Mr. HARKIN. Mr. President, I ask unanimous consent that the order for the quorum call be rescinded.

The ACTING PRESIDENT pro tempore. Without objection, it is so ordered.

Mr. BROWNBACK. Mr. President, I ask unanimous consent that Senator STEVENS be added as a cosponsor of S. 5.

The ACTING PRESIDENT pro tempore. Without objection, it is so ordered.

Mr. HARKIN. I suggest the absence of a quorum.

The ACTING PRESIDENT pro tempore. The clerk will call the roll.

The assistant legislative clerk proceeded to call the roll.

Mr. HARKIN. Mr. President, I ask unanimous consent that Senator STEVENS be added as a cosponsor of S. 5.

Mr. ISAKSON. Mr. President, I ask unanimous consent that the Senate be in recess and reconvene at 2:15 p.m.

The ACTING PRESIDENT pro tempore. Without objection, it is so ordered.

Mr. BROWNBACK. I believe under the previous agreement I have 3 minutes at this time, may I inquire of the Chair?

Mr. HARKIN. Mr. President, I ask unanimous consent that the Senate now stand in recess until the hour of 2:15 p.m.

The PRESIDING OFFICER. The Senate, at 12:23 p.m., adjourned. Without objection, it is so ordered.

RECESS

Mr. HARKIN. Mr. President, I ask unanimous consent that the Senate now stand in recess until the hour of 2:15 p.m.

The PRESIDING OFFICER. Under the previous order, the Senate will stand in recess until the hour of 2:15 p.m.

Thereupon, the Senate, at 12:23 p.m., recessed until 2:15 p.m. and reassembled when called to order by the Acting President pro tempore.

STEM CELL RESEARCH ENHANCEMENT ACT OF 2007

HOPE OFFERED THROUGH PRINCIPLED AND ETHICAL STEM CELL RESEARCH ACT—Continued

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STEM CELL RESEARCH ENHANCEMENT ACT OF 2007

HOPE OFFERED THROUGH PRINCIPLED AND ETHICAL STEM CELL RESEARCH ACT—Continued

Mr. ISAKSON. Mr. President, I ask unanimous consent that Senator STEVENS be added as a cosponsor of S. 5.
I was born with sickle cell anemia. Sickle cell is a very bad disease. I had a stroke when I was 5 years old. Things got even worse after that. My life has been full of pain, blood transfusions for 2 weeks, and more time in the hospital than I can count.

The year before I had my stem cell transplant I was in the hospital 13 times. I never was able to have a normal life. My stem cell transplant was not easy, but I thank God that I live now. I will graduate from high school and I want to become a chef because I love to cook. I think I'm pretty good at it. Sickness is part of my past. One year after my transplant I was pronounced remitted. Stem cells saved my life.

Many have heard of Keone’s amazing story on previous occasions, and the effectiveness of cord blood stem cell research and funding of collecting this fluid some people are talking about, as well as the placenta, the amniotic fluid; Amniotic fluid-derived stem cells can be coaxed to become muscle, bone, fat, blood vessels, nerves, and liver cells. It might be capable of repairing damaged tissue resulting from conditions such as cord injuries, diabetes, Alzheimer’s disease, and stroke.

My reason for pointing this out is this is one we can agree upon. This is one we can move forward with. The amniotic fluid is discarded after the pregnancy, is not collected. It can be collected. It could be collected. We should see about collecting this and move forward on these treatments, and some of the $613 million we spent on embryonic stem cell research could go into this field, and likely you are going to be producing results very quickly. If the amniotic fluid some people are talking about, as well as the placenta, being able to collect stem cells from the placenta and other rich sources of stem cells—take some of this $613 million that has produced zero human clinical trials to date and put it into fields that are producing or have a high potential here in a near-term basis to be able to produce treatments or possibly cures—ethical problems, no ethical issues; this would be clearly a key one to go forward with.

I also want to further develop the thought about embryonic stem cells leading inevitably to human cloning; I want to put out some numbers on this, follow with the discussion on this. People certainly will understand it. If we are to collect and develop additional embryonic stem cell lines, we get these embryos from IVF clinics around the country, and you start these lines, the embryo will not take genetic material. That genetic material will not match anybody, because it is unique genetic material, so as soon as it is implanted into somebody else, there is going to be a rejection by the body taking place. That individual is going to have to be on immunosuppressant drugs for the remainder of their life, because the body is rejecting this foreign material.

Therefore, the answer is to move forward, saying, well, okay, we have developed this human embryonic stem cell work, it works, but we are getting the rejection taking place. Therefore, we are going to need to do human cloning, but it is not going to be real human cloning. It is going to be SCNT—somatic cell nuclear transfer, that is the scientific name for human cloning—and we are not going to clone, because we will create the clone, we will harvest women’s eggs, we will then create the clone, and we are not going to allow the implantation of the clone. Therefore, we can say it is not cloning because it is not going to result in a full-scale child, by all definitions. We are going to clone a person, we are going to start human life, then we are going to purposefully kill it for its stem cells, that genetic match.

That is the process this will inevitably lead to if we are successful in and this science that is highly, highly, highly, highly, doubtful, given the tumor formation. But let’s say we are successful in the next couple of decades, we can develop the science, the tumor issues somehow will be able to deal with, other that period of time, we get over that hurdle, we can develop it.

We have an immunosuppressant problem, so therefore now we have got to move into human cloning. Where do we get those human clones? We get them from people. We have to have an egg we get from women. We will get the genetic material from the person who needs the embryonic stem cells; that is not a problem. But we are going to have to harvest eggs from women. I hope people are doing more of this, because it is an exciting breakthrough of news.

I want to go through some of those numbers from different individuals who have looked and thought about this. I would hope my colleagues, even if they are on the other side of this, would think about where does this take us, which is a real question about the idea of doing massive amounts of human cloning, massive amounts of harvesting of women’s eggs to do human cloning that is going to take place. Because you do not get a one-for-one match, you get the one human egg, you are not going to get it to necessarily take as a human clone, it is going to take a number of attempts to take place—I believe the numbers I have heard are somewhere around 200 eggs are necessary to get one clone to take.

Now, maybe we are able to develop that technology better into the future. But if we develop this line, you are having to go look at the need for hundreds of thousands, if not millions, of embryos needed to pursue this speculative embryonic stem cell research. And for this application, you are going to need millions of eggs and millions of cloning—call them clones—SCNT products, that is the scientific name for human clones. SCNT clones. These embryos are going to have to be developed that way to obtain sufficient embryos for this speculative research science, that will turn to human cloning, which will exploit women for their eggs, because where are we going to get hundreds of thousands of eggs? Are we going to have women in this country be willing to go through this process, a difficult process? It can be damaging to their bodies. Maybe we will get some to do that. Probably more likely we will be going through commercial recruiters and it is unlikely they will give them, it is more likely they will be paid for those eggs to take place, and to go through this difficult, painful, and potentially harmful process.

Is it the route we want to go, or would we be wiser to work with amniotic fluid, the cord blood, the placenta collection that is taking place,
and take some of this money and develop that field? I think the route forward is pretty clear.

I also want to discuss the idea we were talking about, a disposable medical infrastructure, the frozen embryos. I want to see a chart of some of those embryos we have here, and talk about this from a standpoint. I ask my colleagues to think about this for a second.

I believe everybody is wrestling with the notion that the human embryo is alive. We all agree it is alive. Some of us will give it the status of a life; others would not. Others would call it a potential for human life. I do not believe that is the scientific term, but some would call it a potential for human life.

It is a human embryo. Here is a picture of a human embryo. That is actually a child who was adopted as a frozen embryo and implanted and grew. This is, of course, what we are seeing as a physical entity. It is human. It is in the human species. We know that. All of us are having some level of difficulty with using taxpayer funding to destroy that young human life. Well, why are we having that level of difficulty with something that looks like this? I think it is because in our own being, and the natural law that resides in each of us, we believe in dignity for every human being, period. We believe everybody who is here, who is listening, who is thinking about what this looks like, why are we having that level of difficulty with something that looks like this? I think it is because in our own being, and the natural law that resides in each of us, we believe in dignity for every human being, period.

We believe everybody who is here, who is listening, who is thinking about what this looks like, why are we having that level of difficulty with something that looks like this? I think it is because in our own being, and the natural law that resides in each of us, we believe in dignity for every human being, period.

Well, why? Because the person is going to die. They were convicted of a heinous crime. Why not harvest their organs? If they decide to volunteer to have their organs, if they decide to volunteer to have their organs. Why not harvest their organs? If they decide to volunteer to have their organs, if they decide to volunteer to have their organs. Why not harvest their organs? If they decide to volunteer to have their organs. Why not harvest their organs? If they decide to volunteer to have their organs.

Well, the child at this stage starts to look like us, but it is pretty small. You can say it doesn't look much like us. At that point, do we feel comfortable with doing it in the early phase, or are we comfortable with doing it in an earlier phase, or when Hannah is born, can we research on her then? She cannot do a whole lot at that point and find herself. If we leave her by herself, she will die. She can't care for herself at that point in time. So why not research on her at that point? Well, no, because she is a dignified human. So, okay, she is here. At what point? Here? Probably so. At that point? Here?

Well, I don't think so. I agree she is human. I agree she is alive, but I am not willing to give her any dignity status as a human.

What are we dealing with? Some would say place, placement. If it is placed in a womb, it is. If it is not in the womb, it is not. Location has not determined personhood in our past. I would suggest it doesn't determine it in our future or presently. There is a natural revulsion toward the idea of taking life from somebody for their body parts for somebody else, and here we are having difficulty saying, well, yes, the possibilities are so promising we are going to go ahead and do it anyway.

I can deal with those. Some would say, where is the child? What is going to happen? We are going to dispose of them, right? We are going to throw them away, right? We are going to do it because we are having some level of difficulty with the death penalty—why wouldn't we go ahead and harvest the organs? We are going to throw them away, right? We are going to dispose of them, right? We are going to do it because we are having some level of difficulty with the death penalty—why wouldn't we go ahead and harvest the organs? We are going to throw them away, right? We are going to dispose of them, right? We are going to do it because we are having some level of difficulty with the death penalty—why wouldn't we go ahead and harvest the organs? We are going to throw them away, right? We are going to dispose of them, right?

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Well, I don't think so. I agree she is human. I agree she is alive, but I am not willing to give her any dignity status as a human.

This fight is critical, because embryonic stem cell research could hold the key to curing diseases that no other research could cure. As best we know now, an embryonic stem cell is unique in nature. It alone can develop into any type of cell in the body. Embryonic stem cells—and embryonic stem cells alone—can become a nerve cell, a muscle cell, or any of the more than
200 types of cells in the body. The promise of this unique ability is clear: If scientists could replace diseased cells with healthy cells created from embryonic stem cells, it could save an untold number of lives.

Parkinson's disease is a motor system disorder that results from a loss of brain cells that produce dopamine. Individuals with Parkinson's disease often experience a trembling in the hands, arms, or face, and impaired balance and coordination. As the disease develops, it can become difficult to walk, talk, and complete other basic tasks. With research, scientists may be able to coax embryonic stem cells into becoming healthy neurons that produce the desperately-needed dopamine. If those neurons can be successfully transplanted into a patient with Parkinson's disease, that person could be cured.

The list of diseases that could benefit from stem cell research is long—Alzheimer's, Parkinson's, juvenile diabetes, spinal cord injuries, and many others. Stem cell research could offer the millions of Americans suffering from these diseases not just hope but cures.

Support for stem cell research under- stand that these breakthroughs will not be easy or inevitable. But the President's policy makes them far less likely. On August 21, 2001, President Bush issued an executive order that the Federal Government would only fund embryonic stem cell research on stem cell lines created before that date. "Stem cell line" is the name given to constantly-dividing cells that continue to be derived from a single embryo.

Most independent experts estimated at the time of the President's executive order that about 80 stem cell lines—a woefully inadequate amount—would be available for Federal research. Most of those lines were later determined to be polluting and unusable, leaving only about 20 stem cell lines available.

Last month, the Director of the Na- tional Institutes of Health, Dr. Elias Zerhouni was asked during testimony before the Senate Appropriations Sub-committee on Labor, Health and Human Services, and Education wheth- er "scientists have a better chance of finding new cures [and] new interventions for diseases if the current restriction on embryonic stem cell research were lifted?" Dr. Zerhouni replied that "these cell lines will not be sufficient to do all the research we need to do . . . these cell lines have exhibited instabil- ity from the genetic standpoint and it's not possible for me to see how we can continue the momentum of science if we have cells that are not just stable but also with the cell lines that we have currently at NIH that can be funded. It is clear today that American science would be better served and the nation would be better served if we let our scientists have access to more cell lines." In issuing his executive order and in vetoing the bill we passed last year, the President did not question the sci-
the world. We have essentially chosen four colors or four categories of policies I am trying to focus on. First, we have the countries in yellow which have not adopted stem cell policies. You can see those countries are fairly extensive. Next to those are those that have adopted stem cell policies. The United States is part of that group. Those are the countries in gray on this world map. The United States is among the most restrictive of those countries that are in gray, but we do have other countries with policies that are in that category as well.

Third are the countries in light brown which allow the creation of stem cell lines from leftover embryos in IVF clinics. We can see those light-brown countries. Passing S. 5 would move the United States into that group of countries, such as France and Canada and Brazil.

The final group depicted on this world map is those that are shaded in dark brown: these countries allow other laboratory techniques to be used to create embryonic stem cell lines. You will notice that many of these countries have very strong scientific research programs. I particularly mention the United Kingdom, India and China as part of that. Scientists in these countries, other than the United States, are free to use the type of stem cells best suited to their research, whether they are adult stem cells or embryonic stem cells created before 2001 or embryonic stem cells created after 2001. In fact, many countries have been promoting stem cell research because they see this as an opportunity to get ahead in this field during a time when U.S. scientists are restricted to less useful stem cell lines.

For example, the United Kingdom has established a world stem cell bank to collect, characterize, and distribute embryonic stem cell lines to researchers across the world. The United Kingdom has also developed a comprehensive national regulatory system that requires researchers to follow strict ethical guidelines. While these regulations may slow research to some extent, embryonic research is an area that merits extra care and transparency and oversight. We should not relinquish our duty to uphold high ethical research standards to other countries or to individual States within this country or to the market more generally.

I ask unanimous consent for an additional 2 minutes.

The ACTING PRESIDENT pro tempore. Without objection, it is so ordered. The Senator from Georgia.

Mr. BINGAMAN. Many other countries, including Singapore, Korea, and Australia, also have federally funded centers for embryonic stem cells. However, it will be difficult for the United States to capitalize on the research advances made in these other countries since federally funded scientists in the United States are restricted from collaborating with foreign scientists who use the stem cell lines that were generated after 2001.

Furthermore, we can’t leave this important field of science to the private sector alone. We have a long history of bipartisan support for basic science research in this country precisely because legislation is so important not because legislation is important but because it opens more opportunity to do stem cell research. What does that mean? It means that currently the existing law under President Bush restricts stem cell research to adult cells, to some vague 21 lines that are becoming tired and toxic. But under our legislation, it would open it up to embryonic stem cell research where much of the real innovation is currently happening in the United States, and also to relieve some of the restrictions currently in place in our own policy. Furthermore, most cell-based therapies, including bone marrow stem cell transplants, were first developed in academic research hospitals and have never been widely utilized. This means Federal funding is even more important for cell-based therapies such as stem cell transplants than it is for other types of treatments.

Mr. President, I urge my colleagues to support S. 5. It is an important step to keep the United States a world leader in the field of biomedical research, and it will give hope to many of our citizens for the treatments they desperately need.

Mr. President, I yield the floor.

The PRESIDING OFFICER (Mr. SANDERS). The Senator from Maryland.

Ms. MIKULSKI. Mr. President, I rise to speak with some great urgency about the need for the Stem Cell Research Enhancement Act of 2007, S. 5.

We must pass this bill because if we do not, the American people will continue to suffer, our brilliant researchers will be discouraged and think about leaving the field of scientific research and, No. 3, we are also outsourcing our intellectual capital because other research is going overseas.

We have to have a sense of urgency because cell research is a long time in the making. We cannot have science on demand or scientists on demand. If we do not act now, we are going to be discouraging very important research and wonderful young people from going into this field.

Every year we wait, we fall 3 years behind in our research—another time where a patient might have been saved, a family might not have had to watch a loved one suffer, and also where we would not have to watch our great ideas going somewhere else.

Stem cell research is very important to the American people. It is very important to Maryland. It is very important to me. I am a firm, clear, unashamed supporter of expanded stem cell research and, at the same time, that this research be conducted under the strictest bioethical standards. That is why I like S. 5. This legislation is based on sound cellular biology science and also good, sound ethical principles.

The legislation is so important not because legislation is important but because it opens more opportunity to do stem cell research. What does that do? Well, I want you, Dr. Kerr, to be able to tell me what you are doing now through stem cells—to not only regenerate new kinds of brain cells to give people a cognitive or functioning stretch out. Think about the impact on families, but also think about the impact on our nursing home beds and costs.

Think about research in juvenile diabetes, type 1 diabetes, where little children, every day—whether they are 5 or 9 or 11—have to be testing their blood sugar. They cannot eat the way other kids can. They have to pace themselves when they play ball or do other things so they do not induce hypoglycemia. As they get older and their cells get more tired, they fear they could lose a kidney or lose their sight.

If we could find more breakthroughs in juvenile diabetes, we would give them their childhood back. We would give them a life that has a future full of promise. That is why we are fighting here. It is not about ideology. It is not about party. It is about our American people. And what we invent here could help save lives everywhere.

Yesterday, I went to Johns Hopkins University to discuss this stem cell research and I want to talk about Dr. Doug Kerr, who is working now through stem cells with paralyzed rats—to not only regenerate the spinal cord but to have those cells connect to muscle so not only for whether you are regenerating spinal cords that have been injured or severed, but also to connect the muscle so you could walk again. That was the dream of Christopher Reeve. But that is the dream of every paraplegic right now—whether it has come from a diving accident, if you are an athlete, or whether you have been injured in Iraq or Afghanistan.

Don’t we want Dr. Kerr to do what he is doing now and to be able to extend that? But they do not get the clinical
trials because they are restricted in the types of cells they can use.

So we saw a cornucopia, again, of opportunity there. But I said to the docs at Hopkins: Why can't we do this with private or State funds? They said: Senator Mikulski, you have to have a national framework. First, that is where you get your bioethical guidelines. It is done not while there is one set of guidelines for States that can afford research and that there is another set of guidelines for those States that can't. Also, by putting the different funds in one philanthropic funds to be able to do this.

Private funds function like venture capital. But at the same time, what happens with States? Maryland is now in a bidding war with our $25 million against California. We have scientists who are leaving Maryland to go to California. Hats off to them. But also, then, we have scientists in Maryland and California who are leaving the country because they can do work in Sweden or Singapore that they cannot do in their own country. These are American scientists who want to do their own work in their own country. But we are driving them out with our narrow and ideological sense of politics.

So we cannot do this with State funds, and we cannot do it with private funds. As I said, right now we are outsourcing this to China, to Singapore, to Australia, to Germany. I am not saying there are good countries or not good countries, but what are we doing? We are losing our intellectual capital. We are also losing our young scientists.

Yesterday, I talked to a young doctor. I knew him as a resident. His wife was a friend of a friend of mine. I knew him through his residency. Now he is a young doctor, married, with three children. His whole field is diabetes. He is so eager to do this juvenile diabetic research. So scientists have... our young scientist. Also, with the very shackling of what goes on now in these so-called Bush lines, with these ideological guidelines, they cannot do the research. He has to think hard about whether he wants to continue his life dream of finding a cure for juvenile diabetes.

You know, this man has devoted his life to getting ready to do this, and now his own Government is stopping him—not because he is not smart, not because we do not have the will, but because we have too much ideology and too little money in the wallet.

We have a President who has given us a framework where research has one hand behind its back. Scientists have been prohibited from doing new stem cell research.

Six years ago, the President restricted Federal funds for embryonic stem cell research. What did it do? It created an unregulated atmosphere. The result was federally funded stem cell research was halted almost entirely. Stem cell research was done by private entities. A private entity has no Federal bioethical standards.

Mr. President, like you, I am a sunshine person. I believe you should have research funded in the sunshine. That is where you have compliance with bioethical standards. That is why we need to have the kind of national framework where everybody goes by the same rules, at the same time, in the same way. Without national standards, it is the well-heeled, outside of the public eye, with no national scrutiny. This is where I fear dark and ghoulish things can occur.

I acknowledge the validity of some of the concerns raised by colleagues. But as long as you shove it underground, as long as you shove it behind closed doors, then you are going to get either faulty research or very bad ethics.

I believe the legislation pending will remove some of these restrictions by the President. It will provide the ethical and medical framework we need for federally funded stem cell research. It will create strong ethical guidelines. Most of all, it will ensure that we now have regulations that are stronger and more expanded stem cell research so scientists will now have access to new, fresh stem cell lines which they now do not.

What does it mean? Well, I can tell you what it means. It means for the United States of America we have heard what the voters said in November. They said: Change the direction of the country. Change the priorities. Come back home, America. Remember what America is. We are the land of the free, the home of the brave, and of discovery. Let's go for it.

Mr. President, I yield the floor.

THE PRESIDING OFFICER. The Senator from Iowa.

