

Testimony of Richard M. Doerflinger

before the

**House Health and Government Operations Committee
Maryland Legislature**

**In support of House Bill 885
“Human Cloning Prohibition Act of 2005”**

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I have been asked by the Maryland Catholic Conference to present testimony today on House Bill 885. I am familiar with this kind of legislation on human cloning, because I have testified before Congress on several occasions in support of an almost identical federal bill.

In support of HB 885

HB 885, a genuine and much-needed ban on human cloning, is almost identical to S. 245 in the 108th Congress, sponsored by Senators Sam Brownback (R-KS), Mary Landrieu (D-LA) and 27 others. This kind of cloning ban has been overwhelmingly approved twice by the U.S. House of Representatives, endorsed by President Bush, and enacted into law in five states.¹ It would ban the use in humans of the cloning procedure known as “somatic cell nuclear transfer” (SCNT) -- the technique used to make “Dolly” the sheep, and more recently used in South Korea to make human embryos for research.

HB 885 should be supported by anyone who truly wants to prevent human cloning. It bans the human cloning procedure explicitly and precisely, without affecting any other area of stem cell research or any use of cloning techniques to make plants, animals, genes, or cells other than human embryos.

Human cloning should be banned because it shows grave disrespect for human beings in the very act of creating them. It reduces human procreation to an assembly line, where fellow humans are manufactured to preset specifications and exploited for the sake of traits deemed useful by others.

¹ Arkansas, Iowa, Michigan, North Dakota and South Dakota. Virginia’s law may also be interpreted as a complete ban on human cloning. See USCCB Secretariat for Pro-Life Activities, “Current State Laws on Human Cloning,” at www.usccb.org/prolife/issues/bioethic/statelaw.htm.

While some have coined slogans to claim a difference between “reproductive” cloning (cloning for baby-making) and “therapeutic” cloning (cloning for research purposes), the cloning procedure is identical in both cases – the only difference lying in what is done with the cloned human embryo *after* the cloning procedure has been performed. The embryo can be placed in a womb for an attempt at live birth, or kept in the Petri dish and destroyed for stem cells or other research goals. But these later acts do not change the degree to which the embryo was “cloned.”

In any case, as numerous *supporters* of “therapeutic” cloning now admit, the two uses cannot be separated in reality: If you allow and encourage cloning for research purposes, you will facilitate so-called “reproductive” cloning as well. In the words of Dr. Hwang of the South Korean team that has claimed success in cloning human embryos, “this technique cannot be separated from reproductive people cloning...”²

The professional association for our nation’s fertility specialists agrees:

“Researchers have proposed using SCNT [somatic cell nuclear transfer] to generate embryonic stem cells for persons who need tissue or organ transplants... If undertaken, the development of SCNT for such therapeutic purposes, in which embryos are not transferred for pregnancy, **is likely to produce knowledge that could be used to achieve reproductive SCNT.**”³

Or in the words of researchers at Advanced Cell Technology in Massachusetts, pioneers in pursuing “therapeutic cloning”: “It is true that the techniques developed in CRNT research can prepare the way scientifically and technically for efforts at reproductive cloning.”⁴

In terms of disrespect for life, the difference between the two uses of cloning is this: Judging from animal trials, efforts to grow cloned humans in a womb will lead to their deaths 90 to 95% of the time, through “accidental” miscarriage and stillbirth; efforts to use them for research will lead to their deaths 100% of the time, through deliberate destruction. Clearly the latter use of cloning, where humans are made solely to be exploited and destroyed, is an even greater threat to human dignity than the former.

Some state and federal lawmakers have proposed an approach very different from that of

2 Quoted in Michael Vincent, “Korean Stem Cell Research Labeled Recipe for Cloning,” ABC Online, February 13, 2004, <http://www.abc.net.au/am/content/2004/s1044228.htm>.

3 The Ethics Committee of the American Society for Reproductive Medicine, “Human Somatic Cell Nuclear Transfer (Cloning),” 74 *Fertility and Sterility* 873-6 (November 2000) at 873. This article’s title also acknowledges “cloning” and “somatic cell nuclear transfer” to be one and the same thing – any claim that one can ban cloning, while allowing SCNT, is scientific nonsense.

4 -Robert Lanza, et al, “The Ethical Validity of Using Nuclear Transfer in Human Transplantation,” 284 *Journal of the American Medical Association* 3175-9 (December 2000) at 3178. (The authors use their own invented term, “cell replacement by means of nuclear transfer” or “CRNT,” to describe the SCNT cloning procedure.)

