Life Insight

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Congress, White House Take Action on Stem Cell Research

In the weeks surrounding the July 18 Congressional votes on three stem cell bills, news media and politicians who support research involving the destruction of living human embryos resorted to the same old inflated claims about the "miraculous" potential of embryonic stem cells (ESCs) to cure diseases. They also mischaracterized the bills, misrepresented polling data, launched ad hominem attacks against President Bush and people of faith, and displayed an astonishing ignorance of the science of stem cells and even basic biology. In the maelstrom of confusing and deceptive claims, only one good bill was enacted. A second good bill, which the Senate unanimously approved – failed in the House. A very bad bill (earlier approved by the House) won Senate support, and could have become law if not for President Bush's sound decision to veto the measure.

Most of those who spoke in favor of destroying human embryos for their stem cells were probably acting out of ignorance rather than malice, and charity often calls us to overlook others' ignorance. But those in the media and politics have a duty to seek and to assert the truth for the public good. That duty is all the more solemn when, as with embryonic stem cell research, human lives are at stake. While it is true that the human lives in question are no larger than "the dot over the 'i' in embryonic" (according to law professor/pundit Jonathan Turley), it is also true that these embryonic humans – which Turley jeeringly calls "holy dots" – need only nutrition and a safe environment for nine months to emerge as babies entitled to full constitutional protection. There is no *fundamental* difference between a human embryo at 5 days of age and a newborn 9 months later; they differ only in size, location, and degree of development. These same factors – size, location and degree of development – change throughout our lives, but we remain the same human being from conception to death.

There is nothing scientific about claiming that humans are less human because they are small and inarticulate. Nor does moral worth depend on age. And in the World Medical Association's Helsinki Declaration, reaffirmed as recently as 2004, the ethical standard for research involving human subjects is clear: "In medical research on human subjects, considerations related to the well-being of the human subject should take precedence over the interests of science and society." Humans must never be treated as laboratory guinea pigs for the benefit of other humans.

We'll briefly recap the stem cell research bills Congress voted on, their outcome and significance. Then we'll see how the claims made in support of ESC research measure up against reality. (Hint: very poorly).

Fetus Farms, ANT-OAR and the Stem Cell Research Enhancement Act

One bill of the three-bill package presented to the Senate, the Fetus Farming Prohibition Act (S. 3504), bans soliciting and accepting tissue from human fetuses gestated and aborted for research purposes. The bill passed both chambers on unanimous votes and was signed into law by President Bush.

Some members of Congress who support apparently unlimited research using human embryos denounced the bill as nothing more than a political stunt to give "cover" for the President when he vetoes the bill they support (H. 810). They confidently assert that American scientists would NEVER gestate human fetuses to use their tissues. Really? A law in New Jersey purposely permits such action, and the biotech industry has lobbied in favor of similar laws in many other states, including Illinois, Maryland, New York, Pennsylvania, Texas, Vermont and Washington.

Why does the biotech industry want the legal right to gestate humans to the fetal stage for research? In experiments using embryonic stem cells from genetically matched clones of animal subjects, scientists discovered that the ESCs did not work properly when returned to the donor animal. They were genetically unstable, difficult to control, likely to form tumors and even triggered immune system rejection. However, by gestating the cloned animals to the fetal stage and harvesting tissue from whatever fetal organ is sought to "cure" the donor animal's condition, researchers did achieve clinical success in at least four studies in mammals. More information on this research is available at http://www.usccb.org/prolife/issues/bioethic/cloning/farmfact31805.htm.

Note that the pluripotency of ESCs, that is, their ability to develop into all cell types found in the human body, is touted ad nauseam by supporters of ESC research. But this versatility may also be one reason these ESCs cannot be safely used in therapies, unless society is willing to tolerate "fetus farms" where cloned twins of patients grow into fetuses before being killed for their organs. The question is: Why resort to this barbaric and

convoluted method of obtaining patient-matched adult stem cells (ASCs) from the cloned fetus's tissues? Taking ASCs directly from the patient, developing them and injecting them back into the patient is already achieving therapeutic successes, some of which can only be described as spectacular.

