetal stem cells, they can, research indicates, produce a variety of blood cells, bone, cartilage, fat, tendon, muscle, and myelin—cells that promise treatment for disorders ranging from leukemia to multiple sclerosis, from Alzheimer's to Parkinson's. And they do not involve aborted fetuses.

There is a third method for obtaining stem cells. The connection between it and abortion is disputed, even among Catholic moral theologians. This method, employed by James Thompson and a team of researchers at the University of Wisconsin–Madison, derives the stem cells from unimplanted embryos created through in vitro fertilization. Thompson and his colleagues obtained from a fertility clinic fertilized eggs "left over" from in vitro fertilization. Over seven days or so, the researchers allowed these fertilized zygotes to develop into blastocysts, which they then dissected for their stem cells.

Does this use of an embryo—which is destroyed in the process of harvesting the stem cells—constitute an abortion? From the perspective of the magisterium, the answer is yes. The Catholic Church explicitly forbids not only direct involvement in an abortion as a form of complicity; it also forbids the destruction of, experimentation on, or other degradation of a human embryo at any stage after fertilization.[6] For those who believe that human life begins at conception, any destruction or degradation of embryos is morally equivalent to abortion.

Some Catholic commentators disagree, however. Those, for example, who hope the Church will eventually allow both in vitro fertilization and stem cell research have tried to craft an argument that reconfigures the moral status of unimplanted embryos.[7] The argument requires a distinction to be made between human life and human individuality. These commentators suggest that conception is a process, rather than a single moment, and one that is not complete until approximately 14 days after fertilization. During this time, the fertilized egg can still split in two (can "twin," in other words); in theory, each cell of the blastocyst could give rise to a separate individual. Not until the 14th day, when the blastocyst has normally implanted itself in the uterine wall and cell differentiation has begun, would there be an actual human individual. Only after this, according to the

argument, would destruction of the embryo be equivalent to abortion.

Stem Cell Lines

A tissue's source must therefore be taken into account whenever one is considering the issue of complicity in stem cell research. But recent developments present another, even more perplexing twist.

Cell lines are embryonic and fetal stem cells that researchers have kept alive and allowed to reproduce into new cells of the same type. Now that certain technical problems in this difficult process are gradually being resolved, researchers can preserve cell lines for as long as nine months. Stem cells reproduced in this way may retain their radical ability to develop into any type of human tissue.

If the scientists who reproduced the original cell lines decide to share them with other researchers—as they surely will—will this sharing establish a sufficient moral "distance" between the original act of abortion (or destruction of embryos) and the secondary or tertiary researchers? Could a Catholic researcher engage in such research without qualms of conscience? Such a researcher might argue that developing cell lines is a way of bringing good out of evil, a praiseworthy act. One might, for example, donate to science the organs of a murdered family member without condemning the murder any less strongly. Can researchers, by focusing on the cell line, dissociate themselves from the original abortion? And can ordinary people accept the products of such research (e.g., the medicines and replacement tissues and organs) without being implicated in the act that made the products possible? Or will everyone involved—patients as well as researchers—be complicit in the destruction of a human embryo?

The Question of Complicity

To answer these questions, we must turn to the notion of complicity. In Catholic teaching, "complicity" in another person's crime is a broad concept, related to but not synonymous with the concept of cooperation. Ethicists sometimes distinguish between formal complicity (before the act) and material complicity (after the fact), depending on the accomplice's activity, approval, or intentions, and on the timing involved.

James Burtchaell has provided the most extensive recent treatment of complicity in his analysis of the analogous issue of the use of fetal tissue for research and transplantation.[8] Burtchaell posits four types of moral complicity, the first two of which seem most relevant to stem cell research:

- Active collaboration in the deed itself
- Indirect association with the immoral act, implying approval
- Failure to prevent the evil, when prevention is possible
- Shielding the perpetrator from penalty[9]

Burtchaell's first type is roughly equivalent to the concept of formal cooperation. In *Evangelium vitae*, Pope John Paul II says such cooperation is the same as participating in an evil act or at least sharing the evildoer's intention: "Christians, like all people of good will, are called upon under grave obligation to conscience not to cooperate formally in practices which even if permitted by civil legislation are contrary to God's law. Indeed, from the moral standpoint, it is never licit to cooperate formally in evil. Such cooperation . . . can be defined as a direct participation in an act against innocent life or sharing in the immoral intention of the person committing it."[10]

Such complicity of intention would apply not only to the actual perpetrators but also to those who by their actions seem to support the act, for example, those who donate fetuses or fertilized embryos for research purposes.