Mr. HARKIN. Mr. President, I thank the Senator from Maryland for her very eloquent statement and for her strong support of hope and health and healing, as encompassed in S. 5.

Mr. President, while I wait the arrival of our next speaker, I want to point out that time and time again I have heard those who are opposed to S. 5 use the phrase that they are opposed to funds being used for the destruction of embryos. Earlier today I had corrected one who said that. I said: Show me in the bill where it is. Well, then other Senators—the Senator from Kansas and others—have gotten up and talked about not using money for the destruction of embryos.

I challenge anyone, any Senator to come and take S. 5 and show me anywhere in there where there is one dime used for the destruction of embryos. It is not there. I get the feeling that a misrepresentation repeated and repeated somehow seems to take hold among some people anyway: Well, there must be money for the destruction of embryos in this bill. There is not. That is covered by the Dickey-Wicker amendment which pertains to appropriations bills, and I am an appropriator, and that is covered there. So none of this money is used for the destruction of an embryo. All it is used for is for the research on stem cells that have been derived, which is what is being done today, by by those that those derivations can come from private entities or State sponsored or wherever, maybe some international, maybe foreign countries—and wherever. But none of the money here in our bill, S. 5, can be used for the destruction of embryos in any period. If anyone says so, please come and show us where it is in the bill that says that.

Mr. President, I see the distinguished Senator from Missouri is here. I yield 15 minutes to the Senator from Missouri.

Mrs. McCASKILL. Mr. President, I rise to speak today on a matter of significant medical, scientific, and personal importance. Today, my colleagues and I have the opportunity to support research which will result in lifesaving cures, research which alleviates pain and suffering, and research which improves the quality of life of millions of Americans. I am speaking about research which will provide us with some of the most significant medical advances we have ever seen in the history of mankind.

Of course, I am speaking in the strongest support of S. 5, the Stem Cell Research Enhancement Act. I thank my distinguished colleagues, Senators HARKIN, HATCH, KENNEDY, and SPECTER, for the leadership they have offered on embryonic stem cell research legislation over the last several years.

In my short time in the Senate, I have had the occasion to speak and vote on numerous matters of significant national importance, but not every day do we have the opportunity to vote to heal the sick. Today, we have the chance to set aside partisan politics and support legislation that aims to improve the quality of life for tens of millions of Americans. It is a noble cause and one that reminds me of how proud I am to represent Missouri in the Senate.

Who would oppose such a cause, and what would their reasons be for such opposition? The opponents of embryonic stem cell research attack it on multiple fronts—public opinion, scientific facts, and moral grounds—and the war against embryonic stem cell research is fought in our communities, in the media, and today in this Congress. Unfortunately, the casualties are the medical researchers and doctors who want nothing more than to cure diseases. That is all they want. They have no grand scheme. There is no big money here. We are talking about curing diseases. Ultimately, the casualties are the patients who would benefit from those cures.

My greatest disappointment in this debate has been the numerous inaccurate statements made in this Chamber by opponents of embryonic stem
cell research. Because this issue was on the ballot in Missouri last year, I had the opportunity to learn a great deal about this field during the months we campaigned for the U.S. Senate, as this issue was debated in great detail across my State. Let me talk about a few of the misrepresentations that have been made in this debate.

Claim: Adult stem cell research and stem cells derived from umbilical cord blood and amniotic fluid are adequate and we don't need embryonic stem cell research and there are 72 adult stem cell treatments for human diseases. The truth: In the medical journal Science, July of 2006, Dr. William Neaves of the Stowers Institute for Medical Research in Kansas City and Dr. Steven Teitelbaum of Washington University Medical School in St. Louis detail that this false claim originates from David Prentice of the Family Research Council. Mr. Prentice asserts that there were over 1,000 ongoing clinical trials with adult stem cell therapies. A review of the record at the NIH Web site that tracks clinical trials, however, showed that Mr. Prentice grossly misinterpreted the data. He searched the database for any entry containing the word "cancer" and counted usages such as "brain stem," "system," and "stem from," which is a verb. There were numerous other errors and omissions that served as the basis for this claim. In fact, there are only a handful of clinical trials with adult stem cells, and only nine conditions have adult stem cell treatments that are approved by the FDA.

In addition, as the Senator from Iowa so eloquently outlined yesterday, most scientists and patient advocacy groups agree that adult stem cell research is not a substitute for embryonic stem cell research. All research is good, but we cannot substitute an inferior form of research for the type of research that holds the most promise for these elusive cures.

Many organs do not have adult stem cells, and adult stem cells and cord stem cells are not pluripotent. That means they don't have the ability embryonic stem cells do to develop into any type of cell, and therefore their use is limited.

Claim: Tumors are a necessary product of implanting embryonic stem cells. The truth: Tumors will only develop if undifferentiated cells are injected into mice. Undifferentiated cells are those which have not developed into their final state. For example, a cell that has not developed into its final state is a blood cell or a bone cell or a nerve cell. In fact, tumor formation is exactly how scientists determine that a cell is pluripotent—in other words, able to develop into a multitude of different types of cells. However, nobody is suggesting that undifferentiated cells should be injected into mice. The FDA has made it clear that this question, and there is no evidence that cells differentiated from embryonic stem cells cause tumors.

Claim: The 21 viable embryonic stem cell lines we have currently funded are plenty. It is sufficient. The truth: As Dr. John Gearhart told the Committee on Aging, the federally approved lines are not genetically diverse, meaning we don't have the cell lines needed that are capable of this vital research. Importantly, minorities are the greatest affected group due to the lack of genetic diversity in these cell lines. In addition, many of the federally approved lines are contaminated with mouse cells. Finally, some of these cell lines are involved in proprietary arguments and are not available for research purposes. Asking America's scientists to work with only 21 viable embryonic stem cell lines is hamstringing them and impeding this important progress.

Claim: This legislation will use tax dollars to fund destruction of human embryos. The truth: Each year, Congress attaches the Dickey-Wicker amendment to the Labor-HHS appropriations bill stating that no Federal funds can be used to destroy human embryos. That has not changed. This bill simply allows Federal funds to be used to study stem cell lines that are derived from human embryos so that otherwise would have been discarded. How many times do we need to say it: "that otherwise would have been discarded." Not a dime of Federal money will fund the destruction of human embryos.

Claim: Tax dollars will go to research that is a fraud. The truth: In 1999, the NIH's "Scientific Potential of the 21 Viable Cultured Embryonic Stem Cell Lines" report states that research with embryonic stem cells was not isolated until 1998, and research with embryonic stem cells was not awarded Federal funding until 2002. That was only 5 years ago. To put this in context, from the first research into a vaccine for polio to the first two doctors that developed the first effective polio vaccine. Hundreds of Nobel laureates agree that embryonic stem cell research has great potential for developing cures, but this will take both funding and time. The NIH has provided over half a billion dollars each year in Federal funding for stem cell research since fiscal year 2003, but only a small fraction of those funds has gone to embryonic stem cell research.

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Doctor William Navees is the president of the Stowers Institute for Medical Research in Kansas City, one of the finest research institutions in the Nation. One of the most spiritual and thoughtful men I have known, Dr. Navees has studied the moral and ethical implications and implications and stem cell research over the last 25 years with his wife, who is also a biochemist and an ordained Methodist minister. He struggled with his position on these issues due to his faith and his calling, but in the end, upon reflection and studying the Bible, he concluded that embryonic stem cell research is morally and ethically acceptable.

I will close with Dr. Neavees’ words: Two elements have been pivotal in forming my belief. The first is the biological fact that in normal human reproduction, most blastocysts, or embryos, perish rather than implant in the uterus. The second is Ecclesiastes 11:5 in the English Standard Bible:

As you do not know the way the spirit comes to the bones in a womb of a woman with her birth, so you do not know the work of God who makes everything.

Many people of faith believe that research with embryonic stem cells represents a perfect storm, failing the biblical mandate to heal the sick. Other people of faith disagree. Should Federal policy disqualify a field of research from competing for Federal funds because some Christians object to it? As a Christian who supports this research, I certainly hope not.

I yield the floor.

Mr. HARKIN. I thank the Senator from Missouri for a very eloquent and poignant statement. I know the Senator mentioned that recently she came off a campaign in Missouri. I know that, in listening to her statement, she is reflecting the wishes and hopes of so many people in her own State who want to make sure we move ahead and find cures and treatments. I thank her for her eloquence and for her forthright statement on behalf of embryonic stem cell research.

Mr. President, I now yield 10 minutes to the distinguished Senator from Colorado.

The PRESIDING OFFICER. The Senator from Colorado is recognized.

Mr. SALAZAR. Mr. President, I rise today to discuss the question currently before the Senate regarding whether to allow Federal funding for embryonic stem cell research. Let me start out my remarks, first, by acknowledging Senator Harkin, the great work he is doing in this field. It is beyond a doubt that he is an expert on embryonic stem cell research, one of our national leading experts in terms of health care, and having been an advocate in that area, he is recognized across this chamber for his work on this legislation, as well as the work that has been put into this legislation by a number of colleagues, including many on the Republican side of the aisle who have joined this bipartisan coalition to make stem cell research a reality for the people of America.

At the end of the day, S. 5 is about hope—about hope for over 1 million Americans who today suffer from the trembling caused by Parkinson’s disease. It is about hope for the over 1 million people in America who suffer from Alzheimer’s disease. It is about hope for the 17 million Americans who suffer from diabetes, including the 1 million babies born annually to those young people who are suffering from juvenile diabetes and have to look at a life of dealing with the difficulties of that illness. It is about hope for the more than 64 million Americans who today suffer from one form or another of heart disease. So the debate on the floor today is, in fact, about the hope and aspirations of all Americans, including people, many of whom are related to Members in this Chamber today.

Scientists in America agree that, without a doubt, embryonic stem cell research holds great potential for curing these and other diseases. It is remarkable that against the conclusive determination of the scientific community, we have the Federal Government in a position where it is actively withholding the financial support that is needed to carry on this very important research for America. That is not the American way. The American way is to open new doors of hope. We ought to be opening new doors of hope as well with the passage of this legislation later today.

The reason that scientists are so excited about the potential of embryonic stem cell research—and the reason that this kind of research may hold the cure for a whole host of diseases—is that embryonic stem cells have the potential to become virtually any kind of cell in the human body, such as brain cells, heart cells, or cells that produce insulin.

The difficult part of embryonic stem cell research for scientists is controlling the process by which embryonic stem cells become other, more specialized kinds of cells. Much more research into that process is needed. To quote a document prepared by the National Institutes of Health, “the promise of stem cell therapies is an exciting one, but significant technical hurdles remain that will only be overcome through years of intensive research.”

The Federal funding this legislation authorizes will provide a critical boost to that effort.

Mr. President, right now, like millions of other American families, my family has been touched by the ache of loss brought about by Alzheimer’s disease. My father died of complications related to the disease only a few years ago. At the end of his life, I wanted nothing more than to be able to help ease his suffering. Now, as I reflect on that difficult time, I think of the families that are currently enduring the same pain mine did, and I want to help them.

I trust the vast majority of the scientific community that believes embryonic stem cell research may hold the key to the cures these families are seeking. I also believe that our Government can work to promote this science responsibly by paving the way for treatments that will save millions of lives without destroying others.

Toward that end, I believe the legislation passed by Congress last year and before this Senate today represents a key step toward responsibly opening the door to tapping into the vast potential that embryonic stem cell research has with respect to finding cures for Alzheimer’s, Parkinson’s, diabetes, and a wide range of other devastating diseases.

In millions of cases, this legislation could mean the difference between a normal life and one of pain and suffering. In millions of other cases, it could mean the difference between life and death. And by authorizing Federal funding only for research on embryonic stem cells that will never become human life and that are donated willingly, it achieves its objectives without destroying the potential for life.

To be sure, support from private funds is not something to take lightly. I can think of no other Nation that should lead this research with strict guidelines than the United States.

Throughout our Nation’s history, America has been the leader in making monumental scientific strides that have made life easier and better for people in our country and all over the world. In a field with such great promise, and at a time where American competitiveness is at the forefront of our commercial world, we must once again be the global leader.

Mr. President, I want to be clear that I also believe we should promote alternative methods of creating embryonic stem cells. For that reason, I strongly support the other proposal that is currently before the Senate, S. 30, which would intensify research into these alternative methods.

I yield the floor.

Mr. HARKIN. Mr. President, how much time do we have remaining?

The PRESIDING OFFICER. The Senator from Iowa has 37 minutes.

Mr. HARKIN. I yield until 3:45 to the Senator from New York, Senator SCHUMER.

Mr. SCHUMER. Mr. President, first, I rise in strong and profound praise of my colleague from Iowa. He has led this fight dauntlessly, always being both dogged and smart. That is why we are where we are today.

I rise in support of S. 5, the Stem Cell Research Enhancement Act. Today, as we stand on the brink of scientific breakthroughs, we cannot let politics pull us backward. A modern nation
looses its greatness, its preeminence, when it turns its back on science. That is what history has shown. 

Stem cell research is the key to hope for 100 million Americans and their families who suffer from debilitating diseases. Talk about it any way you want; spin it any way you want, but think about all these alternatives; the bottom line is very simple: A “no” vote is a vote against science, a vote against the millions who are anxiously awaiting a cure for diabetes, Alzheimer’s, Parkinson’s, ALS or cancer who could benefit from embryonic stem cell research. Every one of us has looked into the eyes of somebody who needs help—in my case, a young mother with a little girl about 5 years old who had juvenile diabetes who said: Senator, the doctors tell me the odds are high and this child could be blind at age 20 if we don’t do embryonic stem cell research. How can we say no to that mother and to that child? Scientists are on the cusp of making incredible progress through stem cell research that has the potential to cure diseases that have been with us for centuries, such as diabetes and heart disease.

When their progress was stalled in 2001 when President Bush limited federally funded stem cell research to only 19 sources that are truly viable, every family who had hope was set back. With that Executive order, the President shut the door on hope for all those families.

With that one action, the President not only stopped current research in its tracks, he sent a message to future scientists that they should not pursue this line of work. As they see a limited funding stream for their science, they do, fewer and fewer graduates are specializing in this type of research, and those who are deeply committed to it tend to go overseas. That is not a great America—an America that turns its back on science and puts politics in its place. We want all the best minds in the country to be working together to find a cure for these debilitating diseases.

S. 5 would answer the prayers of millions of families. It would increase the number of stem cell lines that can be used by researchers who are funded by Federal grants.

These stem cell lines are not made from new embryos that would be created for the purpose of research. They would not be harvested from women, like some people think. These lines would be made from leftover embryos created by couples who were trying to conceive through in vitro fertilization but are not used and are going to be destroyed. With passage of this bill, those embryos will be able to contribute to stem cell research instead of being thrown away.

Let’s think about the good that having these new stem cells could do by looking at juvenile diabetes. As many as 3 million Americans have Type I diabetes, with over 13,000 children newly diagnosed each year. These children must be injected with insulin multiple times each day and prick their fingers to test their blood sugar as many as six times a day.

That doesn’t have to be the reality forever. Researchers have already demonstrated they can produce insulin-producing cells from undifferentiated embryonic stem cells. This has the real potential for juvenile diabetes, providing relief to the 3 million Americans and their families who are burdened with the implications of the disease every day.

Without being able to use Federal funding for their research, innovative stem cell research is being relegated more and more to only those individuals and institutions that can afford it. Because NIH-funded research activities have to be housed in different buildings, a process that has created enormous headaches and financial barriers for researchers in my State of New York and has hampered both research on stem cells and research using other methods, unless we vote yes on S. 5, we are not going to make progress.

This bill would provide enormous hope to growing numbers of Americans. It would accelerate the movement toward a cure for devastating diseases, while strengthening the rules on ethics that must be involved in this research. This is one of those issues that hits home more than anything else. Everyone knows a mother with Alzheimer’s or a neighbor with diabetes. They are gut-wrenching situations.

What is most heartbreaking is to think the President’s first veto was to stop us from alleviating all this terrible pain. I urge my colleagues to look into the eyes of a young child with juvenile diabetes, or the eyes of a middle-aged couple who has a parent suffering from Alzheimer’s. Don’t say no to them.

I yield the floor, and I yield the remainder of my time back to the Senator from Iowa.

Mr. ENZI. Mr. President, throughout the history of our Nation, generations of American scientists have looked for ways to improve the human condition and address the problem of disease and suffering. Working in labs either spartan or spacious, they have toiled together over the years to find cures for the health conditions that continue to plague mankind.

As they conducted their research, each scientist’s work built on the discoveries that preceded it, and the results they achieved over the years have enabled us to live longer, healthier, more productive lives. The list of medical miracles and marvels that have come from their work has made the phrase “American ingenuity” known around the world for the creativity it represents and the results it has so often provided.

From time to time, however, there is a breakthrough—or possible breakthrough—in medical science that has the potential to revolutionize not only our ability to diagnose or treat an affliction but our basic understanding of how the human body operates. When these rare events occur, society attempts to evaluate the new procedure’s potential to address the diseases that threaten our health as well as the ethics of putting the new procedures into practice.

A possible breakthrough is stem cell research. At present, its promise and potential for changing the way we view health and disease seems limitless. In theory, stem cells may be capable of doing everything we can possibly imagine—and more. Unfortunately, there is often a wide gap between what is possible in theory and what is practical and possible in the real world. What the future of stem cells will be no one knows for certain. Still, the possibility is more than intriguing and certainly worth an in-depth look.

The research that has been conducted into stem cells so far has been so exciting because of the very nature of these cells. Stem cells have the capacity to divide and themselves and develop into specialized cells. Most of the cells that are in the body are created and committed to performing a specific function. A stem cell remains “on the fence,” however, uncommitted until it is given a kick for the body to develop into a specialized cell.

That ability to change and become a cell that can be used almost anywhere in the body has fascinated scientists who are studying the ability of the body to repair itself through the use of these “uncommitted” cells.

We have all heard the saying—you don’t have to be a weatherman to know which way the wind is blowing. In this case, however, you really do need a strong background in science to understand fully the specifics of stem cell research and its implications for the future. Fortunately, we are not here to predict the impact stem cells will have on our healthcare system in the years to come. We are here to make a determination as to the wisdom of using taxpayer dollars to finance additional work in this area—and then pick the best vehicle to support it. There is a big difference.

In debating and voting on the two bills before us today, we are not making a judgment about the science itself, as others have stated. Rather, we are making a judgment about whether that science should be supported by taxpayer dollars. We are deciding the appropriate moral construct for the work of those key scientists in manipulating and possibly even destroying the basic building blocks of human life. We are reaffirming how we as a society view the embryo and its function.

Mark this year within our appropriations bills, we make a judgment about how we want to treat embryos—the very beginning of human life. The
Dickey-Wicker amendment is clear. Federal dollars cannot be used for creating human embryos for research purposes or for research in which a human embryo or embryos are destroyed, discarded, or knowingly subjected to risk of injury or death greater than that inherently associated with continued research on fetuses in utero. Therefore, every year, as part of the appropriations process, we reaffirm that science must be guided by moral values, and our values as a society compel us to place certain limits on the pursuit of science. Today I will consider whether our values as a society compel us to maintain certain limits on taxpayer funding of embryonic stem cell research.

Without question, science must be guided by morality. There have been too many instances over the course of human history in which terrible things have been done in the name of science. Scientific exploration is important and we should do everything we can to further our knowledge of ourselves and our world, but not at the expense of disregarding the moral viewpoints of millions of Americans who don’t believe their taxes should pay for something they find abhorrent.

In determining how to proceed, we of course must consider the promise of stem cell research. But in considering that promise, we must make it clear that while stem cells may someday lead to therapeutic advancements for devastating diseases like Alzheimer’s, diabetes, Parkinson’s, leukemia, and spinal cord injuries, that day has not come yet. That is why we must be careful not to oversell the promise of this research to the American people because this field of research has not yet resulted in human clinical trials. Every reputable scientist will admit that any possible cure or advanced treatment using embryonic stem cells are many years away. There are currently no cures waiting to be plucked off laboratory shelves after our votes on these bills.

So, while the research provides great hope for millions of Americans, at this point, the full benefits have not yet been realized. They fire our imagination as we consider the possibilities that may or may not come to pass. Whether embryonic stem cells will fulfill their promise someday is still very much in question, and much work is already ongoing to see whether we can get an answer.

In this context, I want to further discuss S. 5, the Stem Cell Research Enhancement Act of 2007. A similar bill was passed the House on January 11, 2007, by a vote of 253 to 174. S. 5 would allow additional research on embryos from in vitro fertilization procedures, under some limited circumstances.

However, even in these rather limited circumstances, I must oppose S. 5, because the limits it imposes on taxpayer-funded research do not respect the moral value of a human embryo. It does not fully recognize our decision within Dickey-Wicker and other controversies about stem cells.

The supporters of this bill will acknowledge that it does not limit research to human embryos that are currently in the window of opportunity for that research well into the future. By doing so, the bill creates an incentive for the creation of embryos solely for research purposes. This is contrary to what Congress reaffirms within the Dickey-Wicker language each year.

And, although the bill prohibits financial and other inducements for the parents of the embryo, it does not eliminate financial or other inducements for the clinicians and cell lines that create the embryos. Thus, it does not eliminate the financial incentives for in vitro fertilization clinics to create more embryos than are absolutely necessary to help parents conceive a child. This loophole will further erode the prohibition against using stem cells from human embryos.

