

TIME

Monday, Mar. 09, 2009

Researchers Cheer Obama's Vote for Stem-Cell Science

By Alice Park

"All right, there we go." With those words and a swish of his pen, President Barack Obama reversed one of the most controversial Executive Orders in recent history. In front of the country's leading scientific minds, including Dr. Francis Collins, who helped map the human genome, and Dr. Harold Varmus, former head of the National Institutes of Health (NIH) and a science adviser to the Administration, Obama fulfilled a campaign promise to lift the ban on federal funding of [embryonic-stem-cell research](#) put in place by then President George W. Bush in 2001. Obama's new Executive Order allows scientists to apply for government grants to study the versatile cells.

While decisive, the order can be reversed by a future President, so Obama urged congressional leaders to seal the intent of his order into law — a process that Congresswoman Diana DeGette of Colorado has already begun. DeGette co-authored two previous bills expanding taxpayer support of embryonic-stem-cell research, [both of which Bush vetoed](#).

The sigh of relief in labs across the country was almost audible. In Boston, Douglas Melton, co-director of the Harvard Stem Cell Institute, gathered his entire staff to listen to Obama's announcement and served cake in celebration. James Thomson, the University of Wisconsin scientist responsible for isolating the first human embryonic stem cells in 1998, flew to Washington at Obama's request to watch the signing in person. ([See the top 10 scientific discoveries of 2008.](#))

The President's decision does much more than expand funding for stem-cell research. It heralds a shift in the government's view of science, ushering in an era in which it promises to defend science — and the pursuit of useful treatments — against ideology. "It is about ensuring that scientific data [are] never distorted or concealed to serve a political agenda and that we make scientific decisions based on facts, not ideology," Obama said in his opening statement.

Without discounting the moral concerns that some Americans have about using embryos — which many consider to be fully realized human life — for scientific research, Obama said that moral values do not

necessarily preclude the study of embryonic stem cells, particularly those obtained from the pool of 400,000 or so embryos currently stored in IVF clinics around the U.S., most of which would have been discarded. "I believe we have been given the capacity and the will to pursue this research — and the humanity and conscience to do so responsibly," he said. ([Read "The Year in Medicine 2008: From A to Z."](#))

It has been a long eight years for stem-cell researchers as the ugly stepchildren of science. "Looking back, I realize how restrained and constrained we were by working in a silo imposed on us by the previous Administration," says Melton. "I am delighted because now we are free to interact with all of our colleagues here at the university and elsewhere in the world in an open manner. It's liberating to hear that science, not political ideology, will guide the Obama Administration in its decisions."

Obama's Executive Order means that federally funded scientists who are interested in studying embryonic stem cells but could not afford duplicate facilities to store and experiment on them (that is, facilities that involved zero contributions from the government) can now do so. "I already have e-mails from scientists in this country asking to get in line to have us send them cells," says Melton, who used private funds to create 70 new lines after the 2001 ban and made them available at no cost to any lab that could study them. ([See TIME's stem-cell covers.](#))

There is also a more practical release. For many scientists who continued to receive public funds while pursuing embryonic-stem-cell work with private money, the federal restrictions meant they had to segregate their two universes completely: not a single penny of government money could be used for embryonic-stem-cell work. Lab personnel had to log each minute they spent studying embryonic cells and keep all equipment, from computers to pens and pipettes, separate. Often, different lab facilities had to be built to avoid any potential crossover of funds. Melton's embryonic-stem-cell research was relegated to a 250-sq.-ft. (23 sq m) basement room on Harvard's campus, and every piece of equipment was stickered to remind users whether it had been bought with federal or nonfederal funds. At the University of California, San Francisco, stem-cell researcher Susan Fisher can finally unify her divided lab space. "You walk down the hall of my lab, and on one side is the federally funded work, and on the other side are duplicate facilities for nonfederal work," she says.

If the fanatic bookkeeping sounds excessive or paranoid, Fisher can assure you it isn't. In 2003 she published a study involving embryonic stem cells in the journal *Science*. The paper appeared online at noon one day, and within a few hours, she received an e-mail from a congressional staffer containing an exhaustive list of all her NIH grants and asking which had been used to support that study. "It was my first realization about how closely the government was watching," she says.

That administrative burden has now been lifted. For Fisher, the reversal is especially gratifying since the restrictive Bush policy quashed her experiments in 2002. After a storm hammered San Francisco that winter, the university campus lost power; if not for the backup generators that pumped emergency electricity to its labs, countless cell cultures might have been lost. Fisher's embryonic-stem-cell lab, however, was off the campus grid, housed in a temporary facility built with private funds, which did not

have a backup system. It took several days for power to be restored to that site, during which time Fisher had no other place to take her cells — she couldn't use the university incubators without jeopardizing the school's access to federal funding. Her cells were no ordinary stem cells, either. They were the first to be cultured on a bed of entirely human cells, an important advance in taking usable stem-cell therapies to patients. With no other option, Fisher watched her cells die. Today, she says, "is a very happy day." ([See the top 10 medical breakthroughs of 2008.](#))

Still, Obama's Executive Order leaves intact a 1996 law, the Dickey-Wicker Amendment, which forbids the use of taxpayer dollars to create embryos solely for scientific study — for stem-cell or any other type of medical research in which the embryos would have to be destroyed. Without being able to create embryos and their stem cells specially for individual patients, researchers say there is a risk of incompatibility between patients and any stem cells created from unrelated embryos. Even though embryonic stem cells can be guided to become any type of cell in the body, if they are transplanted into patients — as insulin-producing cells for people with diabetes, for instance — they must be tissue-matched to the patient to eliminate the risk of rejection. So for now, any practical benefit of having more embryonic stem cells exists only in the lab, not in the clinic.

As welcome as the reversal is, some researchers grumble that it is too little, too late. Since, and in spite of, the ban, scientists have achieved remarkable advances in stem-cell science, which may one day obviate the need for embryos altogether. New techniques in generating stem cells from skin cells may prove in coming years more efficient and reliable than using embryonic stem cells.

But Monday's Executive Order is less about pitting the promise of one type of stem cell against another's and more about re-establishing the authority of science, of ensuring that any and every potentially useful avenue of research will be pursued to its end. As the President noted, the new policy will not guarantee stem-cell treatments for diabetes, Parkinson's or Lou Gehrig's disease. But it does guarantee a commitment to the kind of promising research that this Administration — and many people in the scientific community — believe must be followed.

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