Testimony in favor of legislation to ban human cloning in Missouri

Good afternoon. My name is Wesley J. Smith. I am an attorney, author, and consumer advocate. I have attached my biography to my testimony.

For more than ten years I have been deeply engaged in public policy debates about the most important bioethical issues our nation and our states face. These include researching and writing about the ongoing erosion of the sanctity/equality of life ethic and the concomitant undermining of Hippocratic medical values in bioethics involving areas such as assisted suicide, end of life medical treatment, and cloning and embryonic stem cell research, among other areas of concern. My most recent book, *Consumer's Guide to a Brave New World*, explicitly makes the ethical argument as to why human cloning should be outlawed. My work in the fields in which I advocate is entirely secular, which I believe is appropriate to the creation of public policy in a nation governed by the rule of law.

I appear today to urge you to outlaw all human somatic cell nuclear transfer cloning in Missouri. I will not address the science of these issues, but will focus on the ethics and politics with which you will have to contend.

First, let me set out the stakes of this debate. The debates over human cloning and embryonic stem cell research funding are not so much science controversies as they are ethical debates over potential avenues of scientific inquiry. This means that we should not merely leave these matters "to the scientists" to decide. Rather, it is the right and duty of the people, through their elected representatives, to regulate this emerging field that is becoming so consequential and powerful that it is developing the means to literally alter human nature at the molecular level.

With the prospect of human cloning we face what may be the most fundamental issue that any legislative body will ever have to confront: **Does human life have intrinsic moral value simply and merely because it is human?** If the answer to this crucial question is yes—which I believe it must be—then we will outlaw all cloning of human life. This would not mean an end to biotechnological research. To the contrary, it would free researchers to focus exclusively on the incredible scientific potential presented by adult stem cells, umbilical cord blood stem cells, and other non controversial areas of biotechnological inquiry that offer tremendous promise to alleviate human suffering without falling prey to the moral risk of dehumanization that is an inescapable byproduct of human cloning.

The Politics of the Debate

The politics of this debate has often blurred vital distinctions and definitions. Such tactics must not be allowed to govern the public policy of the nation or the states:

1. Abortion is irrelevant:

One of the most unfortunate aspects of the cloning debate is that the media have often confused these issues with the burning controversy over abortion. But the issue of abortion is **factually irrelevant** to the issue of human cloning. Whether one agrees or disagrees with abortion, the reason it is legal is that the courts determined that a woman should not be forced to do with her body that which she does not wish to do, e.g. gestate and give birth **But in the issues of human cloning, there is no woman being forced to do anything with her body.** Thus, any references to abortion or the politics of abortion are, in my view, entirely misplaced. The decision whether or not to outlaw human cloning should be judged on its own merits and not be viewed through a distorting abortion prism.

2. Human cloning creates a new human life: It is often said by cloning proponents that we should outlaw "reproductive cloning" but permit "therapeutic cloning" (somatic cell nuclear transfer). This implies that there is one kind of cloning for reproduction and another kind for research, and that the embryos created for different cloning purposes are somehow different biologically. This is a false distinction. Somatic cell nuclear transfer, the primary method of cloning, creates a cloned human embryo.[1] Once the cloning process has been completed, a new individual human organism has come into being. Thereafter, there are no further acts of cloning.

At that point, the only question is what to do with the new human life that has been created. When used for research, a process popularly known as therapeutic cloning, the cloned nascent human will be destroyed for use in research or in medical treatments. If the same cloned embryo is to be implanted and gestated toward the birth of a cloned baby, it is often called reproductive cloning. But these are not meaningful distinctions: Cloning is cloning is cloning. As Woo Suk Hwang, the South Korean researcher who created the first cloned human embryos admitted, "This technique [somatic cell nuclear transfer cloning] cannot be separated from reproductive people cloning…"[2]

Human therapeutic cloning is immoral in my view because it reduces nascent human life to the status of a mere commodity and natural resource ripe for the harvest, thereby reducing its moral status to that of penicillin mold. Moreover, should Missouri only prohibit reproductive cloning while permitting therapeutic cloning as some advocate, the state would have taken the truly radical step of legally *requiring* one category of human life, e.g. unborn cloned humans, to be destroyed so that they cannot be born. For example, California law requires destruction of cloned embryos after the 14th day of development, while New Jersey, as I will discuss below, permits gestation of cloned fetuses through the ninth month—but not all the way to completed birth. Until the advent of human cloning, I know of no previous law in human history which ever required that each and every member of a specified category of humans be destroyed.