HB 885, designed to authorize human cloning for research purposes. Such bills are sometimes called bans on human cloning, but this is misleading – in fact, they do not prohibit the use of any cloning procedure in humans. Rather, they *allow* (and sometimes even fund) the mass-production of human embryos by cloning. They then try to prohibit efforts to implant a cloned human embryo in a uterus, or to let the embryo survive past 14 days of development, or even efforts to bring a cloned human to live *birth*.

In effect, these unacceptable proposals would define a class of developing members of the human race that it is a crime *not* to destroy – a set of human beings who are forbidden to *exist*, except as objects of research. That approach is gravely wrong on moral grounds. It could only be implemented by having the government *mandate* the destruction of cloned embryos – or even mandate forced abortions, in cases where a cloned embryo has already implanted in a woman’s womb. The moral, practical and even constitutional problems in such an approach should be clear.⁵

The slippery slope of “therapeutic” cloning

Some scientists and others oppose legislation like HB 885, arguing that embryonic stem cells obtained from cloned human embryos is essential for progress against devastating diseases. They propose cloning human embryos from patients with these diseases, then destroying the embryos for their stem cells, claiming that such cells would be genetically matched to the original patient and therefore not rejected as foreign tissue.

Yet, even aside from the grave ethical violation involved in creating members of the human species solely to destroy them, the fact is that such “therapeutic cloning” using embryonic stem cells is not working well, even in animals. These embryonic cells are too difficult to maintain, too uncontrollable, too genetically unstable, too likely to form lethal tumors in animals’ bodies, to be of any use for human therapies. Moreover, for reasons researchers still do not fully

⁵ Commenting on efforts to ban the transfer of cloned embryos to women’s wombs (without banning reproduction by *in vitro* fertilization), the U.S. Department of Justice notes that “the transfer of an embryo to initiate a clinical pregnancy is presumably the same regardless of whether the embryo involved was originally produced by cloning or fertilization. Hence, there is no visible difference between the prohibited activity and the permitted activity, both of which would presumably be conducted within the privacy of a hospital or medical office. Entrusted with enforcing such a limited ban, law enforcement would be in the unenviable position of having to impose new and unprecedented scrutiny over doctors in fertility clinics and/or research facilities to ensure that only fertilized embryos were being transferred to would-be mothers.” Regarding efforts to prevent only the production of live-born cloned children, the Department observed that “except in those exceedingly rare instances when the parties involved announced their intention to engage in unlawful activity in advance, it is difficult to envision how law enforcement officials could effectuate the stated goals ...of preventing the birth of cloned infants. For example, once a pregnancy were established, any government-directed attempt to terminate a cloned embryo in utero would create problems enormous and complex.” Statement of U.S. assistant attorney general Daniel J. Bryant before the House Government Reform Committee, May 15, 2002, at www.cloninginformation.org/congressional_testimony/bryant_02-05-15.htm. In short, if you want to ban human cloning at all, the effective way to do so is to ban the use of cloning to make human embryos in the first place.

understand, even genetically matched cells derived from cloned embryos can still be *rejected* as foreign tissue when placed in animals' bodies.⁶

Especially disturbing are several recent studies indicating that cells derived from cloning will not be “therapeutic,” unless cloned embryos are developed to the fetal or even newborn stage for cell harvesting. This is now being reflected in proposed state legislation authorizing human cloning for research purposes. Legislation enacted last year in New Jersey with the support of the national Biotechnology Industry Organization, for example, *allows* cloned human embryos to be implanted in women's wombs (or in animal or artificial wombs) as long as they are not allowed to survive *through* the “fetal and newborn” stages to produce a new live-born individual.⁷ Such “fetus farming” proposals are the grotesque but logically consistent result when hypothetical “progress” is allowed to trump all principles of medical ethics and common decency.

At least four scientific studies help to explain why biotechnology companies and their allies feel it is now necessary to pursue such grisly excesses:

In the first study, designed to provide new kidney tissue, researchers found that they had to gestate cloned cow embryos in a uterus and then abort them for their *fetal* kidney tissue to achieve success.⁸

The second study, designed to correct a genetically-based immune deficiency in mice, required taking the new mouse (produced by cloning and genetic modification) to the *newborn* stage and harvesting its *adult* stem cells to treat the original mouse.⁹

A third study, published in a journal of the American Heart Association, found that cloned mice had to be grown to the fetal stage and then aborted to provide usable cells, this time

6 Regarding one such attempt at “therapeutic cloning,” stem cell experts at the NIH said one of the study’s “unexpected findings” was the fact that stem cells from cloned embryos are “rejected by the hosts” after being transplanted despite having “the same genetic background” as they do. They noted that specialized cells derived from embryos (even cloned embryos) may be subtly different from naturally produced adult cells in ways that interfere with their therapeutic use. See R. Tsai et al., “Plasticity, Niches, and the Use of Stem Cells,” 2 *Developmental Cell* 707-12 (June 2002) at 710.

