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House of Representatives

The House was not in session today. Its next meeting will be held on Monday, April 16, 2007, at 2 p.m.

Senate

WEDNESDAY, APRIL 11, 2007

The Senate met at 9:30 a.m. and was called to order by the Honorable BENJAMIN L. CARDIN, a Senator from the State of Maryland.

PRAYER

The Chaplain, Dr. Barry C. Black, offered the following prayer:

Let us pray.

God of all life, we seek You in a world filled with challenges and problems. Prepare the Members of this body for the rigors of solving life's riddles today. Give them the wisdom to seek common opportunities, to accomplish Your divine will in our world. Make them instruments of Your love in the midst of hatred and strife. Teach them to spend and be spent for the good of others.

Lord, we intercede for them. Give them the spiritual tools for strength of thought, lightness of heart, sincerity of conviction, and clarity of purpose. Renew their commitment to You as their inspiration, their strength, their courage, their guide, and their Lord.

We pray in Your omniscient Name. Amen.

PLEDGE OF ALLEGIANCE

The Honorable BENJAMIN L. CARDIN led the Pledge of Allegiance, as follows:

I pledge allegiance to the Flag of the United States of America, and to the Republic for which it stands, one nation under God, indivisible, with liberty and justice for all.

APPOINTMENT OF ACTING PRESIDENT PRO TEMPORE

The PRESIDING OFFICER. The clerk will read a communication to the Senate from the President pro tempore (Mr. BYRD).

The legislative clerk read the following letter:

U.S. SENATE,
PRESIDENT PRO TEMPORE,
Washington, DC, April 11, 2007.

To the Senate:

Under the provisions of rule I, paragraph 3, of the Standing Rules of the Senate, I hereby appoint the Honorable BENJAMIN L. CARDIN, a Senator from the State of Maryland, to perform the duties of the Chair.

ROBERT C. BYRD,
President pro tempore.

Mr. CARDIN thereupon assumed the chair as Acting President pro tempore.

RESERVATION OF LEADER TIME

The ACTING PRESIDENT pro tempore. Under the previous order, the leadership time is reserved.

RECOGNITION OF THE REPUBLICAN LEADER

The ACTING PRESIDENT pro tempore. The Republican leader is recognized.

SCHEDULE

Mr. MCCONNELL. Mr. President, I am told the majority leader will be out shortly. Let me just mention that the vote is likely to be moved from 5:45 to 5:55, for the information of all Senators. We have a structured order for debate for the balance of the morning and afternoon that has already been agreed to.

I yield the floor.

STEM CELL RESEARCH ENHANCEMENT ACT OF 2007

HOPE OFFERED THROUGH PRINCIPLED AND ETHICAL STEM CELL RESEARCH ACT

The ACTING PRESIDENT pro tempore. Under the previous order, the Senate shall resume consideration of the following measures en bloc, which the clerk will report.

The legislative clerk read as follows:

A bill (S. 5) to amend the Public Health Service Act to provide for human embryonic stem cell research.

A bill (S. 30) to intensify research to derive human pluripotent stem cell lines.

The ACTING PRESIDENT pro tempore. Under the previous order, there is now 90 minutes of debate under the control of the Senator from Iowa, Mr. HARKIN, or his designee; 45 minutes under the control of the Senator from Minnesota, Mr. COLEMAN, and the Senator from Georgia, Mr. ISAKSON, and 45 minutes under the control of the Senator from Kansas, Mr. BROWNBACK.

Who yields time? The Senator from Iowa.

Mr. HARKIN. Mr. President, before I yield the floor to my colleague from Massachusetts, I just want to again bring people up to speed as to where we are in this debate. We will debate the two bills again today, S. 5 and S. 30, all day. We will have two votes later today at a time to be determined by the leaders but I think right prior to 6 p.m, the first vote occurring on S. 5, an up-or-down vote without amendments, and after that would be an up-or-down vote on S. 30, without amendments.

● This "bullet" symbol identifies statements or insertions which are not spoken by a Member of the Senate on the floor.

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I intend to take some time this morning, after the Senator from Massachusetts speaks, again to outline the differences in the two bills, why S. 5 is a preferable bill and why that should be the bill we pass and send to the President for his signature and to point out that S. 5 is truly the compromise bill.

I want everyone to know that. There was some talk that S. 30 should be the compromise. Let me point out for clarity that last year we passed the stem cell research bill. There was another bill offered on the floor at the same time called the Specter-Santorum bill. That bill was supported by the Bush administration. Both bills passed, but the Specter-Santorum bill never made it through the House, and therefore the President was given the stem cell research bill. He vetoed it. He exercised the only veto of his administration to veto the stem cell bill.

In order to reach out a hand of compromise to the White House, we then incorporated in our bill, S. 5, today, the Specter-Santorum bill of last year, which is part of S. 5. So it seems to me we have gone halfway at least in reaching out to the White House to provide a compromise situation. Now the White House says they want to compromise further. They want something else. You can keep this up until there is nothing left of the stem cell bill.

I wish to make it very clear that we have compromised. We have come halfway. We incorporated the bill the President supported last year, so S. 5 really is the compromise measure we are sending to the President.

Mr. President, I yield 10 minutes or whatever time he requires to the Senator from Massachusetts.

The ACTING PRESIDENT pro tempore. The Senator from Massachusetts is recognized.

Mr. KENNEDY. Mr. President, I again thank my friend and colleague from Iowa, Senator HARKIN, for his steadfast leadership in this extraordinarily important issue. We are full of hope this afternoon about the votes here in the Senate. I welcome just a few moments to express my own views about where I think we are and what I think the issues really are before the Senate.

For years, many of us have fought the same battle, the battle to give those suffering or injured every ethical option for new cures. For those speaking on the Senate floor, perhaps little changes from one year's debate to the next. We still speak of hope. We still speak of dreams denied when those hopes are dashed. We still speak of our belief that medical research should be valued.

But for those who listen to our debate, a year can make all the difference in the world. For a young man or woman bravely serving their country, a year can make the difference between vigorous active service and life in a wheelchair or a brain injury from a war wound. For someone fighting the long and lonely battle against Alzheimer's disease, a year can make the memory of a beloved spouse or child a little fainter, a little more distant. For a patient battling against the tremors of Parkinson's disease, a year can mean more and more life activities fade out of reach.

If overturning the administration's unwarranted restrictions on stem cell research brings just one breakthrough, just one of the many that our best scientists believe are possible, that breakthrough can mean all the difference in the world for the patients who benefit. They cannot wait another year, or another day, for the help stem cell research can bring, and we should not wait in aiding them. We must take action here and now to end these unnecessary and harmful restrictions on lifesaving research.

Continuing the administration's restrictions means the gap between what scientists could do and what they are allowed to do grows even wider.

Continuing the restrictions means our Nation's best scientists will go on having to waste precious time on pointless redtape and bureaucratic obstacles, time that should be spent on the search for new cures.

Continuing the restrictions means having to tell the patients who are counting on the promise of stem cell research: Wait just a little longer, dream just a little less, hope just a little more faintly.

The Senate must act, just as the House has already, to unlock the potential of stem cell research.

When the Congress has approved this needed legislation, we must turn our attention to 1600 Pennsylvania Avenue and urge the President of the United States not to veto the legislation that gives so much hope to so many.

Mr. President, just an extraordinary statement and comment from the Nation's leading scientist, Dr. Zerhouni, who is the head of the National Institutes of Health:

> From my standpoint as NIH director, it is in the best interest of our scientists, our science, and our country that we find ways and the nation finds a way to allow the science to go full speed across adult and embryonic stem cells equally.

This is the statement of the head of the National Institutes of Health, an extraordinary scientist and researcher himself. It couldn't be said more clearly and more compellingly.

Finally, to remind ourselves what this really is all about—because it is basically about individuals—here are two extraordinary soldiers who served in Iraq. James Crossby, Winthrop, MA, is now in a wheelchair because of a damaged spinal column—others could have similar situations from their own States—and Sgt Jason Wittling, Marine Corps, injured in Karbala, again with spinal cord injuries. And that is one of the areas where there is such great hope.

Finally, one of the most moving letters I have received in the time I have been in the Senate was on this issue, from Lauren Stanford, from Plymouth, MA—15 years old. She wrote just after watching the President of the United States speak on this issue when he set up the regime on which we have all commented, which limits the great possibilities we have talked about during the course of this debate. This is what she said:

> That night—

Referring to the night the President talked—

> President Bush talked about protecting the innocent. I wondered then: what about me? I am truly innocent in this situation. I did nothing to bring my diabetes on; there is nothing I can do to make it any better. All I can do is hope for a research breakthrough and keep living the difficult, demanding life of a child with diabetes until that breakthrough comes. How, I asked my parents, is it more important to throw discarded embryos into the trash than it is to let them be used to hopefully save my life—and to give me back a life where I don't have to accept a constant, almost insane level of hourly medical intervention as ''normal''? How could my nation do this to me?

That is the issue which Lauren Stanford has put before the Senate. Hopefully she will get an overwhelming, bipartisan answer this afternoon when the roll is called.

I yield the remainder of my time..

Mr. HARKIN. Mr. President, I yield 20 minutes to the Senator from North Dakota. How much time do we have remaining on our side?

The ACTING PRESIDENT pro tempore. Eighty minutes.

The Senator from North Dakota is recognized.

Mr. DORGAN. Mr. President, let me thank my colleague from Iowa for his leadership. I know he and many others in this Chamber have spent a great deal of time putting together a piece of legislation that is very important. I commend all of them.

There are times on the floor of the Senate where we are engaged in certain kinds of debates that cause folks to exhibit some temper and some concern and anxiety and impatience. This is one of those issues, however, that people feel very differently about. We will have people come to the floor on this issue of stem cell research who feel very strongly on both sides.

I respect all of those views. I respect everyone who comes to this floor with a position on this issue. But let me say, the position, as I see it, is a position that deals with life and death. This is very important. We deal with some issues on the floor of the Senate that are not so important, some that are very important. This ranks way up there in importance.

This is about life or death. It is about science, and it is about inquiry. It is about the search for unlocking the mysteries of what causes some of the dreaded diseases here on Earth and how we find cures for these dreaded diseases.

I chair a subcommittee that funds the science programs in our country,

especially the science programs that have to do with, for example, energy and other related matters. I think science is fascinating. In my subcommittee, we had testimony a while ago about studying termites. We are studying the digestive system of termites because we are trying to understand why it is when a termite eats wood, the termite's digestive system produces hydrogen. How is it that a termite eats wood and produces hydrogen? Again, what an interesting scientific inquiry.

Well, we are engaged in scientific research in a whole range of issues. Especially important are the areas of scientific inquiry in this area of health. What is it that causes these terrible diseases? What kinds of approaches might give us a chance to cure some of these dreaded diseases?

Well, one of those issues is the issue of stem cell research. The language almost sounds like a foreign language in some of these discussions: somatic cell nuclear transfer, in vitro fertilization clinic, stem cell research. Those are not terms people use every day in their discussions, and yet the method of using those terms in this discussion is about life or death. It is about continuing scientific inquiry to try to unlock the mysteries of some of the most terrible diseases suffered by mankind.

We passed a piece of legislation last July that moved in this direction, and the President decided to veto it. Legislation that we hoped would perhaps give us an opportunity for treatment for things such as diabetes, cardiovascular disease, Parkinson's disease, ALS, Alzheimer's, birth defects, and spinal cord injuries.

We do not know, we cannot come to the floor of the Senate, we are not scientists to describe: Here is exactly what will happen as a result of this scientific inquiry. But we do know there are at least indications of great hope through this scientific inquiry. So the Stem Cell Research Enhancement Act, S. 5, which we now have on the floor of the Senate, would allow researchers to pursue all kinds of promising stem cell research, including embryonic stem cell research that is federally funded.

This legislation is controversial. The legislation deals, however, only with embryos that were created for fertility purposes in in vitro fertilization clinics that would otherwise be thrown away.

Now, in vitro is a relatively new term. It has been around for about 25 years. There are more than 1 million children walking this planet of ours who were born as a result of in vitro fertilization. We had testimony before one of my committees, the Commerce Committee, in which a witness said: None of them should have been born. None of these human beings are worthy. They should not have been born. He disagrees with in vitro fertilization. It is his right to do that. I do not support that.

I think the wonder of life of having 1 million people, 1 million people who once were babies born to people, to couples who were not able to have children, is a wonderful gift. What a wonderful gift.

In vitro has been around for a quarter of a century. Because of the nature of the treatment, the infertility treatment in this process, more embryos are created than will ever be used. Rather than throwing these embryos in the waste, as hospital waste, or just waste from an in vitro clinic, it is much more life affirming, I think, to use them to better understand how we might treat devastating diseases such as diabetes, heart disease, Alzheimer's, and more.

I think Senator Jack Danforth, former Senator Jack Danforth, said it best. He is a colleague who served here with us in the Senate. He said this: It is not evident to many of us that cells in a petri dish are equivalent to identifiable people suffering from terrible diseases. I am and have always been pro-life. But the only explanation for legislators comparing cells in a petri dish to babies in the womb is the extension of religious doctrine into statutory law.

That is from former Senator Jack Danforth. What a profound statement. Do you equate the cells in a petri dish with someone suffering the ravages of Parkinson's disease or ALS? I do not think so. But that suggests somehow that those who oppose this legislation make that equation.

This legislation is not suggesting that anyone create an embryo for the purpose of research. It is saying those embryos that are about to be discarded, thrown away, thousands of them, because many more are produced than are to be used in in vitro clinics, rather than simply throwing them away, how about—with the consent of those from whom the embryos came—how about using them for a life-affirming purpose, for the needed research into unlocking the mysteries of these devastating diseases?

There are about 400,000 embryos frozen in these clinics. It is estimated 8,000 to 11,000 are scheduled to be discarded. It is interesting to me that no one has come to the floor of the Senate—that I am aware of—saying: Shut down these in vitro clinics. Shut them down. And, by the way, if someone tries to throw away an embryo, as they do every day, if they try to throw one away, have someone arrest them because you are throwing away a human being. It is, of course, not a human being. It has the potential to become a human being if it is implanted in a woman's uterus and grown to term. But it will not be implanted in a uterus. In fact, it will be discarded in a wastebasket.

The question my colleagues asks with S. 5 is: With consent, should that embryo, rather than simply be discarded, not be able to be used for this critically important research?

There are not enough stem cell lines available. We know that. My colleagues have made that case. The President authorized some stem cell lines, but the authorized lines were never enough, and, in fact, they were contaminated, and it is just a plain fact that we are, at this point, interrupting the scientific inquiry. We are interrupting the opportunity to search for a cure for these diseases.

