Bush pledges to veto stem cell bill

Joseph Kay
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The backwardness and ignorance of the Bush administration were again on display this week, as the US president vowed to veto a bill that would expand federal funding of stem cell research.

Bush's announcement underscored his determination to impose the religious views of a small layer of the population—right-wing Christian fundamentalists in alliance with the Catholic hierarchy—on the American people as a whole. Bush seized on the passage of the bill in the Republican-controlled House of Representatives—the result of the defection of a section of Republican congressmen who normally support the administration's anti-abortion agenda—to play to the Christian right lobby that has increasingly become the main political base of the administration and the Republican Party.

Bush appeared at a White House event Tuesday to dramatize his decision to block the bill, a gesture meant to demonstrate that, despite widespread popular revulsion over the Republican-led intervention in the Terri Schiavo case, he has no intention of retreating from his attack on the secularist foundations of the US Constitution.

Since the margin in favor of the House bill fell short of the two-thirds majority needed to override a presidential veto, Bush's intervention is expected to scuttle the measure, even if it is passed by the Senate. This will severely hamper the development of medical technologies that could alleviate the suffering of millions of people and eventually lead to cures for currently fatal diseases.

The Stem Cell Research Enhancement Act would somewhat loosen restrictions put in place by Bush in August 2001 that prohibited federal funding for research on any but a small number of pre-existing stem cell lines. The new act, if signed into law, would allow the government to fund research involving new stem cell lines derived from embryos donated from in vitro fertilization clinics. The act stipulates that the stem cell lines could be used only if they were derived from embryos that would be discarded as medical waste if not used for scientific purposes.

While the bill passed the House by a substantial majority—50 Republicans voted in favor—the vote fell far short of a two-thirds majority. The House overwhelmingly passed a second bill, sponsored by the Pro-Life Congressional Caucus, which encourages the development of research in umbilical cord stem cells. Such research does not involve the extraction of cells from embryos. However, umbilical cord stem cells are not as useful for scientific purposes as embryonic stem cells.

The fact that the bill had the support of a majority of Democrats as well as a significant number of Republicans is an indication of concern within a section of the ruling elite that the US may fall behind in an important new field of medical research. Congressmen, moreover, are well aware that stem cell research is supported by a large majority of the population, including the majority of Republicans, who see in it a potential to ameliorate their own lives or the lives of people they know.

Stem cells can divide into other types of cells. The most versatile stem cells are known as embryonic stem cells—the cells that are present in the first stages of an embryo and later develop into all the cells of the human body.

Other, less flexible stem cells are also present in the human adult. These include stem cells in bone marrow that continue to generate different types of blood cells throughout an individual's life.

Many scientists believe that it may be possible to use stem cells, and, in particular, embryonic stem cells, to regenerate lost or deficient tissues or organs (e.g., nerve cells in patients with Alzheimer's disease, or insulin-producing cells in patients with diabetes). The full development of stem cell therapeutic technology would have truly revolutionary implications for the field of medical science.

It comes as no surprise, therefore, that stem cell research is fiercely opposed by the Christian fundamentalist right, which unerringly condemns all that is progressive in modern science and technology. In reiterating on Tuesday his pledge to veto the act, Bush declared that the bill, passed that day by the House, "would take us across a critical ethical line by creating new incentives for the ongoing destruction of emerging human life." He continued: "Crossing this line would be a great mistake." Earlier, Bush had said he would not allow the use of federal funds to promote a science that "destroys life in order to save life."

Such statements raise a number of questions, none of which are likely to be put to the president by the utterly servile US media or, for that matter, his ostensible opponents in the Democratic Party.

Who is Bush to determine what "ethical line" the American people can or cannot cross? What, after all, does this semi-literate know about the science of stem cells and stem cell research?

That such an individual should presume to impose his own religious conceptions—all of which are associated with the most backward and bigoted varieties of religion—on the population as a whole is indicative of a government that views the core democratic principle of the separation of church and state with absolute contempt.

The entire basis of the administration's opposition to stem cell research is the religious notion that human life is defined by the existence of an immortal soul. The attempt to impose such a view on the people and make it the basis of public policy is thus intrinsically antithetical to the First Amendment injunction against the establishment of religion by the state.

Not wishing to be outdone by the president, House Majority Leader Tom DeLay declared during debate on the bill Monday that a vote for the measure would be a "vote to fund with taxpayer dollars the dismemberment of living, distinct, human beings for purposes of medical experimentation... The best that can be said about embryonic stem cell research is that it is scientific exploration into the potential benefits of killing human beings."