I am not opposed to embryonic stem cell research, but I am opposed to the provisions of S. 5. I would welcome the opportunity to debate amendments to the bill, but the agreement that governs our debate does not permit amendments.

And, without an opportunity to amend S. 5, I have no choice but to vote against it.

However, I will support alternatives, such as the Isakson-Coleman bill, so that we can allow greater Federal support for embryonic stem cell research. I believe we can and should unite behind a bill that respects the diversity of our views on human embryos, but still pushes the science forward. The Isakson-Coleman legislation is such a bill.

A vote for or against S. 5 is not a vote for or against scientific advances. After all, if we truly trust science, we ought to give science a chance to solve this dilemma over embryonic stem cell research.

As the report from the President’s Council on Bioethics, researchers are exploring at least five different ways by which we can create stem cell lines without harming or destroying embryos. If these researchers are successful, then the arguments against Federal funding of embryonic stem cell research will fall away.

Further, States and private research organizations are already pouring billions of dollars into human embryonic stem cell research that goes beyond the current limitations set by the President’s Council on Bioethics. Researchers are exploring at least five different ways by which we can create stem cell lines without harming or destroying embryos. If these researchers are successful, then the arguments against Federal funding of embryonic stem cell research will fall away.

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further stem cell research in an morally defensible manner. The bill would allow stem cells to be derived from embryos that die naturally, and reinforces the current policy that federally funded research should not involve destroying or discarding embryos.

The potential access to embryonic stem cells, but protects human life and avoids the ethical pitfalls of S. 5. It seems to me that we should all be able to support this bill. It places reasonable restrictions on additional embryonic stem cell research, while still protecting human life. I urge my colleagues to support this bill.

No one likes to see people with medical conditions suffer, and like many Americans my family and friends have certainly been stricken with terrible diseases over the years. However, we are at an ethical crossroads with this issue, and we must stay true to our values of respecting life.

It seems foolish to barrel ahead with Federal funding for embryonic stem cell research as S. 5 does, when other alternatives are available that offer real hope to patients and promise in research. In closing, I firmly believe that we cannot create life and then destroy it, even if to save another life. I urge my colleagues to vote against S. 5, and vote for S. 30.

Mr. DOMENICI. Mr. President, I rise today in opposition to S. 5, the Stem Cell Research Enhancement Act of 2007. Although I am not opposed to stem cell research and in fact enthusiastically support some types of stem cell research, I cannot support this bill.

This is a very difficult vote for me to cast. I have spent a considerable amount of time thinking about the issue of Federal funding for stem cell research involving the destruction of embryos. Over the last several years, scientific developments in human genetics have proceeded at a rapid pace. This kind of research has the potential to be very helpful in the understanding of human development and the treatment of human diseases. However, this type of research also raises serious ethical and public policy questions that must be confronted. What limits do we place on research with human embryos?

Experimentation with embryonic stem cells is considered by some to be a reversal of research previously done in the medical, public and scientific communities believe that embryonic stem cell research could lead to the cure for such sicknesses as Parkinson’s disease, Alzheimer’s and diabetes. However, human embryos must be destroyed in order to derive embryonic stem cells and this is where my ethical dilemma arises.

It is my deeply held and personal belief that an embryo is an actual living being; it is not merely a potential living being. The possibility of helping those who are sick may be a very powerful motivation, but I strongly believe that human embryos deserve the same respect as any other human being and it is never morally or ethically justified to kill one human being in order to help benefit another. It is for this reason that I cannot support the use of human embryonic material for research even if it has the potential for saving the diminished status of the human embryo in order to justify their destruction in the course of research solely because they may theoretically provide potential benefits for another human being sometime in the future.

I want to make it clear that my ethical problem is not with the research itself but rather with the destruction of embryos. I believe there is potential for advances in stem cell research that does not involve the moral dilemma of destroying an embryo in the process. It is for this reason that I support S. 30, The Hope Offered through Principled and Ethical Stem Cell Research, HOPE Act.

The HOPE Act will advance alternate forms of stem cell research by intensifying research on methods that do not involve the destruction of human embryos. This bill instructs the Secretary of Health and Human Services to define isolation, derivation, production, and testing of stem cells, provided that such techniques do not involve the creation of human embryos for research purposes; or the destruction or discarding of, or risk of injury to, a human embryo. Research that can benefit others without the destruction of human life is in my opinion the best path forward.

Scientists have shown they have the skill and ability to pursue the potential benefits of stem cell research without endangering human life in the process. I support these alternative approaches because I truly believe that they have the potential to help people while still maintaining ethical guidelines.

With the S. 5 bill the Federal science-research on stem cells must be used to incentivize the further development of human embryos for research purposes. I cannot support this use of Federal funds. I will not oppose private industry from doing embryonic stem cell research, but it would be very irresponsible to use Federal taxpayer dollars to fund such a contentious issue.

Science is advancing. Over the past weeks and months research using adult stem cells has had many breakthroughs. The use of amniotic fluid and placental stem cells has much of the same potential that embryonic stem cells have, but they are not as controversial. S. 30 provides resources to further research in the area of adult stem cell research. Because of the embryonic restrictions S. 5 has, I cannot support S. 30 and will vote in favor of S. 30 later today.

I not only understand the need for scientific advancement, but also for ethical boundaries. We should not be responsible for the destruction of human embryos for research purposes, when there are alternative opportunities for scientific advancement that are not so contentious.

Mr. KYL. Mr. President, we live in an age when medical miracles are occurring every day, many in my home State of Arizona. Breakthroughs are treating and curing children and adults who could have died from their diseases just a few years ago. And some of these cures and treatments are the result of stem cell research.

For example, thanks to the Cord Blood Registry located in Tucson, children and adults are being treated, and often cured, of one terminal diseases such as leukemia, aplastic anemia, cerebral palsy and sickle-cell anemia. And these are just a handful of the 72 diseases that have undergone clinical trials or been treated using stem cells obtained from bone marrow and umbilical cord blood.

I favor the broadest possible effort to pursue promising medical technologies within appropriate ethical limits. Scientists have derived stem cells from two principal sources: the tissues, fluids, and organs of adults, and cells from human embryos. Human embryonic stem cells have only been obtained through a process that destroys the embryo.

In the last Congress, we passed, and the President signed into law, the Stem Cell Therapeutic Research Act of 2005. This legislation was intended to spur additional advances by establishing an infrastructure to facilitate the collection and dissemination of two of the most promising categories of adult stem cells: those derived from bone marrow and those derived from umbilical cord blood. Based on reports in the media over the past 2 weeks, I would say this bill has been a success.

For example, the New York Times reported on a coming revolution to sports medicine from adult stem cells that could be able to heal and rehabilitate tendons, ligaments, muscle and cartilage.

More significantly, ABC News reported that adult stem cells are being shown to be useful in repairing damaged heart muscle. While this has been known for some time in other countries, U.S. doctors and scientists are now embarking on the first human trials. This may turn out to be one of the most significant breakthroughs in recent history for treating the most deadly disease in the United...
States—heart disease—which last year claimed the lives of almost 500,000 Americans.

What’s more, a recent study conducted by the Wake Forest University School of Medicine promisingly resulted in harvesting stem cells from amniotic fluid, which is the fluid that surrounds a baby before it is born. These amniotic stem cells offer many of the benefits found in embryonic stem cells, and without its ethical complications, demonstrating just how much is missing from current politics. Those researchers at Wake Forest found that amniotic-fluid stem cells proved successful in producing bone, heart muscles, fat, nerve, and liver tissues. All of this was possible without destroying the nascent life in an embryo.

By contrast, embryonic stem cell experiments have not yielded any treatments for human patients. Nevertheless, researchers believe there is much potential for a great deal of research and public and private money has been raised to pursue it.

In 2001, the President issued an Executive order that made available for the first time Federal funding for embryonic stem cell research using embryos that had already been destroyed. In the subsequent 6 years, the Federal Government has spent more than $130 million on this type of stem cell research and has spent more than $2.5 billion on all stem cell research. In 2006, the Senate considered legislation that would have overturned a key element of the current policy: the stipulation that Federal taxpayers’ money cannot provide an incentive for the further destruction of human embryos. While this bill was approved by Congress, it was later vetoed by the President.

I voted against this legislation because I believe that taxpayers should not be required to subsidize the destruction of nascent human life, especially when a number of State governments and large universities have directed significant resources to embryonic stem cell research. Since there are already billions of dollars available for embryonic stem cell research on lines from newly destroyed embryos, increases in Federal funding and a change in the Federal policy are not necessary.

S. 5, which we are debating today, and which is similar to legislation already passed by the House, is essentially the same legislation as that the President vetoed last year. There is one difference: added to S. 5 is legislation that was passed unanimously by this body last year—the Alternative Pluripotent Stem Cell Therapies Enhancement Act. I supported that legislation, which was not passed by the other body. However, that very positive legislation is attached to legislation I cannot support because it would force taxpayers to subsidize the destruction of nascent life.

Thankfully, S. 30 is also being considered today. I fully support this legislation offered by Senators COLEMAN and ISAKSON. Their leadership has brought to the floor a bill that would build on the research that is treating patients now. This legislation would direct the Department of Health and Human Services to investigate alternative sources of stem cells and to study the possibility of establishing an amniotic and placental stem cell bank, similar to the bone marrow and cord blood stem cell bank, while reaffirming a policy that prohibits research that destroys human embryos.

We can all agree: stem cell research holds promise and has already provided life-saving treatments and cures. And we should continue to support that research within appropriate ethical restrictions. I urge my colleagues to oppose S. 5 and support S. 30.

Ms. SNOWE. Mr. President, I rise today to speak to an issue of tremendous significance to countless Americans and to generations to come—human stem cells and the research that is treating patients today and stopping the erosion of the budgets of the National Institutes of Health.

This is an encouraging development, especially when a cause I believe that taxpayers should not have to fund another type of research and public and private money has been raised to pursue it.

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Ms. SNOWE. Mr. President, I rise today to speak to an issue of tremendous significance to countless Americans and to generations to come—human stem cells and the research that is treating patients today and stopping the erosion of the budgets of the National Institutes of Health.

Today, Federal funding for research is restricted to a small number of embryonic stem cell “lines” that were established prior to August 9, 2001. Unfortunately, only 19 of those 78 stem cell lines in existence are available to researchers, as many were found to be contaminated or otherwise unusable. Yet since no impediment exists to the work described this first bill describes, this legislation is—despite its positive aspects—a distraction from a crucial question. That is, whether we will continue to impede progress in human embryonic stem cell research.

The problem is, that while scientists are tackling stem cell research on multiple fronts, to ensure success they try to predict the path most likely to be successful. In that regard, we know that embryonic stem cells have the potential to develop into any cell type of the body. That is why scientists have sought to use them in their race to cure diseases. That is why two-thirds of Americans favor embryonic stem cell research and why I am an original co-sponsor of the Stem Cell Research Enhancement Act.

The promise of stem cell research lies in the simple fact that embryonic stem cells have the unique potential to develop into any of the cells which could be needed to treat the multitude of diseases from which Americans suffer. The vast potential of stem cell therapy is key to future therapies because in so many diseases, cells in the body are damaged or destroyed, and their role is often irreplaceable. Stem cells offer an opportunity to actually replace the tissue that was lost.

Consider today that 20 million Americans live with diabetes. Despite treatment with drugs and insulin, many diabetics experience vision loss, injury to extremities, heart disease and other complications. For years, scientists have sought to find a cure. And today stem cells offer that potential to end dependence on insulin—freeing millions from diabetes.

In many diseases, there simply is not an effective drug to replace the function which individuals lost or damaged cells can no longer provide. Today there are limited treatment options for brain disorders such as Parkinson’s disease and ALS or Lou Gehrig’s disease. For such diseases, stem cell therapies offer promise that we could alleviate the suffering that millions now experience.

This week the Senate is considering two bills. The first of these promotes stem cell research. It encourages research which is already underway—which is eligible today for both private and public funding. And while that research should be encouraged, it is not facing impediments, save for the fact most of us would like to see greater progress in biomedical research funding—and stop the erosion of the budgets of the National Institutes of Health.

So, many scientists are frustrated, are perplexed that a Federal funding restriction would essentially block the path to develop cures. Some have proposed they should use adult stem cells. Yet those involve a detour in the journey to a cure.

We know that in order to use embryonic stem cells to make cells which can be used to treat a disease—like diabetes—scientists must learn how to make the cell become the right type. But an adult stem cell is actually already somewhat specialized, so one cannot directly use them to produce many of the types of cells we need to produce new therapies. Some advocates of adult stem cell research say we could try to take such a stem cell and reverse its development—back to an embryonic stage—and then begin the task to develop it into the specialized cell required. It is as if you were driving down an interstate on a trip, took an exit, made a few turns, and then decided to back up—in reverse—all the way to the interstate in an attempt to maintain your destination by not an efficient way to get where you are going. And any scientist will tell you, the more steps you must take, the more chance there is that something simply won’t work.

Recently some have proposed that scientists could use other types of cells. We have learned recently about stem cells which are found in amniotic fluid—“amniotic stem cells”—which also appear to have potential to develop into different types of tissues. These have promise for ongoing development, yet much remains to be learned about those cells. The leader of the research group which has just described these
cells—Anthony Atala—was recently asked whether his research ends the argument over whether embryonic stem cells are needed. He answered that question simply:

It does not, mainly because it’s another stem cell choice. And I think you can’t say it’s another stem cell choice because we can’t tell which cell is going to be best for which indication, and all cells have advantages and disadvantages.

That is truly the statement of a scientist. Because we do not yet know about the full potential of these alternatives to embryonic stem cells. But we do know that embryonic stem cells can develop into any type of cell. That is why losing years in which we could have made progress is so tragic. There is so much that scientists have yet to learn, and while we always hope for quick cures, experience shows that medical breakthroughs typically result from years of concentrated effort—and we cannot wait any longer to embark on that journey.

That is why I am a cosponsor of the second bill which we are considering—the Stem Cell Research Enhancement Act. This legislation addresses the critical issue which has inhibited research here in the U.S.—the restriction of Federal funding to only those few stem cell lines which were in existence back in 2001. Our legislation would ensure that Federal research would only use stem cells from embryos which would otherwise be destroyed and would require full consent of the donor before coming into use. I thank Senators SPECTER and HARKIN for their leadership on embryonic stem cell research.

The legislation which they have championed sets a very constrained set of circumstances under which embryonic stem cells may be obtained in order to assure we can move this vital research forward within an ethical framework. Never will an embryo be created for research purposes, nor does this bill provide any incentives to facilitate such studies. This legislation assures that an embryo may be used only when it would not ever be used for infertility treatment. Donation must be voluntary, under full informed consent and no financial or other inducement may be given.

The fact is that fertility treatment has allowed many to have families whom otherwise could not. A consequent of this remarkable therapy is that joint embryos are created which will not be used. I must note that under the Stem Cell Research Enhancement Act, it will be the couple who will—under no bias—decide whether they will be used. This legislation facilitates that determination.

Today Americans who have faced fertility problems are facing the question of what to do with unused embryos. Indefinite storage is not truly an option—we know that we cannot maintain the viability of these embryos indefinitely, given the choices available, some couples see the potential to help those suffering from serious disease. It assures that this gift can be given and used to help medical progress.

I believe many Americans who have undergone fertility treatment and realized a gift of life in their families will opt to save lives through a donation program which provides this choice. But it must always be individual conscience that is the determinative factor—and I respect the views and conscience of each and every individual on this matter.

There can be no doubt that stem cell research will move forward. The real question is whether our Nation will be engaged—whether our scientists will realize the breakthroughs—whether we will produce the treatments—or whether those developments will draw our best minds and new medical investment abroad, where American vision and oversight will not influence the future of medicine.

I believe in stem cell research. I believe in it because I cannot look at a person suffering from a debilitating, and even fatal disease and support prohibitions which impede ethical research aimed at alleviating of that suffering. That is why I joined with my colleagues in the Senate in urging President Bush to ease the current restrictions on the use of stem cells so that research can move forward and lives could be saved. That is why I am a sponsor of this legislation. It is why I urge my colleagues to give that bill their support. This is the bill which I urge the President to reconsider this issue, and urge his support.

I think back to President Reagan’s passing nearly 3 years ago, and remember the outpouring of concern we all had for our former President, and the First Lady and their entire family. We spoke much of the tragedy of Alzheimer’s disease and how we must do more to alleviate the suffering. Nancy Reagan inspired us all with her courage—and inspires us no less in her call for research which could alleviate the suffering of diseases. Her recent words call out to us, “A lot of time is being wasted . . . A lot of people who could be helped are not being helped.”

I cannot think of a more significant living memorial to our former President than to allow more research to be done in order to find new cures for diseases afflicting millions of people.

Today I ask my colleagues to consider a down payment—who have through modern medical science, enjoyed a gift of life, to contribute to saving other lives. That is exactly what this legislation does, and that is why we must send this bill to the President and sign it.

Mr. OBAMA. Mr. President, I stand in full support of the Stem Cell Research Enhancement Act as I did when this bill was introduced and sent to the President’s desk in the 109th Congress. I am proud to be an original cosponsor of this bill.

I am frustrated by the opposition of the opposition to this bill has generated and saddened that we are preventing the advancement of important science that could potentially impact millions of suffering Americans. The study of stem cells holds enormous promise for the treatment of debilitating and life-threatening diseases. However, in order to reach this level of achievement, much more research is necessary to understand, and eventually harness, the amazing potential of stem cells. Instead of creating roadblocks, we must all work together to expand Federal funding of stem cell research and continue moving forward in our fight against disease by advancing our knowledge through science and medicine.

Each year, 100,000 Americans will develop Alzheimer’s disease, with impaired memory, ability to understand, and judgment. Over 1 million adults will be diagnosed with diabetes this year, and risk complications that include blindness, damaged nerves, and kidney function. We all know or have met individuals with spinal cord injuries, including national celebrities, local war heroes, and loved ones from our own families and circles of friends, who are struggling to maintain mobility and independence.

For most of our history, medicine has offered little hope of recovery to the 100 million individuals affected by these and other devastating illnesses and injuries.

Until now.

Recent developments in stem cell research may hold the key to improved treatments, if not cures, for those affected by Alzheimer’s disease, diabetes, spinal cord injury, and countless other conditions.

Many men, women, and children who are cancer survivors are already familiar with the lifesaving applications of adult stem cell research. Patients with leukemia or lymphoma often undergo bone marrow transplants, a type of stem cell transplant which can significantly prolong life or permanently get rid of the cancer. This therapy has been used successfully for decades, and is saving lives every day.

Yet this breakthrough has its serious limitations. Adult stem cells, such as those used in bone marrow transplants, can only be collected in small quantities, may not be a match for the patient, which can lead to rejection, and have limited ability to differentiate or transform into specialized cells.

Similarly, the promising advances of stem cell use from a patient’s own cord blood, as illustrated by the success stories of Dr. Joanne Kurtzberg from Duke University, also have their limitations. If, for example, a young cord blood recipient’s condition should deteriorate after his or her initial treatment or should develop another illness, there simply are not enough cord blood cells left for a second use. The few remaining cells could not be expanded to get enough cells for future treatment, or stem cells would have to be obtained from another source.
Two of my constituents, Mary Schneider and her son Ryan, are well aware of the potential of cord blood treatments. Her son, diagnosed with cerebral palsy at 2 years of age, has made what appears to be a full recovery after treatment with his own cord blood. Describing this as a miracle witnessed by the Schneider family, they also firmly believe and support expanded research of embryonic stem cells to combat disease.

Scientific papers about stem cells derived from amniotic fluid have drawn much attention. While this offers an exciting alternative to regenerative medicine therapies, the author of that report, Dr. Anthony Atala, has himself urged that his work on amniotic stem cells will not replace the continued need for investigation into treatments with stem cells derived from embryos.

All of these alternative treatments are just that, alternatives, and are not substitutes for embryonic stem cell research.

Embryonic stem cells can be obtained from a number of sources, including in vitro fertilization. At this very moment, there are over 400,000 embryos being stored in over 400 facilities throughout the United States. The majority of these are reserved for infertile couples. However, many of these embryos will go unused, destined for permanent storage in a freezer or disposal. We should expand and accelerate research using these embryos, just as we should continue to explore the viability of adult stem cell use, cord blood use, and amniotic fluid use.

The promise of embryonic stem cells has come to light in a recent achievement by researchers at Johns Hopkins. They were able to repair damaged nerves and restore mobility in paralyzed rats through embryonic stem cells. One can’t help but wonder when, not if, this will be translated into techniques that will help human patients who have lost the ability to walk.

Of course, any work in this area must have appropriate oversight. Embryonic stem cell research demands comprehensive, thoughtful, and carefully crafted ethical and scientific guidelines. We must not only look to guidance from the National Institutes of Health and the Food and Drug Administration to our reason, our morals, and our compassion.

The President’s veto of the stem cell bill proposed in the last Congress prevents government funding beyond 78 previously established stem cell lines. However, recent estimates on the number of viable cell lines bring the numbers down closer to 20. Clearly, we are moving backward in our efforts with these current restrictions. Stymieing embryonic stem cell research is a step in the wrong direction. It closes the door to many Americans awaiting new treatments that could potentially provide a better quality of life or, perhaps, even save their life.

My hope, and the hope of so many in this country, is to provide our researchers with the means to explore the uses of embryonic stem cells so that we can begin to turn the tide on the devastating diseases affecting our Nation and the world.