The embryos we are discussing on the floor of the Senate are going to be destroyed. That is certain. These embryos are going to be destroyed. Could they, should they be used to search for the cure for these dread diseases? I believe the answer is yes.

In my last campaign for the Senate, a curious commercial was run against me by my opponent. He ran a commercial which is a description of some who feel very strongly in opposition to this kind of legislation. Because I support stem cell research very strongly, my opponent ran a commercial of a man sitting around the fire, a kind of a campfire with about six or eight young children around him.

The commercial, I suppose, was meant to be humorous but about a serious subject. A young child, with eyes very big reflected in the glow of the fire, around that fireplace, said to the camp leader: Tell us a story. Tell us a scary story.

The man said: Well, there is a man named Byron—referring to me, I guess—a man named Byron. He has a plan. His plan is to implant into a mommy's uterus an egg that is fertilized, to become a fetus, so that they can harvest it during that pregnancy to use it for body parts later.

Little children around that campfire had eyes the size of dinner plates, from that scary story. Of course, that was a complete perversion of anything that remotely related to the truth, had no relationship to any of these issues.

No one is talking about implanting something in a uterus for the purpose of growing a fetus, for the purpose of harvesting body parts. That kind of unbelievable lie permeates all too often this discussion. That is not what this discussion is about.

Those of us in this Chamber—and there are many of us who have sat in the front row of a funeral—in my case of a daughter—and asked ourselves: Was there anything, was there anything more we could have done?

Is there anything that could have been done to prevent this disease? The answer, if we prevent this kind of research, the answer for everyone will be, yes, there is something we could have done. We could have continued the scientific inquiry and research, with carefully constructed guidelines, to see if we could unlock the mysteries of these diseases.

Let me show a picture of a young girl named Camille. In fact, I just saw Camille last month. This young girl has been very near death. She suffers from juvenile diabetes, the particularly acute condition of juvenile diabetes. That is Camille in the middle. I saw her mother last week in North Dakota. Camille was in Washington, DC, about

a month ago with her mother. I have known Camille for a long time, this young girl holding the clarinet in her middle school band. She has had a tough life and has lived on the edge, suffering a very significant disease, one that has cost too many, too many Americans, and especially too many young Americans, their lives.

But there are so many opportunities for research and for potential treatment. Let me give you a couple of examples. I was on an airplane one day with one of the researchers at NIH. The researchers at NIH do unbelievable work. He told me of the use of stem cells among a group of mice that had induced heart attacks, severe, debilitating heart attacks. They used stem cells to inject back into the heart muscle of those mice, and in a matter of a couple of weeks, a substantial percentage of those mice showed no evidence of having had a heart attack. A substantial portion had complete recovery.

Let me give you a couple of other examples. Researchers at Johns Hopkins report paralyzed rats have partially regained the use of previously immobile hind legs in studies in which scientists injected the rodents with stem cells from mice embryos.

As to potential to treat ALS, University of Wisconsin-Madison scientists have turned stem cells into nerve cells carrying messages between the body to the brain, offering possibilities for repairing damage caused by ALS.

Embryonic stem cell researchers at UCLA, AIDS Institute, were able to coax human embryonic stem cells into becoming mature immune T cells. I am not a scientist. All I can tell you is this: When we look, when we search, when we inquire, when we use America's best minds and research using good ethical guidelines, important guidelines, valuable guidelines, for scientific inquiry, we then find ways to unlock these mysteries. It is pretty unbelievable what we have done in a relatively short period of time.

We have a polio vaccine. We have cured smallpox. If you go to the hospital these days and take a look at the wondrous machines and the wonderful treatments and all of the things that we are doing, all of that is a matter of experimentation and developing experience from that experimentation.

The fact is, embryonic stem cell research has very broad and very strong bipartisan support. That bipartisan support is evident in the Senate. We have had Senators on both sides of the political aisle stand up in strong support of this legislation.

Now, let me use a chart that my colleague, Senator KENNEDY, just used because I believe it is so important.

Dr. Zerhouni, the Director of the National Institutes of Health, says—this is President Bush's own NIH Director: From my standpoint, it is clear today that American science will be better served, and the Nation will be better served, if we let our scientists have access to more stem cell lines.

That is from the President's own appointee to head the National Institutes of Health.

I know in political life, there are a lot of labels, pro-life, pro-choice, pro-this, pro-that, anti-that. Let me observe, it is not, as some have suggested, a pro-life position to diminish or shut off critically needed research that will give people who have Parkinson's disease, diabetes, Lou Gehrig's disease, cardiovascular disease, cancer, any number of the things that kill so many Americans, it is not pro-life to diminish, restrict, or shut down research that gives people an opportunity for hope that there might be a cure for these diseases through this scientific inquiry and research. I recognize this is controversial. I respect someone who comes to the floor and says: Senator DORGAN, you are wrong about this. I respect that. This is not an easy issue. It is difficult for a lot of Members. I have not found it particularly difficult for me, because I believe those of us who have seen the ravages—and that should be most everybody in this Chamber—of these diseases to our loved ones, to friends, to so many Americans, this country would want us to do everything possible to give the tools to the best scientific minds and the best people in the medical field possible to unlock the mysteries of these diseases and find the cures. That is what this debate has been long about.

This debate, however, is even narrower than many we have had on this subject. This is about a single issue—can we use embryos that are otherwise going to be discarded from in vitro fertilization clinics, that are otherwise simply going to become waste and destroyed, today, tomorrow, next week, next month, all year long, can we use, with the permission of the donors, those embryos for the scientific inquiry necessary for the extension of life and the curing of these dread diseases? Can we do that? The answer clearly ought to be yes, a loud, resounding yes coming from this Chamber.

My colleague Senator HARKIN has been at this a long time. I have spoken on this a good number of times on the floor of the Senate myself. But it is not only Senator HARKIN; he is joined in a piece of legislation on a bipartisan basis by some very significant voices in the Senate, saying: Let's do this. Let's do this for this country. All of those who are suffering from these dread diseases deserve our help. They certainly don't deserve a Government that says: By the way, we understand your suffering, but we would prefer to choose to destroy and discard embryos from an in vitro fertilization clinic rather than extend the scientific research that might find a cure for what is killing you. That is not an acceptable answer from this Senate.

I thank Senator HARKIN for the time. I thank the many colleagues who have spoken in favor of this legislation and offer the fervent hope—and I believe it exists—that we can pass this legislation with a very substantial margin within the next 24 hours.

I yield the floor.

The ACTING PRESIDENT pro tempore. The Senator from Iowa.

Mr. HARKIN. Mr. President, I thank my colleague from North Dakota for a very eloquent statement about what this is all about. I thank him for that. I thank him for his strong support of S. 5, our legislation to basically do what he encapsulated by saying this is about saving lives. That is what it is all about.

I ask unanimous consent that the previous order be modified to provide that the vote on passage of S. 5 occur at 5:55 p.m., that the Republican leader be recognized at 5:25 p.m., with the other provisions remaining in order; provided further, that the additional 10 minutes be equally divided between Senators HARKIN and COLEMAN, ISAKSON, and Senator BROWNBACK, or their designees.

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

The Senator from Georgia.

Mr. ISAKSON. Mr. President, I yield 10 minutes to the distinguished Senator from Minnesota, Mr. COLEMAN, who has worked countless hours on this very important subject.

The ACTING PRESIDENT pro tempore. The Senator from Minnesota.

Mr. COLEMAN. Mr. President, as I listened to my distinguished colleague from North Dakota, there is so much we agree on. What we agree on is we want to move science forward. We want to provide hope to those who are suffering from diseases and conditions with the possibility of stem cell research. The issue is a matter of Federal funding. What do we put Federal dollars into? Should there be any moral questions that are raised before we make that decision to put Federal dollars into something? That is a legitimate issue to discuss in the Senate. It is a reflection of the reality that in this country there is substantial disagreement about what is appropriate use of Federal dollars. This is not about shutting off research. It is not about stopping research. It is not about a lack of research going on. We still lead the world in embryonic stem cell research. With forty percent of all the publications that are offered in this country, 85 percent of the dollars from what we have provided, both embryonic and adult stem cell research, we are leading the world. That includes both Federal dollars and substantial private dollars.

When this issue arose early on, President Clinton had his own bioethics commission. They concluded the derivation of stem cells from embryos remaining following infertility treatments is justifiable only if no less morally problematic alternatives are available for advancing the research.

The reality is, we have reached a point where there are available alternatives, and we have an opportunity to

pursue them. There is a political reality as well; that is, that S. 5 will pass. The President has said he is going to veto it because of his concern on Federal funding for the destruction of human embryos. As a result, from January 1 of this year, there is going to be no more research going into embryonic stem cell research tomorrow than there is today, unless we pass S. 30.

S. 5 is going to be vetoed. If you care about making more than a political statement but actually talking to the parents of kids with juvenile diabetes or adults with Parkinson's, whatever, the reality is, if you care about more than $132 million going into human embryonic stem cell research, you have to support S. 30. That is the political reality.

What S. 30 offers, in addition, is the opportunity to have a greater sense of national unity on this issue, to get beyond the culture wars, to get beyond the political division. That is what the research should be about.

Senator ISAKSON has talked about dead embryo research. I hope the description was clear enough. There was some confusion from some of my colleagues on the other side of this issue. Let me explain a little biology 101. The issue here is, can we produce pluripotent cells—embryonic cells are pluripotent—the capacity for the cell to give rise to many other different types of cells. There are adult stem cells out of bone marrow, out of blood type. Now we are looking at placental and embryonic. But there appears to be, and science will tell you, the ability of embryonic pluripotent cells.

The difference here is between pluripotent and totipotent, the ability to form an embryo, the beginning of life. Senator ISAKSON has talked about dead embryo research where the embryos have the ability to form pluripotent cells, those cells that have the capacity to differentiate into other types of cells. That is an opportunity without crossing a moral line. All of America can come together and say: This is a good thing, putting money into stem cell research and not dividing the Nation.

There is the process called alternate nuclear transfer. This is a process that if you look at natural fertilization, you get the sperm and the fertilized egg. You get an embryo. Under SCNT—that is the way Dolly the sheep was produced, a type of cloning—you get the egg cell. You take some adult genetic material with all the DNA, and you put that in an enucleated egg where the center is cut out. You get that fertilized egg and, boom, you get an embryo. Science is telling us today that you can, with all the natural nuclear transfer, with a range of things, what you can do is, you can take that egg, you can enucleate it, cut out the center, put in adult material. But before you transfer it, you turn off a little code. In the end, you don't get an embryo but you get this intercell mass then that has the capacity of pluripotency, not an embryo but the ability to differentiate cell types and all of the elasticity and the hope and possibility you get from embryonic stem cell research without crossing a moral line.

Is that what we should be doing? This is not shutting off science. Some have said this is a diversion. Certainly it is not a diversion in the practical sense, because right now there will be, if S. 5 passes, no additional funding for embryonic stem cell research. But if S. 30 passes, we can open the world to these possibilities and additional Federal dollars. The reality is, with S. 5 there are questions that are unanswered. I was just talking about those lines that are in vitro fertilization that some say could be thrown away. What is to stop people from simply producing more, knowing the research money is going to be there? The reality is, those cells that are in those IVF clinics have limited genetic lines. If you are of a certain minority or other groups, you are not as represented in those as you are in the population. But if we look at things such as alternate nuclear transfer, you can have an unending supply of genetic material so you can deal with specific gene types and deal with specific illnesses.

S. 30 also includes a provision to set up a stem cell bank for amniotic and placental stem cells, the idea that we could have 100,000 tissue samples and, by virtue of that, cover all the genetic types there are, which you do not get with what we have now under S. 5.

The bottom line in all of this is, there is a debate in this country, but it is not over moving the science forward. The debate is not over whether there should be hope. There is hope. It is important to understand some of the realities, the reality of what we are talking about today. Yesterday one of my colleagues, the Senator from Iowa, was talking about some of the work being done with dead embryos, perhaps some of the work being done with alternate nuclear transfer, and saying this could take a decade. The reality is the work being done today in embryonic stem cell research at best may take decades. So the question then ultimately is, can we as a nation decide on a process that does respect a moral line, that does say: We are not going to provide Federal funding for the destruction of a human embryo, but because we have the possibility, we should explore the possibility of doing research that provides for pluripotency without totipotency, without the creation of an embryo.

We are going to have more difficult questions as we move forward. As we look at the issue of stem cell research, one of the realities we are looking at is, if they haven't developed enough, what about the idea of developing limbs and other things. Should we let the embryo grow longer? Where do you draw that line? There is a whole range of other issues we are going to have to be debating as we kind of move along this process with the great advances of scientists. For those of us who support S. 30, what we are saying is we have a path, we have an opportunity to do it with a sense of unity, with a sense of where we provide a moral line, a line, by the way, that has been part of our statutes for a long time. We don't provide Federal funding for the destruction of human embryos. That is what this is about. It is not about size. The reality about size is that you could fit some of these on the head of a pin. But it is about that basic moral line which has been part of our law for a long time.

So this approach we have in S. 5 is an approach that is pro-science and pro-research and pro-hope. It is the only practical one that in the end, if it passes, will result in more funding for embryonic stem cell research tomorrow than we have today.

My fear is what happened last year will happen this year. This body passed both a version of S. 5 as well as a version that provided for some alternatives. It was the Specter-Santorum bill. S. 30 provides for more than that bill. It will provide for, in fact, new dollars going to research that isn't funded today.

What the House chose to say is it is all or nothing. If you don't pass the S. 5 version, the Castle bill, then we are not going to even put in any funding. We are not going to do anything. We are not going to allow any alternatives to be pursued. That would be a shame. As I used to tell our kids, it is akin to cutting off your nose to spite your face. That would be a shame.

I hope my colleagues on both sides of the aisle—wherever they stand on this issue they can be comfortable supporting S. 30; they can be comfortable supporting a bill that provides for the moral line but at the same time opens up the opportunity for additional research. I urge its support.

I yield the floor.

Mr. ISAKSON. Mr. President, I yield myself 3 minutes. I wish to commend Senator COLEMAN and Senator DORGAN for the two speeches that have preceded my remarks because both of them eloquently expressed what is, in fact, the case; that is, that everybody in this Chamber, including the distinguished Senator from Iowa and myself, wants more hope for Americans who suffer. Both bills offer a path to do that. We may have our differences on those paths but no difference in the hope that it offers. I commend Senator COLEMAN for his very articulate explanation of that.

I join with the Senator from Iowa, I think, in encouraging our colleagues who may be listening, we have some time this morning that can be filled. If we have Members who want to come to the floor and speak, they should contact the cloakroom and let us know, from both parties and from both sides of every issue, because we want to fill every minute.