However, direct involvement is not required to raise questions of complicity. There may be, as Burtchaell notes, an indirect association with the immoral act that implies approval. Does one become formally or materially complicit after the fact through simple disregard and silence—especially if one knows about the evil act and is benefiting from it? When I benefit over and over again from a crime while simply ignoring the crime itself, do I place myself in an established relationship with that crime whether I approve of it or not? As Burtchaell states, "A partnership whereby one achieves direct benefit from another person's injurious behavior, after the fact, can place the former in silent but unmistakable alliance with what the latter is doing."[11]

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Degrees of Distance

But are there any limits on this notion of material complicity after the fact? How close is too close? How much distance is required? Although there are no clear-cut answers, the notion of material cooperation might be of assistance here. In the Catholic moral tradition, an action that is conjoined to but does not intend a particular immoral act may be justifiable if it is sufficiently remote. How might one achieve sufficient distance from the actual evil or symbolic power of an immoral action? There are six possible ways this can be done.

Time If the two actions are separated by a significant amount of time, the later one may be justifiable. However, time does not heal all ills. As

Burtchaell observes, most American researchers refused to use the research data of Nazi doctors who experimented on death-camp prisoners even though decades had passed since those terrible crimes occurred.

Steps of Separation A second possibility involves the degree of separation—that is, the number of steps intervening between a present act and a prior one.

An analogy is the modern practice of buying inexpensive goods produced in Asian "sweatshops." A wholesale clothing merchant who obtains goods from manufacturers known to treat their workers in a brutal manner is certainly an accomplice, after the fact, in the brutality. Is a retailer who eventually receives the goods, perhaps several steps down the line, also an accomplice? Are you and I, who are wearing the clothes, accomplices? Although degree of separation is an important consideration, ethicists reflecting on modern social evils have frequently pointed out that the silence and putative neutrality of good people often allow evil to flourish.

Ongoing Practice Whether the original evil act is continuing makes a difference. Although many scientists adamantly oppose the use of the Nazi death-camp data mentioned above, others would argue that employing it could be justified since the practices that produced the data have long since ceased. (By the same measure, though, one might return to the sweatshop example and argue that as long as the practices continue, no degrees of separation can sufficiently separate a cognizant purchaser from the brutality involved in producing the goods he or she buys.)

Impact on Social Fabric A fourth consideration is whether refusing to participate in a set of practices because of their link with prior evil would, if practiced broadly, be socially disruptive and detrimental to the common good. Which goods or services have *not* been tainted by some evil at some point along the line of production? One could argue, for example, that American civilization is based on the theft by European settlers of Indian land, that our economy was for many years based on the blood and sweat of African slaves. If contemporary Americans were to take too broad a view of their complicity in these crimes, they might effectively paralyze the nation. Such a paralysis, precluding the realization of goods important to the human community, would be a sin of omission.

Nature and Immediacy of Goods Insofar as notions of complicity and cooperation draw on the principle of double effect, the nature and immediacy of the goods produced—and the absence of real alternatives to such goods—must be taken into account. The classic example of justifiable remote cooperation is the janitor who works in a hospital that performs abortions. As long as the janitor neither participates directly in the abortions nor approves of them, he is not considered complicit, assuming that his livelihood and that of his family depends on the job because no other is available. However, as the goods become less central to human flourishing, this justification becomes more tenuous.

Severity of Act The degree of one's material complicity after the fact rests not only on the distance from the crime but on its severity as well. We are still so shocked by the horrors of Nazi death camps that most of us abhor the thought of benefiting in any way from this evil. Are abortions or other forms of destruction of human embryos on the same level?

Although such considerations help us think about how to distance one act from another, none is determinative, nor can a formula be developed from them. Distance from a crime cannot be assessed in objective units of measurement; it depends on human perception and the symbolic power of data. Unscrupulous merchants can commingle clothing from sweatshops with that from legitimate sources to the point where it may be unreasonable to try to distinguish them from each other. Noting this fact is not an attempt to palliate a sensitive conscience. It is to point out one way the clothing line loses its symbolic power to evoke the crime. But a notebook captured in a Nazi death camp retains that power.

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Complicity and Stem Cell Lines

Having discussed various dimensions of the complicity issue, we return to our original question: What level of involvement with stem cell research and the products therefrom constitutes complicity?

Despite disagreement about the status of unimplanted embryos, Catholic moral teaching clearly holds those who dissect blastocysts from stem cells equal in moral culpability to those who perform abortions. In addition, those whose actions are closely linked to the derivation of stem cells through the destruction of human life—those who, for example, donate fetuses or fertilized embryos for research purposes, or procure consent from donors—would be considered morally complicit in a grave evil.

In the same way, the issue of indirect participation through association is clear. Close cooperation between a researcher and a provider of voluntary abortions or a fertility clinic appears to bring the research close enough formally and materially to the abortion to smack of complicity. Whether the researcher obtains aborted fetuses in order to derive stem cells from them or obtains stem cells derived from unimplanted embryos, the researcher has arranged a transaction that seems to encourage, support, or even lend legitimacy to the

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We must conclude that researchers working with stem cell lines will have difficulty avoiding complicity. Complicity is not the whole moral story, however.

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researcher will not be corrupted by the evil.

