Health Matrix: The Journal of Law-Medicine

Volume 12 | Issue 2 Article 10

2002

Are We Killing the Weak to Heal the Sick: Federally Funded Embryonic Stem Cell Research

Alo H. Konsen

NOTE

ARE WE KILLING THE WEAK TO HEAL THE SICK?: FEDERALLY FUNDED EMBRYONIC STEM CELL RESEARCH

Alo H. Konsen[†]

MEDICAL PROFESSIONALS have long sought effective treatments for debilitating diseases and injuries. Until recently, researchers had little concrete hope of significantly helping people afflicted with serious conditions like Parkinson's disease, diabetes, cancer, multiple sclerosis, birth defects, heart disease, and spinal cord injuries. Roughly three years ago, everything changed when scientists made an extremely controversial breakthrough in the field of human stem cell research. Implanting these newly isolated unspecialized cells into sick or injured human tissue holds out the hope of miracle medical cures. Some researchers harvest stem cells by destroying human embryos, and these scientists now want access to federal funds to support their work. By reviewing the history of stem cell research, analyzing the state of applicable medical research law, and applying scientific and philosophical considerations to the debate, this Note will demonstrate that federally funded human embryonic stem cell research is illegal, immoral, and unnecessary.

I. STEM CELL RESEARCH 101

In 1998, two research teams figured out how to isolate and culture stem cells from human embryos. John Gearhart, a professor of obstetrics/gynecology and physiology at Johns Hop-

[†] J.D. Candidate at Case Western Reserve University School of Law.

kins University led one team[1], which obtained its stem cells from the gonad tissue of aborted fetuses.[2] James A. Thomson, a University of Wisconsin-Madison developmental biologist, led the other team[3], which extracted stem cells from excess embryos created by In Vitro Fertilization (IVF) clinics.[4] This team published its results first,[5] and ignited a firestorm of controversy.

The rest of the scientific community soon realized the implications of the researchers' discovery. Medical authorities foresaw possible breakthrough treatments for previously untreatable diseases, given enough time, funding, and embryonic stem cells suitable for implantation. Pro-life advocates immediately objected to the research because it destroyed human embryos. Sympathetic pro-lifers in Congress moved to restrict human embryonic stem cell research (ESCR), setting off a legal battle of national proportions.

To properly tackle the legal issues surrounding the ESCR debate, one must have a basic working knowledge of human embryology and cell development.

Totipotent stem cells, present only in the first four days after conception, have the ability to differentiate into all 210 types of human tissue.[6] A totipotent cell (e.g., a human zygote) has the inherent potential to develop into an individual adult organism. As its name suggests, its potential is total.[7]

Approximately four days after conception, the rapidly dividing and multiplying totipotent cells begin specializing.[8] They become pluripotent, that is, capable of developing into many (but not all) kinds of tissue.[9] At this point the preborn human is

---

[1] Press Release, Johns Hopkins Med. Inst., Hopkins Research Team Cultures Long-Awaited Human Embryonic Stem Cells (Nov. 5, 1998), http://hopkins.med.jhu.edu/press/1998/NOVEMBER/981105A.HTM.

[2] NAT'S INSTS. OF HEALTH, U.S. DEP'T OF HEALTH AND HUMAN SERVS., STEM CELLS: A PRIMER, http://www.nih.gov/news/stemcell/primer.htm (May 2000) [hereinafter NIH PRIMER].

[3] Terry Devitt, *Wisconsin Scientists Culture Elusive Embryonic Stem Cells*, WIS. WEEK, Nov. 5, 1998, http://www.news.wisc.edu/wisweek/view.msql?id=3327.

[4] NIH PRIMER, *supra* note 2.

[5] James A. Thomson et al., *Embryonic Stem Cell Lines Derived from Human Blastocysts*, 282 SCI. 1145 (1998).

[6] *See* NIH PRIMER, *supra* note 2.

[7] *Id.*

[8] *Id.*

[9] *Id.*

known as a blastocyst, an eight- or sixteen-celled embryo that has not yet successfully implanted in the mother's uterus.[10] In state case law, blastocysts that have not yet implanted themselves in the uterus are often labeled with the medically imprecise legal term "pre-embryo."[11] Blastocyst implantation occurs on about the fifth day after conception.

Shortly after this point, embryos have three layers of tissue: the ectoderm (leading to production of hair and nerve tissue), endoderm (producing lungs, liver and gut endothelium) and mesoderm (producing blood, bone and striated muscle).[12] Further along in the developmental process, pluripotent cells become multipotent, giving rise to cells within just one narrow category (e.g., certain multipotent stem cells become white blood cells, red blood cells, and platelets).[13]

Until the stem cell researchers' breakthrough, it was widely accepted that after cells from one of the three embryonic layers matured into adult tissue, those cells could not be transformed into a type originating in one of the other two embryonic cell layers. For example, cells of ectodermic origin could not be changed into cells identical to those of endodermic or mesodermic origin. The researchers from Johns Hopkins and Wisconsin shattered that assumption.

Unfortunately for researchers, Congress found out that the two teams were forced to destroy each embryo from which they extracted their stem cells. A peer-reviewed article published almost simultaneously with the researchers' press releases stated, "creating [embryonic stem] cell lines requires researchers to destroy an embryo."[14] Congress stepped in to prohibit federal funding for this research, the Executive Branch objected, and the current controversy began.

---

[10] *See id.*

[11] Hecht v. Superior Court, 16 Cal. App. 4th 836, 849 (Ct. App. 1993); A.Z. v. B.Z., 725 N.E.2d 1051,1052 n.1 (Mass. 2000); J.B. v. M.B., 751 A.2d 613, 614 n.1 (N.J. Super. Ct. App. Div. 2000); Planned Parenthood of Middle Tenn. v. Sundquist, 38 S.W.3d 1, 17 (Tenn. 2000).

[12] Letter from Rev. Msgr. Dennis N. Schnurr, United States Conference of Catholic Bishops, to NIH Office of Science Policy n.11 (Jan. 31, 2000), http://www.nccbuscc.org/prolife/issues/bioethic/comments.htm.

[13] NIH PRIMER, *supra* note 2.

[14] Sabine Steghaus-Kovac, *Ethical Loophole Closing Up for Stem Cell Researchers*, 286 SCI. 31 (1999).

II. THE ROAD TO THE STEM CELL DEBATE

Since the federal government first regulated medical research on human subjects in 1975, human embryos from implantation onward have been included under the federal definition of "fetus," and have been treated as "human subjects" deserving protection from harmful research.[15] The current National Institutes of Health child research policy indicates acceptance of that definition when it states "the inclusion of children as participants in research must be in compliance with all applicable subparts of 45 CFR 46 as well as with other pertinent federal laws and regulations whether or not the research is otherwise exempted from 45 CFR 46."[16]

Experiments on human embryos outside the womb (e.g., produced by IVF or cloning) have never received federal support. The federal regulations of 1975 prevented federally funded IVF experiments unless an Ethics Advisory Board agreed upon them. Bad press in the late 1970s persuaded the Carter Administration to dismantle the Board and to withdraw all federal funds.

Within days of his first inauguration in 1993, President Clinton changed everything when he sent a memorandum to his Secretary of Health and Human Services. In it, he directed that the nearly twenty-year-old regulatory ban on federal funding of fetal tissue research be lifted.[17]

---

[15] *See* 42 USC § 289g(b) (1994) (setting forth the rules governing the use of fetal research).

[16] NAT'L INSTS. OF HEALTH, U.S. DEP'T OF HEALTH AND HUMAN SERVS., NIH POLICY AND GUIDELINES ON THE INCLUSIONS OF CHILDREN AS PARTICIPANTS IN RESEARCH INVOLVING HUMAN SUBJECTS § I (March 1998), http://grants.nih.gov/grants/guide/notice-files/not98-024.html.

[17] Memorandum from President William J. Clinton, to Secretary of Health and Human Services (Jan 22, 1993), http://www.grants.nih.gov/grants/guide/notice-files/not93-091.html.

> On March 22, 1988, the Assistant Secretary for Health of Health and Human Services ("HHS") imposed a temporary moratorium on Federal funding of research involving transplantation of fetal tissue from induced abortions. Contrary to the recommendations of a National Institutes of Health advisory panel, on November 2, 1989, the Secretary of Health and Human Services extended the moratorium indefinitely. This moratorium has significantly hampered the development of possible treatments for individuals afflicted with serious diseases and disorders, such as Parkinson's disease, Alzheimer's disease, diabetes, and leukemia. Accordingly, I hereby direct that you immediately lift the moratorium.

Id.

At the same time, Congress was changing the rules in a similar way.[18] However, even after it released federal funding in 1993 for fetal tissue research on aborted children, Congress made certain that no federal funds would be directly involved in the abortions themselves. Under the relaxed laws, fetal tissue, defined as "tissue or cells obtained from a dead human embryo or fetus after a spontaneous or induced abortion, or after a stillbirth,"[19] could be used for "therapeutic purposes,"[20] but only if the researcher did not participate in the abortion and did not influence the "timing, method, or procedures used to terminate the pregnancy."[21]

In 1994, after a newly "Republicanized" Congress eliminated the regulation demanding prior Ethics Advisory Board approval, a Clinton administration Human Embryo Research Panel recommended that the NIH fund some types of destructive embryo research, but the President rejected some of the recommendations, and the newly conservative Congress rejected them all.

One of the more noteworthy of these never-implemented recommendations from the National Bioethics Advisory Commission would have required researchers to make clear "that the research will involve the destruction of the embryos."[22] The NIH eventually refused to follow the NBAC suggestion, probably because using that language would have closed the loophole that the NIH eventually used to sidestep the law. The situation remained in an uneasy balance until November 1998, when the Thomson and Gearhart teams made their breakthroughs in isolating and propagating embryonic stem cells. In response to the revelation that this research required the destruction of human embryos, and knowing that its restrictions on federally funded research on aborted fetal tissue might be misunderstood or misapplied in ways it never intended, Congress moved swiftly to curtail federal funding for this research as well.

---

[18] Note that the Republican landslide victory in the 1994 mid-term election had not yet happened.

[19] 42 U.S.C § 289g-1(g).

[20] *Id.* § 289g-1(a)(1).

[21] *Id.* § 289g-1(c)(4).

[22] REPORT OF THE HUMAN EMBRYO RESEARCH PANEL, NAT'L INSTS. OF HEALTH 19 (Sept. 1994), *available at* http://bioethics.georgetown.edu/nbac/stemcell.pdf.

The text of Congress's current ban on federally funded human ESCR lies in a 2000 amendment to the Departments of Labor, Health and Human Services, and Education, and Related Agencies Appropriations Act of 1999, an act which President Clinton signed. The pertinent part of the amendment reads:

> None of the funds made available in this Act may be used for—
>
> (1) the creation of a human embryo or embryos for research purposes; or
>
> (2) research in which a human embryo or embryos are destroyed, discarded, or knowingly subjected to risk of injury or death greater than that allowed for research on fetuses in utero under 45 CFR 46.208(a)(2) and section 498(b) of the Public Health Service Act (42 U.S.C. 289g(b)).[23]

One could expect the House to reintroduce an identical version of the amendment, with text unchanged from previous years, once the time comes to consider the annual Labor, Health and Human Services Appropriations Act.

The current embryonic research ban extends to embryos the protection given to fetuses in the *United States Code* and in the *Code of Federal Regulations*. The fetal research statute forbids research or experimentation on fetuses unless the activity *enhances the well-being or meets the health needs* of the fetus, or *enhances the probability of its survival* to viability; or will pose *no added risk of suffering, injury, or death* to the fetus.[24] Also, the purpose of the research or experimentation must involve de-

---

[23] Consolidated Appropriations Act of 2001, Pub. L. No. 106-554, § 510(a). For purposes of this section, the term 'human embryo or embryos' includes any organism, not protected as a human subject under 45 CFR 46 as of the date of the enactment of this Act, that is derived by fertilization, parthenogenesis, cloning, or any other means from one or more human gametes or human diploid cells.