With that, I reserve the remainder of my time.

Mr. HARKIN. Mr. President, I concur with my friend from Georgia in that if people want to speak, they should come over now. We have a list of speakers, and I think Senator ISAKSON does, too, for later on in the day. I can only say to Senators, as the clock ticks, your time is going to get squeezed more and more. So that if you are scheduled to speak for, say, 10 minutes this afternoon, you may get squeezed to 3 minutes or 2 minutes or 1 minute. So if you would like to have your say about this embryonic stem cell bill, I would say now would be the time to come over. I say to all the Senators who may be in their offices right now, call the cloakrooms, and we will make the time available right now.

Mr. President, what is the situation, might I ask, right now with the time existing?

The ACTING PRESIDENT pro tempore. The Senator from Iowa has 58 minutes, the Senator from Georgia has 33 minutes, and the Senator from Kansas has 45 minutes.

Mr. ISAKSON. It is my understanding, if the Senator from Iowa will yield, that the Senator from Kansas is in the cloakroom and about to take a significant portion of that. That is my understanding. That would be a significant portion of his time, not yours and mine.

The ACTING PRESIDENT pro tempore. The Senator from Kansas is recognized.

Mr. BROWNBACK. Mr. President, I thank my colleagues for the debate, and a good one, we are having on a very important topic. The differences in this debate remind me, though, of a proverb that says there is a way that seems right to a man, but its end is the way of death. Unfortunately, if we research on young human life, it puts that young human life to death and at the same time does not produce the results for cures that we had hoped would be taking place.

I respect my colleagues who are on another side of this issue who feel as though we should research on young human life. I do not feel that is right or ethical. I will discuss that aspect here today with some of the time I have, and I also wish to discuss the exciting breaking developments that are taking place even today on the adult stem cell area that continues to produce treatments for humans.

I ask unanimous consent to enter into the RECORD after my statement an article from the Chicago Tribune online edition.

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

(See exhibit 1.)

Mr. BROWNBACK. It is dated today. It is about the latest diabetes treatments that have been taking place. A report came out from Northwestern University in the Chicago area about a new diabetes treatment developed at Northwestern University which has allowed some patients to stop taking insulin for more than 2 years. They have raised questions about this process. It was done in Brazil rather than in the United States. Thirteen of the fifteen patients in this adult stem cell study went off insulin for at least 6 months, as they note, prompting cautious excitement from some researchers who have seen the results. Dr. Gordon C. Weir, a diabetes researcher and head of a transplantation program at Harvard's Medical School, Joslin Diabetes Center, said this:

> Their results look better than anything I have seen so far.

What an exciting development in the adult stem cell research area and field.

Questions have been raised about this trial and some of it taking place in Brazil. I have raised questions such as why is it we are seeing these breakthroughs taking place and we are having patients from the United States go to Bangkok, go to Portugal, and these treatments are being developed in Brazil rather than in the United States. I believe if we would put our funding here that we are using in the embryonic field, the $613 million that has produced no human treatments to date but has produced a lot of tumors in live animals, if we would put that in the adult field where we are getting results—we have invested in the adult field, but what if that $613 million were in the adult field today? Would these breakthroughs be happening here instead of Brazil, or by U.S. researchers in Brazil? Why aren't they being done in the United States? I hope my colleagues will look at that issue.

There is another point I wish to raise with my colleagues at this point in time. Let's presume they are successful in embryonic stem cell research. Let's presume, in a decade or 20 years, they are successful with embryonic stem cell research. That is going to lead to the necessity of us moving forward with human cloning because in the development of this technology, embryonic stem cell technology, if you are using an embryo and the genetic material doesn't match up, there is going to be rejection by my body or by some body. That is going to happen. That is going to take place. So we are going to have to move into human cloning. We are going to have to harvest women's eggs, develop human clones to develop the correct type of embryonic stem cells to use in an individual so that there will be a genetic match. I think we ought to talk about that, if we continue in the progression we are on.

I acknowledge that human cloning is not specifically addressed in S. 5, the embryonic stem cell bill. However, if embryonic stem cells can ever overcome their tumor-forming tendency—and that is a huge if—and they are used in humans, human cloning will be used in order to avoid immune rejection problems. Therefore, as is hopefully evident, the issue of human cloning needs to be raised.

To this end, I recently introduced the bipartisan Brownback-Landrieu Human Cloning Prohibition Act, which we introduced before the break with 26 other Senators who are cosponsoring this legislation.

This legislation would reaffirm that the United States places tremendous value on the dignity of each and every human person: from the young human embryo to vulnerable women who would be coerced into donating their eggs, at potentially great risk to their health. The legislation would make clear that the cloning of human persons is not something we as a society will accept.

The Brownback-Landrieu Human Cloning Prohibition Act has been endorsed by the President of the United States. It will bring the United States into conformity with the United Nations, whose General Assembly called on all member states ''to prohibit all forms of human cloning.'' It did not say we can do therapeutic but not reproductive. It said ''all forms of human cloning'' by a strong 84-to-34 margin vote in the U.N.

The problem with cloning human beings is that it violates human dignity on all sorts of levels. Cloning transgresses our heritage's most sacred values about what is good and true and beautiful. Western civilization indeed is built on the tenet that every human life has a measurable value. Human beings are ends in themselves. It is wrong to use any person as a means to an end. Upon this principle our laws are founded, and without it, laws have little basis. Human cloning—for whatever purpose—is wrong because it turns humans into commodities or spare parts.

In recent debate, human cloning has been referred to as ''therapeutic cloning,'' ''research cloning'' or simply SCNT. These are presented as contrasts to ''reproductive cloning.'' It should be noted that ''therapeutic,'' ''research,'' and ''reproductive'' are merely adjectives to describe what is done with the cloned human. SCNT, or somatic cell nuclear transfer, is the scientific description of the cloning process.

A CRS report for Congress notes:

> A human embryo produced via cloning involves the process called somatic cell nuclear transfer (SCNT). In SCNT, the nucleus of an egg is removed and replaced by the nucleus from a mature body cell, such as a skin cell. In cloning, the embryo is created without sexual reproduction: There is no joining of egg and sperm.

Stem cell pioneer James Thomson has said:

> If you create an embryo by SCNT cloning and you give it to somebody who didn't know where it came from, there would be no test you would do on that embryo to say where it came from. It is what it is. If you try to define it away, you are being disingenuous.

With ''reproductive'' and ''therapeutic'' cloning, human beings are turned into commodities or spare parts to be dissected in the laboratory, with the claim that someday they may be

administered to other humans to provide a treatment. Treatments are certainly praiseworthy but not at the expense of the destruction of other members of the human family. We all want to treat people as people, and people should be treated as people. I want to find a cure for cancer. However, it is wrong to turn humans into a means to an end.

It is also wrong to exploit women for their eggs. Here I want to develop this thought about what will take place if human embryonic stem cell research is developed, is successful. We have to develop clones that meet the genetic type of the individual seeking the treatment. You are going to have to get eggs from somewhere and you are going to have to get these from people—from women. Also, it is wrong to exploit women for their eggs, and that is the other side of the human cloning story. SCNT cloning, as proposed by proponents of the technique, would require millions of human eggs. In all likelihood, poor and disadvantaged women would be particularly vulnerable to exploitation via financial incentives for donation. This is troubling because retrieving such eggs violates the dignity of a woman and may cause serious harm to her health.

The Brownback-Landrieu Human Cloning Prohibition Act is the only effective ban on human cloning. Any other ban is one that is allowing therapeutic cloning and even encouraging it but certainly not banning human cloning. Others would regulate what could be done with the human clones, normally requiring its destruction, but they do nothing to prevent the process of human cloning, which violates human dignity on many levels. We should take a stand against turning young human beings into commodities. We should not destroy human life for research purposes.

I will not be voting for cloning today, and I will continue to look for an opportunity to bring this legislation forward as an amendment to other bills. Again, I point out to my colleagues that is the route we are on with this—to promote human cloning so there will be genetic matches in the human embryonic stem cell procedures. I do not believe that is the path we should follow.

I want to address some of the thoughts several colleagues have brought up about what it is we are doing. Human embryos are being destroyed for research purposes and for stem cells. Some have referred to this as ''potential life,'' which strikes me as a bit like the debate we had on the issue of slavery, where we deemed a person three-fifths of a person at one point in time. That is a complete legal fiction. You are either a person or you are not. You are either life or you are not life. It is not potential life. Nowhere in the scientific literature is there a description of potential life. The embryo is a species at that stage of development in the life cycle. That is the scientific definition and information—the embryo is a species at that stage of development in the life cycle. We all have a life cycle. The embryo is the species at that stage. That is common sense. The embryo stage is a development stage, but it remains human life, not potential human life. It is alive and it is a life.

The embryo would continue along the life cycle continuum if we were not interfering in its normal development by keeping it in a freezer and destroying it for experiments. I think it is important that we not engage in wishful thinking or trying to define this away. A human embryo is a human life. We should not say it is a potential life. That is not a definition for what human life is. I noted in the debate earlier—I want to make this point at this time—that it appears as if at the current research rate it would take 100 or more human eggs per cloned embryo—100 you are going to have to harvest from young women to get this process to move forward with human cloning.

Mr. President, I will reserve the remainder of my time at this point. I yield the floor.

EXHIBIT 1

[From the Chicago Tribune, Apr. 11, 2007]

HOPE, RISK IN DIABETES TRIAL

(By Jeremy Manier)

A new diabetes treatment developed at Northwestern University has allowed some patients to stop taking insulin for more than two years, but it also has spurred ethical objections from researchers who say the trial put Brazilian children at unnecessary risk.

Thirteen of the 15 patients in a stem-cell study went off insulin for at least six months, prompting cautious excitement from some researchers who have seen the results, to be published Wednesday in the Journal of the American Medical Association. All of the patients had the less common form of diabetes called early-onset, or Type 1 diabetes, which normally requires close blood-glucose monitoring and long-term use of insulin injections.

The new approach, designed by Dr. Richard Burt of Northwestern, enlists a patient's own stem cells in an effort to halt the immune system's destruction of insulin-producing ''beta'' cells in the pancreas—the root cause of Type 1 diabetes.

Burt drafted the protocol, and doctors at the University of Sao Paulo in Brazil carried it out. The patients, some as young as 14, got intense drug treatment that wiped out their immune systems. They then received injections of their own blood stem cells in hopes of renewing the immune system without the trait that makes it target beta cells.

''Their results look better than anything I've seen so far,'' said Dr. Gordon C. Weir, a diabetes researcher and head of a transplantation program at Harvard Medical School's Joslin Diabetes Center.

Though small in scale, the study is significant as the first attempt to treat diabetes using a ''cell-based'' therapy, researchers said. Such treatments may become more common as scientists look beyond insulin and try approaches using adult stem cells or embryonic stem cells, which could directly replace the tissue damaged in diabetes. Type 1 diabetes accounts for 5 to 10 percent of the 21 million diabetes cases in the U.S.; the rest suffer from Type 2 diabetes, which is linked with obesity.

''These are promising results that suggest we should go further,'' said Burt, a specialist in immunesuppression therapy.

Yet some experts doubted the protocol could have been approved in this country. Weir, like several other scientists reached for this report, said the risks of Burt's technique are high enough that he probably would not have approved the experiment if he had been responsible for reviewing it.

The problem is this: Although early-onset diabetes can have dire long-term effects such as blindness and heart disease, many patients succeed in managing their condition with insulin and lead normal lives for decades. That makes it harder to justify the risks of stem cell transplantation, which Burt has used before on diseases with few other treatment options, such as lupus or multiple sclerosis.

The immune suppression used in stem-cell transplants can cause infections and even death. None of the patients in the Brazilian study died, though one had severe pneumonia that required supplementary oxygen.

Several experts said the risks could have made it difficult to get the study past American institutional review boards—groups responsible for ensuring that research is safe and ethical.

''This is an incredibly invasive therapy to be tried on children without knowing if anyone will benefit from it,'' said Dr. Lainie Ross, associate director of the University of Chicago's MacLean Center for Clinical Medical Ethics.

Ross said she would not have authorized such a study unless it enrolled only adults. She said research ethics guidelines state that risky experimental therapies should not be used on children unless it's impossible to test them on adult subjects—and in this case, adult diabetes patients were available.

In fact, Burt said his original protocol included a cutoff age of 18, but a Brazilian review board changed it to allow younger patients in the study. Ages of the subjects ranged from 14 to 31, with eight participants younger than 18.

Burt said the study was done in Brazil not to avoid the need for an American review board, but because he couldn't find an American diabetes expert interested in pursuing his idea. He said Northwestern review board officials told him his collaboration with the Brazilian team was fine so long as he was not directly involved in patient care. The Juvenile Diabetes Research Foundation cautiously embraced the technique while pointing out the need for further study. A statement from the group said that in the trial, ''the immune system was apparently reset or retrained, and after the procedure, the symptoms of diabetes were reversed.''

But the statement also noted that because of the risks, ''it is not clear whether this trial would be approved in the U.S.''

One weakness of the study was its lack of a control group, said Dr. Mark Anderson of the University of California at San Francisco's Diabetes Center. Without that, it's impossible to quantify how much improvement the therapy offered. One scientist interested in taking the next step is Dr. Jay Skyler of the University of Miami, who wrote an accompanying editorial in JAMA.

''I don't think [this study] would have gotten approval at our institution out of the box.'' Skyler said. ''But now that it's worked I would be championing it. I want to be one of the sites that's doing it.''

The ACTING PRESIDENT pro tempore. Who yields time?

Mr. ISAKSON. Mr. President, 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. KERRY. 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.

Who yields time?

Mr. HARKIN. Mr. President, I yield 10 minutes to the Senator from Massachusetts.

The ACTING PRESIDENT pro tempore. The Senator from Massachusetts is recognized.

Mr. KERRY. Mr. President, I thank the Chair and the distinguished manager. I thank him also for his leadership on this issue, which has been long and steady.

Last summer, I had the privilege of coming to the floor to speak on this issue, accompanied by a summer intern from my office, a college student from Massachusetts named Beth Colby. Beth was paralyzed from the chest down in a car accident when she was 14 years old. She came to Washington, like so many women, and so many young folks, period, to learn about Government. She also came here with a determination to try to fight for the scientific research that holds untold promise for her and for tens of millions of Americans. She wanted to be, as she put it to me in asking to come to the floor during the debate on stem cell research, a face Senators can see so they can see what they are voting for.