Mr. President, I rise today to speak about the emotional, divisive, and often confusing issue of stem cell research. Let me start by expressing why I believe we should focus on scarce resources on adult and umbilical cord stem cells rather than on embryonic stem cells. Given the tremendous results that have come from adult and umbilical cord stem cell therapy in the areas of oncology and orthopedics—and, more recently, in cardiology and neurology—

I am further encouraged by the possibilities these noncontroversial, adult stem cells have to offer. In this tight budgetary environment, in which there is a choke hold on our domestic discretionary funding, we must be vigilant in the way we appropriate taxpayer dollars and concentrate our resources on those lines of medical research that hold the greatest potential.

Furthermore, in recent years, scientists have made impressive strides in designing methods to obtain fully pluripotent stem cells that have the flexibility of embryonic stem cells, while avoiding the destruction of human embryos. The potential to exploit this exact research in an ethically sound manner, coupled with my interest in seeing further research in the area of adult and umbilical cord stem cells, is why I rise to support S. 30, the HOPES Act.

Before I delve into a discussion of the two bills this body is considering, let me clarify that there are two different categories of stem cells—and, thus, of stem cell research. The first, embryonic stem cells—as their name suggests—are derived from human embryos developed from eggs that have been fertilized at an in vitro fertilization clinic. Alternatively, adult stem cells are undifferentiated cells found among differentiated cells in tissues or organs. These cells can renew themselves and eventually develop into a specific cell in the body. What is notable, however, is that these undifferentiated adult stem cells can be gathered by scientists without any harm to the individual donors.

Umbilical cord blood derived from a mother’s placenta following the birth of a newborn baby is now also included in this category of adult stem cells. In fact, with the arrival of my seventh grandchild, I learned a great deal about the benefits of preserving cord blood stem cells. What at one time was considered medical waste and discarded after birth is now recognized as a rich supply of stem cells and has been used to treat a number of blood and immune-system diseases, cancers, and other physical disorders.

I was introduced to the promise of adult and umbilical stem cell research by experts at the National Center for Regenerative Medicine in my hometown of Cleveland, OH. Several institutions make up the center, including Case Western Reserve University, the Cleveland Clinic, University Hospitals Case Medical Center, Athyrsys, Inc., and Cleveland State University. Together they have created an outstanding medical facility that is leading the Nation in the use of nonembryonic stem cells to regenerate new tissues in diseased organs rather than using drugs or devices to improve the function of the organs.

Since 1976, researchers at the center have been studying nonembryonic stem cells, and they performed their first stem cell transplant as early as 1989. Today, the center is capable of conducting clinical trials with cord blood stem cells for gene therapy and for heart and blood vessel repair. Investigators at the center are now able to cure leukemia and lymphomas with embryonic stem cells by drug implantation, as well as repair unstable bone fractures and treat genetic disorders.

I have had the chance to meet several patients whose lives have been transformed by this new medicine. Elisabeth Schneider, who was a patient at the National Center, in a motorcycle accident and had compound fractures in her right femur and right tibia. Even though she was rushed into emergency surgery after the accident, her bones did not heal properly, and she was told she would never walk again. Elisabeth sought out a second opinion from a doctor at the National Center who operated a second time, using some of his adult stem cell gel. This gel takes on the characteristics of the surrounding bone cells and helps with the healing of broken bones. I am happy to report, Elisabeth is now walking, living a healthy life, and pursuing a future in physical therapy at the Ohio State University.

Elisabeth is not alone.

I recently visited the National Center for Regenerative Medicine, and I had the chance to meet Ashley. Ashley is 8 years old and was successfully treated for her leukemia at Rainbow Babies and Children’s Hospital of University Hospitals Case Medical Center. She was first diagnosed with acute lymphatic leukemia, ALL, in January 2006, and she underwent a stem cell transplant at a unrelated donor in June 2006. But since her transplant, Ashley has done wonderfully.

Even more encouraging is the potential for scientists to leverage all this great medicine into new fields, including cardiology and neuroscience. Researchers at the National Center for Regenerative Medicine are hopeful that in the not so distant future they will make inroads in the treatment of degenerative arthritis, will decrease the severity of graft versus host disease using stem cell transplantation, and will allow physicians to use a patient’s own stem cells to repair heart damage following congestive heart failure, as
well as use their own neural stem cells to improve function after spinal cord damage.

I am concerned, however, that not enough Americans are aware that some of the most advanced medicine today can be attributed to adult—and not embryonic—stem cells. What I find even more disturbing is that many supporters of embryonic stem cell research have been kept in the dark about the progress of umbilical and adult stem cell treatments and have been over-sold on embryonic stem cell research, which is still in its infancy.

I want to remind my colleagues who support the Stem Cell Research Enhancement Act that embryonic cells have not been successfully used to treat even one disease yet I have had the opportunity to meet numerous people whose lives have been saved by adult stem cell therapy. In fact, adult stem cells have been used to treat 72 diseases, including breast cancer, multiple sclerosis, rheumatoid arthritis, sickle cell anemia, spinal cord injuries, and others. That is why I continue to be encouraged by the possibilities adult stem cell therapy has to offer.

In recent years, medical research has made tremendous strides, and it is now widely believed that new technology can lead to methods of obtaining fully pluripotent stem cells that have the flexibility of embryonic stem cells without destroying potential life. That is why I rise today to support S. 30, the HOPE Act.

Despite all this progress, scientists around the world agree that there is still a great deal that remains unknown about the potential for stem cell therapy. That is why I support this legislation introduced by my colleagues from Minnesota and Georgia that would help stop the release of even more potential cures and therapies.

The HOPE Act would continue to encourage Federal research on adult and umbilical cord stem cell therapies that are still in their infancy, and it would require the Secretary of Health and Human Services to develop techniques to identify and derive pluripotent stem cells that have the flexibility of embryonic stem cells without destroying a human embryo. There is evidence that these alternative methods may make it easier for scientists to genetically match patients with therapies and could reduce the complications, like tumor formation, that have been seen with embryonic stem cells.

The HOPE Act would also require the Secretary to prioritize stem cell research that will reap near-term clinical benefit and take into account the findings of the President’s Council on Bioethics. We also need to ensure that funding for research, and I agree that we must direct Federal funding toward research that will have the greatest near-term impact on human life.

Mr. KOHL. Mr. President, I rise today in support of S. 5, the Stem Cell Research Enhancement Act of 2007, a bill that will expand the number of stem cell lines eligible for federally funded research, ensuring scientists at NIH and laboratories around the country have access to new, uncontaminated stem cell lines.

Many families in America have experienced the tragedy of watching a loved one suffer through a deadly or debilitating illness. Diseases like Parkinson’s and Alzheimer’s take a terrible toll on families’ lives and livelihoods. While we have made great strides in biomedical research in recent years, we still don’t have all the keys to unlock the secrets of diseases.

That is why the potential of embryonic stem cells is so exciting. Embryonic stem cells have the ability to develop into virtually any cell type in the human body. Scientists tell us that harnessing the power of these cells could one day lead to new treatments, and maybe even cures, for a number of diseases that afflict American families. Important research is being done every day on stem cells. I am proud that some of this research is being done at the University of Wisconsin in Madison, which was the first to isolate human embryonic stem cells.

We all understand that this research is not without controversy. I respect the concerns that some people have about the use of embryonic stem cells in research, and I agree that we must closely monitor this research to ensure that it is done ethically. However, scientists and disease advocates are warning us that the current limits on Federal funding for research are seriously inhibiting our potential to find new cures. Without expanded Federal support, we risk slowing down the

I believe it is my moral responsibility to direct the Federal Government’s dollars toward research that has the greatest near-term potential to help the largest number of Americans. Over the past several years, Congress has been working on funding for medical research—including increasing the amount of money available for stem cell research—from $15.1 billion in fiscal year 1999 to $28.9 billion in 2007. However, in recent years the cost of fighting the war in Iraq, defending the homeland, and responding against natural disasters like Hurricane Katrina has left very few resources for domestic discretionary spending. In fact, today, the Federal Government spends only one-sixth of its annual budget on nondefense discretionary spending, and I am afraid that exploding entitlement spending threatens to soak up every Federal dollar, leaving no revenue for things like scientific research. There is a tremendous need to pursue treatments for many diseases, but we face a reality of limited funding.

I have to be smart about spending our money. In the current budget environment, I have concerns that increasing funding for embryonic stem cell research will take away opportunities for research in areas like adult and umbilical research that has proven its ability to save human lives—or even for new techniques to help us remove pluripotent stem cells without destroying human embryos.

I have the greatest sympathy for patients and their families who continue to struggle with a wide range of fatal diseases. I understand what it is like to watch a loved one suffer and the tragedy of losing a member of your family—especially a young child. I lost my father to diabetes and my young nephew C.T.—who was only 14—to bone cancer. Like many here today, I have been witness to the devastating effects of Alzheimer’s, arthritis, and many other debilitating diseases. That is why I am sympathetic with my colleagues’ efforts to seek out a panacea. But I fear that too often proponents of embryonic stem cell research make exaggerated claims about this line of research and offer false promises when the evidence is just not there.

I read a great op-ed in The Washington Post by Charles Krauthammer—who has portions of his body and doesn’t believe that life begins at conception—in which he issued a stern warning against pursuing embryonic stem cell research. As he said, he has a very healthy respect for “the human capacity for doing evil in pursuit of good.” And, that is exactly what I see happening in this Chamber today. Too many of my colleagues are focused exclusively on embryonic stem cell research, and they are missing potential that is right under their noses.

I am reminded of Aesop’s fable, “The Stag at the Pool,” in which a stag stops at a spring to drink some water. He looks down at his shadow reflected in the water and greatly admires the size and shape of his beautiful horns, all the while thinking that his feet are too slender and too weak. Just as he is looking at his reflection, a lion appears at the pond. The stag sees the lion in the water and runs as fast as he can to save himself. However, he enters a thicket, his horns get tangled in the tree branches, and the lion catches up to him. Finally, at that moment, the stag realizes that it was his feet that could have saved him and his antlers that led to his downfall.

The moral of the story is: What is most truly valuable is often underrated. I think the same is true on the subject of stem cell research. We have been so focused on what we perceive to be the future of medical research that we have been willing to overlook successful treatments and therapies that are already taking place right under our noses.

In light of all the advances and results science has provided with adult and umbilical cord stem cells, I urge my colleagues to direct Federal funding toward research that will have the greatest near-term impact on human life.

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tremendous progress that could be made to alleviate human suffering.

It would be unconscionable for the Federal Government to turn its back on the discoveries that expanding stem cell research promises. Now more than ever, it is important to grasp this opportunity to make a difference and ethical manner by making sure that potentially lifesaving research keeps moving forward.

Mr. AKAKA. Mr. President, I am proud to be a cosponsor of S. 5, the Stem Cell Research Enhancement Act. We must enact this legislation so that researchers are able to move forward on ethical, federally funded research projects that develop better treatments for those suffering from diseases. Human embryonic stem cells have such great potential because they have the unique ability in developing into almost any type of cell or tissue in the body. Stem cell research holds great promise to develop possible cures or improved treatments for a wide range of diseases, such as diabetes, cancer, Parkinson’s disease, Alzheimer’s, autism, heart disease, spinal cord injuries, and many other afflictions. We must not limit research that could improve the lives of so many suffering individuals.

In August 2001, the President implemented an unworkable, flawed policy that made a small number of human embryonic stem cell lines eligible. The President’s restrictions on stem cell research prevent Federal funds from being used for research on newer, more promising stem cell lines. In addition, embryonic stem cell lines now eligible for Federal funding are not genetically diverse enough to realize the full therapeutic potential of this research. The President’s stem cell policy prevents researchers from moving ahead in an area of research that is very promising. We must enact this legislation to help move research forward that could alleviate the pain and suffering of individuals.

If we fail to enact S. 5, our researchers are likely to fall further behind the world being done in other countries. Australia, Canada, Finland, France, Japan, Singapore, Sweden, and the United Kingdom have provided substantial governmental support for stem cell research.

Too many of my constituents suffer from Alzheimer’s, Parkinson’s disease, diabetes, and other diseases. S. 5 provides some hope for the development of improved treatments that could improve the lives of so many people.

Mr. MCCAIN. Mr. President, I will vote in support of the two bills under consideration today, S. 5 and S. 30, which would provide a framework for Federal support of stem cell research under strict guidelines and ethical criteria. I supported similar legislative proposals during the last Congress.

Stem cell research has the potential to give us a better understanding of deadly diseases and spinal cord injuries affecting millions of Americans. One day, these efforts may lead to cures and treatments for these devastating diseases and conditions. At the same time, it is important and right to recognize the ethical and moral concerns that have been raised by individuals involved in the scientific research community regarding one particular type of stem cell research that involves embryonic stem cells. I believe that these two bills will provide an appropriate framework for moving stem cell research forward in a responsible way.

We must create a framework for Federal support of stem cell research now, since research involving embryonic stem cells is also proceeding outside the United States. While we have had a robust and needed debate on the ethical and moral concerns of embryonic stem cell research, as reflected by the President’s Commission on Bioethics, the same cannot always be said of private industry and scientific research conducted abroad. This research is happening in the world. I am deeply concerned where unregulated research may lead us if researchers are left without ethical and moral guidance and stringent regulations and oversight. It just does not seem to be that way. One bill before us today, S. 5, is similar to H.R. 810, a bill that I supported and that passed the Senate on July 18, 2006. S. 5 will provide the same strict ethical guidelines for stem cell research that one can find in this bill. This bill would authorize Federal support for embryonic stem cell research, but limits appropriately that support to scientists who use embryos originally created for reproductive purposes, and now frozen or slated for destruction by in vitro fertilization clinics. Before there is even consideration of whether to donate unused embryos for research, the legislation would require that the patient who is the source of the embryos be consulted and a determination be made that these embryos would otherwise be discarded, and would never have been implanted in the patient or another woman.

S. 5 also provides support for alternative stem cell research methods by offering increased Federal funding and support for research that does not involve the use of human embryos. Such alternative research was unanimously supported in the Senate last July and deserves our support today. Researchers believe that this type of stem cell research holds tremendous potential and I strongly support their efforts. Millions of Americans affected by many diseases and conditions stand to benefit from the future cures provided by this type of research.

I am also supportive of the other measure that is before us today, S. 30. This bill will also offer increased Federal funding and support for adult stem cell research and other research that does not involve the use of human embryos. Additionally, S. 30 would allow research to be performed on embryonic stem cells taken from naturally dead embryos. This research shows some promise but only additional research will tell whether it can lead to cures and treatments, and we should embrace the opportunity that would be afforded under this legislation to determine the research potential that might exist.

The United States offers an ideal climate for scientific and medical research because of the quality of our educational institutions, the strength of our economy, and the scope of our comprehensive regulatory system for protection of intellectual property rights. The guidelines and requirements contained in S. 5 do not exist currently, and this sort of embryonic stem cell research remains largely unregulated in the private sector and in many scientific communities overseas. Enacting S. 5 would provide the Federal oversight necessary to ensure that embryonic stem cell research does not expand into ethnically objectionable ground in balancing the promise on the one hand, to horizons extended by scientific research with the protection of human life.

It should be clearly recognized that embryonic stem cell research will occur with or without Federal approval and funding. Keeping a balance, I believe embryonic stem cell research is best carried out under strict Federal guidelines and oversight. With the limited Federal support and stringent guidelines afforded under this legislation, we can promote the benefits of stem cell research while maintaining clearly our ethical and moral values and obligations, which we must never sacrifice at any price.

Mr. LEAHY. Mr. President, I wish to express my support for the bill before the Senate this week, S. 5, the Stem Cell Research Enhancement Act of 2007. This legislation will put us on the path of progress by reversing the President’s policy a policy that is holding back the promise of stem cell research.

It is unfortunate that the Congress must even spend time debating this measure. The majority of Americans support stem cell research, as does the Director of the National Institutes of Health, Dr. Elias Zerhouni. It has been 6 years since the President announced his administration’s restrictive policy on stem cell research, which limited the number of stem cell lines available for use with Federal funding. Now we know that all of these lines are contaminated by the feeder cells, and they will probably never meet the standards required for human treatment.

It is clear that, because of the President’s policy, we are now years behind in developing therapies and cures for diseases such as diabetes, Alzheimer’s and cancer. That is time that millions of Americans simply do not have to waste. For millions of others, this wasted time has dampened hope.

Some families who hold out hope for the potential of stem cell research are from Vermont. Many are either afflicted by, or know someone one who is
suffering from multiple sclerosis, Parkinson's or Lou Gehrig's disease. I have met these Vermonters, many of whom are advocating not for themselves, but for future generations who they hope will not endure the debilitating nature of these diseases.

There are others in Vermont who know firsthand the good this research could bring. These are the scientific researchers at the University of Vermont and Dartmouth College who are doing groundbreaking work that needs the support of federal government to be truly successful. These scientists know that the most viable method for progress in research is to expand the number of embryonic stem cell lines that are available.

I would like to take a moment to also address some of the myths perpetuated about what S. 5 will and will not do. Let us be clear: This bill will not allow Federal funds to be used for the destruction of human embryos. While embryos can be used for research on stem cell lines that are derived from human embryos, the creation of these lines cannot be funded with Federal moneys. S. 5 will do nothing to change this policy.

This bill will also ensure that Federal funding will be used only for researching stem cell lines that are derived from human embryos that have been donated from in vitro fertilization clinics. The in vitro fertilization process creates more embryos than are needed, and the remaining embryos will simply never be used. There are more than 400,000 of these embryos that are frozen in fertility clinics, the majority of which will ultimately be destroyed.

This week the Senate will vote on two stem cell bills. While I support both, only one of these bills will take us solidly forward. The time for passage of this legislation is now, and I urge the President not to veto this critical bill.

I hope that the President will heed the advice of his own chief medical researcher in the United States, NIH Director Dr. Zerhouni who, when he testified before the Labor, Health and Human Services Appropriations Subcommittee, said that American science would be better served, and the Nation would be better served, if we let our scientists have access to more cell lines.

As Congress is poised to send this legislation to the White House, I hope the President will take note of Dr. Zerhouni's remarks. I hope that he will also listen to Congress and the millions of Americans who believe that we should support all angles in stem cell research, and sign this bill.

• Mr. DODD. Mr. President, I rise today in support of the Stem Cell Research Enhancement Act. In the coming hours, the Senate will vote to pass this bill like it did last year and unlock the door for researchers across the country to use embryonic stem cells to better understand diseases like Parkinson's and juvenile diabetes so that we may one day find a cure. With each day that has passed since the President vetoed this legislation, nearly 4,100 Americans were diagnosed with diabetes, 3,800 were diagnosed with cancer, 3,000 were diagnosed with Parkinson's, and 2,000 were diagnosed with Alzheimer's. What we are talking about here is research that may one day provide relief to the more than 10 million Americans suffering from Parkinson's, diabetes, spinal cord injury, ALS, cancer, and many other devastating conditions for which there is still no cure.

The legislation we are about to vote on would expand the number of embryonic stem cell lines available for federally funded research by allowing the use of stem cells derived through embryos from in vitro fertilization clinics that would otherwise be discarded. Strict ethical requirements apply to the use of these stem cell lines. In fact, I believe these ethical requirements are one of the most essential provisions of the HELP Committee's bill. When the HELP Committee first began consideration of the President's policy toward embryonic stem cell research in 2001, I have maintained that the pursuit of scientific research that may benefit millions of Americans and their families was as important as ensuring that science did not outpace ethics.

Under this legislation, the only embryonic stem cells that can be used for federally funded research are those that were derived with embryos from in vitro fertilization clinics that were created for fertility treatment purposes and were donated for research with the written, informed consent of the individuals seeking that treatment. Any financial or other inducements to make this donation are prohibited. These embryos will never be implanted in a woman and would otherwise have been discarded. The ethical requirements contained in this bill are stronger than current law. It is possible that some of the 21 stem cell lines approved for Federal funding, the so-called "NIH-approved lines," may not meet the strict ethical criteria contained in this bill.

I have heard some of my colleagues who oppose this legislation argue that this legislation allows, even encourages, taxpayer-funded destruction of human embryos. That is totally false. There is a provision called the Dickey amendment that was attached to every annual Labor-HHS appropriations bill prohibiting any Federal funds from being used to destroy human embryos. This provision is not affected by the embryonic stem cell legislation before the Senate today. Federal funds can be used to study stem cell lines that were derived from human embryos that meet the ethical requirements I just laid out, but the derivation process itself cannot be paid for with Federal money.

I have also heard some of my colleagues who oppose this legislation argue that embryonic stem cell research is unnecessary given the advances in adult stem cell research. There is no question that adult stem cells such as those found in bone marrow and cord blood have led to great advances in patients suffering from leukemia, Hodgkin's disease, sickle cell anemia, among others. I urge the President to reconsider his position on this legislation and not stand in the way of our Nation's scientists who simply want to find the key that will ease the burden of suffering.

Mr. President, I welcome the vote on this important piece of legislation, the Stem Cell Research Enhancement Act of 2007.

Stem cell research holds great hope of providing cures for chronic, incurable conditions from which millions of Americans suffer. But unless we act, the Bush administration will continue to meet this unparalleled moment of scientific discovery with unbridled ideology—and the American people and scientific community will pay the price.

The President's stem cell ban amounts to a ban on hope for millions of Americans. It is time this Congress put an end to the Bush administration policy which is holding science back and holding our Nation back in the race to new medical treatments and discoveries.