Id. § 510(b). The original ban was passed in the Balanced Budget Downpayment Act, Pub. L. No. 104-99, 110 Stat. 26 (1996). The proposed continuation of this ban uses precisely the same wording and is found in the Labor, Health & Human Services Appropriations Act, H.R. 5656, 106th Cong. § 510(a) (2000).

[24] 42 U.S.C. § 289g(a).

velopment of important biomedical knowledge which *cannot be obtained by other means.*[25]

This same statute goes on to mandate that fetuses be treated alike whether their mothers intend to abort them or not, and sets the risk standard for fetal research at the same level as in the human subject research rules, published in the *Code of Federal Regulations*.[26] Those regulations mirror the wording of the statute by requiring researchers to seek to meet the health needs of the fetus while minimizing risk, and always ensuring that the experiments pursue important biomedical knowledge that cannot be obtained by other means.[27]

III. THE NIH DEFIES CONGRESS

President Clinton signed the Labor, Health & Human Services Appropriations Act of 1999, agreeing to hold the Executive Branch accountable to the terms of the amendment banning federally funded destructive research on human embryos. But long before the President agreed to continue protecting embryos, Executive Branch officials were looking for ways around the law.

---

[25] *Id.* The full statute reads:

"The Secretary [of HHS] may not conduct or support any research or experimentation, in the United States or in any other country, on a nonviable living human fetus ex utero or a living human fetus ex utero for whom viability has not been ascertained unless the research or experimentation—

(1) may *enhance the well-being or meet the health needs of the fetus or enhance the probability of its survival to viability*; or

(2) will pose *no added risk of suffering, injury, or death to the fetus* and the purpose of the research or experimentation is the development of important biomedical knowledge which *cannot be obtained by other means.*

Id. (emphasis added).

[26] 45 CFR § 46.208 (1999).

[27] The full research restrictions read:

(a) No fetus *in utero* may be involved as a subject in any activity covered by this subpart unless: (1) The purpose of the activity is to meet the health needs of the particular fetus and the fetus will be placed at risk only to the minimum extent necessary to meet such needs, or (2) *the risk to the fetus imposed by the research is minimal* and the purpose of the activity is the development of important biomedical knowledge which *cannot be obtained by other means.*

(b) An activity permitted under paragraph (a) of this section may be conducted only if the mother and father are legally competent and have given their informed consent, except that the father's consent need not be secured if: (1) His identity or whereabouts cannot reasonably be ascertained, (2) he is not reasonably available, or (3) the pregnancy resulted from rape."

Id. (second and third emphasis added).

On January 15, 1999, the Department of Health and Human Services (DHHS), intent on pursuing ESCR despite the clearly-worded congressional ban, issued a General Counsel's interpretation of the ban and its effects. The General Counsel argued that because pluripotent stem cells obtained from destroyed embryos were not morally equivalent to embryos themselves (in other words, the cells were not totipotent), ESCR was exempt from the federal funding ban. On January 26, in a statement explaining the DHHS General Counsel's interpretation before a Senate Appropriations Subcommittee, National Institutes of Health (NIH) Director Harold Varmus laid out an incredible argument:

> DHHS funds can be used to support . . . research utilizing human pluripotent stem cells because human pluripotent stem cells are not embryos. The statute that bans the use of Federal funds for embryo research . . . does not . . . define [the term] organism. . . . By [our] definition . . . pluripotent stem cells are not and cannot develop into organisms. Therefore, human pluripotent stem cells are not embryos and are not covered by this prohibition on Federal funding.[28]

Three days after the President signed the ban into law, the NIH did an about-face and issued proposed guidelines for supporting ESCR with federal funds.[29] The NIH attached one condition: researchers could not use federal funds in the act of destruction itself.[30] The final guidelines made no significant changes.[31]

As of this writing, the NIH's reasoning has not been formally challenged in the House or Senate, but Congress is likely to join the battle quickly if pro-life legislators come to believe

---

[28] Statement of Harold Varmus, NIH Director, before the Senate Appropriations Subcommittee on Labor, Health and Human Services, Education and Related Agencies (Jan. 26, 1999), *available at* http://www.nih.gov/news/stemcell/statement.htm.

[29] Press Release, National Institutes of Health, Approval Process for the Use of Human Pluripotent Stem Cells in NIH-Supported Research (Aug. 23, 2000), http://grants.nih.gov/grants/guide/notice-files/NOT-OD-00-050.html.

[30] *See id.* (linking to guidelines).

[31] *See* National Institutes of Health Guidelines for Research Using Human Pluripotent Stem Cells, 65 Fed. Reg. 65,166 (Aug. 25, 2000), *corrected by* 65 Fed. Reg. 69,951 (Nov. 21, 2000), *available at* http://www.nih.gov/news/stemcell/stemcellguidelines.htm.

the NIH "loophole" poses a credible problem. But by any reasonable interpretation, Congress did not limit the scope of its funding ban to the extent claimed by the NIH. It is no great stretch to read the plain meaning of the statute and discern that Congress intended to ban not just the destruction of the embryo, but research that requires or relies upon the deliberate destruction of embryos.

By commonly accepted rules of statutory construction, the NIH's reasoning fails to pass muster. First, a statute must be construed to avoid rendering any of its words superfluous, if possible[32] The NIH's interpretation of the ban falls short by ignoring the words "research in which a human embryo or embryos are destroyed."[33] Second, when Congress chooses different language in nearby sections of the same statute—one narrow, one broad—it is presumed that Congress acts intentionally and the statute must be construed to give effect to those differences.[34] The NIH interpretation ignores the difference between § 510(a)(1) and §510(a)(2) in the statute, and ignores the broader scope of the latter.

Absent any language suggesting that Congress intended to distinguish between embryos based on where they happen to be, common sense suggests Congress intended to treat human embryos outside the womb with the same respect already accorded to embryos and fetuses inside the womb. Remember too, that the NIH's own Human Embryo Research Panel[35] and President Clinton's own National Bioethics Advisory Commission[36] conceded that frozen embryos deserve respect as a form of human life.

Interestingly, Director Varmus's testimony also neglected to explain to the Senate just how drastically and quickly the NIH's understanding of the law had changed. Just two years earlier the NIH considered the same facts and came to the opposite conclusion. In 1997, an NIH researcher used NIH funds and equipment to study "preimplantation genetics involving molecular or cyto-

---

[32] Walters v. Metro. Educ. Enters, 519 U.S. 202, 209-10 (1997); United States v. Menasche, 348 U.S. 528, 538-39 (1955).

[33] Consolidated Appropriations Act of 2001, Pub. L. No. 106-554, § 510(a)(2).

[34] Russello v. United States, 464 U.S. 16, 23 (1983).

[35] NIH, *Human Embryo Research Panel*, at 2.

[36] Letter of Dr. Harold Shapiro, Chairman of National Bioethics Advisory Commission, to President Clinton (Sep. 7, 1999).

genetic analysis from DNA derived from a human embryo or a single cell from a human blastomere from a cleavage stage embryo."[37] This researcher's embryonic cells came from a non-NIH funded source,[38] but the NIH quickly terminated his grant anyway, fired him, apologized profusely to Congress for violating the ban, and promised not to do it again. But in two short years, what NIH once saw as a violation of the law transformed into a justification for ignoring that now-inconvenient and unprofitable law.

To add further perspective, examine the NIH's own policy concerning research on children and consider how it would prohibit ESCR if embryos were counted as children. The guidelines mirror the contents of 45 CFR § 46.401-409:

> Generally, healthy children can be studied when the research is considered as "not greater than minimal risk." Children can be involved in research with greater than minimal risk only when it presents the prospect of direct benefit to the individual child or is likely to yield generalizable knowledge about the child's disorder or condition. DHHS can support other research involving children only with the approval of the Office for Prevention from Research Risks after consultation with an appropriate panel of experts.[39]

Clearly, ESCR would be prohibited if embryos were considered children. The United States Catholic Conference assessed the situation correctly when it said, "[i]n short, the [NIH] guidelines permit precisely what Congress and the President forbade with passage and signing of the Appropriations Act: the use of federal taxpayer dollars for research that involves the killing of human embryos."[40]

---

[37] *Continued Management Concerns at the NIH: Hearing before the Subcomm, on Oversight and Investigations of the Comm. on Commerce*, 105th Cong. 34 (1997) (letter from Kate A. Berg, PhD, Deputy Scientific Director, NCHGR).

[38] *See id.*

[39] OFFICE OF EXTRAMURAL RES., U.S. DEP'T OF HEALTH AND HUMAN SERVS., QUESTIONS AND ANSWERS ABOUT THE NIH POLICY AND GUIDELINES ON THE INCLUSION OF CHILDREN AS PARTICIPANTS IN RESEARCH INVOLVING HUMAN SUBJECTS § 21 (March 1999), http://grants.nih.gov/grants/funding/children/pol_children_qa.htm (citations omitted).

[40] Letter from Rev. Msgr. Dennis N. Schnurr, *supra* note 12, § II.

Congress's official opposition to ESCR faced three internal challenges in the last year of its 106th session, but all three failed to overturn the ban contained in the appropriations amendment. The Medicare Patient Access to Technology Act of 1999 [41] was referred to a Senate committee on September 23, 1999, where it died. House Resolution 414, which would have accomplished the same goal, died in a House subcommittee on February 4, 2000.[42] Most recently, the Stem Cell Research Act of 2000 (S. 2015) died in a Senate committee hearing on September 20, 2000.[43]

On the presidential campaign trail, candidate George W. Bush objected to ESCR. His spokesman told the media 'Governor Bush opposes federal funding for stem-cell research when it involves destroying a living, human embryo.'[44] It seemed reasonable to predict that the NIH's policy would undergo a drastic shift under President Bush.

Shortly after taking office, President Bush predictably directed his new HHS Secretary, Tommy Thompson, to review NIH policy on ESCR and report back with any information relevant to Bush's assessment of his administration's policy on federal funding.[45]

On March 8, 2001 several pro-life individuals and groups filed suit in the U.S. District Court in the District of Columbia to compel DHHS and NIH to enforce the statutory ban on federal funding of ESCR.[46] The following month, shortly before an NIH fund allocation meeting scheduled for April 25, HHS Secretary Thompson ordered NIH to halt progress on federal funding until further notice.[47]

On August 9, 2001 after months of public inquiry, President Bush delivered a speech announcing his administration's stance

---

[41] S. 1626, 106th Cong. (1999).

[42] H.R. Res. 414, 106th Cong. (2000).

[43] THOMAS: LEGISLATIVE INFORMATION ON THE INTERNET, LIBRARY OF CONG., BILL SUMMARY & STATUS, 106th Cong., S.2015, *at* http://thomas.loc.gov/cgi-bin/bdquery/D?d106:25:./temp/~bdoDKd:@@@L&summ2=m&|/bss/d106query.html|.

[44] Mary Leonard, *Abortion Foes See Politics in Stem-Cell Study Policy*, BOSTON GLOBE, Aug. 24, 2000, at A1.

[45] *See* Rick Weiss, *Bush Administration Order Halts Stem Cell Meeting; NIH Planned Session to Review Fund Requests*, WASH. POST, Apr. 21, 2001, at A2.

[46] Nightlight Christian v. Thompson, No. 01-502 (D.C. Cir. filed Mar. 8, 2001). As of August 31, 2001, the case has been temporarily stayed at the plaintiffs' request.

[47] Weiss, *supra* note 45.

on stem cell research.[48] He decided to restrict federal funding for ESCR to the roughly sixty existing stem cell lines "where the life and death decision has already been made."[49] He also approved federal funding for research on non-embryonic stem cells, and signaled the formation of a President's council to monitor stem cell research.[50]

The 107th Congress picked up where the 106th left off, and opponents of the ban have not given up. A House resolution expressing support for human ESCR was referred to the House Committee on Energy and Commerce on January 30 of this year.[51] More importantly, the text of the continued congressional ban will soon be up for annual consideration in the Departments of Labor, Health and Human Services, and Education, and Related Agencies Appropriations Act. Expect a major fight in the sharply divided House when this Act reaches the floor, and watch for the Democrat-controlled Senate to remove the ban from its version of the appropriations bill.