The truth is there are people like that in every single community in our country. They are all hoping to benefit one day from lifesaving stem cell therapy. Grandparents with Parkinson's disease have that hope. Soldiers coming back from Iraq who are crippled by a roadside bomb have that hope. Children who, decades from now, will suffer from a disease we are not aware of yet, or that we know well, hope stem cell research might be able to cure them.

Since we first heard about stem cell research several years ago, the country has been on a journey together. We have discussed it. A lot of folks have sat around their kitchen tables and in their living rooms and have talked about stem cell research. Everybody has debated it. We have learned a lot more about the promise and the peril of stem cell research. At first, our natural reaction was to temper our excitement with a well-founded fear that this technology perhaps posed insurmountable ethical hurdles. The President himself deliberated. He appointed a task force. He studied and debated the fine points with teams of bioethicists. He reached what he felt was a reasonable compromise. In August of 2001, he announced to the American people that Federal funds would be used only for research on a few lines of stem cells that were already harvested. Back then, he said stem cells ''offer both great promise and great peril. I have decided we must proceed with great care.''

That was the President speaking. Since then, America's understanding of this issue has evolved. We have learned that the lines available for research are far less useful than we had initially hoped. We learned the technology is as promising as we dreamed it might be. We have come to understand that embracing stem cell research does not condemn us to the slippery slope of human cloning.

Since the President's decision, stem cell research funded by the private sector and by the States has gone ahead across the country. But it has gone ahead slower than many of us might like in the absence of crucial Federal funding—fast enough to fill the pages of major medical journals with exciting new discoveries. But this research has taken place on a large enough scale at our most important educational research institutions to be able to tell us it addresses our major fears. What in the summer of 2001 might have seemed a well-founded suspicion has completely proven to be unfounded. As Newt Gingrich told me yesterday, after reversing himself and acknowledging the threat posed by global warming is both urgent and real, serious legislators change their stances over time. That is permissible. That is the product of thinking, the product of additional information and additional input.

Look at the Senate. Republicans such as JOHN MCCAIN, former majority leader BILL FRIST, the Senator from Utah, ORRIN HATCH, who is on the floor now, have looked carefully at the scientific facts and have searched their own consciousness. They have all reached the same conclusion: Opposing stem cell research is the opposite of a pro-life policy.

Last summer, 63 Senators, Republicans and Democrats alike, and 235 House Members voted in favor of stem cell research. That was a responsible bill, a consensus bill. It was designed specifically to address the concerns of lawmakers who are worried about the bioethics—and appropriately worried, I might add. It is difficult to get 63 Senators to agree on anything more controversial than the sort of standard fare of America, and it is especially difficult on a polarizing, emotionally charged issue. But we came together as a Senate. We hammered out our differences and they came together in the House, and we arrived at a smart, thoughtful, sensitive piece of legislation that reflected a consensus and respected our collective conscience. When we did so, we were confronted by a President who promised to proceed with great care, whose commitment to deliberation has calcified into a stubborn refusal to confront reality or reengage in a changing debate.

America has evolved on this issue, but the President has stood still. That is why over an overwhelming bipartisan Senate majority, the President finally dusted off the veto pen and offered up the first and, to date, the only veto of his entire Presidency. The President has signed good and bad legislation—torture bills, pork, giveaways to oil companies, and tax cuts for millionaires. But when it came to a strong emerging national consensus on an issue that brings hope to families across the country, the President chose to shut down the debate and block Federal funding for scientific research.

Make no mistake, this is a personal issue—deeply personal for each of us in this Chamber, and for the President. I understand that. I am confident when the President made his decision about stem cell research over 6 years ago, he searched his mind and his heart, as all of us who care passionately about this issue have done. If he vetoes stem cell research again, that will send a message that this country no longer intends to be the global leader in scientific knowledge and discovery. It would send a message to Americans suffering from Parkinson's, spinal injuries, and countless ailments that their well-being is not important to us. We are telling these people we could do more to cure you, but we choose not to. We are telling them help is not on the way.

The current policy is eroding our national advantage on stem cell research. It is undermining the hopes and dreams of millions of Americans. We are tying our scientists' hands behind their backs and holding them back from the possibilities of the future.

We need a Federal policy that builds on the advances being made in our States and our universities, in our private foundations, and in our research centers, all of which have proceeded in a thoughtful and commonsense way to the ethics concerned in this issue. The research now is already showing tremendous promise. In my State of Massachusetts, some of the best scientists in the world are working at the Whitehead Institute for Biomedical Research at MIT and the Harvard Stem Cell Institute. We are still in the early stages of this line of research, but there is here the kind of discovery that we are already making.

Let me explain. The Harvard Stem Cell Institute identified cells that they call ''master cardiac'' stem cells, which is a single cell type that gives rise to the major cellular building blocks of the mammalian heart. That discovery rewrote the story of cardiac development and contributed a significant building block toward what could become revolutionary new treatments for heart disease. We are already seeing cures for diseases in our labs.

At the Whitehead Institute, a leading stem cell researcher and his team used stem cell therapy to cure a mouse suffering from an immune deficiency disease. As you can see, the research is still in the early stages, so we cannot say what the immediate results are going to be for humans. But, rest assured, today's breakthroughs in mice have often become tomorrow's cures for humans.

Now we can all hope that alternatives to embryonic stem cell research hold similar promise. But you

cannot wish away what our scientists are telling us. Research on embryonic stem cells is incredibly promising, pivotal to this new field, and not easily sidestepped. Nobel Prize winners past and present, and most likely future, believe this is the future biology of medical science.

People of good will and good sense can resolve these complicated ethical issues without stopping lifesaving research. The country has led the world in revolutionary discoveries, with our breakthroughs and our beliefs moving ahead together, symbiotically. Senate passage of this bill with a veto-proof majority can put us, again, on that path.

We are giving this administration yet another chance to consider a misjudgment with profound consequences. We are working to create a framework for ethical, federally funded research. Like the bill passed last summer, this legislation provides important ethical safeguards by extending federally funded research only to embryos that are, one, donated by in vitro fertilization clinics; two, created specifically for fertility treatment, not for research; three, in excess of treatment needs and would otherwise be discarded; and four, donated by treatment-seeking individuals who provided written, informed consent and were not offered financial inducements. I cannot think of any way to more effectively and thoughtfully address the ethical issues that are concerned here.

Mr. President, I ask unanimous consent for 2 more minutes. Is that possible?

The PRESIDING OFFICER (Mr. BROWN). Without objection, it is so ordered.

Mr. KERRY. Mr. President, what may not have been clear to us initially—and it should be clear now—it just doesn't make sense to allow in vitro fertilization to create millions of embryos that will never become human beings and then prohibit science from using them to cure sick people and relieve human suffering but to simply discard those embryos.

Valuing the mysteries and sacredness of human life is something all of us should do. It underlies every religion on this planet. Stem cell advocates are no different. Here in the Senate and across this country, Americans are approaching an ethical consensus which bans human cloning, which is thoughtful about the use of embryos that would be discarded, and which respects life and also respects that life by protecting stem cell research.

We don't have the luxury of patience, not when 100 million Americans suffer from illnesses that might one day be cured with stem cell therapy, not when more than 3,000 Americans die from diseases every day that one day may be made treatable by stem cell research.

If we can get 67 votes out of 100 Senators—4 more than we had last summer—then we can send the President a veto-proof message. Last summer, the Senate sent the administration a strong message by passing a bill that would responsibly fund this research, and the American people showed their agreement last November when they sent an even larger majority back to Washington to vote in greater numbers to support lifesaving scientific research. Sixty-three votes are not enough. We hope we receive more today so that we can open the doors to this promising future.

I thank the Chair.

The PRESIDING OFFICER. Who yields time?

Mr. ISAKSON. Mr. President, I yield 10 minutes to the distinguished Senator from Tennessee, Mr. CORKER.

The PRESIDING OFFICER. The Senator from Tennessee is recognized

Mr. CORKER. Mr. President, I will probably take more like 5 minutes, if the Senator from Georgia wants to allocate the time elsewhere.

Mr. President, I thank you for the opportunity to speak today. As you can tell by my location in the Senate, I am new to the Senate. I spent a great deal of time, as many people did, over the course of the last 2 years visiting with citizens in our State. I think there is nothing that touches us in the public arena more than seeing people who have needs and trying to address those needs. That is the reason many of us are in the public arena—I hope all of us are in the public arena.

Few of us are untouched by the many illnesses that plague Americans. I know all of us have people who have diseases, such as diabetes, various forms of cancers, heart disease, Alzheimer's. I know my own family has been touched by Alzheimer's disease. My father has it. All of us are aware of issues that are affecting human beings. We also want to see breakthroughs take place.

It is amazing, the breakthroughs that are taking place today with stem cell research—research from adult stem cells, research that is taking place from matter from amniotic fluids, research that is taking place from cord blood matter. So there are amazing cures taking place in America today with this research, and I doubt there is a Senator in this body—not a Senator in this body—who doesn't support stem cell research. The issue really comes down to embryonic stem cell research.

Mr. President, I want you to know that over the course of the last 2 years, I spent a tremendous amount of time looking into this issue, reading white papers, talking to researchers all across America, visiting embryonic adoption centers where embryos were actually being adopted and creating human beings. Because of this issue, because of the ethical divide this issue seems to create for so many Americans, a tremendous amount of time was put forth by myself and my staff, but myself firsthand, to reach a conclusion about this issue and to be able to communicate that to Tennesseans and Americans.

There are four points I have learned about this issue. The Senator from Massachusetts just spoke. He and I have a very different view on this issue. What I have learned about this issue is that honorable people can disagree. Honorable people who truly want to see cures take place for Americans and for people all across the world can disagree as to their viewpoint as it relates to embryonic stem cell research. Again, all of us support adult stem cell research.

The second point I have learned is that there are tremendous breakthroughs, as I have already mentioned, regarding research that is taking place with adult stem cells, cord blood stem cells, and amniotic fluids have matter that is creating stem cells. Tremendous cures are being created with these stem cells.

The third point is that science is going to absolutely outpace our ability to deal with this issue. There is no question that even if we pass legislation today, science is going to continue to outpace us as it relates to our ability to deal with this fascinating area of science. But I also believe science and these breakthroughs are going to allow us to continue to achieve these cures for Americans and for people all across this world without creating this ethical divide of destroying human embryos.

So I am here to strongly support and applaud the Senator from Georgia and the Senator from Minnesota who have put forth the HOPE Act. I am here to strongly support S. 30, which allows additional research to take place on stem cells without breaking that divide. I am also here to voice opposition to S. 5, which actually uses Federal dollars to destroy human embryos.

Mr. President, I yield back my time.

The PRESIDING OFFICER. Who yields time? The Senator from Iowa is recognized.

Mr. HARKIN. Mr. President, first, I say to my friend from Tennessee, there is not one dime in S. 5 that would be permitted to be used for the destruction of embryos—not one dime. That is prohibited by the Dickey-Wicker amendment. This bill does not override that amendment. Not one dime in this bill can ever be used for the destruction of any embryos. I just want to make that very clear.

Mr. President, I yield 20 minutes to my colleague, someone with whom I have worked on health issues now going back—let me think about this—almost 13 years, I guess, back to 1993, someone with whom I have worked very closely on a number of health issues and for whom I have a great deal of respect for his approach on this issue and so many others. I yield 20 minutes to the distinguished Senator from Utah, Mr. HATCH.

The PRESIDING OFFICER. The Senator from Utah is recognized.

Mr. HATCH. Mr. President, I thank my colleague from Iowa. I appreciate the arguments he has been making about this issue.

Mr. President, I rise to speak in support of embryonic stem cell research.

First, I plan to vote in favor of both bills that will be considered today, S. 5, the Stem Cell Research Enhancement Act of 2007, and S. 30, the Hope Offered through Principled and Ethical Stem Cell Research Act.

I call upon my colleagues to vote in favor of and pass these bills.

And I call upon the President to sign both bills into law.

However, let me make one point perfectly clear 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 research; S. 30 does not.

I want everyone to understand that the votes we cast today could tomorrow mean the difference between a healthy life and one of misery for many, many Americans.

I commend my good friends and colleagues for their hard work on S. 5—first, Senator ARLEN SPECTER and Senator TOM HARKIN, who held over 15 bipartisan hearings on embryonic stem cell research over the last several years.

Next, I recognize Senators KENNEDY, SMITH and FEINSTEIN for their courageous leadership and commitment to this important issue.

And, in the House of Representatives, Representatives MIKE CASTLE and DIANA DEGETTE must be singled out for their principled leadership on the companion embryonic stem cell research measure, which was approved by a strong bipartisan vote.

Each day, the Congress must address consequential events—and even momentous threats to our Nation—but it is not often that we have the opportunity to cast a vote that is filled with as much hope and promise for the future as the embryonic stem cell research bill we are considering today.

It reminds me of our country's quest for space many years ago, which was no more than a dream when the effort began. Yet what was only a vision when it was conceived, yielded wonders beyond anything we could have imagined.

The American space program has spawned many important new advances. When I think of space exploration, I ponder the gift of global positioning technology. I consider the weather mapping that we depend upon to warn us of impending natural disasters. I marvel at the revolution of instantaneous worldwide communication.

As a science, embryonic stem cell research today is where the space program was when we first dreamed of it. When I think of embryonic stem cell research, I imagine diabetics without insulin pumps. I dream of patients with Parkinson's Disease who sprint rather than shuffle. I conceive of patients with spinal cord injury who stand up and walk again.

I think of 16-year-old Tori Schmanski of Orem, UT, who sustained a severe brain injury. I imagine Tori going back to the snowboarding and dancing that she loved. Tori Schmanski's parents flew her to China for stem-cell therapy. Her father said something that struck me. He said, ''Our hope is that next time we do this, we won't have to go to China.'' America has long been the world leader in ethical biomedical research, and we should not lightly cede this ground.

When I consider the potential of stem cell research, I think of people like 17-year-old Travis Ashton of Highland, UT, whose brain was injured in a car accident. Today, he is struggling to dribble a basketball. I hope tomorrow he will be able not only to dribble a basketball but dunk a couple of baskets as well.

And I think of my great friend, President Ronald Reagan, whose genius and energy were sapped away in what were to have been his golden years by the ravages of Alzheimer's disease. I imagine him finishing his days with his characteristic humor and vitality.