I expect that this bipartisan legislation will pass both the Senate and the House. There is a broad consensus in the Congress, among medical experts, scientists, and patient advocates, organizations, and among the American people, demanding that we open the doors to scientific innovation—instead of barring those doors shut.
Even within the Bush administration, there is a desire to pursue stem cell research. The Director of the National Institutes of Health, Doctor Elias Zerhouni, has gone on record supporting expanded access to new lines of embryonic stem cells. I am deeply concerned, however, that we have been down this road before a road that begins with the promise of new cures and ends, not with discovery, but with ideology and a veto by the President.

The promise of stem-cell science is crystal clear—and already being demonstrated. Embryonic stem cells develop into a variety of more specialized types of cells—like nerve cells or muscle tissue that could be used to replace or repair tissue lost or damaged from illness.

In New York, researchers at Memorial Sloan-Kettering Cancer Center have been using embryonic stem cells to develop bone, cartilage or muscle replacements. And in 2006, a team of researchers from Columbia University and another team from Cornell published research on new ways of turning embryonic stem cells into treatments for Parkinson's disease.

There are just several examples, but the work of these scientists and scientists around the world is inspiring hope for millions in New York and the country living with chronic diseases, or caring for a loved one with these conditions.

In fact, New York is leading the way—letting science, not politics, guide research. My State will soon invest $600 million in stem-cell and regenerative medicine research over the next decade. Thanks to this stem cell funding plan, New York researchers will benefit from expanded resources for all types of stem cell research, including embryonic stem cells, adult stem cells, and somatic cell nuclear transfer. And our economy will benefit as well, as we draw great American scientists and innovators pursuing the next great American scientific innovations.

This is encouraging news for New York, but as a Nation, the leadership vacuum under the Bush administration has left the scientific community holding its breath. The Bush administration has put a ban on certain kinds of research, prohibiting Federal funding for any research on stem cell lines created after August 9, 2001.

Federally-funded scientists are limited to less than 20 stem cell lines, instead of the 78 lines advertised. And not all of these lines are even suitable for research. Some may be contaminated with mouse cells, which can increase the risk of creating strains of diseases which can more easily pass to people. Other problems because of the ban include genetic instability, which is associated with formation of tumors, and associations with using so few lines—preventing scientists from collecting evidence they need.

While American scientists are being held back, other countries are racing ahead, putting billions of dollars into stem cell science—creating research institutions, clinical centers, and investments of all kinds to attract scientists from the United States and elsewhere who would rather pursue this research. We are losing ground instead doing what Americans do best: leading the world in innovation, ingenuity, and new ideas. The Bush administration's stem cell policy is impeding science and undermining America's ability to remain at the forefront of biomedical research.

At the same time, the Bush ban is a ban that affects more than 100 million Americans who suffer from Alzheimer's disease, Parkinson's disease, diabetes, muscular dystrophy, cancers as well as for their friends, families, and caregivers.

These are real people I meet every day in New York and across the country who suffer from disease, or a mom whose son or daughter has the disease. It's a senior citizen struggling with Parkinson's disease or a son or daughter with a parent struggling with Alzheimer's.

There are Americans crossing every divide imaginable—hopeful if not for themselves or their children, then for their grandchildren and great grandchildren. My dear friends Christopher and Dana Reeve, whom we lost in the past several years, were eloquent, passionate advocates for this research. Christopher, from his wheelchair, performed his greatest role after his accident, to try and bring the best of American ingenuity to bear on the worst kinds of illnesses and diseases.

I respect my friends on the other side of the aisle who come to the floor with grave doubts and heartfelt concerns. This is a balancing act and we must never lose sight of our ethics and values that sustain us. But we must balance—and I believe we have in this bill.

When the promise of embryonic stem cell research became apparent in the 1990s, the Clinton administration, working through the National Bioethics Advisory Commission and the NIH, examined the ethical and medical issues involved with such research.

In September 1999, the National Bioethics Advisory Commission released its report, ‘Ethical Issues in Human Stem Cell Research.’ In this report, it recommended that research using cells from embryos created, but not used for, infertility treatment, should be eligible to receive Federal funding.

By August of 2000, the NIH had released guidelines for research using stem cells. These guidelines would have allowed funding for research from lines derived from embryos voluntarily donated which would have otherwise been discarded. These recommendations are followed in this bill, which also supports embryonic stem cell research, such as work with stem cells derived from amniotic fluid.

As we wade into these new scientific waters, we must always be steered by our values and morals, which is why I have stood against, and voted to ban, human cloning. We must make a strong legal and ethical stand, but we cannot simply stand still as scientific opportunity passes us by and new cures remain just out of reach.

I applaud the leadership of Senators HARKIN, SPECTER, and KENNEDY on this bill. I am hopeful that we can send the Stem Cell Research Enhancement Act to the President, and end the ban on research and hope for Americans looking to us to fund the next great medical discoveries.

Mr. FEINGOLD. Mr. President, as we debate this important legislation regarding stem cell research, we are reminded of the millions of patients and families across America who await treatment and cures for our most deadly and tragic diseases. Scientists believe that over half of Americans over age 65 suffer from one or more chronic conditions, and at least half a million Americans currently have Parkinson's disease. People of all ages suffer from spinal cord injuries, diabetes and other chronic conditions. As we all know, these can be serious diseases not only for the patient, but also for the patient's family, friends, and community.

I am a strong supporter and proud cosponsor of the Stem Cell Research Enhancement Act. I have heard from many constituents in Wisconsin in support of this legislation, and I am glad that the Senate is again addressing this issue and responding to the requests of millions across the country. It is important that we approve this legislation as expeditiously as possible, and provide the resources that scientists need to develop treatments and cures for these diseases. Millions of patients and their families across the Nation cannot afford to wait any longer for the development of this urgently needed legislation.

Researchers believe that they can unlock enormous potential in stem cell research if Congress and the President will only give them the keys. At the University of Wisconsin in 1998, Dr. James Thomson became the first scientist to break into this new frontier by isolating human embryonic stem cells. Since then, researchers at the University have continued to be leaders in the field of stem cell science. But despite the incredible promise this research holds, it has been limited by the President since 2001. As others have noted, even Story Landis, director of the NIH's National Institute of Neurological Disorders and Stroke and interim chair of the agency's stem cell task force, acknowledges that the President's stem cell policy is holding back potential breakthroughs.

Congress must act to provide more stem cell lines to scientists so that this research can go forward, without the Federal Government standing in the way.

The Stem Cell Research Enhancement Act would allow federally funded
research to be conducted on stem cell lines derived from excess embryos originally created for in vitro fertilization—IVF—that are no longer needed and are donated by couples for research. It is estimated that there are hundreds of thousands of embryos created for fertility treatments that could be used for research and will otherwise be destroyed. This bill does not interfere with alternative stem cell research, but it supports all avenues of research within the ethical limits Congress has established. This bill will open doors for scientists to access new, healthy, uncontaminated stem cell lines that are currently off-limits to federally funded research under President Bush’s restrictions. The embryos that could potentially be used for research are those that will never be implanted. Thanks to this legislation, embryos that would otherwise be discarded could be used for research that could save pain and suffering for millions of people, and the lives of millions more.

While I support the Stem Cell Research Enhancement Act, I have concerns about the other bill we are considering today, S. 30. The language in that bill has not been properly vetted through the scientific community, and it is unclear what effect it might have. S. 30 could potentially limit the scope of current research, even further restricting the availability of stem cells for federally funded research. For these reasons I oppose it.

There is much work that needs to be done to further understand the role that embryonic stem cells can play in providing answers to some of the most troubling medical diseases and conditions that affect so many Americans. The Stem Cell Research Enhancement Act will help our Nation’s researchers get closer to unlocking what this research holds by increasing the quantity and quality of stem cell lines available for research.

Embryonic stem cell research is very important to me and to Wisconsin. I am proud that the University of Wisconsin has played a prominent role in stem cell research in this country. I know that my constituents, and Americans across the country, are eagerly awaiting the benefits that this research will provide.

I hope my colleagues will join me in supporting this incredibly important science which would expand our research horizons, and bring hope to so many people.

Mrs. FEINSTEIN. Mr. President, I rise in opposition to the Hope Offered through Principled and Ethical Stem Cell Research Act, S. 30.

My objection to this bill is simple. This legislation will do nothing to overturn President Bush’s failed policy that is restricting access to viable stem cell lines.

The United States Senate must be very careful when incorporating scientific concepts, and scientific definitions, into legislation. This bill relies on the notion of so-called “naturally dead” embryos to provide viable stem cells. It defines these embryos as:

- having naturally and irreversibly lost the capacity for integrated cellular division, growth, and differentiation that is characteristic of an organism, even if some cells of the former organism may be alive in a disorganized state.

We do not know what the implications of this definition may ultimately be. And the fact is, neither do many scientists. As the leadership of The American Society for Cell Biology wrote yesterday, naturally dead is a scientifically meaningless idea. To our knowledge, there is no scientifically credible way to determine this.

They continue:

It is critically important that the Senate proceed with caution as it continues its work in the area of scientific policy. Legislation based on inaccurate science could have a detrimental impact on the course of the American biomedical research enterprise.

I ask unanimous consent that this letter be printed in the RECORD.

LARRY GOLDSTEIN,
Chair, Public Policy Committee.

Mr. DURBIN. Mr. President, today we made an important step forward for the hope of millions of patients and their families.

Unfortunately, with this important step forward, there was also a small step backward. I had initially stated that I would vote in favor of S. 30, but after carefully reviewing the language, I decided to vote against it.

I will ask to have printed in the RECORD a letter from the Joint Steering Committee on Public Policy that supports S. 5 and opposes S. 30.

The Joint Committee is a group made up of the American Society for Cell Biology, the American Society for Clinical Investigation, the Genetics Society of America, Science Service, and the Society for Neuroscience.

Many of us here believed that S. 30 was a harmless bill.

After all, it is an initiative that would show we are supportive of all forms of embryonic stem cell research.

And I believe that some still feel that way.

But after hearing from a variety of research organizations and scientists, I have serious reservations.

After carefully reviewing the legislation, it is now clear that S. 30 sends the wrong message to the scientific community.

S. 30 puts forth a number of scientific issues that negatively position the scientific debate around what constitutes life and death and raises concepts that may not even be scientifically defined.

As elected officials, we are responsible for complex science issues, we are already in somewhat unfamiliar territory.

If we are to delve deeper into this discussion and the details of it, we need the scientific community on our side.

I stand for the advancement of medical research and I hope that this vote has made it clear.

Hon. HARRY REID,
Senate Majority Leader, U.S. Senate,
Washington, DC.

DEAR SENATOR REID: We would like to express our views about the upcoming Senate debate on stem cells as the President and Public Policy Committee Chair respectively for the American Society for Cell Biology. Our nonprofit, professional society of more than 11,000 members includes many of the leading scientists working in this area.

As you know, it is critically important that scientific debate and discussion be allowed to continue without political interference. We believe that to establish sufficiently precise scientific or clinical standards about the quality of embryos at the very early stages of development would require experiments that the bill itself would not permit.

It is critically important that the Senate proceed with caution as it continues its work in the area of scientific policy. Legislation based on inaccurate science could have a detrimental impact on the course of the American biomedical research enterprise.

I urge my colleagues to join me in opposing S. 30.

EXHIBIT I

THE AMERICAN SOCIETY FOR CELL BIOLOGY,
Bethesda, MD, April 10, 2007.

HON. HARRY REID,
Senate Majority Leader, U.S. Senate,
Washington, DC.

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As you know, it is critically important that scientific debate and discussion be allowed to continue without political interference. We believe that to establish sufficiently precise scientific or clinical standards about the quality of embryos at the very early stages of development would require experiments that the bill itself would not permit.

It is critically important that the Senate proceed with caution as it continues its work in the area of scientific policy. Legislation based on inaccurate science could have a detrimental impact on the course of the American biomedical research enterprise.

I urge my colleagues to join me in opposing S. 30.

BRUCE ALBERTS,
President.

LARRY GOLDSTEIN,
Chair, Public Policy Committee.
Mr. President, I ask unanimous consent to have the aforementioned letter printed in the RECORD.

There being no objection, the material was ordered to be printed in the RECORD, as follows:

JOINT STEERING COMMITTEE FOR PUBLIC POLICY.

Hon. Harry Reid, Senate Majority Leader, U.S. Senate, Washington, DC.

Dear Senator Reid: On behalf of the Joint Steering Committee for Public Policy (JSCPP), I would like to express our support for S. 5, the “Stem Cell Research Enhancement Act of 2007.” S. 5 would expand the current federal policy regarding federally funded embryonic stem cell research to allow the use of cells derived since August, 2001, from embryos originally generated for reproductive purposes that would otherwise be destroyed.

I would also like to express the JSCPP’s opposition to S. 30, the “Hope Offered through Principled and Ethical Stem Cell Research Act.” The purpose of S. 30 is to “promote the derivation of pluripotent stem cell lines without the creation of human embryos for research purposes and without the destruction, discarding of, or risk of injury to a human embryo or embryos other than those that are naturally dead.” S. 5 represents an important step forward for human embryonic stem cell research, a new field that offers great promise for the replacement of damaged cells, the understanding of the mechanics of disease, and the development and testing of new drugs. Unfortunately, current federal policy, in place since 2001, has not kept pace with the speed of scientific discovery and is today of limited value to the scientific community. A position endorsed by the Director of the National Institutes of Health, Elias Zerhouni, at a recent Senate appropriations hearing.

While the JSCPP is supportive of S. 5, we strongly oppose S. 30. S. 30 is proposed as an alternative to S. 5, but contains no substantial measure to reverse current limitations on embryonic stem cell research and simply endorses research avenues that are already open under current law. We oppose the bill because it unnecessarily prevents progress and places confusing and short-sighted restrictions on biomedical research.

The prohibitions in S. 30 against the use of government-sponsor stem cells conflict with methods that generate embryos for research purposes or that involve the destruction of embryos are unnecessary, because the annual Departments of Labor, Health & Human Services and Education Appropriations bill has, for many years, included the same prohibition.

Furthermore, the central provision of S. 30 appears to allow research on embryos considered to be “naturally dead.” We are particularly concerned about this requirement because “naturally dead” is not a scientific term, and there are no scientific or clinical standards for determining the quality of embryos at the early stages of embryonic development.

We are also concerned about the provision in S. 30 that requires a priority to be placed on research “with the greatest potential for near-term clinical benefit.” Not only is it impossible to know the benefits of research in advance, but limiting the scope of research makes a puzzle on the scientific process, placing short-term incremental advances ahead of the more challenging goals of preventing or curing diseases such as diabetes.

For these reasons, we believe that passage of S. 30 would be a significant step backwards for human embryonic stem cell research and for biomedical research in America. Therefore, we urge a “yea” vote on S. 5 and a “no” vote on S. 30.

Sincerely,

Harold Varmus, MD, Chair, Joint Steering Committee for Public Policy.

Mr. ISAKSON. Will the Presiding Officer give us the allocation of time remaining?

Mr. ISAKSON. Thirty-one minutes?

The PRESIDING OFFICER. Forty minutes between Senator HARKIN, Senator BROWNBACK, Senator COLEMAN, and Senator REID. We are in the fourth minute block?

Mr. ISAKSON. Thirty-one minutes?

Mr. ISAKSON. Will the Presiding Officer give us the allocation of time remaining?

The PRESIDING OFFICER. Forty-five minutes for the Senator from Georgia.

Mr. ISAKSON. Mr. President, I listened with interest to the Senator from New York. As a practicing physician and somebody who has delivered over 4,000 children, I cared for both toddlers and young adults with type 1 diabetes. There is nobody who doesn’t want to see that disease fixed. The problem is that there are many things we don’t know are accurate.

What we do know is that yesterday on CNN, an article was released from JAMA showing the treatment of 13 young Brazilians who had type 1 diabetes who are now free from using exogenous insulin. They are on no medicine whatsoever and their sugar is totally controlled. That is one step going forward in all the areas of medicine.

The other comment I will make before I make my final point is, if you talk to anybody in the area of research on Alzheimer’s—Alzheimer’s, and we heard it time and time again, is a devastating disease for individuals who have it, and it is a devastating disease for families who care for their loved ones with it—I don’t know of anybody in embryonic stem cell research or in research in medicine by themselves who has great hopes for a cure of Alzheimer’s with embryonic stem cells. We have heard that claim time and time again. It is not a cure for Alzheimer’s. There is hope. There is beta secretase, which is an enzyme that causes Alzheimer’s to be laid down. There are great medicines coming forward. Some are in trials in patients right now that tend to stop Alzheimer’s in its tracks.

We ought not to be promising things we don’t know or are not realistic in terms of Alzheimer’s. That is the case we want to sum up here. We are, the differences between the two bills. One bill, S. 5, has lots of positives in it. We hear it is not going to destroy any other embryos, there is going to be a grandfathering of the embryos that have been created since. We heard the Senator from New York say something different. We heard the Senator from California yesterday talk about the 400,000 embryos that are frozen today, of which only 2.0 percent are available and less than that number—so less than 250 lines—could totally be created out of all the embryos that are available in this country today.

The answers are kind of sleight of hand. To have an effective embryonic stem cell program other than what is provided in S. 30, means we are going to use Federal taxpayer dollars, indirectly or directly, to destroy embryos. You can say you are not, but the fact is that will happen.

The positives of S. 30? The positives of S. 30 are that it looks at everything. It looks at all the new and upcoming methods. One is altered nuclear transfer. No. 1, you don’t destroy any embryo, you don’t create an embryo, yet you get identical cells to what an embryonic stem cell would be, totally pluripotent, totally capable of doing everything an embryonic stem cell can do.

Why is there resistance to that? Why would there be any resistance to that? There shouldn’t be.

The second point is what we call germ cell pluripotent stem cells. Those are made from the testes and ovaries of us, each of us, and we can have treatments designed for everybody. Every tissue type in the body has now been produced from germ cell pluripotent stem cells, either ovarian or testicular, again, applying the same pluripotent stem cells you get from an embryo, but you never destroy a life.

My friend from Minnesota, one of the coauthors of this bill, makes a great point. Whatever happens at the end of the day—right now this glass of water represents what is happening on embryonic stem cell research. We have federal government funds in this country. There is a whole lot of other research going on with embryonic stem cell outside the Government. It has not dead stopped. As a matter of fact, it is advancing forcefully without Government money.

But the representation is that if S. 5 is passed out of this body and the House, this is what we will see next year: the same amount, because this bill is going to be vetoed.

However, if S. 30 is passed, what we will see is this research, a doubling of the research next year. So one says help people play the political game when we know it is going to be...
the very treatment that is being given to you, is for you to clone yourself. That is the dirty little secret nobody wants to talk about in this debate because once we accomplish with true embryonic stem cells versus altered nuclear transfer any treatment will require antirejection drugs or you having to clone yourself.

The language is very specific. There is no cloning as far as implanting into a uterus, but it doesn’t mean you don’t clone yourself and destroy yourself to meet a need for you.

It is a very complicated ethical issue about which we ought to be very clear. It is not just destroying embryos. It is going the next step now to have an effect from that treatment.

I believe there will be good treatments come out of embryonic stem cell research. I don’t have any doubt about that. I believe exactly those same treatments will come and be better from altered nuclear transfer, from dedifferentiation, which is a term that says you take a cell that is more mature and dedifferentiate it back to a pluripotent cell, or from germ cells, either ovarian or testicular.

We can accomplish the desires of everybody who is hurting in our country today who has a hope and do it in a realistic way with S. 30 that will deliver the goods, deliver taxpayer’s dollars to make a difference. S. 5 will deliver nothing, nothing for at least 2 years, because this President won’t sign it.

So the consequence and the question that comes back to us is: Are we going to do something meaningful or are we going to play the political game that in the long term has no meaning, at least for the next 2 years?

I yield back my time to the Senator from Georgia.

Mr. ISAKSON. Mr. President, I thank the Senator from Oklahoma.

I yield up to 15 minutes of our time to the distinguished Senator from Minnesota, Mr. COLEMAN.

The PRESIDING OFFICER. The Senator from Minnesota.

Mr. COLEMAN. Mr. President, I thank my colleague from Oklahoma, who brings a physician’s perspective.

We hear so often on the floor of the Senate that we need to look in the eyes of young kids with juvenile diabetes and say: Are we doing all we can do? My colleague from Oklahoma has dealt with that on a regular basis. He stands with me, and I thank him for his support.

In the end, there is a practical conclusion, as he demonstrated with the glasses of water. If you want an answer, if you want to look those kids in the eyes, talk to the families of folks who are suffering today, with S. 30, you can look them in the eye and say: Today I have done what I can to move the science forward, to have additional Federal support for embryonic stem cell research but research which, in the end, is unifying research.

Dr. William Hurlbut, who is one of the authors of a technique known as altered nuclear transfer, used a phrase that I borrowed. It is an island of unity and a sea of controversy. That is what S. 30 offers, an island of unity and a sea of controversy. There is disagreement in this country about the use of Federal dollars for the destruction of a human embryo. That is a reality. In the end, scientific advancement should be something that is unifying. It shouldn’t be tearing this country apart. You shouldn’t worry, if you are going into a hospital for some kind of treatment, whether there is some moral line that has been crossed for you as an individual. You shouldn’t have to do that. We shouldn’t put people in that position.