In response to rumors of congressional efforts to erase the ban entirely, President Bush warned on August 13, 2001 he would veto any attempt by Congress to expand federally funded embryonic stem-cell research beyond his plan.[52]

As of this writing, the congressional ban on federal funding for human ESCR remains in effect. As such, an honest assessment of the situation demonstrates that federal funding for such research is still illegal, notwithstanding the convoluted reasoning of the Clinton-era NIH and its researchers.

IV. THE COURTS TEST THE WATERS

With the Executive and Legislative branches locked in political combat over human ESCR, the odds of federal court involvement grow larger every day. Current constitutional law lends little help to those who oppose this research, partly because the issue is so novel that prior cases fail to address the issue. Worse still for the pro-life cause, the linchpin concept of

---

[48] Press Release, President George W. Bush, Remarks by the President on Stem Cell Research (Aug. 9, 2001), *at* http://www.whitehouse.gov/news/releases/2001/08/20010809-2.html [hereinafter Bush Press Release].

[49] *Id.*

[50] *See id.*

[51] H.R. Con. Res. 17, 107th Cong. (2001).

[52] Frank Bruni, *Bush Says He Will Veto Any Bill Broadening His Stem Cell Policy*, N.Y. TIMES, Aug. 14, 2001, at A1.

abortion case law ("the preborn are not people") will almost surely carry over into the coming stem cell cases.

Abortion disputes had a checkered history in American courts in the last third of the twentieth century, and stem cell researchers will probably rely heavily on abortion case law to bolster their position. However, a close reading of the U.S. Supreme Court's abortion decisions strongly suggests that the researchers will not be able to travel the path of Fourteenth Amendment "privacy rights" in their quest for legal legitimacy.

Pregnant women have been able to claim a nearly inviolable right to privacy under the Fourteenth Amendment because of a line of U.S. Supreme Court cases dating back to 1965. The history of the Court's abortion jurisprudence has been picked apart in detail by hundreds of commentators and scholars who point out that the most influential "reproductive rights" cases offer glaring examples of fallacious logic, misstatements of fact, and political agendas legislated from the bench.[53] But rather than detour through a similar critique of each case, this Note will summarize the progression of the Court's reasoning, and then explain why its reasoning does not apply to ESCR on any subject other than legal personhood.

In *Griswold v. Connecticut*, the Court ruled a Connecticut law prohibiting contraceptive use unconstitutional because it violated the 14th Amendment's implied "right to privacy" enjoyed by married couples in the home.[54] *Eisenstadt v. Baird*[55] extended *Griswold*'s reasoning and held that a Massachusetts law prohibiting distribution of contraceptives and contraceptive information was an unconstitutional invasion of the privacy of unmarried people, and unfairly treated them differently from married people.

---

[53] Consider the responses of the dissents in cases such as *Stenberg v. Carhart*, 530 U.S. 914, 953 (2000) (Scalia, J., dissenting) (stating that one day *Stenberg* "will be assigned its rightful place in history of this Court's jurisprudence beside *Korematsu* and *Dred Scott*"), *Planned Parenthood v. Casey*, 505 U.S. 833, 979, 944 (1992) (Scalia, J., concurring and dissenting) (noting that the question of abortion, and limitations upon it, should be decided "by citizens trying to persuade one another and then voting") (Rehnquist, C.J. concurring and dissenting) (noting "the confused state of this Court's abortion jurisprudence"), and *Doe v. Bolton*, 410 U.S. 179, 222 (1973) (White, J., dissenting) (stating the Court has "scarcely any reason or authority for its actions").

[54] 381 U.S. 479, 486 (1965).

[55] 405 U.S. 438 (1972).

The watershed abortion case of *Roe v. Wade*[56] expanded *Eisenstadt*'s "right to privacy" to include the "right to abortion," which explicitly outlawed Texas's abortion statute and implied similar laws in other states were invalid. *Roe* established the now-outmoded trimester framework that increased the degree of interest in a pregnancy that States may lawfully exercise as the preborn child develops.[57] In *Doe v. Bolton*,[58] a case handed down on the same day as *Roe*, the Court expanded the right to abortion by striking down a Georgia statute prohibiting abortion unless the mother's life was in danger, the preborn child was severely deformed, or the preborn child was the product of rape. In striking down Georgia's abortion statute, the *Doe* court required that abortion statutes add the "health of the mother" exception to survive constitutional scrutiny, and explained that the relevant factors to be considered in determining health risk involved physical, emotional, psychological, and familial factors, as well as the woman's age.[59]

Nineteen years later, *Planned Parenthood v. Casey* did away with *Roe*'s trimesters and concentrated on viability as the key issue, with the majority opinion stating, "[w]e reject the trimester framework, which we do not consider to be part of the essential holding of *Roe*."[60] *Casey* struck down most of a complex Pennsylvania abortion statute, and created an "undue burden" test for balancing a State's interest in protecting the preborn against a mother's wish to abort her child. Under this test, any state regulation that "has the purpose or effect of placing a substantial obstacle in the path of a woman seeking an abortion of a nonviable fetus" is an unconstitutional "undue burden" on a woman's right to seek an abortion.[61]

Most recently, *Stenberg v. Carhart*[62] held that a Nebraska law criminalizing partial-birth abortions (also known as "intact dilation & extraction," or D&X) was unconstitutional because it lacked a *Doe*-style "health of the mother" exception, and placed an "undue burden" on a woman's right to an abortion. The Nebraska statute imposed this undue burden by being susceptible

---

[56] 410 U.S. 113 (1973).
[57] *Id.* at 164-65.
[58] 410 U.S. 179 (1973).
[59] *Id.* at 192.
[60] Planned Parenthood v. Casey, 505 U.S. 833, 873 (1992).
[61] *Id.* at 877.
[62] 530 U.S. 914 (2000).

to an interpretation that would outlaw "dilation & evacuation" (D&E) abortions and not just D&X abortions.[63]

What do these abortion cases tell us about ESCR? They do not say much at first glance, because the phrase "stem cell research" does not appear—in all but *Stenberg*, the coming breakthrough was years away. But although no case law yet addresses human ESCR specifically, it is no great stretch to make two predictions: someone will eventually end up in court fighting over the issue, and the unlucky judge who gets the case will be torn between muddled case law, vocal politicians, and ever-present media pundits, all of whom will second-guess any decision the judge makes.

One obvious conclusion comes immediately to mind. Nobody's womb is involved in legal disputes over embryos sitting in a tank of liquid nitrogen and destined for dissection in a petri dish, so the Fourteenth Amendment right of privacy from the *Griswold-Roe-Stenberg* line of cases does not apply to human ESCR. At least one State has acknowledged this explicitly. In a custody battle over frozen embryos the New York Court of Appeals held the disposition of frozen embryos before implantation does not implicate a woman's right of privacy or bodily integrity in the area of reproductive choice.[64]

With the right of privacy ruled out as a basis for supporting ESCR, the American legal system's confused view of personhood now needs detailed examination.

V. TO BE OR NOT TO BE . . . A PERSON

Put simply, federal courts hold logically inconsistent positions on the proper application of legal personhood, but nevertheless they remain ideologically consistent in denying personhood status to the preborn.

The *Roe* Court surveyed the forty-nine appearances of the word "person" in the text of the Constitution, concluded that the word almost always refers to born human beings, and decided that none of the ambiguous uses of "person" convincingly apply to the preborn.[65] The Court finished its personhood analysis by declaring: "All this, together with our observation that throughout the major portion of the 19th century prevailing legal abor-

---

[63] *Id.*

[64] Kass v. Kass, 696 N.E.2d 174, 179 (N.Y. 1998).

[65] Roe v. Wade, 410 U.S. 133, 157-59 (1973).

tion practices were far freer than they are today, persuades us that the word 'person,' as used in the Fourteenth Amendment, does not include the unborn." [66]

Lower federal courts are usually quick to follow the Supreme Court's lead on abortion-related disputes. In a representative case, *Doe v. Irvine Scientific Sales Co.*,[67] a court in Virginia decided embryos are not entitled to the protections granted to people, and therefore cannot suffer an actionable tort.

Yet things are rarely so clear-cut in matters of law. To further complicate matters, non-human entities like corporations, ships, or seized property can be considered people under federal law. Why? In the strictest sense, "person" is a legal term of art that grants standing to sue and protect one's interests.

For example, under admiralty law, a salvage action may be brought in the name of the rescuing vessel.[68] In 1902, Justice Brown of the U.S. Supreme Court wrote almost poetically:

> A ship is born when she is launched, and lives so long as her identity is preserved. Prior to her launching she is a mere congeries of wood and iron . . . . In the baptism of launching she receives her name, and from the moment her keel touches the water she is transformed . . . . She acquires a personality of her own . . . . [69]

Other cases establish a foundational rule in collision litigation, where the first-libeled ship may counterclaim in its own name.[70]

To fully grasp the federal bench's rulings even more clearly, consider Justice William O. Douglas's opinions on legal personhood. He agreed with the common law notion that inanimate things can be people under the law, but when confronted with fetal personhood, Douglas balked. His personhood arguments in a dissenting opinion from a 1972 case do not comport with the opinion he supported in *Roe* the following year, offering another example of logical inconsistency (although ideo-

---

[66] *Id.* at 158 (citation omitted); *See also* Planned Parenthood v. Casey, 505 U.S. 833, 851 (1992) (indicating one's own right to define the concept of existence).

[67] 7 F.Supp.2d 737, 742 (E.D. Va. 1998).

[68] The Camanche, 75 U.S. (8 Wall.) 448 (1869).

[69] Tucker v. Alexandroff, 183 U.S. 424, 438 (1902).

[70] *See* The Gylfe v. The Trujillo, 209 F.2d 386 (2d Cir. 1954) (finding damages for loss of profit while vessel is laid up should be measured with reference to probable profits on charter).

logically, Douglas was consistent). In *Sierra Club v. Morton*, Douglas wrote:

> Contemporary public concern for protecting nature's ecological equilibrium should lead to the conferral of standing upon environmental objects to sue for their own preservation. . . .
>
> Inanimate objects are sometimes parties in litigation. A ship has a legal personality, a fiction found useful for maritime purposes. The corporation sole— a creature of ecclesiastical law—is an acceptable adversary and large fortunes ride on its cases. The ordinary corporation is a "person" for purposes of the adjudicatory processes, whether it represents proprietary, spiritual, aesthetic, or charitable causes.
>
> So it should be as respects valleys, alpine meadows, rivers, lakes, estuaries, beaches, ridges, groves of trees, swampland, or even air that feels the destructive pressures of modern technology and modern life.[71]

One year after *Sierra Club*, Justice Douglas contradicted himself. In contrast to his granting of personhood to inanimate objects and non-material organizations, Justice Douglas refused to acknowledge preborn humans as people under the law by joining Justice Blackmun's majority opinion in *Roe*. Compare Justice Douglas's statements in *Roe* with his dissent in *Sierra Club*:

> The Constitution does not define "person" in so many words. Section 1 of the Fourteenth Amendment contains three references to "person." The first, in defining "citizens," speaks of "persons born or naturalized in the United States." The word also appears both in the Due Process Clause and in the Equal Protection Clause. "Person" is used in other places in the Constitution: in the listing of qualifications for Representatives and Senators, in the Apportionment Clause, in the Migration and Importation provision, in the Emolument

[71] Sierra Club v. Morton, 405 U.S. 727, 741-43 (1972) (Douglas, J., dissenting).