This is a particularly grotesque distortion of the truth, designed to

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invoke images of bloodthirsty scientists ripping the limbs off of little children.

What is really involved in the scientific research that the House bill would allow the federal government to fund? Even to use the term "embryo" to describe the biological entities involved is somewhat misleading, since the scientific definition of the word refers only to the period from two weeks to seven or eight weeks after fertilization. The embryos, or pre-embryos, at fertility clinics are frozen at sometime between two and five days after fertilization. At this point, they consist of no more than a handful of cells, having undergone only a few stages of cell division. Such are the "distinct, human beings" referred to by the learned Mr. DeLay!

In vitro fertilization is used every year by thousands of couples who, for a variety of reasons, have difficulty conceiving children through normal sexual intercourse. The procedure involves extracting multiple eggs from the female, which are fertilized externally with the male's sperm. Many of these fertilized embryos are then injected back into the female, with the expectation that one will lead to a successful pregnancy. Often there is an excess of embryos, which are either donated for scientific purposes, frozen for later use, or disposed of as waste.

Thousands of such embryos are discarded every year, with estimates of the number of "abandoned" embryos stored in fertility clinics ranging as high as 100,000. Stem cells could be extracted from many or all of these, which could then be developed into stem cell lines, i.e., self-replicating groups of stem cells that can be grown and used indefinitely for scientific study.

Without the development of new stem cell lines, federally funded stem cell research in the US has stagnated, as most of the small number of lines approved by the Bush administration in 2001 are poor in quality or corrupted by animal material. Since federal funding provides the bulk of resources for new scientific studies, stem cell research in the US has been severely curtailed.

Contemporaneous with the debate on the House bill, researchers in South Korea announced that they had made an important breakthrough in the science of somatic cell nuclear transfer, also known as therapeutic cloning. The research group, led by Woo Suk Hwang of Seoul National University, reported in the most recent issue of the journal *Science* that it had successfully generated stem cell lines to match the DNA in nine different patients.

The very new procedure that has been developed by the group involves taking an egg cell from a female donor, extracting the cell nucleus (which contains most of the cell's DNA) and implanting the nucleus from another (somatic) cell of a patient. The egg is then allowed to develop along early stages of cell division, until what is known as the blastocyst stage (about five days after fertilization), when it consists of approximately 150 cells. At the blastocyst stage, embryonic stem cells can be extracted, isolated and allowed to divide, forming a new stem cell line.

Nuclear transfer technology holds out the possibility that new embryonic stem cell lines can be manufactured to match the DNA of any particular patient. This dramatically decreases the likelihood that the cells would be rejected if transplanted into the patient for treatment of some disease—one of the principal hurdles that stem cell technology must overcome.

The Korean scientists reported that the cells they generated had the same external characteristics as the patient's own cells, meaning they would not be recognized as foreign cells by the immune system of the patient they were manufactured to match.

This is the first demonstration of the practicality of developing stem cell lines through nuclear transfer. Fifteen months ago, the same team succeeded in isolating the first stem cell line using this technique. However, the team had used an egg and another cell from a single young woman to carry out the procedure, prompting speculation that the same procedure might not be possible for more general patients.

In the new study, the researchers used 11 patients, including both males and females who ranged in age from 2 to 56. Out of these, nine led to successful stem cell lines.

The researchers also succeeded in demonstrating that the new stem cells could be prompted into developing into different cells of the body—thus showing that it is possible to artificially generate, for example, neurons with the same DNA as a patient suffering from Alzheimer's disease.

The potential uses of this technology are virtually unlimited. What is so revolutionary about stem cell research is that it involves a quite novel method of treating illnesses. Rather than treating a symptom or proximate cause (for example, by giving diabetic children insulin shots) it treats a more fundamental cause (for example, by regenerating the cells that produce insulin, or even generating an entire pancreas that could be transplanted into the patient). There are other possible applications as well, including the hope that stem cell techniques could be used to help cancer patients recover from damage to the immune system caused by chemotherapy treatment.

In addition to therapeutic uses, a study of embryonic stem cells would give researchers a better understanding of how the human embryo develops. Among other things, it is thought that this could provide an insight into the workings of different types of genetic diseases.

Bush responded to the advance in South Korea with typical ignorance, saying, "I am very worried about cloning. I worry about a world in which cloning becomes acceptable."

The statement was intended to create confusion about the nature of therapeutic cloning, conflating it with the production of genetically identical human beings. Leon Kass, chairman of the President's Council on Bioethics and an opponent of abortion rights, responded to the advances in South Korea by repeating his call for a complete moratorium on therapeutic cloning.

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