

Destroying Human Embryos Is Unethical, Unworkable, Unreliable and Unnecessary

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Excerpts of remarks on the House floor.

Madam Speaker, human embryo-destroying stem cell research is not only unethical, unworkable and unreliable, it is now demonstrably unnecessary.

Recent spectacular breakthroughs in noncontroversial adult stem cell research and clinical applications to effectuate cures with the mitigation of disease or disability have been well documented. For several years, significant progress has been achieved with adult stem cells derived from nonembryonic sources, including umbilical cord blood, bone marrow, brain, amniotic fluid, skin and even fat cells. Patients with diseases, including leukemia, type 1 diabetes, multiple sclerosis, lupus, sickle cell anemia and dozens of other maladies have significantly benefited from adult stem cell transfers.

Members will recall back in 2005, President Bush signed legislation that I authored, along with my friend and colleague, Mr. ARTUR DAVIS, which provided \$265 million to establish a comprehensive nationwide network to collect, type and disseminate, using best practices, umbilical cord blood, the aftermath, the leftover, the medical waste, after a baby is born.

Some 4 million women give birth in the United States every year. In the past, the umbilical cord and the placenta was simply thrown away, despite the fact that it is teeming with stem cells that could be used to effectuate cures and to mitigate disease. The legislation combined cord blood and bone marrow efforts under HRSA, so now we have a program, a nationwide program, to try to help people who are suffering from serious disease.

We know that leukemia patients can be greatly benefited, in some cases cured, from leukemia as a result of those transplants. Many of our African-American friends, some 1 out of every 500 who suffer from sickle cell anemia can also benefit greatly from these kinds of transplantations. That legislation is being run by HRSA and it is working.

Adult stem cells, Madam Speaker, are truly remarkable. They work, they have no ethical baggage, and advances are made every day at a dizzying pace.

But perhaps the greatest breakthrough of all, Madam Speaker, was the discovery of a process that turns every day ordinary skin cells into pluripotent embryo-like stem cells.

On November 20, 2007, Japanese scientists Shinya Yamanaka and Wisconsin researcher James Thompson shocked the scientific community by independently announcing their ability to derive pluripotent stem cells to the reprogramming of regular skin cells, regular skin cells turned into pluripotent skin cells. The iPS cells, as they are called, are made by adding a small number of factors or genes to regular skin cells in a Petri dish that can remodel mature cells into stem cells that are functionally identical to those obtained from embryos.

In other words, Madam Speaker, scientists have found a way of transforming your cells, skin cells, and mine, into stem cells called induced pluripotent stem cells or iPS. Pluripotent stem cells are those miraculous building block cells that can be coaxed into becoming any type of tissue found in the human body.

Unlike embryonic stem cells that kill the donor, are highly unstable, have a propensity to morph into tumors and are likely to be rejected by the patient unless strong anti-rejection medicines are administered, induced pluripotent cells, stem cells, have none of those deficiencies and are emerging as the future, the greatest hope of regenerative medicine. While some Members of Congress and President Obama still don't get it, the breakthroughs have not been lost on the mainstream press.

For example, on November 21 Reuters reported, and I quote, "Two separate teams of researchers announced on Tuesday they had transformed ordinary skin cells into batches of cells that look and act like embryonic stem cells, but without using cloning technology and without making embryos."

The New York Times reported on this same day, "Two teams of scientists reported yesterday that they had turned human skin cells into what appear to be embryonic stem cells without having to make or destroy an embryo--a feat that could quell the ethical debate troubling the field."

The Associated Press said, "Scientists have created the equivalent of embryonic stem cells from ordinary skin cells, a breakthrough that could someday produce new treatments for diseases without the explosive moral questions of embryo cloning."

Even University of Wisconsin's Dr. James Thompson, the man who first cultured embryonic stem cells, told The New York Times, "Now with the new technique, which involves adding just four genes to ordinary skin cells, it will not be long before the stem cell wars are a distant memory. 'A decade from now, this will just be a funny historical footnote.' "

Dr. Thompson told the Detroit Free Press, "While ducking ethical debate wasn't the goal, (it is) probably the beginning of the end of the controversy over embryonic stem cells."

In Medical News Today, Dr. Thompson went on to say, "Speaking about this latest breakthrough, the induced cells do all the things embryonic cells do. It's going to completely change the field."

"The other advantage of the new method is the fact that using cells drawn from the patient's own skin, the stem cells can be customized to the patient, bringing numerous benefits, such as the elimination of immune system rejection. They are probably more clinically relevant than embryonic stem cells."

Madam Speaker, this past Monday, more good news, no, let's call it great news on the iPS front. Research teams from the United Kingdom and Canada published two papers in the prestigious scientific journal, Nature, announcing that they had successfully reprogrammed ordinary skin cells into induced pluripotent skin cells without the use of viruses to transmit the reprogramming genes to the cell. Using a "piggyback" system, as they called it, the scientists were able to insert DNA where they could alter the genetic make-up of the regular cell before being harmlessly removed.