> Clause, in the Electors provisions, in the provision outlining qualifications for the office of President, in the Extradition provisions, and in the Fifth, Twelfth, and Twenty-second Amendments, as well as in §§ 2 and 3 of the Fourteenth Amendment. But in nearly all these instances, the use of the word is such that it has application only postnatally. None indicates, with any assurance, that it has any possible pre-natal application.[72]

Douglas did not offer any defense of his inconsistent stance on personhood. Until his death, he maintained his belief that corporations, ships, rivers, beaches, and even air should be considered people in a court of law, but denied the same status to children in the womb. His logical inconsistency effectively exemplifies the puzzling and discouraging state of federal personhood case law.

VI. REGULATORY ODDS AND ENDS

Leaving the federal courts behind, we now turn to other jurisdictions in search of applicable precedent. Some state courts readily tow the federal "party line" on personhood. For example, in *Kass v. Kass*,[73] a 1998 case litigated before the New York Court of Appeals, a divorced couple argued over the disposition of five frozen, stored pre-embryos they had conceived while married five years before. They had hoped to use IVF to assist them in having a child. The woman wanted to impregnate herself with the embryos since it was her "only chance for genetic motherhood."[74] The man did not want to be a father, and demanded enforcement of a prior written agreement between the two, which provided for donation of any unused embryos for medical research if the couple divorced. The court upheld the agreement, explicitly denying that the pre-embryos were people, defining them as something akin to property, and ruling that "agreements between progenitors, or gamete donors, regarding disposition of their pre-[embryos] should generally be presumed valid and binding, and enforced in any dispute between them."[75]

---

[72] Roe v. Wade, 410 U.S. 133, 157 (1973) (citations omitted).
[73] 696 N.E.2d 174 (N.Y. 1998).
[74] *Id.* at 175.
[75] *Id.* at 174 (syllabus).

However, despite twenty-eight years of abortion-friendly pronouncements from the U.S. Supreme Court, state courts still issue confusing rulings from time to time, especially when they confront the personhood of the preborn head-on.

In the embryo custody battle of *Davis v. Davis*, the Tennessee Supreme Court ruled that pre-embryos are neither people nor property, but occupy "an interim category that entitles them to special respect because of their potential for human life."[76] The court refused to choose, and created an unheard-of hybrid category of being. This refusal to decide between two mutually exclusive options confounds scholars to this day. The U.S. Supreme Court refused to hear any appeal, which keeps the confused reasoning of this case alive and well.

In a recent Washington case, *Litowitz v. Litowitz*,[77] a married couple separated and began a custody battle over two cryopreserved embryos, left over from their previous attempts to have a child after the woman had a hysterectomy. The sperm came from the man, but a third party donated the eggs. The woman wanted the pre-embryos awarded to her for implanting in a surrogate, after which she would raise any resulting children. The man wanted to donate the pre-embryos to an out-of-state couple. In contrast to *Davis* and *Kass*, this court went to great lengths to avoid the personhood issue. The man prevailed because the court ruled he was not bound to become a parent by a pre-existing contract (between the separated couple and the egg-donating couple), and because he was the only progenitor before the court.[78] Confronted with a black-and-white dilemma, the Washington state courts have opted instead for Tennessee's land of gray.

In addition, there is at least one state that carries a puzzling law on its books. In California, fetuses can be murder victims. At first glance, California statute seems to grant personhood to the preborn, but in effect it leans the other way. Specifically, the California murder statute reads: "Murder is the unlawful killing of a human being, or a fetus, with malice aforethought,"[79] and then goes on to explicitly exempt abortion from the definition of

---

[76] 842 S.W.2d 588, 597 (Tenn. 1992).

[77] Litowitz v. Litowitz, 10 P.3d 1086 (Wash. Ct. App. 2000), *reh'g granted*, 21 P.3d 292 (2001).

[78] *Id.* at 1088.

[79] CAL. PENAL CODE § 187(a) (West 2000).

"murder."[80] Pro-life advocates sometimes argue that this law shows the California legislature confers personhood status on preborn children who happen to be wanted by their mothers, but that view is not really accurate. Generally accepted principles of statutory construction presume legislatures avoid redundancy when drafting laws, so it stands to reason that the California Assembly was probably drawing a distinction between "human being" and "fetus" by including both terms in the murder statute. Further, the California manslaughter statute makes no reference to fetuses, even though the murder statute does.[81] California courts have construed the murder statute as refusing to include fetuses under the definition of 'human being.'[82]

Setting the technicalities of statutory construction aside, and extending all due respect to the California legislature and courts, the logic of the murder statute is still questionable. It appears morally unintelligible to define the unlawful killing of a non-human being as full-blown murder. The label of "murder" has traditionally been reserved for the unjustified killing of human beings—of people. The legislature's attempt to paper over the ideological gap between condemning murder and permitting elective abortion falls short when it tries to categorize the unlawful killing of an preborn human being.

California's murder statute reasoning can be logically extended to protect other non-human entities. Why stop with protecting just one class of non-human beings? Some animal rights activists view fish, snakes and flies as morally equivalent to humans. Why not protect dear family pets, which often receive more love than unwanted children? If we stretch the non-human murder victim definition a bit further, could a California sport fisherman be committing murder by catching a rainbow trout? Pro-life advocate Greg Koukl quite rightly illustrates another irrationality in the California murder statute when he asks, "[h]ow does the blameworthy taking of an innocent human life become justifiable simply because Mom says it's okay and a

---

[80] *See id.* § 187(b)(1) (exempting behavior that complies with the State's Therapeutic Abortion Act); *see also* MISS. CODE ANN. § 97-3-37 (2000) (declaring that the willful killing of an unborn quick child, by an injury to the mother of such child to be manslaughter).

[81] *See* CAL. PENAL CODE § 192.

[82] *E.g.*, People v. Davis, 872 P.2d 591, 594 (Cal. 1994).

doctor does it?"[83] The California murder statute's distinction between "human being" and "fetus" serves neither side of the issue well, and it contributes little of value to the personhood debate.

A search through other state statutes reveals that the NIH may have difficulty finding a laboratory in which to conduct destructive stem cell research on human embryos. Florida, Louisiana, Maine, Massachusetts, Michigan, Minnesota, New Hampshire, North Dakota, Ohio, Pennsylvania, and Rhode Island prohibit research on the preborn to one strict degree or another, permitting only research that will directly benefit the preborn, and only if no other medical treatment will suffice.[84] Since States often protect preborn children much more robustly than the federal government does, other state legislatures seeking to prohibit ESCR will surely look to these statutes when drafting their own versions, which will make stem cell research even more difficult.

To round out the murky regulatory picture, a look at laws in other countries shows that agreement on ESCR is still a long way off. For example, the Australian Territory of Victoria regulates IVF activities, limiting it to approved facilities, limiting availability to married women, regulating confidentiality, providing for a Standing Review and Advisory Committee, and banning commercial surrogacy.[85] South Australia established a Council on Reproductive Technology, wrote a code of ethical practice, established IVF licensing procedures, prohibited embryo flushing, prohibited cryopreservation lasting longer than ten years, and outlawed all research 'detrimental to an embryo.'[86] German law makes it a criminal offense to do any destructive embryo research.[87]

---

[83] Gregory Koukl, Stand to Reason, *The "Murder" of a Fetus, at* http://www.str.org/free/commentaries/abortion/themurde.htm (last updated Aug. 11, 1998).

[84] See APPENDIX A: STATE STATUTES ON FETAL TISSUE RESEARCH for the full text of these statutes. Note how easily the scope of the statutes (which address fetal tissue research in general) can be expanded to cover embryos, simply by passing legislation similar to the U.S. Congress's ban.

[85] Ronald M. Green, *Stopping Embryo Research*, 9 HEALTH MATRIX 235, 239 n.13 (1999).

[86] *Id.*

[87] *Id.*

The Council of Europe banned the practice of creating embryos for research purposes, but only six countries ratified the ban.[88]

In England, the Human Fertilisation and Embryology Act of 1990[89] established a national board that licenses research proposals that include human embryos. The British Royal Society recently gave its endorsement to ESCR, without objection from the British government.[90]

In France, the national government is drafting guidelines permitting stem cell extraction from embryos between seven and twelve days old, provided that the embryos are left over from IVF procedures and are destined to be discarded.[91]

In summary, state statutory and common law offers little consensus on human ESCR, and international law exhibits similar disunity.

VII. EMBRYONIC STEM CELL RESEARCH IS MORALLY WRONG

In the summer of 2001, the moral implications of ESCR came to the forefront of America's consciousness as President George W. Bush wrestled with the claims advanced by both sides of the debate. After months of consultation, study, and reflection, the President outlined his intention to permit federally funded ESCR only on those lines of human embryonic stem cells in existence on or before the date of his speech.[92] President Bush's statements illustrate the competing arguments he struggled to reconcile:

---

[88] The Council of Europe's Convention on Human Rights and Biomedicine, effective December 1, 1999, leaves to each country the decision to allow or forbid embryo research, but it nevertheless requires that countries prohibit "the creation of human embryos for research purposes." Council of Europe, Convention for the Protection of Human Rights and Dignity of the Human Being With Regard to the Application of Biology and Medicine: Convention on Human Rights and Biomedicine ch.V, Art. 18, *available at* http://conventions.coe.int/Treaty/EN/Treaties/Html/164.htm (last visited Dec. 10, 2001). The Convention has been ratified by Denmark, Greece, San Marino, Slovakia, Slovenia, and Spain.

[89] Green, *supra* note 35, at 239 n.13.

[90] *See* ROYAL SOC'Y, STEM CELL RESEARCH & THERAPEUTIC CLONING *at* http://www.royalsoc.ac.uk/policy/stemcells.htm (Nov. 2000).

[91] Agence France Presse, *French Premier Backs Embryo Research, Remains Opposed to Cloning* (November 28, 2000).

[92] Bush Press Release, *supra* note 48.

> On the first issue, are these embryos human life—well, one researcher told me he believes this five-day-old cluster of cells is not an embryo, not yet an individual, but a pre-embryo. He argued that it has the potential for life, but it is not a life because it cannot develop on its own.
>
> An ethicist dismissed that as a callous attempt at rationalization. Make no mistake, he told me, that cluster of cells is the same way you and I, and all the rest of us, started our lives.. One goes with a heavy heart if we use these, he said, because we are dealing with the seeds of the next generation.[93]

However well-meaning, President Bush's decision to permit limited funding still went too far by lending an air of legitimacy to research founded upon the intentional killing of human beings. Researchers eager to get funding realized their advantage immediately. One of them reacted to the speech with frank pragmatism, saying "[i]n the long run, this number of 60 will be a forgotten relic of the political debate. The important thing is not so much the number 60. It's really that the green light went on for federal funding of this research."[94] This scientist understood that President Bush made a critical exception to his pro-life principles, exposing himself to Washington's ability to stretch an exception far beyond its original scope.

Although President Bush made a mistake in his moral reasoning, his example need not be followed. As matters stand, Congress still thinks ESCR is morally wrong, the President agrees but wants to allow it for already dead embryos, NIH researchers think it acceptable, the courts lie somewhere in between[95] (albeit much closer to the NIH's position than to Con-

---

[93] *Id.*

[94] Ceci Connolly et al. *Viability of Stem Cell Plan Doubted: Bush Policy Could Limit Research, Scientists Say*, WASH. POST, Aug. 20, 2001, at A1, *available at* http://www.washingtonpost.com/wp-dyn/articles/A33338-2001Aug19.html.

[95] As we have already seen, the American legal system's persistent confusion on the personhood of the preborn, despite nearly three decades of U.S. Supreme Court pronouncements categorically refusing to recognize that status, suggests that legal precedent alone will not end the debate. In *Roe*, Justice Blackmun clearly understood the implications of recognizing the personhood of the preborn. He wrote: "If [the appellee's] suggestion of personhood is established, the appellant's case, of

gress's), the fifty states have yet to reach consensus, laws from overseas offer little guidance, and public opinion seems to waver[96] depending on whose opinion polls and public pronouncements one believes. Since the fight over statutory law continues, and since case law offers few precedents that favor the reasoning behind the pro-life position, it would be wise to consider a purely ethical solution to the problem.