7 N.J. Stat. Ann. §2C: 11A-1. For similar bills introduced in other states see Americans to Ban Cloning, “Report: State Bills on Human Cloning,” March 26, 2003, at www.cloninginformation.org/info/ABC-State-Laws.htm.

8 R. Lanza et al., “Generation of histocompatible tissues using nuclear transplantation,” 20 *Nature Biotechnology* 689-96 (July 2002). The authors wrote then: “Because the cloned cells were derived from early-stage fetuses, this approach is not an example of therapeutic cloning and would not be undertaken in humans.” *Id.* at 689.

9 W. Rideout et al., “Correction of a Genetic Defect by Nuclear Transplantation and Combined Cell and Gene Therapy,” 109 *Cell* 17-27 (April 5, 2002). This is the study mentioned in note 6 above, where efforts to use *embryonic* stem cells from cloned embryos failed to prevent tissue rejection. See Americans to Ban Cloning, “Why the ‘Successful’ Mouse ‘Therapeutic’ Cloning Really Didn’t Work,” at www.cloninginformation.org/info/unsuccessful_mouse_therapy.htm.

for attempted repair of heart damage in mice.¹⁰

The fourth study helps explain the results of the other three: It finds that the cloning process wreaks havoc with gene expression in the developing human, because it tries to reprogram all the genes of a specialized body cell to become active again at one time, to make a new human being. This problem is worst at the embryonic stage, dimming the prospects for any safe or “therapeutic” use of embryonic cells. If the cloned embryo can be made to survive into the fetal stage, however, there is a second opportunity to complete this gene reprogramming and smooth out the gene expression errors.¹¹

Therefore, *embryonic* stem cells from cloning may well be incapable of safe and effective use in human patients. Yet attempts to move beyond the embryonic stage to “farm” fetuses for their body parts will require horrendous exploitation of developing children.

That project will require the exploitation of women as well. First, for any version of “therapeutic” cloning, women will have to be subjected to dangerous fertility drugs to produce many eggs at once for the enormously inefficient cloning procedure. For “fetus farming” attempts, they will also have to be exploited as human incubators, to help develop cloned embryos to the point where usable cells and tissues can be “harvested.”

Clearly, human cloning for purposes of biomedical research is not something legislatures should work to allow. And as noted above, any such arbitrary loophole for cloning research will inevitably facilitate the “reproductive” cloning that virtually everyone claims to oppose.

“Therapeutic” cloning: Useless or unnecessary for therapies?

Supporters of human cloning for research purposes sometimes claim that this procedure is needed for progress in treating conditions such as Parkinson’s disease, Alzheimer’s disease, juvenile diabetes and cancer.

Such claims were dealt a serious blow last year by one of the world’s leading experts on cloning, Dr. Ian Wilmut (leader of the Scottish team that cloned “Dolly” the sheep). He wrote in the *British Medical Journal*:

10 Robert Lanza et al., “Regeneration of the Infarcted Heart With Stem Cells Derived by Nuclear Transplantation,” *Circulation Research* 94 (April 2, 2004): 820-827. The cloned mice had to be developed to the equivalent of *the fifth to sixth month* of human fetal development, then aborted for their cells. “Cleaved (2-cell) embryos were transferred... to the oviducts of pseudopregnant CD1 surrogate mothers. Cloned fetuses recovered at 11 to 13 days of gestation were used as source of liver cells.” Online Data Supplement, at <http://circres.ahajournals.org/cgi/data/94/6/820/DC1/1>. Total gestational period in the mouse is about 20 days long.

11 See J. Fulka et al., “Do cloned mammals skip a reprogramming step?”, in 22 *Nature Biotechnology* 25-26 (January 2004) (concluding that this finding poses serious problems for both “reproductive” and “therapeutic” cloning).

“In any treatment regime we must avoid immunological rejection of the transferred cells, but the immune response is likely to vary from one disease to another... [I]n the treatment of diseases within the central nervous system **cells from cloned embryos seem likely to offer less advantage as fetal cells in the central nervous system appear not to be subject to rejection.** Finally, several of the conditions that are mentioned as candidates for cell therapy are **autoimmune diseases, including type 1 diabetes. In such cases transfer of immunologically identical cells to a patient is expected to induce the same rejection.**”¹²

In other words, cloning is probably **unnecessary** for any condition involving the central nervous system such as Parkinson’s and Alzheimer’s -- because that system does not have a strong immune response, but will accept cells from genetically unmatched sources. I would add that this is true not only for fetal cells but adult cells as well.¹³ And cloning is **useless** for autoimmune diseases such as juvenile (Type I) diabetes, because the cells from a cloned embryo would have exactly the same genetic makeup that makes the diabetic patient’s faulty immune system reject his or her cells in the first place. With this one paragraph, Dr. Wilmut dismissed the direct “therapeutic” use of cloning for the vast majority of conditions cited by its supporters.