The Alternative Pluripotent Stem Cell Therapies Enhancement Act (S. 2754) would authorize federally funded research to obtain pluripotent stem cells without creating, destroying or knowingly harming a human embryo or fetus. One technique that could have benefited from this funding is called ANT/OAR (Altered Nuclear Transfer/ Oocyte Assisted Reprogramming). Because of the immorality (or to some, simply ethical concern) of destroying human embryos to obtain their pluripotent stem cells, some scientists are looking for ways to create pluripotent cells without destroying embryos. Markus Grompe (Oregon Health & Science University), Rudolf Jaenisch (MIT), and Kevin Eggan (Harvard) are just three of the American scientists working on this. Eggan's technique is called "cell fusion." He can "create new, versatile, genetically controlled stem cell lines by fusing existing stem cells and ordinary DNA," as Princeton professor Robert George and Eric Cohen (fellow, Ethics and Public Policy Center) explained in a recent interview. Researchers in Japan say they have found a way to accomplish the same thing without even using an existing stem cell line. In addition, in recent years, over a dozen articles have been published in major science journals reporting pluripotent capacities in some adult stem cells – e.g., those found in umbilical cord blood, bone marrow and placenta. These efforts should be encouraged with federal funds, instead of diverting finite research funds into unethical and speculative research in which human embryos are destroyed.

The day after the Senate voted unanimously to approve funding such research, a few members of the House conducted a disinformation campaign aimed at defeating this pro-research bill. Apparently they're not really in favor of "all avenues of stem cell research" as they are wont to say when fighting ethical restrictions; they seemed to say they are only willing to back the embryo-killing type.

Oddly, those House members charge that "alternative methods described in the legislation are highly speculative and are either simply ideas or unproven in a human model." To begin with, the bill describes no "alternative methods"; it simply sets goals for research while foreclosing any avenue that could result in harm to human embryos. The objection that alternative methods of developing pluripotent stem cells are unproven in a human model is specious; the same can be said of embryonic stem cells which – 25 years after they were first isolated in mice – are still considered unsafe for research on human subjects.

This unfortunate campaign led to the bill's defeat in the House, where a two-thirds majority was needed for passage because the House took it up under Suspension of the Rules. Nevertheless, President Bush directed the Secretary of Health and Human Services and the Director of the National Institutes of Health "to use all the tools at their disposal to aid the research for stem cell techniques that advance promising medical science in an ethical and morally responsible way."

The Stem Cell Research Enhancement Act (H.R. 810) would have provided federal funds to encourage the killing of so-called "leftover" or "spare" embryos in fertility clinics so their embryonic stem cells can be used in research. The bill would overturn the policy announced by President Bush on August 9, 2001: federal funds support ESC research using only stem cell lines created prior to that date, so that no embryos thereafter can be destroyed for use in federally-funded research. The House passed H.R. 810 last year, and the Senate approved it on July 18 by a vote of 63-37. President Bush vetoed the measure, stating: "Each of these human embryos is a unique human life with inherent dignity and matchless value." Referring to children adopted as "leftover" IVF embryos, who were present at the veto ceremony with their adoptive parents, he continued:

"These boys and girls are not spare parts. They remind us of what is lost when embryos are destroyed in the name of research. They remind us that we all begin our lives as a small collection of cells. And they remind us that in our zeal for new treatments and cures, America must never abandon our fundamental values."

The Critics Attack

The President's veto was a principled decision, consistent with his moral views and past conduct. Critics attacked him with equal parts vitriol and exaggeration. Representative Patrick Kennedy (D-RI) said Bush's veto was unforgivable and a "veto against life."

Rep. Ed Markey (D-Mass) called the veto "an historic failure for the Bush presidency. … [which] will be remembered as a Luddite Moment in American history, where fear triumphed over hope and ideology triumphed over science. … With the stroke of his pen, the President has vetoed hope and crushed the aspirations of average American families once again."