Last year when Congress voted on the Stem Cell Research Enhancement Act of 2005, Former First Lady Nancy Reagan sent me a letter urging the Senate to support the bill. Let me remind you what it so poignantly said:

> Dear Orrin:
>
> Thank you for your continued commitment to helping the millions of Americans who suffer from devastating and disabling diseases. Your support has given so much hope to so many.
>
> It has been nearly a year since the United States House of Representatives first approved the stem cell legislation that would open the research so we could fully unleash its promise. For those who are waiting every day for scientific progress to help their loved ones, the wait for United States Senate action has been very difficult and hard to comprehend.
>
> I understand that the United States Senate is now considering voting on H.R. 810, the Stem Cell Research Enhancement Act, sometime this month. Orrin, I know I can count on friends like you to help make sure this happens. There is just no more time to wait.
>
> Sincerely,
>
> Nancy

As we all know, last year, the Senate did approve this legislation, but President Bush vetoed it.

And while I think we all know how this vote will come out today, it remains my fervent hope and prayer that President Bush—a person whom I greatly respect and with whom I share strong belief in the right to life—will sign this bill into law.

I have received many letters from constituents who ask me, ''Senator HATCH, how can you support embryonic stem cell research when adult cell research is so promising?'' They ask, ''Why don't you realize that cord blood research makes embryonic stem cell research unnecessary?''

My answer is simple. Who among us can know which will yield the greatest breakthroughs? Who among us dares to predetermine the outcome by limiting the possibilities of ethical scientific research at the outset of this new field of research?

The stories I have just related compel me to advocate for all types of ethical stem cell research—adult, cord blood, amniotic, and embryonic.

Indeed, it must be recognized that in August, 2001, President Bush became the first President to support Federal funding for embryonic stem cell research. The President has my respect and admiration for his decision. At that time, he announced that 78 embryonic stem cell lines would be eligible for Federal support. It was a good start.

It was also a decision that recognized discarded embryos can, and should, be used to advance our Nation's scientific inquiry. That is fundamentally still the issue before us today.

The President's policy has not lived up to its promise.

In the past 6 years, much has changed. What was once thought to be over 70 stem cell lines has dwindled. A number of scientists have told me that in reality the number of usable cell lines has shriveled to merely a dozen or fewer.

Scientists have told me that these lines are not enough to represent the general population anyway—they have been genetically distorted by years of replication. Furthermore, they are contaminated with so-called animal feeder cells and, therefore, can never be approved for use in human therapy.

Existing Federal policy has created what I have characterized as handcuffed science. By this I mean that scientists are forced to go to extreme lengths to comply with Federal law. When they are able to scrounge up private funding for fresh embryonic stem cell lines, the scientists find their hands bound.

They are afraid of violating Federal law by mixing research between the limited, contaminated, federally sanctioned stem cells and cells with the new cell lines lawfully developed with non-Federal funds. No equipment purchased with NIH funds touches the new, lawful cell lines and the result is that equipment purchased with Federal money lays underused while limited precious money is used to purchase duplicate equipment and supplies.

Dr. Linda Kelley is an Associate Professor of Medicine at the University of Utah. Dr. Kelley told me that the limited number of currently federally sanctioned cell lines is so unstable that, in her words, ''You are lucky if you can recover 10 percent of the cells they send you.'' She said the cells have been reused for so long that they have degraded and no longer represent the comprehensive human population.

I do not want Utah's scientists moving to California or America's scientists moving overseas so they can do their research.

Just as we are a nation that would never want to allow a situation to exist where American citizens must go abroad for best medical treatment, we should neither allow nor accept an atmosphere where our best doctors and

scientists must go abroad to develop and provide the best medicine.

I do not want U.S. scientists walking away from embryonic stem cell research because there are too many impediments to pursuing it in our country for our citizens.

Dr. Marie Cseta is a cell biologist from Emory University and is one of the many scientists who firmly believe that embryonic stem cells hold unusual promise. She is unable to send her NIH-funded, post doctoral fellows to qualified laboratories to learn new procedures because those laboratories work with the new cell lines. She told me that the restrictions that current Federal policy places upon her and her colleagues are, in her words '' . . . so odious that many scientists just do not try.''

I want scientists to try.

I think we will see after today's vote that most Senators want scientists to try.

I am sure my friends, neighbors, and constituents in Utah want our best scientists to try.

In forming my opinions and views on this topic, I met with many leading experts in the field of science, ethics, law and, yes, religion. I met with a number of Nobel Laureates including Dr. Harold Varmus, former Director of the National Institutes of Health; Dr. Thomas Cech of the Howard Hughes Institute of Medical Research and Dr. Paul Berg of Stanford University.

I met with other leading experts including: Dr. Curt Civin and Dr. John Gearhart both of Johns Hopkins University; Dr. Irv Weissman of Stanford University; and the University of Utah's own Dr. Mario Capecchi.

Let me tell my colleagues that we have some great scientists in the State of Utah. In fact, Dr. Capecchi, a leading research professor at the University of Utah, is widely recognized as one of the true pioneers of embryonic stem cell research. He has been working on embryonic stem cell research throughout his 40-year career. He has been the recipient of the prestigious Lasker Award which is considered the most prestigious American award in the biomedical sciences. It is often the case that Lasker Award winners go on to receive Nobel prizes.

When I was home in Utah last week, I spent a lot of time talking to Dr. Capecchi. I asked him if he could provide me with what he believed are the top reasons why our government should fund embryonic stem cell research. He shared the following with me:

1. Potential source of cures. Embryonic stem cell research provides the potential to cure or ameliorate some of the most devastating and costly diseases faced by our Nation including diabetes, Parkinson's disease, and Alzheimer's disease.

2. Embryonic stem cells grow quickly and are versatile. Two inherent properties of embryonic stem cells, not shared with adult stem cells, make them especially attractive cells for cell transplantation-based therapies: i) rapid cell division and ii) versatility.

Rapid cell division is critical if we want to use any stem cells for transplantation therapy, as we must quickly expand a limited number of cells to the large mass required for therapeutic effect. Embryonic stem cells are almost unique in their capacity for rapid growth without loss of developmental function.

The versatility of embryonic stem cells is truly remarkable. In the mouse, embryonic stem cells have been unequivocally demonstrated to be pluripotent, capable of generating every cell type present in the adult body. Studies in cell culture indicate that human embryonic stem cells also possess this remarkable pluripotency.

3. Adult stem cells grow slowly. In contrast, adult stem cells divide slowly and normally require a very specialized and undefined cellular environment—called a niche—for their survival and growth. For example, removal of adult intestinal stem cells from their biological niche leads to their automatic, programmed cell death. Blood stem cells, obtained from the bone marrow, are among the few adult stem cells currently in clinical use, but they cannot yet be expanded in culture without losing their developmental function, and hence their limited therapeutic utility.

4. Adult stem cells are very restricted in what cell types they can produce. Whereas embryonic stem cells are extremely versatile in their capacity to generate different cell types, adult stem cells appear to range in versatility from quite restricted—for example, blood stem cells that can generate multiple types of blood cells, but nothing else—to completely restricted, for example, muscle stem cells that generate only muscle cells.

5. Many important organs do not have adult stem cells. Many tissues such as liver, pancreas, and blood vessels do not appear to have a corresponding adult stem cell population. Therapies of diseases involving these tissues would therefore not be readily approachable by adult stem cell-based therapy, but could be approached using embryonic stem cell-based therapies.

6. The usefulness of existing embryonic stem cell lines is extremely limited. The approved set of human embryonic stem cell lines, authorized nearly 6 years ago for federally funded research, is woefully inadequate. Some of them apparently do not exist at all, others are embroiled in extensive proprietary agreements and all of them though suitable for some research purposes, will never be suitable, due to problems with contamination, for therapeutic purposes.

More importantly, ongoing research—funded by private foundations and industry, or performed abroad—has brought about improvements in how laboratories isolate and grow embryonic stem cells. Mouse embryonic stem cells were first characterized over 25 years ago, yet the cell lines that researchers use today are far superior to the ones available 5 or 10 years ago. With the hope of further improvements, we continue to isolate new mouse embryonic stem cell lines.

So long as the Federal funding ban remains in place, the majority of American researchers cannot make similar progress with human embryonic stem cells, nor exploit the advances made by others. With the limits currently in place, American human embryonic stem cell researchers are in the unfortunate and unique position of being frozen in time, trapped by the technical limitations of mid-2001, while other disciplines continue to advance. This makes no sense from a medical or scientific perspective.

Although today's debate focuses on the use of spare embryos to develop embryonic stem cell lines, the next two points that Dr. Capecchi makes center on a different method of producing embryonic stem cell lines.

For the last three Congresses, Senator FEINSTEIN and I have introduced legislation that addresses this form of embryonic stem cell research. Although this issue is not squarely before us today, I hope that the majority leader will allow us to take up this important matter sometime this Congress.

7. Somatic cell nuclear transfer as a research tool. A limitation of IVF embryo-derived stem cells is their potential of rejection by the patient because of immunological incompatibility. A potential solution is the generation of ''customized'' embryonic stem cells by somatic cell nuclear transfer, SCNT, which has been demonstrated in proof of concept experiments in mice.

While, at present, nuclear transfer using human eggs to generate customized embryonic stem cells for therapy would be too complex and too controversial to be applicable for routine transplantation medicine, it represents an important tool for investigating the mechanism of converting a somatic cell such as skin cell into an embryonic stem cell.

We need to learn the ''reprogramming rules'' the egg uses to convert the adult nucleus into an embryonic state following nuclear transplantation. One goal of research in this field is to convert a somatic cell to a pluripotent embryonic stem-cell-like state in culture without SCNT.

We need to use eggs temporarily to learn how to reprogram the adult nucleus without the need for human eggs. Progress toward this goal can only be assured if Federal funding would be able to support research in this field in the best academic institutions of our country.

8. Embryonic stem cells to study human disease. Because SCNT allows production of patient-specific embryonic stem cells, this approach would allow establishing research tools for the investigation of complex human diseases such as Alzheimer's, Parkinson's, ALS, or diabetes in cell culture.

An embryonic stem cell line derived from such patients would carry in its genome all genetic alterations that caused the disease. Thus, differentiating these patient-specific embryonic stem cells in culture to a cell type that is defective in the patients may provide crucial insights into the pathology of the disease and may provide a critical platform to identify drugs that help prevent, ameliorate, or cure the disease.

9. Lack of government commitment means lack of future researchers. The brightest young researchers in our country are currently not engaging in human embryonic stem research because they are aware of its uncertain future, the low level of commitment by our government to its support and of the cumbersome restrictions faced by scientists participating in this research. We are losing the scientists that will carry this critical research into the future.

10. Health and economic implications. The health and economic implications of human stem cell research are enormous and other countries have recognized this potential. They are heavily investing in embryonic stem cell research. Our country is in grave danger of falling behind in one of the most promising fields of biomedical research.

Dr. Capecchi gives very compelling reasons for funding embryonic stem cell research. I believe that all ethically responsible avenues of stem cell research should be pursued and that is the Congress's obligation to the American public to see that they all are pursued.

But let me caution that no one should imagine that one bill is a substitute for the other.

S. 30, introduced by Senator NORM COLEMAN, directs the Secretary of Health and Human Services to conduct and support research on pluripotent stem cells that do not damage a human embryo. It also specifies work on naturally dead embryos.

But, the concept of alive-but-naturally-dead embryos is based upon limited research that has not yet been duplicated widely.

It is promising research, but it is no more than that at this stage. In fact, some scientists are worried that these arrested embryos are defective and would, therefore, produce defective stem cells. And it is by no means certain that an arrested embryo can be differentiated from one that could develop further.

In short, this idea may not pan out.

Recently, there was another flurry of activity around the possibility that certain cells in amniotic fluid behave similarly to stem cells. But even Dr. Anthony Atala who characterized these cells has said that it is a mistake to assume that they are a substitute for embryonic stem cells.

The vote that counts in the minds of our best and brightest scientists—and should count for my colleagues in the Senate and the American public—is your vote for S. 5, the Specter-Harkin bill that has already passed the House by a broad bipartisan vote. Our leading scientists, including more than 40 Nobel Laureates, tell us at this time there is no known scientific substitute for embryonic stem cells.

Yet I understand that the vote I ask you to cast is ethically troubling for some of my colleagues.

I have a long, proud and strong record as a right-to-life Senator.

I stand against abortion on demand, and I think that Roe v. Wade should never have been decided the way it was.

As a member and former chairman of the Senate Judiciary Committee, I worked toward a constitutional amendment banning abortion.

In the 108th Congress, I was at the President's side when he signed the bill banning the barbaric practice of partial birth abortion. I was chairman of the House-Senate conference committee that finalized the bill.

So why does a pro-life Senator support embryonic stem cell research? Because I do not consider a frozen embryo to be a human life until it is implanted in a woman's uterus. S. 5 allocates Federal research funding to embryonic stem cells derived from frozen embryos that are to be discarded. In fact, thousands of such embryos are routinely discarded each year.

I should explain why frozen embryos exist and why they are discarded.

As part of the fertility treatment process, multiple embryos are created and only one or a few of those that are created are ultimately used. The rest can be stored for years in liquid nitrogen. About 11,000 embryos per year are discarded by their donors and could be used for research.

I see ethics as being on the side of creating human life through fertility treatments. I see it as trying to cure human misery through ethical stem cell research as is provided through S. 5.

When I first took this position in 2001, it was over the objection of some of my constituents in Utah. Utah is a very conservative State. Since that time, however, the majority of Utahns and the majority of Americans have come to support the use of Federal funds for embryonic stem cell research conducted under ethical guidelines.

This year, as in past years, I have had a steady stream of Utahns with chronic diseases visiting my office urging me to continue to push for stem cell research. One young man who has been afflicted with diabetes since youth now has a son with the disease. He urged me to continue with this fight so that maybe his son might be spared the ravages of the disease. A woman disabled with multiple sclerosis earnestly told me to persist. A constituent with Parkinson's disease told me to do whatever it takes. They all want hope.

NIH support is the bedrock of scientific research in the United States and really around the world. And without NIH support, embryonic stem cell research will never reach its full potential.

While constrained by his position in the administration about what he can and cannot say about the legislation before the Senate, in testimony before the Congress, NIH Director Dr. Elias Zerhouni recently made it abundantly clear that—based on consideration of science alone—embryonic stem cell research presents great opportunities for scientific advancement. And Dr. Zerhouni is not alone.

As I emphasized, one reason is that the limited and continually shrinking number of federally sanctioned contaminated cell lines are so tired that they no longer adequately represent the genetic code of the larger human family.

A second is that the logistics of investigation are burdensome and impractical because of the need to separate funding sources for research with the limited, deficient federally sanctioned stem cell lines and the newer cell lines lawfully developed within Federal support.

A third reason is that scientists cannot now use Federal funds for research on any embryonic stem cell line that they could implant in humans—these federally sanctioned lines are contaminated with animal cells.