According to many scientists, the removal of potentially cancer-causing viruses means this breakthrough increases the likelihood that iPS cells will be safe for clinical use in human patients. The lead scientist from Canada, Andras Nagy, was quoted in the Washington Post saying, "It's a leap forward in the safe application of these cells. We expect this to have a massive impact on this field."

And George Daley at Children's Hospital in Boston said, "It's very significant. I think it's a major step forward in realizing the value of these cells for medical research."

This breakthrough, Madam Speaker, suggests the momentum has decisively and irrevocably swung to noncontroversial stem cell research like iPS cells and away from embryo-destroying research. The lead scientist from the UK was quoted in the BBC saying, "It is a step towards the practical use of reprogrammed cells in medicine, perhaps even eliminating the need for human embryos as a source of stem cells."

Finally, in the Washington Post Dr. Nagy made a series of interesting comments this week. First, that his studies showed that the iPS cells had many of the properties of embryonic stem cells. Secondly, while the research in this case was done on fetal cells, the approach had worked equally well with adult stem cells. And, third, since iPS cell research should no longer require the specialization of virus labs and researchers, the number of researchers working on iPS cells is expected to increase again beyond the large number already devoting their attention to induced pluripotent cells since November of 2007. There has been an explosion in this area, because this holds the greatest promise.

Time magazine reports, reporting on the efficacy and the advantage of iPS stem cells, "The iPS technology is the ultimate manufacturing process for cells; it is now possible for researchers to churn out unlimited quantities of a patient's stem cells, which can then be turned into any of the cells that the body might need to replace or repair."

Despite all of this, Madam Speaker, this new and extraordinary progress in the iPS and adult stem cell research arena, the Obama administration and the House and Senate Democratic leadership remain obsessed with killing human embryos for experimentation at taxpayer expense.

Why persist in the dehumanizing of nascent human life when better alternatives exist, alternatives that work on both ethics grounds and efficacy grounds. Nonembryonic stem cell research is the present and it is the future of regenerative medicine, and the only responsible way forward... .

I will never forget when Parkinson's disease and fetal tissue transplantation in the mid-1990s was being offered as the panacea, the brass ring, to try to end that very horrible disease, which we all know people, you know it personally in your own family. Unfortunately, we found very quickly that taking fetal tissue from a baby about to be aborted turned out to be an unmitigated disaster as this very unstable group of cells would very quickly proliferate and become various bone tissue and other tissue inside the brain, causing worse convulsions and tremors on the part of the patients in whom the transplantation was given.

I think we have a very similar parallel today where there is an excessive amount of hype and hyperbole about embryonic stem cells, which have an unbelievable propensity, very grave propensity, to become tumors. Not only are they killing embryos to derive the stem cells, but once those stem cells are in hand they become tumors, they are unstable, and, if transplanted into humans, there is a great fear that we would see a replication of the fetal tissue debacle of the mid-1990s.

As Congressman Forbes pointed out so well, there is an ethical alternative that does not have the rejection factor, will not require anti-rejection drugs, whether it be Celsep or any of these other drugs that those that get transplants get. None of that would happen. And you don't have the tumor formations from these IPS cells... .

It is interesting that before we have had votes on embryonic stem cell research in this body, Members who take the other view have taken to the floor, to the well of the House, and said things like this, this is from Rahm Emanuel as reported by The Washington Post, I remember when he said it, ``It is ironic that every time we vote on this legislation, [embryonic stem cell research, embryo destroying research legislation] all of a sudden there is a major scientific discovery that basically says you don't have to do embryonic stem cell research."

Our good friend and colleague *Diana DeGette* said, ``I find it very interesting that every time we bring this bill up there is a scientific breakthrough."

That is because, Madam Speaker, almost every day there is a scientific breakthrough in the area of adult stem cell and the induced pluripotent stem cells. The skin cells that have been turned into embryo stem cells without destroying or killing an embryo, without the ethical baggage, that is the biggest breakthrough of all. And it seems to me that we should

be rejoicing. We have moved beyond the ethical debate because we have something in hand that is the promise and the hope of regenerative medicine... .

Let me just say in conclusion, Madam Speaker, that the present and the future of regenerative medicine, which holds great promise and hope for each and every one of us, every one of us has members of our own family who have suffered from degenerative diseases, developmental disabilities and the like. We all know the pain and the agony.

I chair or co-chair the Autism Caucus, the Spina Bifida Caucus, the Alzheimer's Caucus, and believe passionately in trying to find cures for diseases. But the future of regenerative medicine is with adult stem cells, including and especially non-embryonic but embryo-like induced pluripotent stem cells, iPS. That, iPS, has to become household word.