The good news we don’t have to. It is fascinating. I think the science has gotten ahead of the politics. I have no doubt, as I listened to this debate, these are people of good will on both sides. My friends, of good will, supporting both proposals, but I believe the same ultimate kind of vision to improve quality of life, to enhance scientific research, to put an end to debilitating and threatening disease and illness, is the sort of common bond we have, people of good will.

I suppose a number of years ago, individuals of good will, good moral background, religious background, may have come to a conclusion that they would support the destruction of a human embryo for the opportunity to do good today for someone who is here. It is a line some of us can’t cross. We bring deeply held moral perspectives to this issue. I understand others of good faith, religious background and belief, say this is the line, this is the right thing to do.

I heard my colleagues on the other side quote scriptures and pastors and others—my friends, of good will, and good heart. In the past, that may have been the only path to where we wanted to go.

The Clinton administration looked at this. In fact, this is the language they used in 1999. President Clinton’s National Bioethics Advisory Commission issued a report entitled “Ethical Issues in Human Stem Cell Research” acknowledging that a week-old human embryo is a form of human life that deserves respect. The Commission stated:

In our judgment, the derivation of stem cells from embryos remaining following infertility treatments—

These are the embryos we are talking about here, IVF—is justifiable only if no less morally problematic alternatives are available for advancing the research.

Science has moved ahead of where we were in 1999. I was on the phone a little while ago with a Dr. Landry from Columbia University. Dr. Landry talked about a stem cell line coming from dead embryos that has all the capacity, pluripotency of the stem cell lines from fertility clinics. So a “less morally problematic alternative” is available.

My friend and colleague from Georgia, the coauthor of this legislation,
knows from Georgia experience that scientists worked on dead embryos. I thought about it, and I believe it is part of the 21 lines the President authorized for embryonic research. The work is being done. The reality is there are cell lines available today that are not eligible for Federal funding. That is, in part, because we have a policy that says no Federal funding for embryo stem cell research. But if we pass S. 30, and S. 30 gets signed into law, then we have available Federal funding for embryonic stem cell research that would not be available today.

That is then “morally less problematic” because it does not involve the destruction of a human embryo.

When we talk about a dead embryo, my colleague from Georgia has done a very good job. My colleagues may have said: It is a dead embryo. What can you get out of a dead embryo? Let me explain two concepts. They are at the heart of this debate. I am not a scientist, but I have learned a lot about pluripotency, the capacity of a cell to give rise to many different cell types. Embryonic stem cells, those that have come from in vitro fertilization clinics, they have pluripotency. They have this elastic ability to give rise to almost any type of cell. So maybe sometime in the future you can create stronger heart muscles. Today, in fact, with some types of stem cell research, that is being done. Maybe you can grow limbs. Maybe you can cure diabetes. There is an incredible capacity, pluripotency.

There is also this concept of totipotency. Totipotency is the capability of a zygote or other cell to develop into a complete, integrated human being. The line we are talking about today between S. 5 and S. 30 is the line between pluripotency and totipotency. We all support research that will provide for pluripotent stem cells, pluripotent cells that have the capacity to be almost anything.

The dividing line, though, is whether you have totipotency, so with a human embryo, cells that are involved in a fertility clinic—I am going to switch charts and talk about a couple of other techniques that involve pluripotency but not totipotency. What we look at with dead embryos are cells that are pluripotent. I don’t know if it is a great analogy, but even after death we can harvest organs that have the ability to be almost anything.

The other approach is an approach known as altered nuclear transfer. That, by the way—I say “the approach.” There are a number of other approaches out there. My colleague from Oklahoma talked about that. I think he talked about different techniques. He talked about germ plasm and that. There are a number of different procedures and techniques that have strong scientific support that allow us to produce pluripotent cells without totipotency. They allow us to produce embryonic stem cells that have all the capacity for research that gives us the hope we are talking about without creating a human embryo that does not involve, then, the taking of human life; that does not involve the moral line that many have drawn.

Not all. There is a difference in this. That is why I am saying, what S. 30 does is it gives us this island of unity in the sea of controversy. What it does is allow all of us—and I do hope all my colleagues are on this issue—support for S. 30. Why would you be opposed to Federal funding for embryonic stem cell research that advances us?

My colleague from Oklahoma used the two glasses of water. If you support S. 5, all you are going to get tomorrow—in January 2008, S. 5 passes. It passes in the Senate, passes in the House, it is vetoed. We have this much right now—I believe it is about $130 million. The hope that represents in research, embryonic stem cell research. Those are the 20-something lines left the President authorized.

In January of 2008 you are going to get $132 million of federal-funded stem cell research. But if we pass S. 30, what we have then is the opportunity for research in a range of other areas, perhaps doubling and maybe more—I would hope much more—of stem cell research, perhaps to get the capacity to do all the practices and provide the hope.

We are, by the way, a long way away in reality from human treatments, but it is hope. That is what this bill is, this is the HOPE bill.

One of the other mechanisms we talked about is altered nuclear transfer. Just to explain, in the natural fertilization process, biology 101, you have the sperm, you have the egg, you get the fertilized egg, and you get the embryo.

In the clone what you have is the egg cell, you emulate it—you take out the center. This may come from a fingernail or skin, whatever, a cell with all the DNA, and you insert it into this enucleated egg. You activate it and then you get an embryo. I think that is the way Dolly the sheep came about.

By the way, my colleague from Oklahoma talked about this. If we are going to do that, we should do that, and we are going to take this embryo and we are going to create stem cells and we put that into you or me, you are going to have an immune reaction, and your whole life—if you put this in you, you are, for your whole life, going to have to deal with immune reaction suppression and the drugs. The only way around that is the Dolly approach. If you create stem cells from your own cells there is no immune reaction.

We are not talking about that, although there are cases of others who raise the concern: How do you get ultimately where you want to go without that possibility?

Another way is the altered nuclear transfer. You take the genetic material, the somatic cell, fingernail or something, and what you do before you insert it into this enucleated egg is touch off a trigger mechanism that has the ability to make an embryo, but it still creates an inner cell mass with pluripotent cells—the capacity of a cell to give rise to many different types of cells. Do all the research you want.

S. 5 provides funding for new stem cell research. It provides the opportunity to do all that one wants to do without crossing the moral line. Why wouldn’t we get there?

My great fear is that what will happen this year is what happened last year. In the Senate there was a bill, the Specter-Santorum bill, which, by the way, did not provide for all that we have in S. 30. It did not provide for the dead embryo research. I think it may have provided for the HOPE bill.

The good news is that is included in S. 5, but S. 5 is going to be vetoed so that doesn’t go anywhere.

Last year that passed, 100 to 0, a bill with some alternate measures. But, again, we have gone way beyond last year, this year, in terms of the science.

The House refused to hear it. They took an all-or-nothing approach: If you don’t support the destruction of a human embryo to do stem cell research we are not passing anything. Where is the hope in that? As you look at this I challenge my colleagues on the other side of the aisle to tell their colleagues in the House: Give the hope we have talked about on this floor, the hope we all agree on, the hope that there is just consensus on that we want to move the research forward. Do not let some kind of politics that I cannot understand stop us from moving forward with the opportunity to move research that can produce hope.

There are many scientists who have kind of said: Yes, we looked at ANT and we know it can work and we need to put our efforts into that. I will read a couple of quotes:

Research results suggest that altered nuclear transfer may be able to produce human pluripotent stem cells—in a manner that is simpler and more efficient than current methods.

That is by Hans Scholer, chair of the Department of Cell and Developmental Biology at the Max Planck Institute in Germany.

Recently, multiple labs in the United States and from around the world have published or reported experiments in which adult cells were converted not to embryos but directly to pluripotent embryonic-like cells. The resulting cells were virtually indistinguishable from embryonic stem cells derived from embryos. The techniques used involved altered nuclear transfer, cell fusion and chemical reprogramming. The results were obtained from top scientists in the field and published in the best journals.

That was by Markus Grompe, M.D., Oregon Stem Cell Center.

It is fascinating, those scientists that support just embryonic stem cell research without anything, they will tell
you nothing else works; this is the whole ball of wax: my way or the highway. Then you have scientists who support these alternatives who say: Yes, this is the best way to go. Maybe it is about Federal funding. Maybe you don’t believe your way is the only way so you won’t go to get Federal dollars. We have to get past the politics. We have to get past the petty scientific divisions and simply look at what we have out there and embrace and seize the opportunity to move beyond this way that is cohesive that gets this Nation outside of the culture wars, outside of the battles over Federal funding for the destruction of human life. Put it aside. We don’t have to go there today. Science is offering us a better path.

The PRESIDING OFFICER (Mr. Brown). The time of the Senator has expired.

Mr. COLEMAN. I urge my colleagues to take a look at S. 90, regardless of where you stand. This is a bill that deserves unanimous support. In the end, let’s work on our friends and colleagues in the House to pass the law so that we have, in the end, one the President will sign, one which offers a better path.

I yield the floor.

Mr. ISAKSON. How much of our time remains?

The PRESIDING OFFICER. The Senator from Florida.

Mr. ISAKSON. I will acknowledge, given the agreement we previously made, I think I will only take 5 of those. I recognize myself for 5 minutes.

The PRESIDING OFFICER. The Senator from Georgia is recognized.

Mr. ISAKSON. I acknowledge the patience of the Presiding Officer. I know the Presiding Officer was in the chair last night when the Senator from Iowa and I had an exchange. I want to repeat some of what was said, so I apologize to the distinguished Presiding Officer, but in the end I want to try to synthesize what got me to the point of being a part of S. 30.

In August 2001, when the directive came down, I started learning about stem cells. When the veto took place last year, I wondered what more I needed to know to try to find a way to deal with the concerns of some but the compassion of everyone. I stumbled upon a professor at the University of Georgia, Dr. Steven Stice. I really didn’t stumble upon him; one of my interns, an honor student, directed me to him. He said he was doing research in this area.

As it turned out, he was operating three stem cell lines, lines BGO1, BGO2, and BGO3. So I went to the university and spent 2 days going through what their research team was doing and the way in which they were derived. I came to learn that Dr. Stice and his team, like teams in California, Wisconsin, and other States that have since created embryonic stem cells this way, derived them from what is known as naturally dead or arrested embryos. Those are embryos that after 7 days following in vitro fertilization stopped cellular division. The embryo itself is clinically dead, as is a human being who is brain dead, although all their other organs are working. But contained within that embryo are stem cells. So it has gone through a natural process of cellular division, and the independence of those lines:

- Lines BGO1, BGO2, and BGO3, human embryonic stem cells are, therefore, independent, undifferentiated and pluripotent lines that can be maintained without an accumulation of karyotypic abnormalities.

It took a long time to practice those two words and say them right, but what that practically means is exactly what we all seek.

That is, embryonic stem cells that have the full potential for research, to answer the hope all of us in this room have expressed today, can, in fact, be derived from embryos that are not destroyed by the human hand but through the natural process of the life cycle.

So I asked myself this question: Well, if this is a legitimate debate—which it is a legitimate debate—if science has found there is a way to derive these stem cells without the destruction of the embryo, and if—which is true—5 of the 21 lines currently exempted by the Presidential order of 2001, are, in fact, 5 1/2 years of study side by side with stem cells derived by destroying the embryo, and if we have clear evidence they are undifferentiated, they are pluripotent, and they do not have abnormalities, then this is the answer to thread the needle to solve the problem. The White House has acknowledged they will sign the bill. So with respect for every Member of this Senate who has eloquently spoken on behalf of the hope of furthering research, I do not know what the results of the research are going to be, but I know this: If we do not do it, we will never know, and if there is a way to do it and accelerate it and thread the needle, which this does, then I submit we should do it.

I would encourage all of my colleagues to support S. 30.

I acknowledge the tremendous work of the Senate of Miami-Dade and others who have helped. I appreciate the time allotted to us in this debate. In the end, I think the most used word in the last 2 days has been “hope.” There is now a hope that we actually have, in the end, one the President will sign, one which offers a better path. That is fair?

Mr. BROWNBACK. Mr. President, if the Chair would please remind me when I have a minute left of my time.

The PRESIDING OFFICER. The Chair will do that.

Mr. BROWNBACK. I wish to start by entering into the Record four documents and briefly covering them as much as possible. I ask unanimous consent that all four of these documents appear directly after my testimony.

The PRESIDING OFFICER. Without objection, it is so ordered.

Mr. BROWNBACK. This first one is the list of 72 current clinical applications using adult stem cell therapy. No ethical problems on these. Actually, the list now is 73. I will cover that in just a minute, but I want to get that in.

I want to back this letter up, or this statement up, with a letter that appeared in the magazine Science, January 19, 2007, that was refuting the article—that was a letter put forward by other individuals questioning this level of adult stem cell therapy and treatment.

Then this letter which was in the Journal of Science was backed up by the third document we have here, which is a list of 14 pages of the peer-reviewed scientific articles on adult stem cell therapies and the benefits those have produced.

Then the final document we have here in this stack that I will be putting forward is the article that just appeared out even today from JAMA, the Journal of American Medical Association, on Type 1 juvenile diabetes being treated with the use of adult stem cells. The results—I am just going to
read these, because they are just so phenomenal, from this JAMA article: During a 7- to 36-month followup, 14 patients became insulin free; one for up to 35 months with this treatment.

This was an adult human stem cell treatment. A patient was not able to become insulin-independent.

The reason I cite that is it is such an exciting set of results. People have been talking on the floor a great deal about curing diabetes. Here we have a JAMA article, as I have noted to my colleagues earlier. The unfortunate thing is the actual test took place in Brazil instead of the United States even though it was designed and much of it was done by U.S. scientists at Northwestern University and other places. The work should be being done in the United States.

Point one being, we don’t have to go there with the taxpayer funding destroying this young human life. I would hope my colleagues would say that granting it itself is enough information for me to say we do not need to cross this ethical boundary. The ethical boundary we are talking about yet again is using taxpayer dollars to fund the destruction of human life so we can research entities. Some would refer to it as potential for human life; that is human life, so we can research on it.

Do we want to cross that ethical boundary that has everybody in some what of a question of whether they want to do this or not? I would submit, No. 1, we do not need to; we have routes to go that work. No. 2, we should not do that in researching on human life because of the respect we have and the dignity afforded to each and every human life at all stages, at all places, for the human existence this individuals has.

Proverbs tell us this: There is a way that seems right to a man, but its end is the way of death. There is a way that seems right to a man, but its end is the way of death.

That would seem to really highlight this debate—the way that seems right to a man, but its end is the way of death. There is a way that seems right to a man, but its end is the way of death.

We can do that. Reject S. 5.

Mr. BROWNBACK. I think we can do that. We can continue down this route of division. Why would we do that when in the balance sit patients in this country and around the world who seek our help? I have shown you many pictures of those who have gotten help but need more and are having to travel overseas for these treatments. Let’s not force them to do that.

Let’s stop the politics of division. Let’s start working together and have a culture that respects human dignity. We can do that. Reject S. 5.

72 CURRENT HUMAN CLINICAL APPLICATIONS USING ADULT STEM CELLS

72 CURRENT HUMAN CLINICAL APPLICATIONS USING ADULT STEM CELLS

The PRESIDING OFFICER. The Senator has 1 minute remaining.

Mr. BROWNBACK. I think we can do that. We can continue down this route of division. Why would we do that when in the balance sit patients in this country and around the world who seek our help? I have shown you many pictures of those who have gotten help but need more and are having to travel overseas for these treatments. Let’s not force them to do that.

Let’s stop the politics of division. Let’s start working together and have a culture that respects human dignity. We can do that. Reject S. 5.

Fancioni’s anemia
Chronic Epstein-Barr infection (similar to Mono)

AUTO-IMMUNE DISEASES

Systemic lupus (auto-immune condition that can affect skin, heart, lungs, kidneys, joints, and nervous system)
Sjogren’s syndrome (autoimmune disease causing symptoms similar to arthritis)
Moya-Moya (An autoimmune neurovascular disorder)
Autoimmune cytophenia
Scleromyxedema (skin condition)
Scleroderma (skin disorder)
Crohn’s disease (chronic inflammatory disease of the intestines)
Behcet’s disease
Rheumatoid arthritis
Juvenile arthritis
Multiple sclerosis
Polychondritis (chronic disorder of the cartilage)
Systemic vasculitis (inflammation of the blood vessels)
Alopecia universals
Buerger’s disease (limb vessel constriction, inflammation)

BLADDER DISEASE
End-stage bladder disease

PROSTATE CANCERS

Brain tumors—medulloblastoma and glioma
Reticoblastoma (cancer)
Ovarian cancer
Skin cancer: Merkel cell carcinoma
Testicular cancer
Lymphoma
Non-Hodgkin’s lymphoma
Hodgkin’s lymphoma
Acute lymphoblastic leukemia
Acute myelogenous leukemia
Chronic myelogenous leukemia
Chronic myelomonocytic leukemia
Juvenile myelomonocytic leukemia
Cancer of the lymph nodes: Angioimmunoblastic lymphadenopathy Multiple myeloma (cancer affecting white blood cells of the immune system)
Myelodyplasia (bone marrow disorder)
Breast cancer
Neuroblastoma (childhood cancer of the nervous system)
Renal cell carcinoma (cancer of the kidney)
Soft tissue sarcoma (malignant tumor that begins in the muscle, fat, fibrous tissue, blood vessels)
Ewing’s sarcoma
Various solid tumors
Waldenstrom’s macroglobulinemia (type of lymphoma)
Hemophagocytic lymphohistiocytosis
POEMS syndrome (osteosclerotic myeloma)
Myelofibrosis

CARDIOVASCULAR

Acute Heart damage
Chronic coronary artery disease

IMMUNODEFICIENCIES

Severe combined immunodeficiency syndrome
X-linked lymphoproliferative syndrome
X-linked hyper immunoglobulin M syndrome

LIVER DISEASE
Chronic liver failure
Liver cirrhosis

NEURAL, DEGENERATIVE DISEASES & INJURIES:
Parkinson’s disease
Spinal cord injury
Stroke damage

OCULAR
Corneal regeneration

WOUNDS & INJURIES
Limb gangrene
surface wound healing
Jawbone replacement
Skull bone repair

Other Metabolic Disorders
Hurler’s syndrome (hereditary genetic disorder)
Osteogenesis imperfecta (bone/cartilage disorder)
Krabbe Leukodystrophy (hereditary genetic disorder)
Osteoporosis (genetic bone disorder)
Cerebral X-linked adrenoleukodystrophy

“It is nearly certain that the [human] clinical benefits of the [embryonic stem cell] re- search are years or decades away. This is a measure that families and patients will not want to hear.”—Science, June 17, 2005

EXHIBIT 2
TREATING DISEASES WITH ADULT STEM CELLS

In their letter “Adult Stem Cell Treatments for Diseases?” (28 July 2006, p.439), S. Smith et al. claim that we misrepresented a list of adult stem cell treatments benefiting patients. But it is the letter’s authors who misrepresent our statements and the published literature, dismissing as irrelevant the many patients and families who have shown the benefits of adult stem cells.

We have stated that adult stem cell application was “helped,” “benefited,” and “improved” patient conditions. Smith et al. are now saying that “Supporting Online Material repeatedly notes patient improvement from these cells. We have never stated that these treatments are generally available, cures, or fully treated in all required phases of clinical trials and approved by the U.S. Food and Drug Administration.” Some studies do not require prior FDA approval, and even the nine supposedly “fully approved” treatments acknowledged by Smith et al. would not be considered “cures” or “generally available” to the public at this stage of research.

The insistence that no benefit is real until after FDA approval is misplaced. Such approval is not a medical standard to evaluate patient benefit, but an agency determination that benefits outweigh risks in a broad class of patients. Physicians and patients use an evidence-based list of “useful” treatments, compiled from peer-reviewed articles, documents observable and measurable benefit to patients, a necessary step toward formal regulatory approval. But what is needed is the development of new, cutting-edge medical applications.

Smith et al. also mislead regarding citations for testicular cancer and non-Hodgkin’s lymphoma, referring to “[the reference Prentice cites . . . as though only one reference existed in each case, and not mentioning four other references that, according to their own SOM, show “improved long-term survival” of patients receiving adult stem cells. There are currently 1238 FDA-approved clinical trials related to adult stem cell treatments, including at least 5 trials regarding testicular cancer and over 24 trials with non-Hodgkin’s lymphoma. They also disregard studies showing successful stimulation of endogenous cells for Parkinson’s.

The ethical and political controversy surrounding embryonic stem cell research makes scientific claims especially prone to exaggeration. All such claims should receive careful scrutiny, as recently acknowledged by the editors of this journal after two articles claiming human “therapeutic pregnancy” were revealed to be fraudulent. This scrutiny should be directed equally to all sides. We note that two of our critics, Neaves and Teitelbaum, are founding editors of this journal and were acknowledged by the editors of this journal for their support of stem cell therapy. We note that two of our critics, Neaves and Teitelbaum, are founding editors of this journal and were acknowledged by the editors of this journal for their support of stem cell therapy.

We note that two of our critics, Neaves and Teitelbaum, are founding editors of this journal and were acknowledged by the editors of this journal for their support of stem cell therapy.
Bone Marrow Transplantation 37, 1003–1008, 2006.
Angioinmunoblastic Lymphadenopathy with Dysproteinemia


Multiple Myeloma

Aviles A et al., Biological modifiers as cytoreductive therapy before stem cell transplantation in previously untreated patients with multiple myeloma, Annals of Oncology 16, 2189–2205; 2005.