A fourth reason is the need to be able to bring the fruits of basic research to the patient. It is one thing to find several hundred thousand dollars of private money to complete an early stage research project on stem cell lines in the laboratory. However, when it comes time for clinical testing, the costs of research are in the millions of dollars, not the hundreds of thousands of dollars per experiment. Typically, this kind of private money is not available unless it is from industry. Clinical research with stem cells will hit the wall without NIH funding when that time comes.

The private sector will not want to invest millions of dollars into stem cell lines that we already know will never yield ethical human treatments. Nor should Congress and the public allow the status quo to continue.

If we unlock the shackles on our scientists, I believe we can materially shorten the time between basic and applied research—the time between the test tube and the patient's bedside. Let me give you just a few examples of what has been accomplished since the Senate last debated this issue.

In last October's Nature, biotechnology investigators reported that they could convert human embryonic stem cells into cells capable of synthesizing insulin, the missing hormone in diabetics. This work was conducted on privately funded stem cell lines.

At the University of California, Los Angeles researchers demonstrated that they could coax embryonic stem cells into becoming T-cells of the immune system, the missing cell line in AIDS patients.

And in my own State of Utah, Dr. Raymond D. Lund, a professor of the Moran Eye Center at the University of Utah, reported that human embryonic stem cells injected into the eyes of blind rats improved their vision. This important work was conducted with private funding.

An Israeli team partially funded by the Israel Science Foundation reported engineering a small piece of heart tissue derived from human embryonic stem cells that contracted rhythmically, carrying promise for future cardiac replacement therapies.

Last month, Dr. Dachun Wang and Dr. Rick A. Wetsel at the University of Texas reported a procedure that differentiates human embryonic stem cells into the lung cells that are missing from many lung diseases. The work was funded with a grant from a private donor.

Finally, in a recent Nature Medicine Journal, human embryonic stem cells delayed the onset of the mouse equivalent of a degenerative brain disease by 70 percent. The approach described in the article holds exciting potential for treating dreadful diseases such as ALS and Alzheimer's disease.

As you can see, there is a lot of promising work being done in the field of embryonic stem cell research. Unfortunately, due to the limitations and restrictions placed on the few cell lines eligible for Federal research assistance, much of most promising work is being done outside the normal channel of the NIH research network.

Yet with all this progress, is science progressing as fast as it should? I recently asked this question of an eminent neuroscientist who directs the National Institute of Neurological Diseases and Stroke, Dr. Story Landis.

At the Health, Education, Labor and Pension Committee's hearing entitled ''Can Congress Help Fulfill the Promise of Stem Cell Research,'' committee members heard from scientists, from a young patient who suffered from diabetes, and from Dr. Landis. I asked Dr. Landis if NIH funds were made available for research on all ethically obtained embryos from in vitro fertilization, would the probability of finding cures for human diseases increase?

Her response was as follows:

Absolutely it would increase. There is no question about it. We would have a real opportunity. I can give you one specific example. Huntington's disease is an inherited disease. It caused a particular kind of nerve cell in the brain to die . . . If we had embryonic stem cells derived from discarded embryos that were not implanted, we would be able to make extraordinary inroads into therapeutics for that disease.

Much is weighing in the balance on today's vote.

I ask my colleagues to consider carefully the positions they take today.

In the interests of all those who suffer 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 completed the task of sequencing the human genome. While this accomplishment—the work of many in the public and private sectors—is of historical significance, it is only the end of the beginning in a new era of our understanding of the biological sciences. Over your next eight years in office, you have an unprecedented opportunity to provide the personal leadership required to see to it that your Administration will be remembered by future historians as the beginning of the end for such deadly and debilitating diseases as cancer, Alzheimer's and diabetes.

That is what S. 5 is all about—providing a potential new avenue of research that may lead to treatments and cures for many diseases that afflict many families across our Nation and the world.

Mr. President, while I have no objections to S. 30, let us not delude ourselves into thinking it is the best solution to this. Again, 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 research, S. 30 does not. S. 5 is the bill that will clearly make a significant difference in the future of medical research.

I urge all of my colleagues to vote in favor of S. 5.

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

The PRESIDING OFFICER. Eighteen and a half minutes.

Mr. HARKIN. Mr. President, I yield 13 minutes to the distinguished Senator from Oregon, Mr. SMITH.

Mr. SMITH. Mr. President, I am very grateful the Senate is considering the issue of stem cell research today. This debate marks the culmination of years of work by many of my colleagues and certainly by myself and a host of dedicated advocates.

I thank Senators HARKIN and SPECTER for their leadership on this issue, as well as Senators HATCH, FEINSTEIN, and KENNEDY. Working together for almost a decade, the six of us have over the years laid the groundwork for the Senate to overwhelmingly approve Federal funding for embryonic stem cell research.

We did this last July but, as we all know, unfortunately, that bill was ultimately vetoed by the President. That is behind us now, and with a new Congress comes a new opportunity to revisit this important issue, the issue of embryonic stem cell research.

I hope the experiences of the past have helped my colleagues to gain a fresh perspective on this issue. I know they certainly have for me. Some may view the vote we will take later today on S. 5 and S. 30 as a one-or-the-other option. In my opinion, that is simply shortsighted.

I intend to vote for both measures. At the end of the day, they both accomplish the goal of advancing stem cell science in the hopes of finding cures for debilitating illnesses such as Parkinson's, Alzheimer's, and diabetes, to name but a few.

S. 5, the Stem Cell Research Enhancement Act of 2007, would allow Federal dollars to support research on stem cells derived from human embryos created through in vitro fertilization.

S. 30, the so-called alternative bill, would provide the support for other means of deriving pluripotent stem cells. In that regard, both measures deserve the Senate's support. I find it troubling that these measures should be pitted against one another. Many argue that S. 5 is a must-pass legislation, and I would tend to agree with them.

But that should not detract from the importance of alternative forms of stem cell research sanctioned in S. 30. As research on embryonic and other forms of stem cells like amniotic or the placental therapies is still in its infancy, we need to support them all to fully realize the potential they might hold.

Since the Senate last considered stem cell research, we have all had additional time to reflect on the sensitive issues underlying this debate. As a pro-life Republican, I initially had some uneasiness with endorsing this type of research that so heavily relies on human embryos.

Drawing from my deeply held religious beliefs, scientific evidence, and countless stories of individuals living with terrible illnesses, I fashioned my position on the basis that I truly believe it supports the sanctity of human life.

The real tension surrounding this issue, I believe, pits the potential medical benefits stem cells hold against the ethical uncertainties or the religious convictions some of my colleagues might have with what this kind of research entails. Based upon my personal struggle with this issue, I now believe any reservations with embryonic stem cell research are misplaced, especially when one truly considers the question of when life begins.

For me, it begins with the mother, with the implantation of the embryo.

I believe the Scriptures provide ample support showing that flesh and spirit become one within a mother. This is one of womankind's supernal gifts. I find verses in the Old and the New Testament, in Genesis, Jeremiah, the Psalms, Job, as well as in the Gospels.

All of these things lead me to feel comfortable with an ethical conclusion that life begins when flesh and spirit are united in a mother's womb and not before.

Embryos created as part of the in vitro fertilization process were intended to provide infertile couples the gift of life, the chance to become parents. Those that go unused in infertility treatments should still have the opportunity to give the gift of life either by later implantation or to those living with debilitating diseases through stem cell research.

Without being implanted in a mother's womb, an IVF embryo is a group of

cells growing in a petri dish. If those cells are stored in a lab for 1,000 years, they have no possibility of developing into anything more than a group of cells. They remain the dust of the Earth, one of the building blocks leading to life.

It is the act of implantation within a mother that gives them life. It is the act of implantation that is the essential missing ingredient in this debate. So instead of destroying or discarding unused embryos, we have the opportunity to use them to derive much needed stem cell lines for the advancement of stem cell science.

It is not more moral to simply throw them away. While many of my pro-life colleagues may not agree with my position, I know they do support the intent of embryonic stem cell research; that of finding cures for a number of chronic diseases and debilitating health conditions. That is why I still struggle with describing S. 30 as an alternative to S. 5. It is not an alternative or a substitute, it is a perfect complement.

To fully realize the benefits that all types of stem cell research offer, I urge my colleagues to vote affirmatively for both measures we are considering today.

The promise of embryonic stem cell research is very real. Those suffering from Parkinson's, Alzheimer's, diabetes, cardiovascular disease, and many cancers believe in that promise, and so do I.

But we have yet to unleash the potential behind this science because of the restrictions we have placed upon stem cell research. While I appreciate the President allowing the research to move forward on a limited number of stem cell lines, we all know that over time those lines have been degraded, and scientists are in desperate need of new, uncontaminated lines.

We cannot expect scientists to make progress in developing today's treatments if we limit them to yesterday's science.

I believe the Federal Government has a vital, moral role to play in the development of stem cell science to ensure that appropriate ethical guidelines are followed. It is uncertain where we will end up if embryonic stem cell research becomes an entirely private sector venture.

With lack of sufficient funding and ethical boundaries, who knows where we will wind up? The Federal Government can guide research in the right direction. I fear if we fail to show up to work on this issue, we will run into very serious problems in the long run.

Over the last 7 years it has become increasingly clear to me that being pro-life requires protecting both the sanctity of human life and the quality of human life. By allowing research on stem cell lines derived from unused IVF embryos, we could forge a path that would one day lead to cures for some of mankind's most dreadful medical maladies.

If only one life-improving application of stem cell science comes from my vote in favor of S. 5, then I believe I have done my job, and done it correctly; for I have chosen to err on the side of hope, healing, and health.

I encourage all of my colleagues, even those who have some ethical reservations or contrary religious feelings on this issue, to do the same. I have heard some refer to embryonic stem cell research as a conflict between science and religion. I do not believe that is the case. One of the greatest qualities and aspects of life in the United States is our religious pluralism. It is something we see an absence of, tragically, in too many places around the world.

We do not serve the public well by taking the narrowest theological position and trying to impose it on public policy. The American tradition is open enough to include other considerations of ethical ideas, Scriptural interpretations, and scientific hope.

I am not a scientist, and I am not a theologian. But as I use my agency to interpret what I know in the Scriptures, and the complexities of medicine, I have come to the conclusion that we are all made of dust. Dust thou art and unto dust thou shall return, as the Lord said to Job.

In that regard, pluripotent stem cells are one of the building blocks of life, the dust of the Earth. I believe we miss the understanding of the importance of the spirit, the breath of life, the spirit within mankind, as the essential ingredient which causes life to begin.

I do not find that religion and science are in conflict in the Senate today. I believe they are in harmony. I believe we should have a broad enough view to include the many views that comprise American pluralism.

To that point, Mr. President, I turn to the Scriptures even to find wisdom that I do not have of myself. In the earliest pages of the Old Testament, I find this statement:

> And the Lord God formed man of the dust of the ground and breathed into him, his nostril the breath of life, and man became a living soul.

Mr. President, there are two conjunctions. The dust of the ground ''and'' the breath of life ''and'' then man becomes a living soul. Until you have both, you do not have life.

I cannot end my comments today without mentioning also my own family's history. It has played a role in shaping my views on embryonic stem cell research. My mother's name was Jessica Udall. I watched my grandmother Lela Lee Udall die of Parkinson's. I watched my uncle Addison Udall die of Parkinson's. I watched my cousin, former Democratic Presidential candidate and Arizona Congressman, Morris K. Udall, die of Parkinson's. To watch people die of such a malady is to instill in one's heart a desire to err on the side of health, hope, and healing. We will all die, but no one should have to die as they died.

I yield the floor and urge my colleagues to vote for both of these measures. They are complementary. They are headed in the same direction. They are not putting science and faith at odds with one another.

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

Mr. ISAKSON. Mr. President, I yield 15 minutes to the distinguished Senator from Florida, Mr. MARTINEZ.

The PRESIDING OFFICER. The Senator from Florida is recognized.

Mr. MARTINEZ. Mr. President, this is indeed a difficult issue and debate. I respect so much my colleague from Oregon. I know he speaks with passion and heart as he deals with these contentious but important issues. I must express some disagreement with him, while I agree with most of what he said.

The issue of stem cells is a vital and emotional one, and we need to deal with it carefully as we move forward in the Senate.

The embryonic stem cell debate stimulates some of us to defend the inherent human desire to make discoveries and to build on them; likewise, this debate galvanizes others of us who defend human life and believe it should be valued in all its forms. The engineered creation or destruction of a human embryo for the sake of scientific advancement cannot be the answer to any of our ever-growing challenges.

In this great country of ours, and around the world, there are many suffering from debilitating conditions and ravaging diseases such as multiple sclerosis, diabetes, and Alzheimer's. These people are in need of medical treatment. Thanks to the brilliant minds and innovative ways of doctors and scientists across the globe, many medical treatments are now available. We can credit advances in stem cell research with this expanding treatment.

Stem cell research holds tremendous opportunities for our society to help treat and cure people's diseases and illnesses; and some would like to extend the success found through federally funded adult stem cell research to embryonic research. They have proposed that we harvest these human embryos—which were created with the knowledge that many of them would be destroyed—to be used for research.

While I, and others, understand the great need, we also know that there has to be a better way. In fact, I know there is. That is what I want to discuss today.

The legislation currently being considered will direct Federal taxpayer dollars specifically for the destruction of human embryos to develop cells that might lead to treatments for various health problems. This raises moral objections with me because of my deeply held religious beliefs.

We are currently funding research on nonembryonic stem cells derived from adult stem cells, amniotic cord blood or placenta sources. These have proven their ability to target many, if not eventually all, of the conditions expected to be addressed through embryonic stem cell research.

The University of Florida has one of the top five adult stem cell research centers in the world and their findings are already making a difference.

At the University of Florida, researchers are making great headway with stem cell research. They have in the works treatments for heart disease, a cure for diabetes, and preventions for diabetic eye diseases. Additionally, researchers at the University of Florida are making significant strides on the path toward reversing adult blindness, treating neurological conditions, and rebuilding human brain cells. Researchers in Gainesville are also leading the world in identifying cancer stem cells a primary step toward identifying therapies to cure various forms of cancer.

It is worth noting that all of these advances have a vital common thread; each of the aforementioned breakthroughs came about thanks to nonembryonic stem cells.

At the end of 2005, President Bush signed a bill that aims to further develop our Nation's cord blood inventory to allow for increased availability of existing and future stem cell treatments; and I was very proud to have supported this legislation.

As my colleagues know, this legislation made its way through Congress with tremendous success. The House of Representatives passed it with only one dissenting vote, and in the Senate it passed it unanimously.

The Stem Cell Therapeutic and Research Act of 2005 created a new Federal program to collect and store cord blood. In addition, the law expands the existing bone marrow registry to include cord blood.

