

TESTIMONY REGARDING SB 738 (Morrish) and/or HB 370 (Henry)
“Prohibits human cloning and human-animal hybrids” / “Prohibits public funding of human cloning”
Senate Health & Welfare Committee, 5/21/08

Good Morning, Madam Chairman, and Senators of the Committee!

My name is Dr. W. A. Krotoski. I am a physician and currently retired medical scientist, with M.D., Ph.D. and M.P.H. degrees. I have lived in Louisiana since 1974, and in Baton Rouge since 1982. Although retired from medical practice and bench work, I am President of, and represent *The Hippocratic Resource*, a Louisiana-wide organization of physicians, dentists, nurses and other health professionals who have committed to promoting objective truth in Medicine, and the life-respecting principles of the Hippocratic Oath, the foundation of medical ethics. My active career included 26 years with the U.S. Public Health Service, produced some 55 research articles, several chapters for medical texts, and co-authorship of one such text. In 1989 my research was honored by a nomination for the Nobel prize in physiology and medicine. I have taught at both Tulane and LSU Schools of Medicine and Public Health, and also their Graduate Schools. Currently, despite retirement, I continue to serve on the research ethics board of Baton Rouge General Medical Center, and have just published an article in *The Linacre Quarterly*, a journal devoted to the philosophy and ethics of medical practice; this one is on the U.S. traffic in human ova or oocytes, the basic cell used in human cloning. I mention all this, not for any personal aggrandizement, but to serve as a basis for my comments on bills to ban human cloning, animal-human hybrids, and funding thereof in Louisiana.

There are two very related bills coming before you on this complicated subject this morning, Senator Morrish’s SB 738, and Representative Henry’s HB 370. In the interest of the Committee’s time, I ask your indulgence to address both at the same time. My prepared remarks will take a total of 9 minutes, but I ask that a slightly more complete version, which I have prepared in written form for the Committee, be entered into the record. I am testifying today in favor of both Senator Morrish’s and Representative Henry’s bills to ban human cloning, animal-human hybrids, and funding thereof in Louisiana, for several reasons:

First ... As a physician and medical scientist, I remain unconvinced that human cloning is anywhere nearly as promising as its proponents claim. And I am not alone in this realistic pessimism. To begin with, the principal, stated purpose of cloning is to provide a source of human embryonic stem cells for further research and eventual clinical application. However, the possibility of active rejection of *any* cloned cellular transplant, by a patient always exists, as clones produced by somatic cell nuclear transfer, or SCNT, are not as identical as science fiction or the media would suggest, because maternal genetic factors left behind when the human ovum (“egg” cell) is depleted of its nucleus also influence the makeup of the resultant clone. It has also been shown that there is a greater propensity for malignancy – cancer – probably due to the absence of specific control factors during the development of tissues isolated from their normal, developmental environment. Then there is the issue of simple practicality. Up to millions of oocytes would be needed for meaningful research and to develop medical treatments; however, they are of a size approximating the period at the end of a sentence, and only about 10-20 are obtainable by any intensive procurement procedure. Thus, procuring enough for practical experimentation would lead to the exploitation of at least tens-, if not hundreds of thousands of women – who would inevitably be mostly poor, whether students or otherwise. Furthermore, even if theories suggest some desirable outcomes, medical science has progressed very well by the stepwise process of first, test tube and “lower” animal; then, “higher” animal; then, primate; and finally, human subject. Yet, few of these required steps have been taken in the area of cloning – certainly, no primate work has been successful – and proceeding directly to a human subject without them is simply impatient, doubtfully ethical, and often poor medical science. Additionally, although there has been a great deal of talk regarding the potential “promise” of human cloning for over a decade, there has not been a single, successful therapeutic modality developed – not even one – and not even in countries which may have lesser, voiced concern for ethics and human rights. Certainly, nothing therapeutic has happened during the 4-5 years that we have been debating the issue in Louisiana! So why are some American scientists and institutions so eager to pursue what experience suggests will be unproductive, regardless of their theories? Could it be because unproductive, though theoretically promising research in pursuit of a Holy Grail frequently receives more funding in the long run? California, for one, has earmarked over three billion dollars for what is widely expected to be largely human cloning and embryonic stem cell research, the ethics and morality of which are seriously challenged, if not condemned. Most recently, after a quick funding fling with human embryonic stem cell research, the European Union is being asked by Germany, Austria, and other nations to institute a funding ban on such research for their newest budget, also based on the realization that destruction of even embryonic human

beings is immoral and unethical. Only sporadic clinical application has been seen, some with disastrous results.