If we pick apart the moral confusion surrounding ESCR, we can discover why it is actually very wrong to support it with federal funds. We can pierce the moral fog by appealing to established laws of science, irrefutable principles of logic, and honestly applied philosophy. We must answer just one question: what is the preborn?

We can make a compelling argument that the preborn is a human person, entitled to the same measure of respect and protection that we accord any newborn infant. Moving logically from that point, if we know that intentionally killing an innocent human being is a moral wrong, and if ESCR requires the intentional killing of an innocent human being, we must then conclude that such research is a serious moral wrong.

When we examine the only question that matters ("what is the preborn?"), we find that the preborn are people for three reasons. First, human parents only produce human offspring, which means the preborn are members of the human community. Second, the four differences, discussed in greater detail below, between the preborn and the newborn are morally irrelevant. Third, the preborn are human people because they have a human nature, not because they perform certain functions.

We begin with the obvious truth that human parents produce human offspring. The embryo is genetically unique, and pos-

---

course, collapses, for the fetus' right to life would then be guaranteed specifically by the [14th] Amendment." Roe v. Wade, 410 U.S. 133, 156-57 (1973).

[96] The same moral fog blinds us as well. For example, actor Michael J. Fox authored a recent letter to the editor of the *New York Times*, focusing on points like the following: "Stem cell work uses . . . embryos produced during in vitro fertilization, a process that creates many more fertilized eggs than are implanted in the wombs of women trying to become pregnant. . . . Most of these microscopic clumps of cells are destined to be destroyed—ending any potential for life." Michael J. Fox, *A Crucial Election for Medical Research*, N.Y. TIMES, Nov. 1, 2000, at A35. Fox misunderstands the issue. If embryos are people, then destroying them through medical research in an effort to extract some benefit from their impending doom is no more permissible than conducting harmful experiments on death row prisoners and then excusing the crime by saying "well they're going to die anyway."

sesses the inherent capacity to develop into an adult. It is human from conception, although immature (just as a newborn baby is immature). The preborn, therefore, is not a potential human but a human with great potential.[97] Living things do not change from one kind of being into another over time. They only change their form. What they are stays the same.[98]

The scientific Law of Biogenesis, established unequivocally over a century ago by Louis Pasteur, states that each living thing reproduces after its own kind.[99] Logically building our reasoning on this objective truth, we must conclude that human parents can only produce human offspring. To reject this scientific law and deny the humanity of the preborn, a supporter of ESCR must clear two hurdles. First, he must explain what the preborn entity actually is if it is not human, and second, he must explain how two human beings can violate the Law of Biogenesis by mating to create a being that begins as a non-human but later becomes one. Until someone refutes the Law of Biogenesis, science forces us to admit that human embryos are human beings.

Having scientifically established the humanity of embryos, we next use logic to consider the philosophical differences between preborn human beings and those human beings we unequivocally consider "people." The preborn differs from the newborn in four ways: size, level of development, environment, and degree of dependency. One can use the acronym SLED to easily remember these four categories.[100]

We first think about size. Embryos are smaller than newborns, but we know size is not relevant for determining personhood. I am over six feet tall and weigh nearly two hundred pounds, which makes me far larger than most of my female colleagues, but no one can credibly claim that I am therefore more

---

[97] FRANCIS J. BECKWITH, POLITICALLY CORRECT DEATH: ANSWERING ARGUMENTS FOR ABORTION RIGHTS 94 (1993).

[98] GREGORY KOUKL, PRECIOUS UNBORN HUMAN PERSONS 21 (1999).

[99] *Id.* at 22; *See also Biogenesis and Abiogenesis*, New Advent (stating "all visible organisms arise only from germs of the same kind"), *at* http://www.newadvent.org/cathen/02571a.htm (last visited Jan. 10, 2002).

[100] Scott Klusendorf, *Fetal Tissue and Embryo Stem Cell Research: The March of Dimes, NIH, and Alleged Moral Neutrality*, at 32 (2000), *at* http://www.str.org/free/bioethics/stemcell.pdf; STEPHEN D. SCHWARZ, THE MORAL QUESTION OF ABORTION 15-18 (1990) (coining the acronym SLED which has been popularized by Klusendorf).

of a person than they are. We intuitively understand that size is irrelevant when determining if a human is a person.

Next, we consider differences in level of development. A newborn is less developed than a toddler, who is less developed than an adolescent, who is less developed than an adult. All are properly accorded equal status as people under the law, even though they look different. Prepubescent children have not yet developed sexually, but we consider them people. Retarded children with severely underdeveloped brains also count as people. So what should we logically conclude when we observe that embryos are less developed than newborns? We realize that we cannot define people based upon how developed they happen to be. We must define people based on what they are. A person has the innate capacity to perform personal acts, even if that person cannot do so at the moment. A human being's level of development is irrelevant when assessing personhood.

What of differences in environment? The human embryo inside the mother is in a different environment than the newborn baby, and the human embryo frozen in a bottle of liquid nitrogen is in a very different environment than either of the other two human beings. Environment, however, has no relevance when it comes to deciding which human beings are people. I did not become less of a person by getting out of my car earlier today, nor did I become more of a person by sitting down in front of my computer. My status as a person does not change depending upon which side of my bed I choose to sleep on tonight. Nor does it matter if I put on scuba gear and descend sixty feet underwater. Clearly, where one is has no bearing on who one is.[101] Likewise, a newborn girl's short trip down the birth canal cannot logically make her more of a person than her identical twin about to follow her. By the same token a frozen human embryo is no less entitled to our protection, even though it sits suspended in a bottle rather than growing in a womb.

Last, we think about differences in degree of dependency, which lawyers and politicians call "viability." Those who argue that viability makes all the difference are wrong. Otherwise, many born human beings would have to be considered "non-people." For example, everyone dependent on pacemakers, dialysis machines, insulin, respirators, or wheelchairs would forfeit their status as people. After all, each relies on external help

[101] BECKWITH, *supra* note 97, at 114.

to survive and none are viable in the true sense of the word. In fact, newborn children cannot honestly be considered viable either, because without the care and feeding they receive from their parents, they quickly die. If we refuse to strip diabetics and newborns of their personhood on viability grounds, by what logic can we do so to embryos? As one former abortionist points out, there is no moral difference between a preborn child 'plugged into' and dependent upon a mother and a kidney patient plugged into and "dependent" upon a dialysis machine.[102] Degree of dependency has no bearing on a human being's status as a person.

We can see, then, that the preborn child differs from a newborn child in only four ways: size, level of development, environment, and degree of dependency. Individually, none of these criteria have anything important to say about whether a human being is a person, and no combination of these criteria carries any additional moral weight.

The more philosophical opponents of the pro-life position often object to such straightforward summaries of their views. They argue that the preborn are not people because they cannot function in the same ways that we do. They claim that a true "person" meets certain criteria; he or she has feelings, self-awareness, consciousness, the ability to feel pain, or the ability to interact with his or her environment. Following this reasoning, since embryos and the rest of the preborn have few or none of these capabilities, they cannot be people and need not be protected from destruction. Note that those who use this argument take their criteria for personhood as givens, without any attempt to explain why a person must possess these traits.[103] This belief system is known as functionalism, a belief that suffers from several flaws.[104]

First, someone can fail to function as a person and yet still be a person. Many unconscious humans cannot feel pain, and no unconscious humans are self-aware nor can they reason, but we still consider them people. Second, someone must be a person in order to function as one. One grows in the ability to perform

---

[102] BERNARD N. NATHANSON & RICHARD N. OSTLING, ABORTING AMERICA 213 (1979).

[103] Neither do these theorists clearly explain how much moral weight each criterion carries, nor which combinations of criteria tip the scales toward personhood.

[104] For a discussion of functionalism and its counterarguments, see KOUKL, PRECIOUS UNBORN HUMAN PERSONS, at 20-35.

personal acts only because one already is the kind of being that can do so (i.e., a person).[105] Third, one's right to live does not depend on one's intelligence. If functionalism is correct, then personhood could be expressed by an "intelligence curve" in which human beings move toward full personhood in their early years, reach it in middle age, then lose it with advancing age and the accompanying loss of mental function. This makes no sense. Fourth, functionalists cannot escape the problems posed by personal identity. Paul Cox and Scott Rae point out the nonsensical implications when they explain, "if *I* do not exist until sometime after *my* birth, in what sense is the birth *mine*? The only way for '*my* birth' to be more than a linguistic convention is to admit that 'I' existed before I was born, or at least at the time of my birth."[106]

Applying logic and common sense, we can see that any embryo commands the same moral status that the same human would command as an adult. That being has a human essence that makes certain functions possible, and allows the being to retain a personal identity through change.[107] Humans may lose the ability to think critically, but as long as they stay alive they remain themselves because they have a human nature. The underlying essence of a thing, not its functional abilities, tells us what kind of being it is. We function as people because we are people.

So where has all of this personhood analysis led us? A civilized culture would recognize the immorality of killing people for medical research purposes. For scientific and philosophical reasons, it seems abundantly clear that the preborn, including embryos, are people. Therefore, killing the preborn for medical research purposes is immoral.

Pro-life advocate Scott Klusendorf summarizes these arguments better than perhaps anyone else:

> Scientifically, the [pre]born come from human parents who, according to the law of biogenesis, can only produce human offspring. Philosophically, the differences

---

[105] *Cf.* Peter Kreeft, *Human Personhood*, ALL ABOUT ISSUES, Jan.-Feb. 1992, at 29 (questioning whether the "level of ability to perform certain human acts define the value of a person").

[106] Scott B. Rae & Paul M. Cox, BIOETHICS: A CHRISTIAN APPROACH IN A PLURALISTIC AGE 169 n.13 (1999).

[107] *Id.* at 159-69.

> between fetus and newborn are differences of function, not essence (or nature). The unborn human retains its identity as a person through time and change because it possesses a human nature. Consequently, destructive embryo research is a serious moral wrong. It strips the unborn human of its inherent dignity and treats it as a disposable instrument to be used for someone else's benefit. A decent and civilized society cannot tolerate such an act.[108]

VIII. EMBRYONIC STEM CELL RESEARCH IS SCIENTIFICALLY UNNECESSARY

There may be little hope of changing the minds of those who will not even entertain the thought of granting personhood to the preborn. Yet one final attempt will be made to sway those who are not completely convinced by the arguments in favor of embryonic personhood, but are willing to consider other evidence. Specifically, this Note will show that ESCR is not necessary in light of recent scientific discoveries concerning stem cells taken from non-embryonic sources. In fact, it may even pose a threat to patients who accept implanted cells.

Stem cells can be isolated from sources other than embryos or fetal tissue. Modern medicine has long known that stem cells are scattered throughout the bodies of adult mammals. Until recently, medical authorities were unable to isolate these adult stem cells, and conventional wisdom held that each type of stem cell could do no more than produce its own kind of cell (e.g., marrow stem cells could only produce bone marrow and blood cells, nerve stem cells could only produce nerve cells, muscle stem cells could only produce muscle cells, etc.).[109]

Shortly after the embryonic stem cell breakthrough in 1998, researchers successfully applied similar techniques to the quest for transplantable quantities of adult stem cells. Pro-life advocates funded and encouraged this research as an alternative to killing embryos. Over the past two years, embryonic stem cell researchers routinely claimed that their research held more

---

[108] Klusendorf, *supra* note 100, at 40.

[109] This was until Thomson and colleague's research. *See* Thomson et al., *supra* note 5, at 1145 (reporting success in isolating human embryonic stem cells which have the ability to differentiate into endodermic, mesodermic and ectodermic tissue).

promise that adult stem cell research, but that position is no longer tenable.