Vesole, DH et al.; “High-Dose Melphalan With Autotransplantation for Refractory Multiple Myeloma: Results of a Southwest Oncology Group Phase II Trial”; J Clin Oncol 17, 2173–2179; July 1999.

Myelodysplasia


Breast Cancer


Neuroblastoma


Renal Cell Carcinoma


Soft Tissue Sarcoma


Ewing’s Sarcoma

Drabko K et al., Megachemotherapy followed by autologous hematopoietic stem cell transplantation in children with Ewing’s sarcoma, Pediatric Transplantation 9, 618–621, 2005.

Various Solid Tumors

Pedraozzi P et al., High-dose chemotherapy and autologous hematopoietic stem cell support for solid tumors other than breast cancer in adults, Annals of Oncology published online 17 March 2006.

Nieboer, “Long-term haematological recovery following high-dose chemotherapy with autologous bone marrow transplantation or peripheral stem-cell transplantation in patients with solid tumours”; Bone Marrow Transplant 27, 959–968; May 2001.


Schilder, RJ et al.; “Phase I trial of multiple cycles of high-dose chemotherapy supported by autologous peripheral-blood stem cells”; J. Clin Oncol. 17, 2198–2207; July 1999.

Waldenstrom’s Macroglobulinemia


Hemophagocytic Lymphohistiocytosis


POEMS Syndrome (Osteosclerotic Myeloma)


Myelofibrosis


Behcet’s Disease


Rheumatoid Arthritis


Burt RK et al., “Induction of remission of severe and refractory rheumatoid arthritis by autologous mixed chimerism”, Arthritis & Rheumatism 50, 2466–2470, August 2004.;


Juvenile Arthritis


Multiple Sclerosis


Polychondritis


Systemic Vasculitis


Alopecia Universal

Seifert B et al., Complete remission of alopecia universalis after autologous hematopoietic stem cell transplantation, Blood 105, 426–427, 1 January 2005.

Buerger’s Disease


IMMUNODEFICIENCIES

Severe Combined Immunodeficiency Syndrome


Cavazzana-Calvo M et al.; “Gene therapy of severe combined immunodeficiency (SCID)–X1 disease”; Science 288, 669–672, April 2002. (NOTE: gene therapy using bone marrow adult stem cells as gene vehicle.)

X-Linked Lymphoproliferative Syndrome and X-Linked Hyperimmunoglobulin M Syndrome

Banked unrelated umbilical cord blood was used to reconstitute the immune system in 2 brothers with X-linked lymphoproliferative syndrome and high-titered hyperimmunoglobulin M syndrome. Two years after transplantation, all 3 patients have normal immune systems. These reports document the successful use of matched partially HLA-matched cord blood for transplantation in primary immunodeficiencies.

Reference:

Eight children with severe immunodeficiencies treated by adult bone marrow stem cell transplants. Six of 8 showed relatively normal immune systems after 1 year.

Reference:

ANEMIAS AND OTHER BLOOD CONDITIONS

Sickle Cell


Adamkiewicz TV et al., Transplantation of unrelated placental blood cells in children with high-risk sickle cell disease, Bone Marrow Transplant. 34, 405–411, Sept 2004.


Sideroblastic Anemia


Aplastic Anemia


Red Cell Aplasia


Aneukaryocytic Thrombocytopenia

Yesilipek et al.; “Peripheral stem cell transplantation in a child with aneukaryocytic thrombocytopenia”; Bone Marrow Transplant 26, 571–572, Septe. 2000.

Thalassemia


Primary Amyloidosis


Diamond Blackfan Anemia


Fanconi’s Anemia

Bittan M et al., Fludarabine-based reduced intensity conditioning for stem cell transplantation of fanconi anemia patients from fully matched related and unrelated donors, Biol Blood Marrow Transplant. 12, 712–718, July 2006.


Kohli-Kumar M et al.; “Haemopoietic stem-progenitor cell transplant in Fanconi’s anemia by using HLA-matched umbilical cord blood cells”, British Journal of Haematology 85, 419–422, October 1993.
Chronic Epstein-Barr Infection

Fuji N et al.; “Allogeneic peripheral blood stem cell transplantation for the treatment of chronic active Epstein-Barr virus infection”; Bone Marrow Transplantation 26, 855–860; Oct 2000.


ADULT STEM CELLS-REPAIR/REPLACEMENT OF SOLID TISSUES

METABOLIC DISORDERS

Hurler's Syndrome

Cox-Brinkman J et al., Haematopoietic cell transplantation (HCT) in combination with enzyme replacement therapy (ERT) in patients with Hurler syndrome, Bone Marrow Transplantation 38, 17–21, 2006.


Koo ON et al., Allogeneic mesenchymal stem cell infusion for treatment of metachromatic leukodystrophy (MLD) and Hurler syndrome (MPS-III), Bone Marrow Transplantation 29, 1045–1052; 2002.

Osteogenesis Imperfecta


Krabbe Leukodystrophy


Osteopetrosis


Schulz et al., HLA-haploidentical blood progenitor cell transplantation in osteopetrosis, Blood 99, 3438–3440, 1 May 2002.

Cerebral X-Linked Adrenoleukodystrophy


CNS

Corneal Regeneration


LIMBS & INJURIES

Limb Gangrene


Surface Wound Healing


Jawbone Replacement


Skull Bone Repair


Heart Damage

Acute Heart Damage


Perin EC et al.; “Transendocardial, autologous bone marrow cell transplantation for severe, chronic ischemic heart failure”; Circulation 107, 745–754; published online May 2003.


Strauer BE et al.; “Myocardial regeneration after intracoronary transplantation of human autologous stem cells following acute myocardial infarction”.” Circulation 107, 893–902; published online May 2003.


Chronic Coronary Artery Disease


NEURAL DEGENERATIVE DISEASES & INJURIES

Stroke


Stilley CS et al., Changes in cognitive function after neuronal cell transplantation for basal ganglia stroke, Neurology 63, 1320–1323, 12 October 2004.


Parkinson’s Disease

Using Direct Stimulation of Patients’ Enzymogenous Adult Neural Stem Cells


Sievin JT et al., Improvement of bilateral motor functions in patients with Parkinson's...
Congressional Record — Senate

April 11, 2007

S4365

Back in August of 2001, President Bush greatly limited the number of embryonic stem cells that were available for federally funded research. Those limits were based on inaccurate science and ideology, and they have restricted our ability to make progress. And what President Bush said there were 78 stem cell lines available for federally funded research, but now we know there are only 21 such lines. Researchers, those men and women whom we count on to find cures to the diseases that impact so many of our families, are eager to provide that help, but today, I urge all of our colleagues to do so.

Mr. President, I yield myself 10 minutes from this side.

Mr. President, I come to the floor today to speak out in strong support of the promising research that can save lives and bring hope to millions of Americans. I will vote for the Stem Cell Enhancement Act of 2007, and I urge all of our colleagues to do so.

More importantly, I urge President Bush to finally hear the voices of scientists, patients, and families waiting for answers. I urge him to lift both the presidential and legislative restrictions that have strangled our ability to make progress. The first consequence of the President’s arbitrary restrictions has been to limit hope and to limit progress for families who suffer from these diseases. The second impact has been to push embryonic stem cell research overseas. That means that our country is falling behind other countries in a cutting-edge field.

Because of the President’s imposed arbitrary limits, we are now in this country surrendering our scientific leadership to other countries. That can only be to the disadvantage of our scientific frontiers so our country and all of us can benefit from the new advances.

The bill we are considering today and will vote on this evening will lift the President’s arbitrary restrictions and put in place expanded research under strict ethical guidelines. It would direct the Department of Health and Human Services to conduct and support research on stem cells that are derived from frozen embryos that are now stored in fertility clinics that would otherwise be destroyed. This bill also promotes research into finding alternative ways to derive stem cells that do not involve the destruction of an embryo. This bill imposes strong ethical guidelines. In fact, the guidelines in this bill are even stricter than the President’s policy.

Embryonic stem cell research is a relatively young field. These cells were first isolated in 1998. Scientists believe that embryonic stem cells are more valuable than adult stem cells because they can develop into any type of cell or tissue in the body. Think of all the veterans who are coming home from the war in Iraq who have spinal cord injuries. Think of all the veterans of the first gulf war who are now being diagnosed with multiple sclerosis and who could be helped by this promising research.

In my own family, I have seen up close and personally the impact a disease such as multiple sclerosis can have. When I was 15 years old, my dad was diagnosed with multiple sclerosis.
I saw him in just a few years going from working to being someone who was home in a wheelchair every single day every single minute. For the rest of his life, my father was confined to a wheelchair. I can't tell you what a profound impact that had on my family. My mother had to go to work and get a job and she had to stay home and take care of him, all at the same time. It was a very difficult time for my family, and there were many long, lonely nights. The challenges my family went through because of my dad's illness were incredible. I can only imagine what it might have been like had there been a cure for MS for my family and for thousands of others. When I was growing up, the promise of this type of research was not even on the horizon. Today that potential is in our hands. We need to do everything we can to make sure that that research is done so families such as mine have hope and opportunity.

I hope we don't see it continually blocked by an ideological policy that puts politics over science. It is time to change course and put our Government on the side of the patients and their families and to give them hope again.

Last month the Director of the National Institutes of Health told us:

(1) It is clear today that American science would be better served and the nation would be better served if we let our scientists have access to more cell lines . . .

The NIH Director said that existing lines will not be sufficient for the research that needs to be done, and he said that adult stem cells do not have the same potential as embryonic stem cells. That is the scientific view of the Director of the National Institutes of Health. The Senate and the President would be very wise to heed his counsel.

I know what it is like to grow up with someone who has a serious illness. I can only imagine what it would have been like to know there was hope and a chance for a cure. I know of many families out there who have been waiting for this day in the Senate, for us to vote and pass this important stem cell research bill. I commend Senator HARKIN for his perseverance in coming back and again pushing at this as one of the first pieces of legislation we consider in this Congress. We all know it has a ways to go. We know the President has said he might veto it. I hope he doesn't. I hope he sends a message to some young girl out there whose dad has just been diagnosed with multiple sclerosis that we are a country of hope once again.

I urge my colleagues to vote for S. 5. I look forward to its passage today, moving through conference. I hope it will be signed by the President.

I yield the floor.

Mr. HARKIN. Mr. President, how much time do I have?

THE PRESIDING OFFICER. The Senator from Iowa has 21⁄2 minutes remaining.

Mr. HARKIN. Mr. President, we are getting close to the end of the debate, we have some floor time in the next hour or so to go back and forth. I thought I might take a few moments now to talk about why it is so necessary that NIH and the kind of research, to oversee this research. The Senator from Oklahoma said that a lot of research is going on now on embryonic stem cells. To be sure, it is. It is going on in different States, in private institutions, in England and Australia and Singapore and a few other countries. Why do we want to get the Federal Government involved? First, there is no other area of medical research in which we say the Federal Government should step aside and let the States do it. I know of no other area of medical research.

I always look at the human genome project. What if we had said to the States: We are not going to do it. You do it. They might have sequenced one or two genomes and let the private sector do it. They would have been getting patents on it or everything like. Now we have the mapping and sequencing of the entire human gene, and you can go online and get it, free to everybody. Anybody can get it now. Now they may take that and develop it into drugs and therapies. That is fine. That is that sort of symbiotic relationship we have developed very well between the private pharmaceutical industry and the basic research industry, which is NIH.

Again, our National Institutes of Health should be involved in overseeing this, because if we don’t have a coherent Federal policy on stem cells, each State writes its own rules. That means that different States may have different ethical guidelines. One State would be different from another. You would wind up with a patchwork quilt of laws. Then you would wind up with a sick baby in another State. So California gets to do stem cell research, and what it does is, it hires researchers away from Missouri. Then Missouri is hiring people away from Iowa and then Ohio. Then New York is trying to bid people away from Ohio. You get this terrible State-versus-State kind of competition in stem cell research.

We don’t want that. We ought to be doing it on a national basis, a national effort, and if we have international leadership we have always had in biomedical research. Should we give it up to Singapore or to Korea or England? No. We have always been the leader in the world in biomedical research, and we should continue. Secondly, the issue of why we have to expand our stem cell policy. Again, I repeat, for the sake of emphasis, of those 78 cell lines that were supposedly available on August 9, 2001, only 21 have been available. A lot of them are sick. They are not propagating properly. They are unhealthy. Right now NIH is only using between four and six of these lines and even they, I have been told, are not very healthy. So the restrictions we have had by the Bush administration, since August 9, 2001, have resulted in a situation where fewer and fewer viable good stem cell lines are available for NIH researchers.

However, during that same period of time in other States we have received over 400 different cell lines. Yet no one who gets NIH funding is able to do any research on these healthy embryonic stem cell lines. That is why we need to develop these. We need to expand it.

So that is the situation we are in. S. 5 will do both. It will open new stem cell lines with ethical guidelines. It will allow them to extract stem cells from these nonviable embryos. S. 30 will not. S. 3 will not. S. 30 still will not permit us to go to the healthy embryonic stem cell lines that our researchers need. That is why we need to pass S. 5.

Mr. President, how much time do I have remaining?

Mr. HARKIN. I will conclude my 21⁄2 minutes then by referring to the other chart. Again, we have to keep in mind that the policy now in effect, the policy that we have done, that we would use Federal money to examine and do research on embryonic stem cells that were derived prior to 9 p.m., August 9, 2001. But we can’t use Federal money to examine or to do research on stem cells derived after 9 p.m., August 9, 2001. Those are morally unacceptable. Before 9 p.m., August 9, 2001, that is morally OK. After 9 p.m., it is not morally OK. Who decided that? Ethicists didn’t decide that. President Bush decided that. Ethicists didn’t decide that. Scientists didn’t decide that. President Bush decided that. It is sheer hypocrisy to say we can fund those before, but we can’t fund those after. That is the situation we find ourselves in today.

I urge my colleagues to vote for S. 5. I look forward to its passage today, moving through conference. I hope it will be signed by the President.

I yield the floor.

Mr. HARKIN. Mr. President, how much time do I have?

THE PRESIDING OFFICER. The Senator from Iowa has 7 minutes remaining.
people with Parkinson's and Alzheimer's and spinal cord injuries. That is what S. 5 is all about. I yield the floor.

The PRESIDING OFFICER. Who yields the floor?

The Senator from Minnesota.

Mr. COLEMAN. Mr. President, I thank my colleague, the Senator from Georgia, for his leadership on this issue, his passion, his knowledge. He is not a biologist, but I have learned more about God and principle and stem cell lines from that former real estate guy than the many doctors I have talked to.

I also thank my colleague from Iowa. I went to law school at the University of Iowa. I think I have some Iowa roots. The Senator from Iowa has been a champion of those with disabilities, of disability rights, a champion of hope for a long time. In this debate there is so much we agree on. Where we disagree, though, is that S. 30 is not about a few small lines. S. 30 is about opening up embryonic stem cell research, research on pluripotent embryonic stem cells, in part, one technique being alternate nuclear transfer, all of which have numerous scientists who say there is hope for moving the science forward, and we could do it in a way that doesn't involve the destruction of the human embryo so we don't cross a moral line but we have all the research we want.

You may ask: How can something so small be so important? To my right is a chart showing a pinhead. These are the embryonic stem cells right there. They are the size of a pinhead. That is how big they are. How could something so small be so important? Size is not the measure of moral meaning. If you look at it, this point of view from outer space, and look at the people, that is small, but that crowd has meaning. If you look at it from a universe perspective to the Earth, boy, that is really small. You can't even see it. It is not even the size of a pinhead. Our galaxy, if I had a picture of the universe, our galaxy would be the size of a pinhead. What we are talking about today has meaning. We have an opportunity in this country to come together and put the politics aside, the ideological divisions aside. The debate over Federal funding, which has been longstanding Federal policy, we do not provide Federal funding for the destruction of embryos, and we do not have to. We come together with the same intention. We come together with the same perspective, with the same hope.

There are two paths to follow. One is S. 5, which will be vetoed and, in the end, what we will have tomorrow in terms of research is what we have today, well intentioned, but again, unfortunately, because the moral line is crossed and the division that will create, so it will be held. There will be no movement forward.

But if we pass S. 30, we have the opportunity to move the science forward, to create a full range of pluripotent embryonic stem cells. By the way, if you are just using IVF stem cells, it is a narrow universe. But with the dead embryo and the altered nuclear transfer, you can cover every race and ethnic group in America.

The science is at the forefront of the politics. We can put ideology aside. We can put political division aside. We can offer real hope and real advancement without crossing a moral line. Why wouldn't we do that? I hope my colleagues in opposition are offering hope, in moving the science forward, and not falling victim to a Presidential veto, but that, in the end, by next year saying we have more Federal dollars going into embryonic stem cell research, research on pluripotent stem cells, stem cells that have the capacity to be perhaps anything. We don't know, but there is still hope.

There is a lot of research that has to go into it, but we can open the doors with the passage of S. 30. With that, I yield the floor and yield back the remainder of my time.

The PRESIDING OFFICER. The Senator from Georgia.

Mr. ISAKSON. Mr. President, it is my understanding, according to the unanimous consent agreement, we have four 10-minute periods.

The PRESIDING OFFICER. The Senator is correct.

Mr. ISAKSON. Mr. President, it is further my understanding the first of those four periods is controlled by me; is that correct?

The PRESIDING OFFICER. Each Senator controls 10 minutes in no particular order.

Mr. ISAKSON. Mr. President, I will take that time as allocated.

The PRESIDING OFFICER. The Senator from Georgia is recognized for 10 minutes.

Mr. ISAKSON. Mr. President, I thank the Senator from Iowa and the Senator from Minnesota for their diligent work over the last 2 days on the floor of the Senate dealing with this issue. I admire the passion of both. I am so pleased their passion is rooted in their belief, which I share, that we can move science forward, that we can enhance research for what are currently incurable diseases, and that we can do so in the public domain.

Senator HARKIN made a very good statement—he has made a number of good statements, but he made a good statement a little bit ago about why NIH is important. NIH is important because the research gets in the public domain, not in the proprietary domain of an investor or someone who is hoping to find something but does not want to share that with anybody else. So it is important to find a way to get the NIH investment in the embryonic stem cell research. S. 5 and S. 30 appear in different directions, but the goal in the end is the same; that is, to further the science and to find cures.

I grew up in the 1950s and 1960s. In the 1960s, I am reminded of a statement I heard—often repeated—by then Senator and previously Attorney General Robert Kennedy. I remember a particular speech he made, when, having returned from Biafra, there was a terrible famine at that time, he said: Some people see things as they are, and ask, why?—referring to famine. I mean him—see things as they never were and ask, why not? That is what I am all about. Why not find cures? And why not find ways to seek those cures that pass the test we desire to pass that S. 30 portends? I have stated on more than one occasion the methodology and the derivation of those where the cells stop dividing a couple of times, but facts are stubborn. BG01, BG02, and BG03, currently under the investment domain of the National Institutes of Health—lines for which diabetes research, neurological progenitor cell research, and other research takes place at this very day—were all derived from embryos that had passed the seventh day following in vitro fertilization, were naturally dead or arrested but contained pluripotent embryonic stem cells.

I might add, in vitro fertilization takes place every day in the United States of America. My family has been touched by it. Many families have been touched by it. In this debate, where there are times when the choice is between one line and another line, where the embryonic stem cells exist but the embryo is not implanted.

Now, there have been some who have talked about: Well, there is no evidence of success yet in stem cells. I join Senator HARKIN in this and I believe the only way you find out about evidence of success is by doing the research. But I want to read something I think is important and I am proud to share because that research that has been done on BG01 and BG03—two lines derived in this methodology—have had significant research conducted on them in a number of areas. This has a little bit of technical language, but it expressed the promise of the hope the Senator from Iowa and I and the Senator from Minnesota have all talked about. I quote: The directed differentiation of BG01 and BG03 cells to neuroepithelia and multipotent differentiated neuronal lines, including cells expressing multiple markers of the midbrain dopaminergic lineage, has previously been demonstrated. "Previously been demonstrated."

That statement was confirming the research on BG01 and 03, designed to see if there was a way to develop neurological cells that could carry the hope for cures to spinal cord injuries and, in fact, to neurological cell or brain cell injury.