Second ... Medical research and the development of medical therapies are obviously worthwhile in and of themselves, and, in fact, are goals to which I, personally, devoted most of my medical professional life. However, these goals are capable of being *misused* as a convenient excuse simply to satisfy human curiosity, but in an unethical way. One, *extreme* example of this was the pseudo-medical experimentation done by the Nazis in concentration and death camps during the Second World War. However, although we pride ourselves on being different, we have not been entirely immune to this ourselves. Some medical experiments done by American scientific and medical personnel around the birth of the Atomic Age involved injections of highly radioactive materials into terminal patients; and others, over a large part of the last century, involved following the natural history of untreated syphilis at Tuskegee. Those are now rightly condemned; but, could human cloning, or human *embryonic* stem cell experiments – which unequivocally destroy nascent human life – also be condemned in the future? The cloning of human beings was formally banned by the Council of Europe – for moral and ethical reasons – beginning March 1, 2001, and there is no valid biological distinction between a natural human embryo and a cloned human embryo. This is clearly shown by successes in human *in vitro* fertilization (IVF) and in animal cloning, beginning with Dolly the sheep, and since performed in a number of different species, including goats, horses, mules, and even pet cats; if left – or placed – into their natural environment, both a natural human and a human clone embryo have all the DNA potential to develop and grow into a human baby. Medical research involving human experimental subjects – or animals, for that matter – must today be individually and carefully evaluated and scrutinized for its ethics by knowledgeable, designated panels or boards that lack any conflicts of interest – before being undertaken. And erring on the side of caution is still considered the more moral thing to do.

Third ... Adult stem cell research, which is considered completely ethical (at least, if performed in an ethical manner) has *already* yielded numerous clinically applicable therapeutic results, many in areas which have been touted by proponents of human cloning as the almost certain outcome of their proposals.

Among already active clinical applications using adult stem cells have been those for metastatic renal carcinoma, relapsed leukemia, systemic lupus erythematosus, recurrent non-Hodgkins lymphoma, a rare, multisystem disorder called POEMS syndrome (rare blood disorder of unknown cause, manifested by polyneuropathy, organomegaly, endocrinopathy, monoclonal gammopathy, skin changes), mantle cell lymphoma, advanced T-cell lymphoma (as in Sezary syndrome or mycosis fungoides), chronic lymphocytic leukemia (CLL), myelodysplastic syndromes, poor-risk lymphoma, high-risk neuroblastoma in children, refractory autoimmune disease, augmentation of spinal fusion, adjuvant treatment of high-risk breast cancer, relapsed germ cell cancer, adult thalassemia anemia, repair of the myocardium, cardiac disease, including severely scarred and dysfunctional heart muscle, acute myocardial infarction (heart attack) (3 trials), malignant multiple sclerosis unresponsive to conventional therapies, graft-*vs.* host disease in transplantation therapies, Crohn's disease of the bowel (using fat tissue), stroke, occlusive peripheral artery disease, use of cord blood for pediatric patients for expansion of blood-forming capacity or immune reconstitution, and stem cell transplantation for high-risk, HIV-associated lymphomas.

No medical therapy is developed overnight; most are in process for years. Nevertheless, in the area of adult stem cell therapies, somewhere of the order of 70 have been proposed for, or have been placed in clinical trial, based on the possibility of regenerating tissues for the treatment of such diseases as neurologic diseases, spinal cord injuries, cardiopathies, diabetes, hematologic illnesses and genetic disorders. These have been largely, but not exclusively, in the area of immune system or hematologic malignancy. In the last year and a half alone, credible anticipation of application, based on the plasticity of these cells, have been therapies for severe skin burns and wounds, Duchenne muscular dystrophy, restoration of cardiac function in acute and chronic ischemia, cardiac repair and myocardial regeneration, regenerative medicine, neuroregenerative disease, spinal cord injury, neuronal repair, partial joint resurfacing for knee implants, damaged or diseased skeletal tissues; differentiation of adult bone marrow cells into non-blood-forming cells, including brain, skeletal muscle, heart, liver, and other organs; use of fat tissue as a reservoir of stem cells; use of dental pulp or periodontal ligament for bone regeneration and immunosuppressive activity; cerebral ischemia, coronary artery disease, treatment of renal failure, Parkinson's disease, Huntington's chorea, Alzheimer's disease, etc., based on progress made in isolating human adult neural stem cells and