New programs utilizing cord blood, such as the recently created CORD:USE Center at the Winnie Palmer Hospital in my own home State of Florida, are building on this valuable and expanding foundation. These programs are advancing science without compromising morality.

Winnie Palmer Hospital for Women and Babies in Orlando is now able to contribute a diverse and increased supply of cord blood. This is reassuring news for the thousands of people who would otherwise die unnecessarily each and every year were it not for the large, genetically-diversified stem cell bank that is now available. The uses of cord blood are fascinating and they speak of breakthroughs.

Stephen Sprague, one of the first adults to receive a stem cell transplant from umbilical cord blood, recently visited Winnie Palmer Hospital and its cord blood bank to express his gratitude for what they are doing. Stephen was diagnosed with chronic myelogenous leukemia in 1995, and when chemotherapy and other treatments did not work, and a match for a bone marrow transplant could not be found, he was informed that essentially nothing more could be done. Luckily, Stephen's oncologist was able to enroll him in one of the first clinical trials using umbilical cord blood.

A wonderful mother agreed to donate her placenta; from that, the lifesaving cord blood was collected. Ten years after receiving the stem cell transplant, Stephen remains completely cancer-free. Not only this, but before his cord blood transplant, Stephen was an insulin-dependent diabetic. Following the transplant, Stephen has not needed to use insulin; through taking only oral diabetic medications, his sugar levels have remained normal.

So, not only was Stephen's life saved by the transplant, his quality of life was improved. It is no wonder that Stephen has now dedicated his life to telling his cord blood story of hope to patients and mothers who can also give the gift of life through the donation of their cord blood.

Umbilical cord blood stems cells have now been used in thousands of patients requiring a potentially lifesaving stem cell transplant and with good results.

The collection of these cells from the delivery of a healthy newborn baby can result in a stem cell transplant desperately needed to save someone else's life. Essentially, new life is helping to stimulate more life.

This allows us to help countless people in need without the moral dilemma presented by the embryonic alternative which, from my perspective, is no true alternative.

Cord blood is currently being used to treat nearly 80 diseases.

Adult stem cells have made, and will continue to make, a recognizable contribution to helping those with leukemia, sickle cell disease, and other potentially fatal illnesses and conditions.

Proponents of embryonic stem cell research say they want to make available for research only those embryos that are, in their words, ''unwanted.'' One of my colleagues recently asserted, ''If these embryos were going to create life, we wouldn't be supporting research on them.

Yet, there is proof that these embryos are living things and that they are wanted. Yes, these embryos can, and are, growing into fully formed babies. Known as ''snowflake babies,'' these babies are born from adopted embryos—excess embryos from successful in vitro fertilization parents that are donated and adopted by a couple where fertilization techniques were forgone or unsuccessful.

To date, 133 snowflake babies have been born, with nearly another two dozen on the way.

Had these—in the words of the critics, ''unwanted'' embryos—been tossed aside, human life would have literally been discarded.

Many Americans agree that we need to move forward on this issue with prudence, and in a way that respects and values human life. As we stand to balance our interests in helping those in need without destroying human life, there is a good piece of legislation being considered that I want my colleagues to consider.

Under the HOPE Act, no living embryo would be damaged or harmed for the sake of research. What the HOPE Act would do is allow scientists for the first time to apply for Federal funds to perform research on embryos that have died naturally during the in vitro process. For those hoping to find a cure through embryonic stem cell research, this would be a modest and principled step toward achieving that goal.

It would also be the right step to take, because it is the only option that opens up new frontiers without damaging human life; a move in this direction would not detract from the real results we have seen through federally-sponsored adult stem cell research. I encourage my colleagues to strongly consider voting in favor of the HOPE Act.

We must be dedicated only to research which preserves and protects lives. Adult stem cells hold great promise, have had more proven success in lab trials and actual applications, and they do not require the destruction of human life. This is where our Federal funding should remain focused.

At this time, efforts to federally fund a different area would siphon money from proven research.

If it is possible to simultaneously defend human life and help others in need, why on earth would we not do it? Why wouldn't that be the better option? We know it is possible to do both at the same time. It seems to me to be the reasonable thing to do. That is why I urge my colleagues today to support the HOPE Act, to support a way of continuing to advance the frontiers of research while at the same time avoiding the troublesome and meddlesome moral dilemmas that funding for embryonic stem cells would present.

There is an option. There is an alternative. There is an opportunity to advance stem cell research of the embryonic type, knowing we have already had great success with adult stem cells, with cord blood, and all of the other usages, but at the same time not tampering with the moral dilemma we would have to cross if we are destroying embryonic life in order to have stem cell research in that direction.

I yield the floor.

The PRESIDING OFFICER. The Senator from Kansas.

Mr. BROWNBACK. Mr. President, I thank my colleague from Florida and my colleague from Oregon as well. I want to address a couple of issues in response to some of the statements that have been made and also get us back to what we are discussing.

On S. 5, the central issue is, will we sanction the destruction of nascent human life with Federal taxpayer dollars? There is currently no prohibition

against embryonic stem cell research in this country. Any private group in Illinois or Kansas or Pennsylvania that wants to develop an embryonic stem cell line can do so. There is no prohibition. The question is, will we use Federal taxpayer dollars to destroy human life to develop additional stem cell lines? That is what S. 5 is about.

The second point is, if we want to talk about cures, which I believe that is what the debate should be centered on, is it appropriate to divert taxpayer dollars from adult stem cell research, from cord blood research, from placental research, from amniotic fluid research into these areas of highly speculative embryonic stem cell research that has not produced results to date and is unlikely to produce results in the near future, if at all. If it does produce results, it is going to lead us toward human cloning, because we are not going to have a genetic match on the embryonic stem cell line. You are going to need a genetic match so you will have to develop human cloning to get a genetic match to produce the cure you want.

Cloning is not on the table today, but that is what this moves us toward, because that is what is going to have to happen, if this will ever work. But it doesn't need to go that route. I want to get us back on those central questions.

Let's talk about the facts on these questions. We have invested heavily as a country in embryonic stem cell research. We have invested in adult stem cell research. We have invested nearly $613 million on embryonic stem cell research. In total, since 2002, $613 million invested in embryonic stem cell research. So to say that we are not funding, we are not doing work in this area, is false. We have invested a considerable amount of work and effort in this field.

Now, individuals are saying: OK, yes, you have put money into this field, but the lines on which you allow research are contaminated. I wish to draw attention to this article from Nature magazine—excuse me. I want to get this one up. This article: ''Bush Stem Cell Line Contamination is Exaggerated.'' This is from a CEO of a stem cell company:

So the stuff you hear published—

I am reading the quotation—

—that all of these lines are irrevocably contaminated with mouse materials that could never be used in people—hogwash. If you know how to grow them, they're fine.

That is in an article where one of the key individuals, the CEO of a stem cell company, is saying that. So we have $613 million that is in human and nonhuman embryonic stem cell research. The idea that the lines are contaminated is hogwash. They are not contaminated. They are useful. They are being used. The research is taking place. So we have this. We have $613 million going into this area since 2002. One would reasonably expect we ought to have some results after over half a million dollars going into the field in this period of time and a lot of efforts from the scientific community. We have known about embryonic stem cells for 25 years.

Indeed, the magazine Nature in 2006 marked the 25th anniversary of the two papers reporting the first isolation of mouse embryonic stem cells—a 25-year celebration. So we have known about embryonic stem cells for 25 years and in humans for the last 10 years. We have been able to research on them in lab animals for the last 25 years. That is an exciting development which took place a quarter of a century ago. We have invested heavily—$613 million since 2002. We have put a lot of money into this. We put a lot of scientific effort into this.

What do we have? That should be a reasonable question all my colleagues would ask. All my colleagues would say: Well, OK. We have talked about this, we have put money in it, we have discovered it, and we have put a lot of our best scientific minds into this field. What do we have? The results for adult versus embryonic: We have invested more in adult than we have in embryonic, but it is not an inconsequential amount that we have put into embryonic—$613 million. This chart shows the current human applications in the two fields of adult versus the embryonic. For allergy and infectious disease, embryonic stem cell research and human applications: zero. We have 15 in the adult field. Cancer Institute: zero in ESCR, 26 in adult. Child Health Institute: zero here for embryonic, 8 in adult. Diabetes and Digestive: zero for embryonic, three in the adult field. Eye Institute: one adult, zero embryonic. Zero embryonic, zero embryonic, zero embryonic in each of those fields. You can see what we have been able to do in the adult field by the investment we have there.

So from just a sheer practicality standpoint—we have known about this for 25 years, and we have put $613 million into it. We have zero human clinical applications today taking place. We have over—and here I want to show an adjusted chart. I am sorry this is one we have had to paper over, but just yesterday we had juvenile diabetes on our board for adult stem cell application—one of the big ones. This affects a lot of people. It is one that a number of people in this body are strongly interested in, deeply interested in.

I just read to my colleagues this morning from the Chicago Tribune about this adult stem cell work treating juvenile diabetes where an individual with their own—this is type 1 diabetes—treating an individual with their own stem cells at Northwestern University. Here is a quote from a researcher who was reviewing it from Harvard Medical School:

Their results look better than anything I have seen so far.

Type 1 diabetes. We added it, gladly, to the board today. Seventy-three different human applications we have in adult stem cells. Cord blood. We don't have amniotic fluid yet developing, which I think we should start banking the amniotic fluid from the placenta because of the rich stores of stem cells, but we haven't quite started that yet today. So we have put in money in adult and we have put money in embryonic. We have a lot of results in adult.

I held this up for my colleagues yesterday, but I hope they get a chance to look at it again. This is the front page of the research findings in the adult fields we have. It is about a 4-inch binder. That was accumulated as of April 2006—last year. We did an addendum from June 2006 to March 2007. These are the findings. These are the successful results in the adult cord blood field that we have. I don't have my empty binder to show what we have on embryonic stem cell. It is a legitimate question, just a legitimate question about what we should be investing in that is yielding results in the adult versus embryonic field that is taking place.

There is the tumor problem. My colleague from Utah was saying we can get over this tumor problem which is taking place. Unfortunately, I have a stack—and I put it into the RECORD yesterday—of 10 research papers, and that was really just a sampling of the papers where the embryonic stem cells are producing tumors. This is real. It is significant. It is not going away, these tumor-formation problems with embryonic stem cells.

This is in a publication called ''Stem Cells'': ''The presentation of the insulin gene could be demonstrated only when the cells differentiated in vivo into teratomas''—into tumors. These are tumors which are taking place. This is just one of a stack of research papers saying this is a problem. It is a difficulty we have.

Let's talk about patients again because, to me, that is what we really have to get to—the bottom line. We have to bring this back to the patients.

We now have this exciting development which is taking place with type 1 juvenile diabetes. Unfortunately, it is taking place in Brazil instead of the United States. I wish we were having the researchers doing this in the United States. I guess they—whether they are being attracted overseas to do adult stem cell work and not in the United States—but this was Northwestern University which was doing this in Brazil.

I want to look at Parkinson's. One of my colleagues raised the issue of Parkinson's, which is a very difficult, terrible disease that confronts and confounds us as a society and as individuals. I wish to point out to my colleagues an individual who came to testify in 2004 who was a Parkinson's patient and testified about his treatment with his own stem cells that was taking place, a Parkinson's patient, Dr. Dennis Turner, and he was Parkinson's free for a period of 5 years. We tried to get him in to testify a number of different times. We had trouble. He was

out doing African safaris after his stem cell treatment as he was doing so well from it.

My point is that we have tried this. We have tried it aggressively. We have tried it ethically to say: OK, let's try embryonic stem cell work on lines where a life-and-death decision has already been made. That was the President's determination in 2001. He was saying: We don't know at this point in time where this science will lead us. Let's try it on these ethical lines because somebody has already made the life-and-death decision. Let's put money into it. Let's start in the nonhuman area first because we want to develop this in the animal models, which is clearly the right way to go. Let's invest heavily in it, which I noted in the earlier chart where I pointed this out, the amount of animal trials, the money that has been put into animal trials on embryonic stem cell work—in 2006 alone, $110 million; $481 million for 2002 through 2006—trying to find out: Is there a place? Is there a way? Can we make this work? We continue to have this tumor problem which keeps coming up in almost all of the studies. Yet we are saying: Let's try it on human embryonic and these lines that have already been developed, and we still are not getting the results. So why would we continue to fund in this area?

Now we want to expand the funding in this area and we want to expand the lines and we want to—not only go there, we want to cross the big moral divide that many of us have different opinions on but all of us have to say is a profound question: the use of taxpayer dollars to fund the destruction of young human life. We are all troubled about that. One way or the other, we are all troubled about that. That is the question on this particular bill and why it is so divisive. We all want cures. I think people are troubled about the lack of scientific results in one area and the fact that we are now at, in clinicaltrials.gov., 1,422 human clinical trials now going on, being recruited for or no longer recruiting for using adult stem cell work right now. So this is going on. It is going on well. We are not seeing any of it in the embryonic.

Now we want to take another step. We want to use taxpayer dollars. We want to destroy young human life. We want to create more embryonic stem cell lines. Never mind that it hasn't worked to date. Never mind that we are getting a lot of results in this other field. Never mind that a good portion of our electorate finds this ethically very troubling. We are going to do it. We are going to go with it. We think we ought to do it.

I don't think this is a wise move. I don't think it is wise practically. I don't think it is wise ethically in spite of the thoughts others might have. Ronald Reagan said: If you didn't know if somebody was alive or dead, you wouldn't bury them. If you weren't sure, you wouldn't bury them, just as a commonsense thought.

My colleague from Oregon did a very good discussion of the ethical issues here, yet I could even detect in his thoughts that this is a troubling question. It is a tough one. So if we are not sure if it is alive or dead, would you bury them? No, you wouldn't. And if we have a moral question about this and we have a route where we can use this $613 million to get treatments for people like Dennis Turner, whom I put up here, and where we have had some successes, if we can get treatments for diabetes that are being developed by Northwestern University—but for some reason, we are not having enough interest here to do them here, we are having to do them in Brazil. I want people to get treatments. I want Parkinson's treatment to take place. We have a route to do this. We are not unlimited on money resources in the health care field. I think we should invest more in the health care field. We have a route to go here. We have a route that can use the resources. If we are at 1,422 clinical trials now, my guess is there would be a lot more we could try.

I put up pictures of people here yesterday who are having to go to Portugal for spinal cord injury treatment. I want to put a picture back up here again. She wonders why we couldn't do this here.