Senator Tom Harkin (D-IA) called the veto "a shameful display of cruelty and hypocrisy" which "vetoed the hopes of millions of suffering Americans. The President is closing his heart and his mind to this fact, and putting himself in the company of people like Cardinal …Bellarmino, who told Galileo it was heresy to claim that the Earth revolved around the sun. …"

Sen. Dianne Feinstein (D-CA) claimed the veto "dealt a crushing blow to millions of Americans."

Sen. Harry Reid (D-NV) described the blow as "devastating" and "dashing the hopes of many people in a matter of minutes."

Sen. Arlen Specter (R-PA) regretted the veto and warned that although the lives of frozen IVF embryos "will not begin" (overlooking the fact that they are already 5-7 days old!), "many other lives will end if we

do not use all the scientific resources available." Could he possibly be referring to human embryos as scientific resources? The thought is chilling.

Sen. Edward Kennedy (D-Mass) vowed to continue the fight "until we end these cruel restrictions on lifesaving research that are denying hope to millions of American patients and their families."

An editorial in *The Oregonian* accused the president of "delivering another deliberate blow to medical progress. … No lives – not one – will be saved by the president's veto. On the contrary, the president's action today is certain to sentence more Americans to the agony and death of diseases such as Parkinson's, Lou Gehrig's and diabetes." This view pointedly ignored the embryonic lives saved from a federal assembly line of destruction, as well as the many patients who may benefit from the government's focus on stem cell treatments that actually *do* save lives.

It's Not the Funds that Are Lacking for ESC Research, It's the Results

From some of these statements, you'd think the president had just ordered the destruction of every laboratory and medical center in the country! But he didn't ban ESC research, nor did he discontinue funding of research using stem cell lines created before 8/9/01. To the contrary, he's the only president to provide funding for human ESC research -- $38 million last year and counting. NIH "has sent more than 700 shipments of cells to researchers, and has thousands more available on request," according to a recent White House statement called "Setting the Record Straight." The statement continues: "85 percent of all the human embryonic stem cell science done in the world has been done with the lines now approved for funding by the NIH." This is even true in other countries, most of which have no *legal* policy discouraging use of other cell lines.

The president's allegedly cruel, Luddite, hope-crushing and agonizing-death-sentencing action was simply this: To draw the line at using taxpayers' money to destroy more human embryos in research. And let us not forget that private and state money, now flowing into embryonic stem cell research, is unaffected by his action.

Following the President's veto – and while still awaiting a final judicial ruling on the constitutionality of the $3 billion bond approved in 2004 by California voters to support human ESC research – Governor Schwarzenegger ordered a loan of $150 million to the state's stem cell research institute.

Recently Illinois Governor Rod Blagojevich again side-stepped the state legislature and recently ordered another $5 million in funding for stem cell research, on top of the $10 million he ordered a year ago. Connecticut has approved a 10-year, $100 million funding proposal for stem cell research and New Jersey has spent about $25 million in the past two years on stem cell research. Funds in all four states are available for embryonic as well as adult stem cell research.

A July 19 article on the *San Francisco Chronicle* 's website (SFGate.com) by Michael Tanner points to "at least 11 private stem-cell research centers at universities and medical centers across the country" and "more than 60 U.S. and international companies … pursuing some form of research or therapeutic product development involving stem cells." In 2005 alone, the stem-cell industry received "$102 million in venture capital funding." Californians Ray Dolby and Bill Gross have donated $16 million to UC-San Francisco and $10 million to UC-Irvine respectively for human embryonic stem-cell research.

Harvard made headlines in June with its announcement that the Harvard Stem Cell Institute will proceed with human embryonic stem cell research and human cloning. Scientists had already created 31 stem cell lines "using left-over frozen embryos donated by couples who went through in vitro fertilization" (Harvard University *Gazette*, June 6, 2006). Researchers Douglas Melton and Kevin Eggan, we're told, will use their first "nuclear transfer experiments" to "attempt to create diabetes specific stem cells by removing the nuclei from skin cells taken from diabetic volunteers … and inserting them into donor eggs from which the nuclei have been removed." Their goal is that of "eventually creating lines of cells than can, for instance, produce insulin-making islet cells in the pancreas, which are depleted or absent in diabetics." To which we can only ask why, Why take this immoral, convoluted and highly speculative approach when promising adult cell therapies that REVERSE diabetes are about to move into human use. According to Dr. David Prentice: "Using spleen cells, one group was able to achieve permanent disease reversal [in animal trials] and now has approval from the US Food and Drug Administration to begin human trials for juvenile diabetes" ("Current Science on Regenerative Medicine with Stem Cells," *Journal of Investigative Medicine* 54:1, 33-37, Jan. 2006).