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[1] *Human Cloning and Human Dignity: the Report of the President's Council on Bioethics*, (2002, Public Affairs, New York), pp. 62-63. The President's Council unanimously defined human cloning as "The asexual production of a new human organism that is, at all stages of development, genetically virtually identical to a currently existing or previously existing human being.

[2] Australian Broadcasting Corporation, ""Korean Stem Cell Research Labeled Recipe for Cloning," February 13, 2004.

3. Cloning could lead to the exploitation of women for their eggs:

There is an aspect of the entire cloning debate that receives far too little attention: The potential for cloning to lead to the exploitation of women, particularly poor women. Here's the issue: The basic idea behind therapeutic cloning is to make cloned embryos of each patient to be treated, develop these embryos for about a week until they reach the "blastocyst" stage, and then destroy them to derive embryonic stem cells for use in medical treatments.

To perform human somatic cell nuclear transplant cloning, the biotechnologist would remove the nucleus from a mature human egg and replace it with the nucleus taken from a cell of the DNA donor. The genetically modified egg would then be stimulated with electricity or a chemical. If the cloning "worked," a new embryo would come into being and begin dividing and developing in the same way as an embryo created through fertilization.

Asexual reproduction via cloning, as this process is known, thus requires one human egg for each cloning attempt. This means that even if the technology can be perfected—which is a big if—it would require tens of millions of human eggs to make therapeutic cloning widely available to the general public. Indeed, according to the National Academy of Sciences, tens of millions of Americans have afflictions that could theoretically benefit from regenerative medicine.[3] This means that it would require tens of millions of human eggs to treat these patients with therapeutic cloning—and that's if *the cloning procedure only takes one egg per patient*.

However, cloning is very difficult to accomplish. Thus, it is very unlikely that an efficiency ratio of one egg per cloned embryo will be achieved in the foreseeable future. Indeed, according to a paper published in the Proceedings of the National Academy of Sciences, authored by a pro therapeutic cloning researcher named Peter Mombaerts, because of the inefficiencies of both cloning and the extraction of ES cells, it would likely take about *100 eggs per patient* just to obtain *one* cloned embryonic stem cell line. (It took Woo Suk Hwang 242 eggs to derive one cloned human embryonic stem cell line.)

The numbers of eggs that would be thus required to make therapeutic cloning widely available to the general public boggles the mind. It would take 10 billion eggs to treat 100 million patients—a number that is beyond comprehension. If only the sickest 100,000 patients were treated with therapeutic cloning, biotechnologists would still require *10 million eggs*. To provide these eggs, hundreds of thousands, if not millions, of women would have to undergo egg retrieval, and as a consequence, face potentially serious risks to their health.

The cost of therapeutic cloning would be likely to bankrupt Medicare, Medicaid, and private health insurance. Today, eggs sell for approximately $1000-$2000 each for use in

[3] Source: *Stem Cells and the Future of Regenerative Medicine*, Report of the National Academy of Sciences (2001, Washington DC: National Academies Press), p. 6.

fertility treatments. According to Mombaerts, this means that the expense for eggs alone in therapeutic cloning would likely range between $100,000 and $200,000—and that doesn't take into account the likely increase in price if demand for eggs increased dramatically due to therapeutic cloning, nor does it take into account the charges for hospitals, doctors, technicians, etc. No wonder the researcher reluctantly concluded that "This is a prohibitively high sum that will impede the widespread application of this technology in its present form."[4]

One potential way to reduce the price of eggs might be to scour the developing world and pay destitute women a small amount of money to undergo the rigorous and potentially dangerous procedure of egg extraction (even more dangerous in countries with inadequate medical assistance in the event of side effects). So, here too, we see the potential for cloning technology to dehumanize certain human populations. Indeed, it is not alarmism to worry that therapeutic cloning could become a rich man's medicine facilitated on the body parts of the world's most destitute women.

4. Missouri should not join the "Oklahoma Land Race" competition that has begun among several states to attract cloning companies to the state:

Therapeutic human cloning is not only morally problematic, but it is highly speculative, and would be very expensive to develop, most likely taking many years of research. This is a prime reason why venture capitalists have been very reluctant to invest in companies conducting human cloning research. Thus, an article first published in the *Seattle Times* noted that investors "aren't committing billions of dollars" into cloning research, "because society hasn't clearly decided whether the research is moral, the field is too risky, the business model too vague. Researchers don't know how to control embryonic stem cells…and they don't how now to do so cheaply, conveniently, or consistently enough to make it a viable business."[5]

Unable to garner significant private funding, and with no pending proposals at the federal level to fund human cloning research, the biotechnology industry decided to seek billions in corporate welfare from state taxpayers. Thus, proponents of California's Proposition 71—my home state--spent $25 million convincing voters to *borrow* $3 billion over ten years ($6 billion including interest) to fund therapeutic cloning research and experiments with embryonic stem cells.