I might also note to my colleagues that it is critical that this is done quickly. They are finding in these early research results that the sooner you can get the treatment for a spinal cord injury, the more likelihood of success. So how many people here can afford to fly to Portugal for the treatment, and how much better would it be if this were done in Chicago or in Kansas City where people could go in this country? This lady from central Illinois was having to go to Portugal.

We are finding this in the diabetes area. They are saying the sooner the treatment is taking place—and this is common sense to most of us as well—we know that the sooner you catch something, the more likelihood you have success if you get quick treatment. Should we be forcing people, then, to go to Brazil and Portugal and Thailand to get these adult stem cell treatments, many of which were developed in the United States, being done by U.S. researchers, and now are being conducted abroad? Why? I understand we are all after this goal of treatments, and I would hope—and I give that to my opponents, that is what they are after as well—they see this hope and promise.

I can't cross the ethical boundary they have been able to cross. I find that each of these lives—and here, I am not quoting from a religious source; I am quoting from a biology textbook, an embryology textbook, 1996 human embryology textbook that says this about when life begins, not talking about the theology but the biology. It says:

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

The Presiding Officer wouldn't be here if he was destroyed as an embryo. If we have somebody in the future who in this body—I want to show Hannah—who was in this body who was created—or, excuse me, was started in an IVF clinic, was a frozen embryo at some point in time, she is destroyed as a frozen embryo, she isn't going to be here as a U.S. Senator. This life is a continuum. We all know this. This is not something which is new to anybody. Here is man who is a snowflake baby, a frozen embryo, who was adopted. We have another route to go on these frozen embryos. We could really push an adoption technique. If she is destroyed at this early phase, she obviously isn't here at a later phase. We know that. We know what the embryology textbook says, and we know each of us started out as an embryo, so why would we do this? I understand people are saying: Well, because we want cures. And I do, too. We have an ethical route to go on the cures. We have a route which is producing enormous successful results and one which is producing no results.

Now, maybe it will, in a decade or two, over large U.S. expenditure, over a great ethical divide that we all are troubled about, and then we will expand into human cloning to be able to get a genetic match, because it will have to. Otherwise, if you do this with embryonic stem cells and implant them and the genetic type doesn't match up with that of the body, you are going to have to have immunosuppressants being used all your life. Is it likely we are going to continue that route? No. We are obviously going to have to do human cloning, develop young human clones that genetically match the individual being treated. You are going to have to harvest thousands, if not millions, or hundreds of thousands of women's eggs to get the human eggs to develop the clones.

Do we want to go there with women? You are probably going to have to incentivize and pay women in poorer countries to get the human eggs to develop the clones that genetically match so you can implant them. This leads down several paths we don't want to go. So why would we start down there if we don't want to go there and we have an ethical route in which to go?

I plead with my colleagues that we don't need to do this. We don't need to jump over this ethical divide, and we don't need to ignore this definition. We don't need to create a legal fiction that, yes, it is alive but it is not a life, which we are doing now with this discussion. We don't need to go back to the old debate of treating human life as property and that you can patent it and own it and manipulate it, and treat it for your own purposes. We have been there before. We have always regretted

it. Why would we do that now? We don't need to go there. I say to my colleagues, let's not go there. Let's go this route we can all agree on. Let's do amniotic fluid banking. Let's do banking of those stem cells and create more treatments. Let's invest more heavily in the adult stem cell field so we can create and find those cures. Let's have treatments done in the United States and not force people to travel overseas to get these treatments. We don't need to go there.

We don't need to get women into a position to pay them to harvest their eggs. We don't need to go down the route of human cloning, creating life for our own purposes. We have done that before and have deeply regretted it.

This is a turning point for us. I have no doubt how the vote will come out today. It will be in favor of S. 5. I think that is regrettable. I believe the President when he says he is going to veto it. I hope he does. I will be strongly in support of him doing that. Instead of having a culture that looks at using life, let's have a culture that values life, that sees every life as dignified, beautiful, sacred, a child of a loving God, not to be used for other purposes but has dignity because of who it is, because of the beauty of who it is. What is wrong with that? Let's find cures, and we can do it.

Mr. President, I yield the floor.

The PRESIDING OFFICER. Who yields time?

The Senator from Georgia is recognized.

Mr. ISAKSON. Will the Chair advise us of how much time remains.

The PRESIDING OFFICER. The Senator from Georgia controls 14 minutes. The Senator from Iowa controls 6½ minutes.

Mr. ISAKSON. Mr. President, the Senator from Illinois will speak next and he told me he needed extra time. In the spirit of cooperation, I will be glad to yield 5 of our minutes to the Senator from Illinois so he will have 11 minutes, and then I will conclude. Is that fair?

Mr. HARKIN. Yes. We will yield 5 minutes to the Senator.

Mr. ISAKSON. You have 6 minutes left. I am giving him 5 and I will take a closing. Is that fair?

Mr. HARKIN. That sounds good to me.

Mr. DURBIN. Mr. President, I thank my colleague from Georgia for his gracious gesture. I also thank my colleague from Iowa, Senator HARKIN, along with Senator SPECTER, for introducing this bill on stem cell research.

Some important things have been said on the Senate floor today. Senator SMITH of Oregon made an exceptionally moving statement on this issue. I thank him for sharing his views. This is a tough issue. It is not easy. I totally respect those who see it differently than I do, including the Senator from Kansas. They are trying to apply to this important political debate their own conscience. That is an important thing in this business, that we bring our conscience to the Senate Chamber. I know, as most people do, that as we meet and debate this issue on the floor of the Senate, the lives of Americans continue. All across America, in sterile laboratories, there are doctors and scientists at work today trying to help loving couples create human life. These are men and women, husbands and wives, who want a child and, because of some physical problem, they cannot conceive. So they spend enormous sums of money—thousands of dollars—on the chance that in a little glass dish in a laboratory life can be created that will end up being the child they will love for the rest of their lives. It is a beautiful story of love that is repeated every day in America in these laboratories. I have a friend who recently had a baby girl—2 weeks ago. Eight days after she was born, I was giving her a bottle. I thought I had lost all those talents, but they came back to me. My wife was admiring her and telling the mom how proud we were. She talked about going through this process and how when they went into this laboratory and looked at all of the possible embryos that could lead to the birth of the child, they picked the healthiest and strongest ones, naturally.

But other embryos were not chosen. What happens to those? At the end of the day, what happens to those that are not chosen to end up becoming a baby? They are thrown away, discarded. Now, Senator BROWNBACK has referred to these as ''nascent'' human life, young human beings. I see this a little differently. I cannot understand how we can condone legally a process that will end up at the end of the day with these embryonic stem cells being thrown away and discarded, when we know if those same stem cells that are about to be thrown away are given, under appropriate guidelines, with strong ethical standards, to laboratories, they could lead to cures for serious illnesses. Is it better morally to throw them away or is it better morally to use them in a positive way to enrich and save human life? That is what this debate comes down to, as far as I am concerned.

I have many friends and there isn't a family in America that hasn't been touched by Alzheimer's, Parkinson's, spinal cord injuries, ALS, or diabetes. We all know the stories. That is part of American family life today. When you are a parent of a child who suffers from one of these illnesses or diseases, the first thing you want to know is: Doctor, what can be done? Is there a cure? Is there a place I can take my daughter to where they are going do surgery or a procedure—something—to save her from this disease? That is the first question a parent asks.

Because President Bush decided over 4 years ago to close down Federal funding in this area of research, it limits the opportunity to find those cures. The President has said he is asserting his moral belief, his ethical position on this issue. Well, everybody brings their moral and ethical positions to these issues, but you have to ask the larger question: Is it right for the President to impose on all of the families in America who are afflicted with diseases his moral and ethical views?

I think what Senator HARKIN has done is more reasonable. He has said we will have strong ethical guidelines for this kind of research. No one is going to make a dollar off this. You cannot direct this research toward any person. This is strictly scientific, closely guarded, with strong ethical guidelines. Senator ISAKSON has come up with an approach, too, to use a different form of these cells. I also applaud his approach. Let us try everything we can ethically find that moves us forward toward finding cures. That is what this should be about. If you believe the embryos not used in in vitro fertilization are human life, as described here, I think you have a moral obligation to outlaw in vitro fertilization because, frankly, at the end of the day these ''nascent'' human lives will be destroyed. We know that. But you have not heard that suggestion. Those opposing stem cell research are not opposing in vitro fertilization; they say go forward with that, knowing the choice would be made to discard the stem cells rather than use them for medical research. I don't follow that logic. I think it is morally consistent for them to oppose embryonic stem cell research and prohibit in vitro fertilization. But they have not gone that far.

We have tough choices ahead of us in this bill. I think they are obvious choices. We understand what Senators HARKIN and SPECTER have done. They open the door for funding Federal research in this area. I am glad the Governor of Illinois found money to initiate this research in Illinois. California and many other States are also doing this. Why are we doing it State by State, not as a national Government, as we do all medical research? The President doesn't view this the same as other people. He used his veto pen once as President and that was to veto stem cell research. I think that is inappropriate.

As I get into this debate, I think about a lot of people I have met who are victims of multiple sclerosis, Parkinson's, ALS, cancer, and spinal cord injuries. I think about visiting the Heinz VA Hospital yesterday and seeing a quadriplegic who has been bedridden since the Korean war. Imagine that, if you will. I think about those who have suffered spinal cord injuries who want the chance, the possibility, that this research will allow them to lead a more complete and full life. I also think of my colleague from the House of Representatives, Lane Evans. He came to Congress in 1982 as a wonderful, great young man, a Marine Corps veteran of the Vietnam era. He had to give up his congressional career last year because of Parkinson's. It got

to the point where he could not continue his official duties. He used to come to the floor and beg for this bill to pass so others suffering from Parkinson's would have a chance.

I dedicate my vote in support of this bill in support of Lane Evans, the veterans, and so many others who are counting on us to move this research forward. Dr. Elias Zerhouni, the Director of the NIH, stated our Nation would be better served if federally funded scientists had access to embryonic stem cells for research. He separated himself from the Bush administration's official position. He said:

It is not possible for me to know how we can continue the momentum of science and research with the stem cell lines we have at NIH that can't be funded. From my standpoint as director of the NIH, it is in the best interest of our scientists, our science, and our country that we find ways and the nation finds a way to go full speed across adult and embryonic stem cells equally.

I am not going to argue against research using cord blood, adult stem cells, the type of stem cells described by Senator ISAKSON in his bill. But I think we have a moral obligation to the men and women who are counting on us to open this research to find cures. This is our chance, with passage of this bill.

I will vote in favor of both S. 5, the Harkin bill, and S. 30, the Isakson bill, to support all ways of deriving stem cells in a positive way to save lives. If you are in favor of human life and making it better, this is your chance. What matters most in this debate is that we aim to make good on the promises we vowed to keep. Let's support the research that can lessen so much pain for so many and support S. 5.

I reserve the remainder of my time.

The PRESIDING OFFICER. The Senator from Georgia.

Mr. ISAKSON. Mr. President, I will be brief. I will take a portion of the remainder of our time and yield back the rest. I compliment Senator DURBIN on his excellent remarks. Referring back to Senator DORGAN's and Senator SMITH's speeches and so many other speeches, I think this has been a terrific debate.

I compliment the Senator from Iowa tremendously. We all gained a great deal of education. I think, with rare exception, we have seen exhibited a passion to further embryonic stem cell research. The questions are not if that is what we should do but how we go about doing it.

What I have tried to do, and Senator HARKIN and I had a great exchange last night when we educated one another on our positions, but what I tried to do is open a door that already existed, a door that brought about 5 of the 21 embryonic stem cell lines that are currently under NIH approval. But as Senator HARKIN and others have stated, those lines have now been experimented on for 5½ years, using mice, they have developed pollution or less-than-quality lines. It is time for us to find a way to further the science, to reach out for those discoveries and do so. S. 30, which I am here to advocate for, affords that opportunity because it allows the NIH to invest future funds in embryonic stem cell research on embryos derived from Level III Gardner principle remainders and in vitro fertilization, arrested embryos, as they are referred to in some cases, dead embryos as referred to in other cases, but in all cases embryos that are no longer going to become a life but do generate and contain pluripotent embryonic stem cells.

In the end, I feel that approach satisfies the questions raised at the White House and affords us an opportunity of a bill that will be signed by the President and does what everybody on this floor supports, with rare exception, I believe, or maybe no exception once done, and that is the expansion and the extension of the research.

I end where I began with my remarks a minute ago. I compliment Senator HARKIN and others who have spoken and the advocacy that has been here today and the level and quality of this debate on this subject. I look forward to this afternoon and the remaining 3 hours as we lead up to the votes.

I guess I would say the same thing the Senator from Iowa would say. If any Members want to speak this afternoon, it is time to let us know now rather than later because we will have 3 hours equally divided between four different groups.

With that said, I yield back the remainder of my time.

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

The PRESIDING OFFICER. The clerk will call the roll.

The assistant legislative clerk proceeded to call the roll.

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

The PRESIDING OFFICER. 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

Mr. ISAKSON. Mr. President, I suggest the absence of a quorum and ask that the time that runs count equally against both sides for the remainder of the debate.

The ACTING PRESIDENT pro tempore. Without objection, it is so ordered. The clerk will call the roll.

The assistant legislative clerk proceeded to call the roll.

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

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

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

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

Mr. BROWNBACK. I believe under the previous agreement I have 30 minutes at this time, may I inquire of the Chair?

The ACTING PRESIDENT pro tempore. Approximately 30 minutes—44 minutes, the Senator has.

Mr. BROWNBACK. I want to introduce to the body, into the discussion, a gentleman I had a chance to meet who came in front of a Senate Commerce, Science and Transportation Subcommittee—Keone Penn. I have a picture of this young man here. I want to share his story. He was cured of sickle cell anemia. We use that term advisedly, but clearly, cured of sickle cell anemia through cord blood adult stem cell treatment—cured.

I want to do part of this to encourage other people out there who might by chance be listening or know somebody else who has sickle cell anemia who has not yet been able to get treated; to talk about cures using cord blood. We have cord blood banking. That is taking place. Cord blood is the blood between the mother and the child when the child is in the womb, and the use of it, which we have now banked—10,000 units roughly have been banked and used throughout the country for many types of illnesses and sicknesses. I want to talk about curing sickle cell anemia in some cases using cord blood.

Sickle cell anemia is a disease that afflicts more than 70,000 Americans and a disproportionate number of African Americans. Keone tells the story the best so I will just highlight what he stated in front of a Senate science subcommittee hearing that I chaired. He said:

My name is Keone Penn. Two days ago I turned 17 years old. Five years ago they said I wouldn't live to be 17. They said I'd be dead within 5 years.