From the research on those three lines, a patent is now pending on a neurological progenitor cell process, which...
is a real advancement from embryonic stem cell research, from embryonic stem cells derived from level III Gard- 
ner principle derivation or those de- 
"roid from an arrested or a dead em- 
"ryo. So I would submit my passion for S. 
30 is in the hope of finding cures, in the 
"hope of avoiding a veto, and, instead, 
"having an investment in the further- 
"ance of science that can grow exponen-
"tially because of the unlimited moral and 
"ethical access that would exist to- 
ward these stem cells. 
I conclude by encouraging all the 
Members of the Senate to thoughtfully 
consider S. 30 and encourage them to 
vote for it as a step in the right direc-
tion, the opening of a door that has, in 
fact, not been shut but stuck, and an 
opportunity to do what everybody in 
this Chamber has stated affirmatively they want to do; that is, provide hope 
for those who do not have it, expand re-
search in the public domain at the Na-
tional Institutes of Health, and invest 
tax dollars ethically in a process that 
brings a promise of hope to every sin-
gle American. 
Mr. President, I yield back my time. 
The PRESIDING OFFICER. The Sen-
ator from Iowa is recognized. 
Mr. HARKIN. Mr. President, again, 
let me ask, we have, I guess, 20 min-
utes; that right? 
The PRESIDING OFFICER. The Sen-
ator from Iowa controls 10 minutes. 
The designee of the majority leader 
controls 10 minutes. 
Mr. HARKIN. Yes. I yield 5 minutes to 
the Senator from Utah. 
Mr. HATCH. I thank my colleague. 
The PRESIDING OFFICER. The Sen-
ator from Utah is recognized for 5 min-
utes. 
Mr. HATCH. Mr. President, I am 
going to vote for S. 30. I do not think it 
does anything more than the current 
law is but, nevertheless, I appreciate 
the intentions of the two Senators, my 
dear friends, who have done this. 
Mr. President, this debate draws 
to a close, I want to take one last op-
portunity to give my strong endorse-
ment to the need for our country to 
provide a better level of support for a 
very promising line of scientific in-
quiry: embryonic stem cell research. 
While I will vote in favor of both 
bills, it is S. 5, the Stem Cell Research 
Enhancement Act of 2007, that provides 
the promise of making a dramatic, yet 
ethical, impact in the lives of so 
many. S. 5 offers people hope who have 
no hope today. S. 5 has the potential to 
save lives. S. 5 opens up a door to med-
ical research that offers much promise 
to both the scientific community and 
the patient community. And why is 
that? Because S. 5 allows the Federal 
Government to fund the most prom-
ing line of stem cell research—embry-
onic stem cell research—and S. 30 does 
not. 
Make no mistake about it. Under the 
current policy, the President’s policy, 
our Government does support embry-
onic stem cell research. All S. 5 would 
do is expand that policy. 
To those who raise questions about the 
ethicality of this bill, I answer this 
way: If it was ethical to implement 
such a policy in 2001—and I have heard 
little criticism about that—then it 
should be ethical to adopt S. 5 as well. 
Let me underscore the need for this 
bill with the fact that leading em-
brolytic stem cell researchers in our 
country has to say. I am speaking about the University of Utah’s eminent 
researcher, Dr. Mario Cappecchi. 
For the benefit of each Senator, the 
doctor has been arguments in 
favor of the Government funding 
embryonic stem cell research. I think 
it bears repeating, as this is knowledge 
crucial to each Member’s under-
standing of what is one of the most 
critical issues facing this body today. 
Indeed, I believe history will judge us 
very harshly if we allow this great op-
portunity to pass us by. We have to 
support this research which to date 
holds forth more promise than other 
types of stem cell inquiry. In the inter-
est of all those who suffer from debili-
tating diseases and hope for deliver-
ance, I implore my colleagues to vote 
for S. 5 and send a clear message to the 
American people that we want this re-
search to become a reality for the good 
of mankind—of all mankind. 
There should be Federal funding for 
embryonic stem cell research because: 
No. 1, it is a potential source of cures; 
No. 2, embryonic stem cells grow 
quickly and are versatile; No. 3, in con-
trast, adult stem cells grow slowly; No. 4, 
adult stem cells are very restricted 
in what cell types they can produce; 
No. 5, the tissue in many important or-
gans does not have adult stem cells so 
therapies for diseases involving those 
tissues would not be readily approach-
able by adult stem cell-based therapy; 
No. 6, the usefulness of existing embry-
onic stem cell lines is extremely lim-
lited; No. 7, somatic cell nuclear trans-
fer is an important research tool; No. 8, 
SCNT does not have the patient-spe-
cific cells to treat complex human diseases like Alzheimer’s and 
Parkinson’s; No. 9, lack of Government 
commitment means lack of future re-
searchers; and No. 10, the health and 
economic implications of human stem 
cell research are enormous. Other 
countries have realized this; we are in 
grave danger of falling behind. 
I read Dr. Cappecchi’s points again 
for one reason—I want all of my col-
leagues to recognize that much is 
weighing in the balance on today’s 
vote. 
Therefore, I ask my colleagues to 
consider carefully the positions they 
take today. 
In the interests of all those who suf-
fer from debilitating diseases and hope 
for deliverance, I urge my colleagues to 
vote for S. 5. 
Let me close by making a point I 
made to President Bush back in 2001: 
In the opening days of your term in office, 
scientists have the task of se-
quencing the human genome. While this ac-
complishment—the work of many in the pub-
lic and private sectors—is of historical sig-
nificance, it is only the end of the beginning 
in a new era of our understanding of the bio-
logical sciences. Over your next eight years 
in office, you have an unprecedented oppor-
tunity to provide the personal leadership 
required to see to it that your Administration 
will be remembered by future historians as 
the authoring of the cure of the most deadly 
and debilitating diseases as cancer, Alzheimer’s 
and diabetes. 
That is what S. 5 is all about—pro-
viding a potential new avenue of re-
search that may lead to treatments 
cures for many diseases that affect 
many families across our Nation and the 
world. 
While I have no objections to S. 30, let me 
delude ourselves thinking it is the best solution. S. 5 is the 
bill that will clearly make a signifi-
cant difference in the future of medical 
research for all of the reasons I have 
outlined today. 
For those who oppose any type of em-
brolytic stem cell research, let me say 
this: For the life of me, I cannot under-
stand how we can destroy 7,000 to 20,000 
life in vitro fertilized eggs every year—just destroy them, kill them— 
causing the destruction of—let’s just cho-
ose one malady—kids with diabetes, 
vultrant diabetics, who might 
lose their eyes, their hands, their feet. 
Why wouldn’t we do everything in our 
power to utilize those rather than cast 
them aside as hospital waste? I cannot 
understand that. That is not pro-life; that is pro-death. Frankly, being pro-
life is not just caring for the unborn, it 
is caring for the living as well. 
While I will be voting for both S. 5 
and S. 30, I believe that S. 5 is clearly 
preferable to S. 30. S. 5 permits Federal 
funding for embryonic stem cell re-
search, S. 30 does not. S. 5 is the bill 
that will clearly make a significant 
difference in the future of medical re-
search for all of the reasons I have out-
lined today. 
I urge all of my colleagues to vote in 
favor of S. 5. 
The PRESIDING OFFICER. The Sen-
or from Iowa is recognized. 
Mr. HARKIN. Mr. President, I thank 
my dear colleague for allowing me to make 
those remarks on the floor. This is an im-
portant debate. I hope we can get the 67 
votes that are essential because we are 
going to get them someday. It is just, 
we put it off another 2 years? 
I thank my colleague. 
The PRESIDING OFFICER. The Sen-
or from Oregon is recognized. 
Mr. SMITH. Mr. President, I thank 
my dear colleague, my friend from Utah, for a 
very strong, very powerful, poignant 
statement. There has been no stronger 
leader in this Senate on health, life 
issues than Senator HATCH. I thank 
him for his support of S. 5. 
Mr. President, I yield 5 minutes to 
Senator SMITH from Oregon. 
The PRESIDING OFFICER. The Sen-
or from Oregon is recognized. 
Mr. SMITH. Mr. President, I thank 
Senator HATCH and Senator HARKIN 
for their leadership on this vital issue. 
The Senate today has conducted a 
very dignified debate on an issue that
brings us right to the edge of science and faith. I have argued for several years now that science and faith need not be in conflict on this issue. I have always supported in vitro fertilization, believing that is a noble way to help infertile couples become parents.

Today in America there are probably a million children who are now Americans because of this process. The inevitable consequence, however, of in vitro fertilization is that excess embryos are created. The question we are debating is, do they constitute human life, when does life begin.

My colleague, Senator HATCH, has argued nobly and long for the proposition that life begins not with a scientist, it begins with a mother. It begins when cells and spirit are joined to create a living soul. If you have an embryo in a petri dish and you leave it there for 1,000 years, at the end of that time, you will have an embryo in a petri dish for the simple, logical reason that life begins with mom. Life begins with the joining of spirit to the spirit. The question becomes: Is it more moral to throw all these embryos away or is it more moral to allow them to be utilized for medical miracles? I have reached the conclusion that we cannot have tomorrow’s miracles if we tie scientists’ hands with yesterday’s rules.

I believe we can, consistent with religion, faith, science, and logic, allow embryonic stem cell research to proceed. We should do this because it is morally right. We should do this because the U.S. Government needs to show up to work on this vital issue. We should do this because the resources we can provide and the ethical boundaries we can create are essential for this new area of science to go forward, giving us a chance to cure some of the most horrible diseases that afflict mankind. Whether it is Lou Gehrig’s disease, or Parkinson’s, childhood diabetes, cancer, and more. We can’t overpromise, but the people afflicted with this that I see all the time in the State of Oregon don’t have the sort of benefit, and they need us to keep hope alive.

So I urge my colleagues to vote for both the bills before us today because it is a morally right thing to do. It is a pro-life thing to do. It is important that an ethic of life care for the unborn as well as for those who are living, both the sanctity of life and the quality of life.

I believe life begins with mom, not in a lab. Because of that, I am voting for this, and I do so with respect for those who have had the same thoughts of others. I have a different theological conclusion. I believe that scripture and science are not in conflict on this issue and that life begins with mother.

With that I yield the floor, and I urge and affirm the vote on both these important issues of to-day.

The PRESIDING OFFICER (Mr. OBAMA). Who yields time?

Mr. HARKIN. Mr. President, how much time remains?

The PRESIDENT. The Senator has 10 minutes of time as designee of the majority leader.

Mr. HARKIN. I thought I had 12 minutes left, until 5:15. Well, anyway, in closing, first let me thank my colleagues to their Senator COLEMAN, Senator BROWNBACK, and others who have participated in this debate. It has been a very informed and a very good debate over the last 2 days. I thank my colleague, Senator ISAKSON, for his remarks. There were a lot of things we agree on and obviously there are things we disagree on, but that is the march of legislation in the Senate. I wish to thank Senator ISAKSON and others for their speeches and for their insight into this very important issue. I particularly wish to thank Senator HATCH and Senator SMITH for their great leadership on this and so many other health issues in the Senate and for their very poignant, very powerful statements they made on the Senate floor.

I started this whole debate yesterday morning by talking about hope, hope for cures for Parkinson’s, to repair spinal cord injuries, to end the scourge of juvenile diabetes, to lift the death sentence of Lou Gehrig’s disease, or ALS, hope for families with someone lost to Alzheimer’s disease. S. 5, the bill before us that will be our first vote, is a bill that provides this hope, not a hope based on dreams or fiction but based on solid scientific foundation. It is why 525 disease-related groups and research institutions and universities all support S. 5, because it has solid scientific foundation. It is why the Director of NIH, Dr. Zerhouni, recently said more embryonic stem cell lines needed to be investigated.

It is clear today that American science would be better served and the Nation would be better served if we let our scientists have access to more cell lines. We can’t move ahead with more cell lines, as Dr. Zerhouni wants, S. 5 is the bill that will provide those cell lines, if you want to put embryonic stem cell research on overdrive, pass it a national priority to do this research. S. 5 will put it into overdrive. If you want to say to Karli Borcherding right here, age 12, using 120 needles a month to give herself insulin shots because she has juvenile diabetes; if you want to say to Karli Borcherding and all the other kids with juvenile diabetes, if you want to say to them that we are going to give you hope, we are going to give you hope that your diabetes will be cured, hope that you can live a full and normal life; if you want to say to those families who have a loved one suffering from Alzheimer’s, we are going to give you hope; if you want to say to those who have a family member suffering from Parkinson’s disease or under the death sentence of ALS, we are going to give you hope—hope not based upon fiction, not based upon some will-of-the-wisp thoughts that somebody might have but hope based on solid science that scientists know we can use.

We have already taken embryonic stem cells and made nerve cells, motor neurons, bone cells, heart muscle cells. We know that it can be done. Yet our scientists are handcuffed today because of the policy laid down, to make it this bill that has President Bush on August 9 of 2001. It is time to lift those restrictions.

Some say the President will veto this bill. We can’t decide what we do around here because the President—dem-threatens to veto something. We have to do what is right. We have to do what the people of America want us to do. We have to do what is in the best interest of America, and we have to do what is in the interest of science.
interests of this country as we see our duty to do it. I hope the President will sign this bill. I hope he will see we have made our compromises, that we have strong ethical guidelines, that this is the way to give hope to Karli Borchering, and I yield the remainder of our time to Senator SPECTER of Pennsylvania.

The PRESIDING OFFICER. The Senator from Pennsylvania is recognized.

Mr. SPECTER. Mr. President, on so many occasions support has been overwhelming to allow Federal funds to be used for embryonic stem cell research. There are 400,000 of these embryos which will be discarded. If they can produce life, no one would want to have them used. The fact is any appropriated $2 million and only about 135,000 of those 400,000 embryos have been used. So it is a matter of use them or lose them, pure and simple.

The only reason not to advance this research is on the life issue, and that is gone. We have had some of the staunchest pro-life supporters in this Chamber endorsing this bill and this concept. The potential for medical research to cure or ameliorate the worst maladies of our era will be preserved with the use of embryonic stem cell research. What is involved here is when the people of the United States will demonstrate sufficient political will to insist that the Congress and the White House adopt legislation to use Federal funding for embryonic stem cell research. That is the only question.

We started this on December 2, 1998, with the first hearing, and we have made a fair amount of progress. It is my hope that I will sign the bill and not veto it, but he has already said he will veto the bill. So with 110 million Americans directly, personally, or indirectly, through families with a stake on their health and on their family’s health, it is a question of when America will move to insist the Congress act and, if necessary, override a Presidential veto. It is not a question of if it will be done, it is a question of when. I hope this discussion and the proceedings now will motivate the American people to say to Washington: Get it done.

The PRESIDING OFFICER. The Senator’s time has expired.

The Senator from Kansas, under the previous agreement, is now controlling time and has 10 minutes.

Mr. BROWNBACK. Mr. President, I want to give two numbers to my colleagues: 613 and zero—$613 million and zero. Since 2002 and the number of human treatments we have to show for it, which is zero, 613 to zero. I think those are two important numbers to remember when what we are after is cures, and we have cures to show. We have one trillion that are working, and we can take the next $613 million and invest it in places that are getting cures, such as adult stem cells, cord blood, and amniotic fluid.

Do we want to spend another $613 million and use Federal taxpayer dollars to destroy young human life in the process—an ethical boundary we have not thought wise to cross before? Do we want to cross that boundary and spend more money and still not get results, while we have a proven route we can take?

I urge my colleagues to reject and vote against S. 5 on two grounds. No. 1, ethical grounds. Embryonic stem cell research, even if presented in supposedly ethical terms, remains unethical, with the destruction of human life. No. 2, practical grounds. We don’t have an infinite budget, and in the stem cell field, we need to put our money into areas where we are getting results and not divert them to the speculative embryonic stem cell field. Let the private sector or the States do it. If they want to go into these areas, they can do so.

Let me discuss ethics. Will we sanction the destruction of nascent human life with Federal taxpayer dollars? That is the central question surrounding S. 5. Those voting for it would say yes. I say no. I respect my colleagues who look at this differently, but those are the facts.

No. 2, individual patients should be treated with respect, whoever they are, wherever they are located, at whatever age or stage of life they are in. We should not be driven by stereotypes. Each individual has an inalienable right to life.

Claims that embryos are merely “potential life” are not supported by the science. From biology textbooks, we learn:

Although life is a continuous process, fertilization is a critical landmark because, under ordinary circumstances, a new, genetically distinct human organism is thereby formed.

It takes place in the beginning. The embryo is not “potential life,” it is human life at that particular stage of development in the life cycle continuum. That is not SAM BROWNBACK; that is biology. The embryo would continue along the life cycle continuum if we were not interfering in its normal development by keeping it in a freezer or destroying it for experiments.

With the scientific fact in hand, we evaluate the facts in light of our ethical framework. For instance, we know the human embryo is a human life, so how should we treat it?

Human life has immeasurable value—we can all agree on that—from the youngest to the oldest. Human beings are ends in themselves. It is wrong to trample upon any human to achieve a good end.

Treatments. There remain no embryonic human treatments or applications despite 25 years of embryonic work in animal models and a decade of work with human embryonic stem cells, and $613 million has been invested since 2002 at the Federal level. That doesn’t include States, private, and other governments.

What we have learned about embryonic stem cell treatments is that these cells form tumors when implanted. This scientific literature abounds with such stories. If you read this article from “Stem Cells,” you will find this:

The expression of the insulin gene could be demonstrated only when the cells differentiate into insulin-secreting beta cells.

Those are tumors.

Moving from the ethical to the practical, should we put millions or billions of dollars into speculative research on these tumor-forming embryonic stem cells or should we put our money where we are already getting strong results with adult stem cells?

I have this. It is the front page of the research journals on adult and cord blood stem cell research and the successes since 2002. Are there similar files for embryonic stem cells? No, there are none. Adult stem cells have no ethical strings attached. You can get them from an adult without causing the patient harm; you can harvest them from cord blood, and, as noted in the Journal of the American Medical Association on March 7 of this year, they can be obtained from amniotic fluid without causing harm to the unborn child.

When we started this debate yesterday, we were aware of at least 72 peer-reviewed, real human treatments and applications using adult stem cells. Now, with the breaking news yesterday on juvenile diabetes from Northwestern University in Chicago, worked on by a team in Portugal, and, as noted in the Journal of the American Medical Association, we were aware of at least 72. The scientific community remains no embryonic stem cell applications.

I say to my colleagues, remember Jacki Rabon, a lady from Illinois, a constituent of the Senators from Illinois who had spinal cord injuries. She had to go to Portugal to be treated. Do not divert funds away from successful adult stem cell treatments and force your constituents to go to Portugal at great personal expense. Vote against S. 5 and put the money into adult stem cell research.

Remember David Foege. For your constituents who have heart disease,
Today, I join Bradley’s family and friends in mourning his death. While we struggle to bear our sorrow over this loss, we can also take pride in the example he set, bravely fighting to make the world a safer place. It is his courage and strength of character that people here, have consecrated it, far above our poor power to add or detract. The world will little note nor long remember what we say here, but it can never forget what they did here.” This statement is just as true today as it was nearly 150 years ago, as I am certain that the impact of Bradley’s actions will live on far longer than any record of these words.

It is my solemn duty to enter the name of Bradley D. King in the official RECORD of the U.S. Senate for his service to this country and for his profound commitment to freedom, democracy, and peace. When I think about this just cause in which we are engaged and the unfortunate pain that comes with the loss of our heroes, I hope that families like Bradley’s can find comfort in the words of the prophet Isaiah, who said, “He will swallow up death in victory; and the Lord God will wipe away tears from off all faces.”

May God grant strength and peace to those who mourn, and may God be with all of you, as I know He is with Bradley.

1ST LIEUTENANT NEALE SHANK
Mr. President, I also rise today with a heavy heart and deep sense of gratitude to honor the life of a brave young man from Fort Wayne, Neale Shank, 25 years old, who died on March 30 while defending the freedom of our nation in Iraq. With his entire life before him, Neale risked everything to fight for the values Americans hold close to our hearts, in a land halfway around the world.

Neale was a lifelong Hoosier, graduating from Concordia Lutheran High School in Fort Wayne in 1999. First Lieutenant Shank graduated from the U.S. Military Academy at West Point in 2005. His valor over the course of his service in Iraq exemplifies everything Neale lived and stood for. He decided to attend West Point because, as he put it, “it is not a job and it is not a way of life, the Army is my life.” Neale enjoyed the military, and he believed that throughout all the hardships they faced he and his company were helping the Iraqi people. His grandfather described his grandson to local media outlets as an adventurous, active person saying, “He was all boy, he wasn’t just a kid.”

Neale died while serving his country in Operation Iraqi Freedom. He was a member of the Headquarters and Headquarters Troop, 1st Squadron, 89th Cavalry Regiment, 10th Mountain Division based in Fort Drum, NY.

Today, I join Neale’s family and friends in mourning his death. While we struggle to bear our sorrow over this loss, we can also take pride in the example he set, bravely fighting to make the world a safer place. It is his courage and strength of character that people will remember when they think of Neale, a memory that will burn brightly during these continuing days of conflict and grief.

As I search for words to do justice in honoring Neale’s sacrifice, I am reminded of President Lincoln’s remarks as he addressed the families of the fallen soldiers in Gettysburg: “We cannot consecrate, we cannot hallow this ground. The brave men, living and dead, who struggled here, have consecrated it, far above our poor power to add or detract. The world will little note nor long remember what we say here, but it can never forget what they did here.” This statement is just as true today as it was nearly 150 years ago, as I am certain that the impact of Neale’s actions will live on far longer than any record of these words.

It is my sad duty to enter the name of Neale M. Shank in the official RECORD of the U.S. Senate for his service to this country and for his profound commitment to freedom, democracy, and peace. When I think about this just cause in which we are engaged and the unfortunate pain that comes with the loss of our heroes, I hope that families like Neale’s can find comfort in the words of the prophet Isaiah, who said, “He will swallow up death in victory; and the Lord God will wipe away tears from off all faces.”

May God grant strength and peace to those who mourn, and may God be with all of you, as I know He is with Neale.

PRIVATE FIRST CLASS ORLANDO E. GONZALEZ

Mr. DODD. Mr. President, I rise today to pay my respects to Private First Class Orlando E. Gonzalez, who last month lost his life in the service of our country.

On the morning of Sunday, March 25, Private First Class Gonzalez was handing out candy to Iraqi children in the province of Diyala when a suicide