their transplantation; and reconstructive surgery, disorders in the neonatal period (particularly based on the fact that the placenta is an ideal source of compatible, fetal stem cells).

The use of placentas and umbilical cords as a source for *non*-embryonic stem cells, based on their availability and biologic plasticity, has seen particular progress. In fact, even *proprietary* treatments with such pooled stem cells for, among other diseases, sickle cell anemia and childhood leukemia are currently being tested in New Orleans and Baton Rouge. Also on the horizon is the exciting prospect of *induced* pluripotent stem cells – developed just last year in the U.S. and in Japan from *non-embryonic* sources – that appear to have as much, if not more promise than those from killed clones or other human embryos.

Fourth ... in the Hippocratic context of ‘do no harm,’ it is medically unethical to expose a subject to an experimental procedure where the risks significantly outweigh the benefits to him or her, or where the subject’s health integrity is significantly compromised. Obtaining oocytes from a woman for cloning research requires significant manipulation of her body, including the use of high doses of hormones, followed by harvesting of the released ova under general anesthesia – and without benefit to her health or well-being. Some of the complications include a *severe ovarian hyperstimulation syndrome*, which may include blood clots, twisting of an ovary to cut off its blood supply (leading to major surgery), as well as kidney malfunction, fluid accumulation in the chest or abdomen, and even death. They also include *possible ovarian cancer*; as well as *possible early infertility*, due to depletion of the finite supply of an individual woman’s oocytes. The risk ratio to the non-benefiting subject is simply too high, and clearly falls into the category of proscribed action for an ethical physician. [See *Linacre Quarterly*, v. 75(2):135-141, May 2008].

Finally ... We need to be acutely aware that scientists are not always ethical in their approach to their work. In addition to a fair number of ‘earth-shaking’ hoaxes – or attempted hoaxes – perpetrated in almost every scientific field over the last century, evidence for human scientific weakness in the area of human cloning has *already* been seen in the unethical practices and deliberate deceptions regarding human cloning perpetrated recently by the disgraced Korean scientist, Huang Woo-Suk, who was formally indicted, with 5 members of his team, for overt fraud and bioethics violations. Scientific curiosity is naturally very strong, and, quite often, unfortunately, is accompanied by a need for notoriety misconstrued as glory. It seems inevitable that an *unethical* scientist would attempt to take a human clone embryo through further development, including implantation into a woman’s womb, and perhaps to the point of birth. Such an immoral and unethical proposition would create further dilemmas: either to abort the developing cloned human – for that is what we would be dealing with – short of birth, or to permit him or her to be born, with whatever developmental anomalies might result from the very nature of clone development. Even worse is something recently projected by British scientists, and for which popular approval is being manufactured: the creation of human-animal hybrid clones or chimeras. Can you imagine a pig-human or cow-human or rat-human hybrid? Unfortunately, although such is the stuff of serious nightmares, not of science fiction, the marketing propaganda is already going on toward this end in Britain!

In conclusion, based on all that I have mentioned, plus the realization that our economy in Louisiana was dramatically strained by 2005’s two natural catastrophes named Katrina and Rita, I would suggest that we do not have a treasury to compete with California’s self-mortgage of three billion dollars of yet-to-be-collected taxpayer funds. As good medical research is still, obviously, a worthwhile goal, I would suggest spending Louisiana’s medical-research-earmarked funds on cleanly ethical, less theoretical, and experientially more promising *adult* and placental/umbilical stem cell research would attract more, ethically motivated doctors and scientists interested in genuine medical progress. In short, ***I urge you to facilitate the cleanly ethical, moral and fiscally responsible path, and to vote in favor of Senator Morrish’s and Representative Henry’s bills.***

Thank you very much for your attention! I will be pleased to answer questions.

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