In its online *Stem Cell Primer*, the NIH argues in favor of focusing its funding on ESCR rather than on adult stem cell research.[110] It begins by arguing that stem cells from adult humans have not been isolated for all tissues of the body.[111] While technically true, the statement needs clarification because this will not necessarily continue forever. Stem cell research has proceeded at fantastic speeds over the past few years, so this objection seems shortsighted at best, and the NIH also fails to offer compelling reasons why researchers probing the mysteries of adult stem cells must wait to exploit their findings until all 210 types of adult tissue can be reproduced using their techniques. Until they start the research, they will never know whether they can reach this magic number.

The NIH argues in favor of ESCR on other faulty grounds, as well. For example, it claims that adult stem cells exist only in minute quantities, are difficult to "isolate and purify," and the number of stem cells available in any given adult's body may decrease with advancing age.[112]

But according to researchers, these arguments have been overtaken by events.[113] Researchers have isolated adult stem cells from the nervous system,[114] from muscle,[115] from the retina[116] and cornea[117] of the eye, from the pancreas,[118] from bone

---

[110] *See* NIH PRIMER, *supra* note 2.

[111] *Id.*

[112] *Id.*

[113] *See* Deborah Josefson, *Adult Stem Cells May be Redefinable*, 318 BRIT. MED. J. 282 (1999) (reporting findings that indicate that adult neural stem cells can de-differentiate themselves as haemopoietic precursors), *available at* http://bmj.com/cgi/reprint/318/7179/282/b.pdf.

[114] Theo D. Palmer et al., *Progenitor Cells from Human Brain After Death*, 411 NATURE 42 (2001); Stefano F. Pagano et al., *Isolation and Characterization of Neural Stem Cells from the Adult Human Olfactory Bulb*, 18 STEM CELLS 295 (2000).

[115] *See* Philippe Menasché et al., *Myoblast Transplantation for Heart Failure*, 357 LANCET 279 (2001).

[116] Vincent Tropepe et al., *Retinal Stem Cells in the Adult Mammalian Eye*, 287 SCI. 2032 (2000).

[117] Ray Jui-Fang Tsai et al., *Reconstruction of Damaged Corneas by Transplantation of Autologous Limbal Epithelial Cells*, 343 NEW ENG. J. MED. 86, 86 (2000) (presenting a study where researchers reconstructed damaged corneas with adult stem cells); Kazuo Tsubota et al., *Treatment of Severe Ocular Surface Disorders With Corneal Epithelial Stem-Cell Transplantation*, 340 NEW ENG. J. MED. 1697 (1999).

marrow and peripheral blood,[119] from endothelial cells in blood vessels,[120] from fat,[121] from dental pulp,[122] from spermatogonia,[123] and even from the placenta[124] and the umbilical cord.[125] Neural stem cells from adult mammals can develop into a broad range of tissue types, and may potentially be used for transplantation in treating different diseases.[126]

Other researchers injected neural stem cells from adult mice into chick embryos and mouse embryos. The cells generated brain cells, spinal cord cells, lung cells, stomach cells, liver cells, intestinal cells, and heart cells. Although this procedure did not generate blood cells, another study the authors cited showed adult neural stem cells can grow into blood cells if injected into irradiated adult mice.[127] A second cited study showed marrow stromal cells (adult bone marrow stem cells)

---

[118] Valéry Gmyr et al., *Adult Human Cytokeratin 19-Positive Cells Reexpress Insulin Promoter Factor In Vitro: Further Evidence for Pluripotent Pancreatic Stem Cells in Humans*, 49 DIABETES 1671 (2000); Susan Bonner-Weir et al., *In Vitro Cultivation of Human Islets from Expanded Ductal Tissue*, 97 PROC. NATL. ACAD. SCI. U.S. AM. 7999 (2000).

[119] A. A. Kocher et al., *Neovascularization of Ischemic Myocardium by Human Bone Marrow-Derived Angioblasts Prevents Cardiomyocyte Apoptosis, Reduces Remodeling and Improves Cardiac Function*, 7 NATURE MED. 430 (2001).

[120] Takayuki Asahara et al., *Isolation of Putative Progenitor Endothelial Cells for Angiogenesis*, 275 SCI. 964 (1997).

[121] Patricia A. Zuk et al., *Multilineage Cells from Human Adipose Tissue: Implications for Cell-Based Therapies*, 7 TISSUE ENG'G 211 (2001).

[122] S. Gronthos et al., *Postnatal Human Dental Pulp Stem Cells (DPSCs) In Vitro and In Vivo*, 97 PROC. NAT'L. ACAD. SCI. U.S. AM. 13625 (2000).

[123] Fariborz Izadyar et al., *Spermatogonial Stem Cell Transplantation*, 169 MOLECULAR CELL ENDOCRINOLOGY 21 (2000); Daniel S. Johnston et al., *Advances in Spermatogonial Stem Cell Transplantation*, 5 REV. REPROD. 183 (2000).

[124] Press Release, Anthrogenesis Corp., Anthrogen Discovery Utilizes Placenta as Source of New Multi-Potent Stem Cell (Apr. 11, 2001), http://www.mcpf.org/AnthroGen%20Discovery.htm. AnthroGen has also posted articles based on that press release. *See* Anne Harding, Anthrogenenis Corp., *Anthrogen Announces Breakthrough in Recovering Human Stem Cells* (Apr. 12, 1999), *available at* http://www.anthrogenesis.com/page411559.htm.

[125] AScribe Newswire, *Umbilical Cord Blood Cells Are Potential Sources of Universal Brain Repair Tissue, Researcher Reports* (May 9, 2001), *available at* http://www.ascribe.org/cgi-bin/spew4th.pl?fname=200105/20010509.130459&time=14:33+Pacific+Time&year=2001&public=1.

[126] *See* Diana L. Clarke et al., *Generalized Potential of Adult Neural Stem Cells*, 288 SCI. 1660 (2000).

[127] *See* Christopher R. R. Bjornson et al., *Turning Brain into Blood: A Hematopoietic Fate Adopted by Adult Neural Stem Cells in Vivo*, 283 SCI. 534 (1999) (discussing stem cell transplantation into irradiated hosts).

can become astrocytes, a type of brain cell.[128] Two other cited studies indicated hematopoietic cells (adult blood stem cells) can produce myocytes (muscle cells), and muscle progenitor cells (adult muscle stem cells) can generate blood cells.[129]

Transplanted bone marrow stem cells from adult mammals can generate liver cells in response to an injury. In one study, adult rats with injured livers were successfully treated with bone marrow stem cell implants.[130]

Ironically, a recent NIH-funded peer-reviewed study has proven that stem cells from adult human bone marrow have the ability to develop into bone cells, cartilage, fat, muscle tissue, and nerve cells.[131] The study produced an adequate supply of cells for transplantation six weeks after withdrawing the marrow stem cells with a syringe.[132] The NIH's *Stem Cell Primer* web page omits any reference to this study. Researchers at Osiris Therapeutics and the Johns Hopkins School of Medicine duplicated the feat.[133] Irony again—Johns Hopkins is home to ESCR maverick John Gearhart.

The *Journal of Neuroscience Research* reported other impressive results. According to one of its studies, stem cells from

---

[128] Gene C. Kopen et al., *Marrow Stromal Cells Migrate Throughout Forebrain and Cerebellum, and They Differentiate Into Astrocytes After Injection Into Neonatal Mouse Brains*, 96 PROC. NAT'L ACAD. SCI. U.S.A. 10711 (1999).

[129] *See* Emanuela Gussoni et al., *Dystrophin Expression in the MDX Mouse Restored by Stem Cell Transplantation*, 401 NATURE 390 (1999); Kathyjo Ann Jackson et al., *Hematopoietic Potential of Stem Cells Isolated from Murine Skeletal Muscle*, 96 PROC. NAT'L ACAD. SCI. U.S.A. 14482 (1999).

[130] B. E. Petersen et al., *Bone Marrow as a Potential Source of Hepatic Oval Cells*, 284 SCI. 1168 (1999).

[131] David C. Colter et al., *Rapid Expansion of Recycling Stem Cells in Cultures of Plastic-Adherent Cells from Human Bone Marrow*, 97 PROC. NAT'L ACAD. SCI. U.S.A. 3213, 3213 (2000).

[132] *See id.*; *see also* NAT'L INST. OF ARTHRITIS AND MUSCOSKELETAL AND SKIN DISEASE, U.S. DEP'T OF HEALTH AND HUMAN SERVS., UNLIMITED HARVEST OF STEM CELLS FROM BONE MARROW POSSIBLE NIAMS-SUPPORTED STUDY (n.d.), http://www.nih.gov/niams/news/spotlight/stemcells.htm (last visited Oct. 26, 2001) (describing the study wherein a new protocol for the production of unlimited stem cells has been developed).

[133] *See* Mark F. Pittenger et al., *Multilineage Potential of Adult Human Mesenchymal Stem Cells*, 284 SCI. 143, 143 n.1 (1999); *see also* Ricki Lewis, *Human Mesenchymal Stem Cells Differentiate in the Lab*, THE SCIENTIST, Apr. 12, 1999, http://www.the-scientist.com/yr1999/apr/lewis_p1_990412.html (indicating that researchers at Osiris Therapeutics and the John Hopkins University School of Medicine coaxed human mesenchymal stem cells from adults' bone marrow to develop into cartilage, fat, and bone cells, in vitro).

adult human bone marrow can be coaxed into becoming brain cells.[134] Researchers said human marrow stem cells can be "differentiated into neurons . . . Consequently, adult marrow stromal cells . . . may constitute an abundant and accessible cellular reservoir for the treatment of a variety of neurologic diseases."[135]

According to a recent article in the *Wall Street Journal*, adult stem cells "may prove much more useful to medical science" than embryonic cells:

> Scientists used to think that such potential for cellular regeneration was present only in embryos—that, for example, humans had made their lifetime supply of brain cells by age 17. But that canon is steadily eroding. . . .
>
> "I think we will find these stem cells in any organ that we look," said Harvard Medical School researcher Evan Y. Snyder.[136]

University of Pennsylvania researcher Dr. Louis P. Bucky's team harvested stem cells from abdominal fat, exposed them to growth factors that promote bone development, and were able to create bone cells.[137] Dr. Prosper Benhaim, of the University of California, and his team grew cartilage cells from fat stem cells taken from liposuction samples.[138]

Researchers from the Walter and Eliza Hall Institute of Medical Research in Melbourne, Australia, located the actual source of adult neural stem cells in mouse brains, and extracted samples of eighty percent purity.[139] The scientific world's previous best efforts yielded roughly five percent purity by sifting through entire brains without a lock on the source of the

---

[134] Dale Woodbury et al., *Adult Rat and Human Bone Marrow Stromal Cells Differentiate Into Neurons*, 61 J. NEUROSCI. RES. 347, 364-70 (2000).

[135] *Id.* at 364.

[136] Laura Johannes, *Adult Stem Cells Have Advantage Battling Disease*, WALL ST. J., Apr.13, 1999, at B1.

[137] *See* Press Release, Plastic Surgery Information Service, Plastic Surgery Procedures Provide New Sources for Stem Cell Development (Oct. 16, 2000), *at* http://www.plasticsurgery.org/mediactr/StemCells.htm.

[138] *See id.*

[139] Rodney L. Rietze et al., *Purification of a Pluripotent Neural Stem Cell from the Adult Mouse Brain*, 412 NATURE 736 (2001).

cells.[140] When researchers apply variations on this technique to other sources, high-purity adult stem cell supplies will increase, allowing ever more clinical trials with ever more subjects, outstripping the "need" for embryonic stem cells from the sixty or so lines identified.

Last, the NIH also argues that stem cells taken from a patient's own body would be useless for treating genetic diseases, since the stem cells would likely carry the same genes as the diseased adult cells.[141] This objection dissolves if doctors simply use compatible stem cells from a different consenting adult.