In fact, after more than two decades of research using mouse embryonic stem cells, researchers have yet to find a reliable way to direct these cells to form pancreatic cells that can reverse juvenile diabetes in *mice*, let alone human beings. One recent study, for example, found that past attempts to differentiate these cells in the right direction failed to produce the “beta cells” needed for diabetes treatments. The cells did produce some insulin, but not in response to changes in surrounding glucose levels; and when placed in diabetic mice they did not reverse diabetes but only formed teratomas (tumors).¹⁴

Now Dr. Wilmut and others want to clone human embryos, not to provide therapies, but to *increase* the number of desperately sick humans in the world. They want to clone these embryos from people with devastating diseases, so the embryos themselves (or the stem cells obtained by killing them) will provide “models” for better understanding these diseases.¹⁵ But it

12 I. Wilmut, “Human cells from cloned embryos in research and therapy,” 328 *British Medical Journal* 415-6 (2004).

13 See: J. Hori et al., “Neural Progenitor Cells Lack Immunogenicity and Resist Destruction as Allografts,” in 21 *Stem Cells* 405-16 (2003); S. Bhattacharya, “Immune ‘invisibility’ of brain stem cells proven,” in *New Scientist*, 18 July 2003, at www.newscientist.com/news/print.jsp?id=ns99993953 (noting that adult mesenchymal stem cells from bone marrow, with a versatility that may rival that of embryonic stem cells, are “immune privileged” and are not rejected as foreign when placed in genetically unrelated recipients). For another recent advance in solving the immune rejection problem, using *adult* stem cells, see J. Down and M. White-Scharf, “Reprogramming Immune Responses: Enabling Cellular Therapies and Regenerative Medicine,” in 21 *Stem Cells* 21-32 (2003).

14 See S. Sipione et al., “Insulin expressing cells from differentiated embryonic stem cells are not beta cells,” 47 *Diabetologia* 499-508 (March 2004).

15 T. Wagner, “Scientist to link stem cell, cloning research,” *The Boston Globe*, February 9, 2005, at www.boston.com/news/world/articles/2005/02/09/scientist_to_link_stem_cell_cloning_research/.

is speculation at best to think that a stem cell line from an embryo will somehow duplicate the process of disease development in a human body. And if the embryo itself is the “model,” the temptation will no doubt prove irresistible for some researchers to develop the embryo to later and later stages to find when the disease first begins to manifest itself. And so we will be back on the slippery slope to “fetus farming” and beyond, this time beginning with the creation of new humans precisely in order to watch them sicken and die.

Fortunately, advances in stem cell research *are* bringing us much closer to a cure for juvenile diabetes and spinal cord injury, and are already being used in clinical trials to reduce or cure Parkinson’s disease, multiple sclerosis, leukemia, sickle-cell anemia, bone damage, heart damage, and dozens of other ailments. But these advances are coming from stem cells from adult tissue, umbilical cord blood, and other sources – avenues that create no moral problem, and certainly do not involve any form of human cloning.¹⁶

Conclusion

There is one legally and morally responsible way to ban human cloning, and that is to ban the use of the cloning procedure to create humans in the first place. At least five states, and thirty countries,¹⁷ have already enacted genuine laws against human cloning, and a committee of the United Nations recently urged all nations “to prohibit all forms of human cloning inasmuch as they are incompatible with human dignity and the protection of human life.”¹⁸ I urge Maryland to follow their lead by enacting HB 885. Such a ban is necessary to stop irresponsible researchers from using cloning for unethical experimentation and for reproduction -- and it will not stop or interrupt medical progress toward the cure of devastating diseases. Rather, it will help direct the research enterprise toward promising therapies that all of us can live with.

16 See: the advances reported at www.stemcellresearch.org; “Disorders and Conditions Treated with Non-Embryonic Stem Cells” (compiled from the NIH database and the National Marrow Donor Program), *Congressional Record*, September 9, 2004, at H6956-7; Cord Blood Registry, “Diseases Treated with Stem Cells,” at www.cordblood.com/cord_blood_banking_with_cbr/banking/diseases_treated.asp.

17 See Institute on Biotechnology and the Human Future, “Human Cloning: International Legal Situation,” at www.thehumanfuture.org/topics/humancloning/international.htm#.

18 United Nations press release, “Legal Committee Recommends UN Declaration on Human Cloning to General Assembly,” February 18, 2005, at www.un.org/News/Press/docs/2005/ga13271.doc.htm.