With passage of Proposition 71, states around the country have begun a pell-mell competition to attract companies engaged in cloning and embryonic stem cell research. Currently, Wisconsin, Massachusetts, New York, and other states are debating funding research within their borders in the hundreds of millions of dollars. For Missouri to remain competitive in this "sellers market," it would have to revoke its existing law preventing public funds from being used in human cloning research and agree to dip deeply into public coffers to entice companies to settle here.

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[4] Peter Mombaerts, "Therapeutic Cloning in the Mouse," *100 Proceedings of the National Academy of Sciences*, September 30, 2003.

[5] Luke Timmerman, "Stem Cell Research is Exciting, but Not to Investors," *Miami Herald*, March 30, 2004, reprinting an article that originally appeared in the *Seattle Times*.

To make matters worse, some states are doing more than merely throw money at the industry. New Jersey has broken virtually all moral constraints by legalizing cloned "fetal farming."[6] The law explicitly permits the creation of human embryos via somatic cell nuclear transfer cloning and does *not* prohibited implantation of cloned embryos into wombs. This is significant because that which is not illegal, is by definition, legal. And while the law outlaws "the cloning of a human being," that term's definition is so broad that the only act actually prohibited is the actual birth of a cloned baby. Here is the crucial sentence:

> As used in this section, "cloning a human being" means the replication of a human individual by cultivating a cell with genetic material [somatic cell nuclear transfer] through the egg, embryo, fetal *and* newborn stages into a new human individual. (My emphasis.)[7]

The word "and" emphasized in the above quote means that if the cloned human is brought through the embryo and fetal stages, but not into "newborn stages," the law has not been broken. In other words, in New Jersey, cloned fetuses can be literally gestated up to the moment prior to actual birth without legal consequence so long as they are destroyed before exiting the birth canal.

Lest anyone consider this "anything goes" legal license a mistake, other states have seen variously worded legislation introduced that would have also permitted cloning and gestation through the ninth month.[8] Indeed, Illinois came within one vote last year of passing a cloning licensing law that would not have even explicitly outlawed reproductive cloning.[9]

The only way for Missouri to compete in this hyper-heated political atmosphere would be to race over the edge of an ethical precipice by erasing almost all moral parameters limiting cloning research and then raiding the public coffers to pay for that research.

5. Adult/Alternative Stem Cells Offer Great Hope without the Moral Cost

One of the great underreported stories of the debate over therapeutic cloning are the many amazing breakthroughs that have occurred in using adult stem cells, umbilical cord blood stem cells, or tissues from other sources. Here is a very partial list.

- Stem cells from bone marrow have been found to repair damaged muscle. The researchers involved believe that the results are promising for the future use of adult stem cells in the treatment of neuromuscular diseases such as muscular dystrophy.[10]

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[6] Correspondence from four members of the President's Council on Bioethics to Hon. James E. McGreevey, Governor of New Jersey, January 27, 2003..

[7] New Jersey Senate Bill S. 1909. For more complete discussion of the New Jersey law, see: Wesley J. Smith, *Consumer's Guide to a Brave New World*, (2004, Encounter Books, San Francisco), pp. 85-86.

[8] For example, Texas SB 1034, a bill virtually identical to the New Jersey legislation. Also, the 2003 Delaware bill SB 55.

[9] Illinois, HB 3589, "The Stem Cell Research Act."

[10] Muscular Dystrophy: Blood Cells Could Build Muscle in Neuromuscular Diseases," *Health and Medicine Week*, December 1, 2003.