To keep track of the rapid advances in adult stem cell research, check the World Wide Web sites of the Coalition of Americans for Research Ethics[142] or the Center for Bioethics and Human Dignity.[143]

IX. A CURE WORSE THAN THE DISEASE?

Although adult stem cell research appears very promising, scientists stumbled onto a down side of embryonic stem cell implants earlier this year. Implanting fetal cells can be very hazardous to one's health and quality of life.

A study that tried to treat Parkinson's disease by implanting fetal cells into patients' brains not only failed to help but also caused horrifying writhing and jerking in about fifteen percent of patients.[144] Fetal cells apparently grew too well in these patients, and there appears to be no way to remove or deactivate them.[145]

---

[140] *See id.* at 736 (indicating that the source of these neural cells is not clear).

[141] NIH PRIMER, *supra* note 2.

[142] Their web site is http://www.stemcellresearch.org; *See also* DO NO HARM: THE COALITION OF AMERICANS FOR RESEARCH ETHICS, CURRENT CLINICAL APPLICATIONS OF ADULT STEM CELLS (providing a current bibliography of resources), *at* http://www.stemcellresearch.org/info/currentaps.pdf (last modified June 25, 2001).

[143] Their web site is http://www.cbhd.org.

[144] Gina Kolata, *Parkinson's Research Is Set Back By Failure of Fetal Cell Implants*, N.Y. TIMES, Mar. 8, 2001, at A1; *But see* Curt R. Freed et al, *Transplantation of Embryonic Dopamine Neurons for Severe Parkinson's Disease*, 344 NEW ENG. J. MED 710 (2001) (indicating that transplantation of embryonic dopamine neurons into the brains of patients with Parkinson's disease resulted in some clinical benefit in younger but not in older patients). This study was controversial not only because it used tissue from aborted fetuses but also because it involved "sham surgery" in the control group. *Id.*

[145] Kolata, *supra* note 144, at A1.

Dr. Paul E. Greene, a neurologist at the Columbia University College of Physicians and Surgeons and a researcher in the study, described the results as 'absolutely devastating. They chew constantly, their fingers go up and down, their wrists flex and distend[; they] writhe and twist, jerk their heads, fling their arms about. . . . It's a real nightmare. And we can't selectively turn it off.'[146]

One man jerked so badly that he required a feeding tube, Dr. Greene said, and another suffered garbled speech as the jerking came and went unpredictably.[147]

Dr. William Weiner, the director of the Maryland Parkinson's Disease and Movement Disorder Center and a professor of neurology at the University of Maryland School of Medicine in Baltimore, put it well: "The bottom line for patients is that human fetal cell transplants are not currently the best way to go. If you are willing to pay for them, you can still have them done. But my advice is you ought not to do this."[148]

If fetal cells pose such sobering risks, how much more do we risk by implanting more potent embryonic cells? When the potential cure turns out to be worse than the disease, scientists must redirect their efforts to more promising avenues of research.

It is hoped this Note has presented enough scientific evidence[149] to make possible an informed decision about the alleged necessity of human ESCR.

X. DECISION TIME

American society must make two separate decisions. We must decide whether human embryos are people, and we must decide whether to allocate federal funds for human embryonic stem cell research. We would be wise to consider the consequences of the resulting four options.

If the federal government funds ESCR, and if embryos are not people, many people suffering from serious medical conditions may someday be treated effectively. This is the position

---

[146] *Id.*

[147] *Id.*

[148] *Id.*

[149] For further evidence that adult stem cell research is worth pursuing, see APPENDIX B.

taken by the NIH and is likely to be followed by uninformed courts.

If the federal government reallocates funding to adult stem cell research, and if embryos are not people, society will forego whatever marginal benefits it could have gained by working with embryos. As this Note has shown, these marginal benefits are quickly shrinking to insignificance under pressure from recent scientific discoveries.

If the federal government funds ESCR, and if embryos are people, society will be seeking to prolong the lives of its older members by "consuming" its younger members. Clearly this option is unacceptable in a civilized society.

Lastly, if the federal government reallocates funding to adult stem cell research, and if embryos are people, then society will forego whatever marginal benefits it could have gained by working with embryos, but will have saved thousands of lives. At a minimum, a civilized society would agree on utilitarian grounds that it is better for the sick and the injured to forego treatment than to pursue the tainted benefits of deadly medical research.

XI. CONCLUSION

Under present federal law, an effective case can be made for the illegality of federally funded embryonic stem cell research. This is so because the congressional ban has survived all repeal attempts to date, and the NIH attempt to create a loophole in the ban fails when examined in the light of accepted rules of statutory construction. As long as the ban remains in force and in its current form, the legal debate is over—unless and until the federal courts explicitly rule it unconstitutional.

Pro-life advocates need not be convinced that ESCR is immoral. Likewise, there is great difficulty in convincing the opposite side to change its position. There is hope that the law of biogenesis, the "SLED test," and an intellectually honest examination of the flaws inherent in functionalism will persuade the undecided reader that embryos should be considered people under the law. It is hoped that enough people will agree to tip the balance in favor of the pro-life view. At a minimum, intellectually honest judges will be compelled to agree that the preborn are people.

The doubtful reader in need of more evidence need look no further than the mass of medical research conducted in the last three years. Scientifically speaking, recent advances in adult stem cell research demonstrate conclusively that ESCR is certainly not necessary for medical researchers to explore exciting new treatments for chronic medical conditions.

Surely we should conduct medical research that does not kill human beings, rather than using federal funds to encourage research that is arguably equivalent to murder. Federally funded human ESCR is illegal, immoral, and unnecessary. As Scott Klusendorf says, "we can treat the sick without killing the vulnerable."[150]

[150] Klusendorf, *supra* note 100, at 2.

APPENDIX A

STATE STATUTES ON FETAL TISSUE RESEARCH

FLORIDA

FLA. STAT. ANN. § 390.0111(6) (West Supp. 2001)
Experimentation on fetus prohibited; exception

No person shall use any live fetus or live, premature infant for any type of scientific, research, laboratory, or other kind of experimentation either prior to or subsequent to any termination of pregnancy procedure except as necessary to protect or preserve the life and health of such fetus or premature infant.

LOUISIANA

LA. REV. STAT. ANN. § 9:122 (West 2000)
Uses of human embryo in vitro

The use of a human ovum fertilized in vitro is solely for the support and contribution of the complete development of human in utero implantation. No in vitro fertilized human ovum will be farmed or cultured solely for research purposes or any other purposes. The sale of a human ovum, fertilized human ovum, or human embryo is expressly prohibited.

LA. REV. STAT. ANN. § 9:123 (West 2000)
Capacity

An in vitro fertilized human ovum exists as a juridical person until such time as the in vitro fertilized ovum is implanted in the womb; or at any other time when rights attach to an unborn child in accordance with law.

MAINE

ME. REV. STAT. ANN. tit. 22, § 1593 (West 1992)
Sale and use of fetuses

Whoever shall use, transfer, distribute or give away any live human fetus, whether intrauterine or extrauterine, or any product of conception considered live born for scientific experimentation or for any form of experimentation shall be punished by a fine of not more than $5,000 and by imprisonment for not more than 5 years and any person consenting, aiding or assisting shall be liable to like punishment.

MASSACHUSETTS

MASS. GEN. LAWS ANN. ch. 112, § 12J(a) (West 1996)
Experimentation on human fetuses prohibited; medical procedures authorized; consent; approval; civil and criminal liability and proceedings; severability

(a) I. No person shall use any live human fetus whether before or after expulsion from its mother's womb, for scientific, laboratory, research or other kind of experimentation. This section shall not prohibit procedures incident to the study of a human fetus while it is in its mother's womb, provided that in the best medical judgment of the physician, made at the time of the study, said procedures do not substantially jeopardize the life or health of the fetus, and provided said fetus is not the subject of a planned abortion. In any criminal proceeding a fetus shall be conclusively presumed not to be the subject of a planned abortion if the mother signed a written statement at the time of the study, that she was not planning an abortion.

This section shall not prohibit or regulate diagnostic or remedial procedures the purpose of which is to determine the life or health of the fetus involved or to preserve the life or health of the fetus involved or the mother involved.

A fetus is a live fetus for purposes of this section when, in the best medical judgment of a physician, it shows evidence of life as determined by the same medical standards as are used in determining evidence of life in a spontaneously aborted fetus at approximately the same stage of gestational development.

(a)III. No person shall perform or offer to perform an abortion where part or all of the consideration for said performance is that the fetal remains may be used for experimentation or other kind of research or study.

(a)IV. No person shall knowingly sell, transfer, distribute or give away any fetus for a use which is in violation of the provisions of this section. For purposes of this section, the word "fetus" shall include also an embryo or neonate.

(a)V. Except as hereafter provided, whoever violates the provisions of this section shall be punished by imprisonment in a jail or house of correction for not less than one year nor more than two and one-half years or by imprisonment in the state prison for not more than five years and by the imposition of a fine of up to ten thousand dollars.

MICHIGAN

MICH. COMP. LAWS ANN. § 333.2685 (West 2001)
Human research; use of human embryo, fetus or neonate

(1) A person shall not use a live human embryo, fetus, or neonate for nontherapeutic research if, in the best judgment of the person conducting the research, based upon the available knowledge or information at the approximate time of the research, the research substantially jeopardizes the life or health of the embryo, fetus, or neonate. Nontherapeutic research shall not in any case be performed on an embryo or fetus known by the person conducting the research to be the subject of a planned abortion being performed for any purpose other than to protect the life of the mother.

(2) For purposes of subsection (1) the embryo or fetus shall be conclusively presumed not to be the subject of a planned abortion if the mother signed a written statement at the time of the research, that she was not planning an abortion.

MINNESOTA

MINN. STAT. ANN. § 145.422 (West 1998)
Experimentation or sale

Subdivision 1. Penalty. Whoever uses or permits the use of a living human conceptus for any type of scientific, laboratory research or other experimentation except to protect the life or health of the conceptus, or except as herein provided, shall be guilty of a gross misdemeanor.

Subd. 2. Permitted act. The use of a living human conceptus for research or experimentation which verifiable scientific evidence has shown to be harmless to the conceptus shall be permitted.

Subd. 3. Penalty; permitted payments. Whoever buys or sells a living human conceptus or nonrenewable organ of the body is guilty of a gross misdemeanor. Nothing in this subdivision prohibits (1) the buying and selling of a cell culture line or lines taken from a nonliving human conceptus; (2) payments for reasonable expenses associated with the removal, storage, and transportation of a human organ, including payments made to or on behalf of a living organ donor for actual expenses such as medical costs, lost income, or travel expenses that are incurred as a direct result of the donation of the nonrenewable organ; or (3) financial assistance payments provided under insurance and [M]edicare reimbursement programs.

NEW HAMPSHIRE

N.H. REV. STAT. ANN. § 168-B:15 (1994)
Restrictions on Use of Preembryos

I. No preembryo shall be maintained ex utero in the noncryopreserved state beyond 14 days post-fertilization development.

II. No preembryo that has been donated for use in research shall be transferred to a uterine cavity.

NORTH DAKOTA

N.D. CENT. CODE § 14-02.2-01 (1997).
Live fetal experimentation – Penalty

1. A person may not use any live human fetus, whether before or after expulsion from its mother's womb, for scientific, labo-

ratory, research, or other kind of experimentation. This section does not prohibit procedures incident to the study of a human fetus while it is in its mother's womb, provided that in the best medical judgment of the physician, made at the time of the study, the procedures do not substantially jeopardize the life or health of the fetus, and provided the fetus is not the subject of a planned abortion. In any criminal proceeding the fetus is conclusively presumed not to be the subject of a planned abortion if the mother signed a written statement at the time of the study, that the mother was not planning an abortion.

2. A person may not use a fetus or newborn child, or any tissue or organ thereof, resulting from an induced abortion in animal or human research, experimentation, or study, or for animal or human transplantation.

3. This section does not prohibit or regulate diagnostic or remedial procedures, the purpose of which is to determine the life or health of the fetus involved or to preserve the life or health of the fetus involved, or of the mother involved.