Technology and the "Culture of Death" Recent Catholic teaching on bioethics, as well as the general moral teaching of John Paul II, point toward a second broader issue: the danger that, in modern society, the requirements of technology will take precedence over human needs. One hears, over and over in the Church's recent instructions on bioethics, warnings against reducing the human being "to an object of scientific technology," in which the sole criteria for success are "technical efficiency" and "control and dominion."[13] One finds, combined with these warnings, appeals to revere human dignity and the sanctity of human life.

A Theological Vision Critics frequently object to the way the Church, in its discussion of topics like homologous in vitro fertilization, places human dignity and technology in opposition to each other. Yet understanding the Church's teaching requires a charitable assessment of the fundamental philosophical and theological differences between these two phenomena. Fundamental to the Church's appeal is a vision of nature and natural processes as "creation"—the tangible matrix that extravagantly and incarnationally mediates God's grace and presence to the world, locating each of us in a broader and vital context of interrelatedness and community. To lose a sense of nature as creation is to lose a sense of life in its wholeness, in its dignity, in its mystery. It is to lose a sense of the person as a whole entity experiencing the whole of life.

Such a loss results in an exclusive and reductionistic concentration on immediate control of some circumscribed function of life. Abstracted from its context in creation and the human community, no dimension of life can flourish. Such idolatrous abstraction leads to what John Paul II calls "the culture of death." Situating stem cell research and its legitimate drive toward life in the dual context of the wholeness of human life and the culture of death may well give this teaching a new urgency and intensity.

Two Roads to Research

Stem cell research proceeds. In April an NIH advisory panel issued draft guidelines allowing federal financing of research with human embryonic stem cells.[14] Research on alternatives to embryonic stem cells proceeds as well. Perhaps the research involving alternatives will prove to be technically and therapeutically more facile that that employing embryos, and will thereby render questions of complicity moot.

In the meantime, conscientious Catholics and other people of faith have an opportunity to reflect on the reasonable and theological bases for this new direction in medicine in light of where our hearts and the Spirit lead us. □

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NOTES

1. See Michael J. Shamblott, John Gearhart, et al., "Derivation of Pluripotent Stem Cells from Cultured Human Primordial Germ Cells," *Proceedings of the National Academy of Science USA*, vol. 95, 1998, pp. 13,726-13,731; James Thompson, et al., "Embryonic Stem Cell Lines Derived from Human Blastocysts," *Science*, November 6, 1998, pp. 1,145-1,147; and John Gearhart, "New Potential for Human Embryonic Stem Cells," *Science*, November 6, 1998, pp. 1,061-1,062.
2. *Time*, November 16, 1998, pp. 96-97; see also *Time*'s January 11, 1999, special issue on human genetic engineering and the future of medicine.
3. For a concise yet thorough overview of this legislative history, see Alexander Morgan Capron, "Good Intentions," *Hastings Center Report*, March-April 1999, pp. 26-27.
4. Nicholas Wade, "Government Says Ban on Human Embryo Research Does Not Apply to Cells," *New York Times*, January 20, 1999, pp. A1, 29.
5. The following news stories reported on studies published in *Science*, *Cell*, and the *Proceedings of the National Academy of Science* that cite evidence of therapeutic efficacy for non-embryonic stem cells: Denise Grady, "The Hope, and Hype, of Cord Blood," *New York Times*, December 1, 1998; Nicholas Wade, "Experiment Offers Hope for Tissue Repair," *New York Times*, January 22, 1999; Paul Recer, "Lab Isolates Master Cell," *New York Times*, April 4, 1999; Nicholas Wade, "Injection of Cells Aids Mice," *New York Times*, June 8, 1999; and Nicholas Wade, "Brain Stem Cell Is Discovered, Twice," *New York Times*, June 15, 1999.
6. See John Paul II, *Donum vitae*, II, 4; and National Conference of Catholic Bishops, *Ethical and Religious Directives for Catholic Health Care Services*, U.S. Catholic Conference, Washington DC, 1995, Part IV, p. 51.
7. See Thomas A. Shannon and Allan B. Wolter, "Reflections on the Moral Status of the Pre-Embryo," *Theological Studies*, December 1990, pp. 603-626; also Thomas A. Shannon, "Remaking Ourselves: The Ethics of Stem-Cell Research," *Commonweal*, December 4, 1998, pp. 9-10.
8. James Burtchaell, *The Giving and Taking of Life*, University of Notre Dame, Notre Dame, IN, 1989.
9. Burtchaell, p. 173.
10. John Paul II, *Evangelium vitae*, para. 74.
11. Burtchaell, p. 176.
12. Burtchaell, p. 176
13. See *Donum vitae*, II, 4.
14. Nicholas Wade, "Panel Drafts Rules for Human Embryo Study," *New York Times*, April 9, 1999. A copy of the draft guidelines, titled "The Ethical Use of Human Stem Cells in Research," can be found at http://bioethics.gov/briefings/index.html.