- Bone marrow stem cells were induced in vitro (in the lab) to differentiate into islet cells, the kind in the pancreas that produces insulin. The researchers claimed that their findings "show that human bone marrow-derived stem cells may serve as a potential source for cell therapy in the treatment of type 1 diabetes. This means that we may one day be able to use a person's own stem cells to reverse diabetes."[11] Meanwhile, juvenile diabetes was cured in mice using cells from the spleen. The cells migrated to their pancreases, "prompting the damaged organs to regenerate into healthy, insulin-making organs," curing their diabetes.[12]
- Adult stem cells extracted from a patient's muscles repaired damage to the heart after a heart attack. Such treatment may not even require surgery, as Dutch investigators reported success delivering the cells by a catheter inserted into an artery. Six months after the treatment, an MRI shows "a significant thickening of the heart wall near the injection sites." This was but one of a series of successful experiments using adult stem cells to treat heart disease reported around the world. (Still, caution should be our watchword until more is known. Researchers still need to determine whether the treatment could cause arrhythmias.[13] Researchers in two mouse experiments failed to "replicate earlier studies that seemed to show they could be coaxed into making new heart muscle.")[14]
- In Lisbon, Portugal, Dr. Carlos Lima has used stem cells and nerves obtained patients' own nasal passages in the treatment of spinal cord injury-caused paraplegia and quadriplegia. So far, the results are very encouraging. While the research has not yet been published in a peer-reviewed journal—which means we cannot yet state that an effective treatment for spinal cord injury has been discovered—there is no question that the procedure looks very promising in early research. Dr. Lima has treated over two dozen patients and all have shown improved sensation and movement. For example, two of Dr. Lima's patients testified before a United States Senate Subcommittee in July 2004 to report that after receiving adult stem cell therapy using their own olfactory tissues, they have begun to regain feeling in their bodies and even been able to stand using a walker or walk with braces.[15]

Adult stem cell and related therapeutic approaches are in current clinical trials or use for the treatment of cancers, autoimmune diseases, anemia, bone and cartilage deformities, corneal scarring, stroke, and skin grafts. Indeed, the thrust of the research now seems indisputable: While not a sure thing, and noting that much research work remains to be done in animal and controlled human studies, barring unforeseen problems, adult stem

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[11] American Society of Hematology, "Derivation of Functional Insulin Producing Cells from Human Bone Marro-Derived Stem Cells," Press Release, December 8, 2003.
[12] Shota Kodama, et al, "Islet Regeneration During Reversal of Autoimmune Diabetes in NOD Mice," *Science*, Vol. 302, November 14, 2003, p. 1223.

[13] "Muscle-Cell Injections by Catheter Repair Heart, "Journal of American College of Cardiology, December 17, 2003.
[14] Sabin Russell, "Adult Stem Cell Transplants Fail in 2 Studies," *San Francisco Chronicle*, March 22, 2004.
[15] See Testimony of Laura Dominguez and Susan R. Fajt before the Senate Commerce Subcommittee on Science, Technology, and Space, July 14, 2004.

cell and related therapies look to be potent sources of new and efficacious medical treatments and cures in the years to come. (A complete listing of such advances would consume many hours. I urge the committee to research this issue further by contacting the Do No Harm Coalition—www.stemcellresearch.org.)

6. The States Need to Take the Lead: There is no federal statute that outlaws human cloning. Federal law merely forbids using taxpayer money to engage in destructive embryo research (the Dickey Amendment). Six states have banned human cloning within their jurisdictions: Michigan; Iowa; N. Dakota; S. Dakota; Arkansas; and, Virginia. Missouri will offer important national leadership by adding its name to this important list. And it will be joining "progressive" nations such as Canada, Australia, Norway, and France in doing likewise.

The Stakes in the Debate

The ethical debates about human cloning now raging throughout the world could not be more important. Yes, biotechnology researchers hope to use these technologies to alleviate human suffering. But, by what means? Would it really be wise and prudent for Missouri to countenance the creation of human life solely for research and destruction within its borders? To stay competitive, would that not set this state on the same immoral course already blazed by New Jersey, ultimately permitting stem cell research to move beyond early embryos in the Petri dish and toward experimenting on cloned embryos and fetuses implanted in natural or artificial wombs?

There is a better way. Missouri can help thwart this "Brave New World" agenda by outlawing all human cloning. At the same time, it can encourage robust science and biotechnology within its borders that remain on the right side of the ethical divide. Leon Kass, the Chairman of the President's Council on Bioethics put it this way:

> It is our difficult task to find ways to preserve society from the soft dehumanizations of well-meaning but hubristic biotechnical "recreationism"—and to do it without undermining biomedical science or rejecting its genuine contributions to human welfare.[16]

This *is* a difficult task, but it can and must be done. By passing the proposed cloning ban, Missouri can lead the way to a biotech sector that is both robust and remains within proper ethical parameters.

Thank you for your attention and time. I will be happy to answer any questions you may have.

[16] Leon R. Kass, "Preventing a Brave New World," *The New Republic*, May 21, 2002.