4. A fetus is a live fetus for the purposes of this section when, in the best medical judgment of a physician, it shows evidence of life as determined by the same medical standards as are used in determining evidence of life in a spontaneously aborted fetus at approximately the same stage of gestational development.

5. Any person violating this section is guilty of a class A felony.

OHIO

OHIO REV. CODE ANN. § 2919.14 (West 2001)
Abortion trafficking

(A) No person shall experiment upon or sell the product of human conception which is aborted. Experiment does not include autopsies pursuant to sections 313.13 and 2108.50 of the Revised Code.

(B) Whoever violates this section is guilty of abortion trafficking, a misdemeanor of the first degree.

PENNSYLVANIA

18 PA. CONS. STAT. ANN. § 3216 (West 2001)

Fetal experimentation

(a) Unborn or live child.—Any person who knowingly performs any type of nontherapeutic experimentation or nontherapeutic medical procedure (except an abortion as defined in this chapter) upon any unborn child, or upon any child born alive during the course of an abortion, commits a felony of the third degree. "Nontherapeutic" means that which is not intended to preserve the life or health of the child upon whom it is performed.

(b) Dead child.— The following standards govern the procurement and use of any fetal tissue or organ which is used in animal or human transplantation, research or experimentation:

(1) No fetal tissue or organs may be procured or used without the written consent of the mother. No consideration of any kind for such consent may be offered or given. Further, if the tissue or organs are being derived from abortion, such consent shall be valid only if obtained after the decision to abort has been made.

(2) No person who provides the information required by section 3205 (relating to informed consent) shall employ the possibility of the use of aborted fetal tissue or organs as an inducement to a pregnant woman to undergo abortion except that payment for reasonable expenses occasioned by the actual retrieval, storage, preparation and transportation of the tissues is permitted.

(3) No remuneration, compensation or other consideration may be paid to any person or organization in connection with the procurement of fetal tissue or organs.

(4) All persons who participate in the procurement, use or transplantation of fetal tissue or organs, including the recipients of such tissue or organs, shall be informed as to whether the particular tissue or organ involved was procured as a result of either:

(i) stillbirth;

(ii) miscarriage;

(iii) ectopic pregnancy;

(iv) abortion; or

(v) any other means.

(5) No person who consents to the procurement or use of any fetal tissue or organ may designate the recipient of that tissue or organ, nor shall any other person or organization act to fulfill that designation.

(6) The department may assess a civil penalty upon any person who procures, sells or uses any fetal tissue or organs in violation of this section or the regulations issued thereunder. Such civil penalties may not exceed $5,000 for each separate violation. In assessing such penalties, the department shall give due consideration to the gravity of the violation, the good faith of the violator and the history of previous violations. Civil penalties due under this paragraph shall be paid to the department for deposit in the State Treasury and may be enforced by the department in the Commonwealth Court.

(c) Construction of Section.—Nothing in this section shall be construed to condone or prohibit the performance of diagnostic tests while the unborn child is in utero or the performance of pathological examinations on an aborted child. Nor shall anything in this section be construed to condone or prohibit the performance of in vitro fertilization and accompanying embryo transfer.

RHODE ISLAND

R.I. GEN. LAWS § 11-54-1 (2000)
Experimentation on human fetuses

(a) As used in this section:

(1) "Fetus" includes an embryo or neonate;

(2) "Live fetus" means a fetus that, in the best medical judgment of a physician, shows evidence of life as determined by the same medical standards as are used in determining evidence of life in a spontaneously aborted fetus at approximately the same stage of gestational development.

(b) No person shall use any live human fetus, whether before or after expulsion from its mother's womb, for scientific, laboratory research, or other kind of experimentation. This section does not prohibit procedures incident to the study of a human fetus while it is in its mother's womb, provided that in the best medical judgment of the physician, made at the time of the

study, the procedures do not substantially jeopardize the life or health of the fetus, and provided the fetus is not the subject of a planned abortion. In any criminal proceeding the fetus is conclusively presumed not to be the subject of a planned abortion if the mother signed a written statement at the time of the study that she was not planning an abortion.

(c) This section does not prohibit or regulate diagnostic or remedial procedures, the purpose of which are to determine or to preserve the life or health of the fetus involved or the mother involved.

(d) No experimentation may knowingly be performed upon a dead fetus unless the consent of its mother has first been obtained. This consent shall not be required in the case of a routine pathological study. In any criminal proceeding, consent shall be conclusively presumed to have been granted for the purposes of this section by a written statement, signed by the mother, who is at least eighteen (18) years of age, to the effect that she consents to the use of her fetus for scientific, laboratory, research, or other kind of experimentation or study. This written consent shall constitute lawful authorization for the transfer of the dead fetus.

(e) No person shall perform or offer to perform an abortion where part or all of the consideration for the performance is that the fetal remains may be used for experimentation or other kinds of research or study.

(f) No person shall knowingly sell, transfer, distribute, or give away any fetus for a use which is in violation of the provisions of this section.

APPENDIX B

RECENT DISCOVERIES IN ADULT STEM CELL RESEARCH

The British Medical Journal weighed in on adult stem cell research early last year, saying, "[e]arly results suggest that ductal tissue taken from human cadavers can be grown in culture to form functioning [pancreatic] islet cells. Such a source of tissue . . . could prove better than relying on fetal tissue, and may even lead eventually to autologous pancreatic transplants."[151]

Researchers have found that bone marrow stem cells from children and adults can "become brain cells and liver cell precursors, plus all three kinds of muscle—heart, skeletal and smooth. . . . Besides skirting the ethical dilemmas surrounding research on embryonic and fetal stem cells, adult cells . . . might have another advantage: They may be easier to manage."[152]

Science Magazine reported, "the adult central nervous system, long thought not to contain cells capable of dividing, in fact harbors stem cells. Such cells may help treat Alzheimer's and Parkinson's disease. In addition . . . hematopoietic stem cells from bone marrow may one day provide transplants to replace blood and immune cells."[153]

Reporting on March 2000 news that scientists have cured diabetes in mice using adult pancreatic stem cells, the Alliance for Aging Research called this "the most promising sign to date that stem cell research might yield remarkable treatments for currently incurable diseases."[154]

Another peer-reviewed article explained that adult stem cells are now turning out to have greater than expected

---

[151] Abi Berger, *Transplanted Pancreatic Stem Cells Can Reverse Diabetes in Mice*, 320 BRIT. MED. J. 736, (2000), *available at* http://bmj.com/cgi/reprint/320/7237/736/a.pdf.

[152] Gretchen Vogel, *Can Old Cells Learn New Tricks?*, 287 SCI. 1418, 1419 (2000).

[153] Pamela J. Hines et al., *Stem Cells Branch Out*, 287 SCI. 1418, 1418 (2000).

[154] Online NewsHour, *Stem Cell Debate* (May 24, 2000), *available at* http://www.pbs.org/newshour/bb/health/july-dec00/genome_8-24.html.

> capabilities. What's more, they pose fewer ethical problems because they can be obtained from sources other than embryos or aborted fetuses. And the companies using them argue that it may require less work to transform them into specialized cells for transplantation.[155]

The fact that nerve stem cells "can de-differentiate and reinvent themselves" as blood-producing stem cells "means that the need for fetal cells as a source of stem cells for medical research may soon be eclipsed by the more readily available and less controversial adult stem cells."[156]

Recent research shows that mesenchymal stem cells in adult bone marrow "can in principle be used to repair bone, cartilage, tendon and many other injured or aged tissues. The cells would be derived in many cases from the patient's own bone marrow and thus present no problem of immune rejection."[157]

Due to advances in the use of the anti-aging enzyme telomerase, "the ability to rejuvenate specific cells in the body opens up a dazzling array of possibilities. Doctors could grow skin grafts for burn victims using their own skin, insulin-producing cells for diabetics, or muscle tissue for sufferers of muscular dystrophy."[158]

"'This suggests that there is a stem cell in the adult bone marrow that is capable of becoming anything if you give it the right signal'. . . ."[159]

A California researcher commented on new ways to "regenerate" and transplant patients' own brain cells to treat Parkinson's and other diseases: 'What we have is a protocol in which we don't have to harvest 12 or 15 fetuses, we don't have to give immunosuppressant therapy, and we don't have to worry about viral disease transmission . . . .'[160]

---

[155] Eliot Marshall, *The Business of Stem Cells*, 287 SCI. 1419, 1420 (2000).

[156] Josefson, *supra* note 113, at 282.

[157] Nicholas Wade, *Discovery Bolsters a Hope for Regeneration*, N.Y. TIMES, Apr. 2, 1999, at A18.

[158] Ruth Larson, *Scientists Find New Life for Old Cells: Rejuvenated Tissue Could Aid Burn Victims, Fend off Wrinkles*, WASH. TIMES, Dec. 29, 1998, at A1.

[159] Associated Press, *Researchers Find Stem Cell That Makes New Liver Tissue* (May 14, 1999), *available at* http://www.cjga.com/Health9905/14_liver.html.

[160] Mark Moran, *For Cell Transplants, Is One Brain Better Than Two?*, AM. MED. NEWS, May 3, 1999, at 29.

> For generations, scientific dogma held that the adult brain cannot repair itself, because it lacks stem cells. Wrong. Recently, scientists found that adult brains do indeed harbor stem cells . . . .
>
> . . . .
>
> Since stem cells divide endlessly, a single sample started from a human fetus could provide all that's needed. But the recipient's immune system might attack these as foreign. Perhaps the patient's own body is a better source of stem cells.
>
> . . . .
>
> [Moreover], brain stem cells may not be a necessary ingredient for custom-making new brain tissue. Scientists believe it may be possible to reprogram more readily available kinds of stem cells, such as the ones that produce skin, so that they will churn out brain cells, instead.[161]

Researchers at McGill University isolated stem cells from the skin of adult rodents that can become neurons, glia, smooth muscle cells, and fat cells. Human studies have indicated that similar cells are present in adult human skin.[162]

> Researchers in Britain have added another talent to adult stem cells' growing repertoire, announcing that such cells taken from bone marrow can develop into kidney cells.
>
> . . . .

---

[161] Daniel Q. Haney, *Scientists Try to Grow Brain Parts* (May 1, 1999), *available at* http://www.myelitis.org/tmic/archive/26/0046.html.

[162] Jean G. Toma et al., *Isolation of Multipotent Adult Stem Cells from the Dermis of Mammalian Skin*, 3 NATURE CELL BIOLOGY 778, 782 (2001), *available at* http://www.nature.com/cgi-taf/DynaPage.taf?file=/ncb/journal/v3/n9/full/ncb0901_778.html&filetype=pdf.

> The UK team examined kidney biopsy tissue from eight male transplant recipients who had received kidneys from female donors. Many cells from the transplanted kidneys contained a Y chromosome, which only appears in males, indicating the cells must have originated within the male transplant recipients.
>
> This does not prove directly that the kidney cells came from bone marrow stem cells, but that is the most plausible explanation, says team member Richard Poulsom. He and his colleagues did a parallel study in mice that backs that interpretation.[163]

Researchers apparently found an effective treatment for a man with scleromyxedema, a rare and potentially fatal skin disease. They reported his condition as in "complete remission" and that he "is doing well" after transplanting adult stem cells taken from his own bone marrow.[164] Prior to the adult stem cell treatment, the patient could not completely close his eyes, and had lost the ability to eat. Three months after treatment the patient could once again close his eyes and open his mouth to eat.[165]

---

[163] Greg Miller, *Adult Stem Cell Talents Grow* (July 25, 2001), *at* http://www.newscientist.com/news/news.jsp?id=ns99991068.

[164] Adrienne M. Feasel et al., *Complete Remission of Scleromyxedema Following Autologous Stem Cell Transplantation*, 137 ARCHIVES DERMATOLOGY 1071, 1072 (2001).

[165] *Id.* at 1071.