The third prominent Harvard Stem Cell Institute researcher, George Daley (elsewhere described as a "leading expert in blood diseases") explained his plans to the press: "We plan to take skin cells from a patient with a genetic disease, like sickle cell anemia or any one of more than 40 bone marrow disorders, and reprogram the skin cell back to its embryonic state. We can then study the disease using these cells, correct the genetic defects and coax the repaired cells to become normal blood cells. Our ultimate goal is to return the repaired cells to the patients."

Can Dr. Daley be unaware that doctors – using ADULT, not embryonic, stem cells – have been CURING sickle cell anemia for several years, using stem cells from bone marrow and umbilical cord blood?

The scoreboard currently reads 72-0 (see www.stemcellresearch.org). That score would constitute a rout in any sport. "72" is the current number of

treatments using adult stem cells, reported in peer-reviewed science journals, which have produced significant improvement or even complete cures in human clinical trials. Zero is the number of successful trials in human patients using embryonic stem cells.

How's this for a score: 1,181 FDA-approved clinical trials using adult stem cells to zero human trials using embryonic stem cells? ESCs have been used in animal trials for 25 years – and after 25 years and many thousands of dead mice and rats, ESCs have not been shown safe enough for trials in human subjects, mainly because of their propensity to form tumors and grow uncontrollably.

Then there is the Miracle of the Amazing Rats at Johns Hopkins University. Prior to Congressional action on the stem cell research bills – in fact, the very day that humans who had benefited immensely from adult stem cell therapies spoke at a Congressional press briefing – news of an ESC research "breakthrough" broke far and wide across TV, radio and print media involving formerly paralyzed rats at Johns Hopkins treated with motor neurons developed from embryonic stem cells. Rarely has such coverage been given a story that doesn't involve Bennifer, Brangelina or Britney Spears. A Google search of +"Johns Hopkins" and +rats produces 1,020,000 sites!

Researchers Douglas Kerr and Deepa Deshpande described the experiment as a "potential therapeutic intervention for humans with paralysis." By the evening news reports, the rats had all but cast down their crutches and danced with Hollywood stars. It's surprising they didn't get their own made-for-TV movie or multi-film contract with Disney. The hype and predictions were rosy, but the reality was something else.

Researchers transplanted the ESC derivatives into the spinal cords of 120 paralyzed rats. A subgroup of 15 rats was given a "deluxe stem cell package" which included chemicals to help the new motor neurons survive – including factors derived from ADULT STEM CELLS – anti-rejection drugs, and other chemicals which directed the ESC motor neurons to the damaged hind paw. After 6 months, only 11 of the 15 rats in the subgroup could put weight on the paralyzed hind paw or step off from that paw. The other 109 were failures. Note that "even in the key test group, paralysis recovery was only partial; the rats couldn't move the hind paw that hadn't been targeted by the stem cells" (www.webmd.com/content/article/124/115409.htm).

This is hardly a breakthrough, especially compared to the work of Dr. Carlos Lima of Lisbon, Portugal who has treated over 30 paralyzed human patients with stem cell transplants from their own olfactory mucosa. Some are now walking with braces. Many have regained sensation and bladder control. Dr. Lima recently published clinical results from seven early patients, all of whom experienced improvement in sensation (and all but one in "motor scores") (Lima, C. et al., "Olfactory Mucosa Autografts in Human Spinal Cord Injury: A Pilot Clinical Study," *Journal of Spinal Cord Medicine*, 2006; 29:191-203).

Visit www.usccb.org/prolife/issues/bioethic/index.htm and www.stemcellresearch.org regularly for updates on the weekly therapeutic gains made with adult stem cells and thorough debunkings of ESC hype.

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