

Stem-cell inaction prompts concern

Legal complexities may underlie the delay in fulfilling election pledge.

Colorado congresswoman Diana DeGette had one message for President Barack Obama when she shook his hand on 17 February, moments after he signed the massive US economic stimulus bill into law. "I just looked at him and said: 'Mr President, just to reiterate my hope that you will sign an executive order reversing President Bush's ban on [human] embryonic stem-cell research,'" says DeGette (Democrat). "He said: 'We're gonna do it soon.'"

Those words, and others like them from Obama, are doing less and less to placate backers of federal funding for stem-cell research. During his campaign, Obama promised to reverse President George W. Bush's 2001 policy that strictly limited federal funding for the research. Many expected it to be one of Obama's first moves, mirroring President Bill Clinton's lifting of the moratorium on fetal tissue transplantation research just after taking office in 1993.

"Obviously, we have concerns and would like to see this done," says Tony Mazzaschi, interim chief scientific officer at the Association of American Medical Colleges based in Washington DC and a board member at the Coalition for the Advancement of Medical



Diana DeGette wants an executive order now.

Research (CAMR, also Washington-based), an umbrella group of associations that back federal funding for the research. "All of us have been getting pressure from our constituents: 'When is this going to happen? Is everything okay?'"

On 6 February, CAMR wrote to Obama

saying it was "concerned" about media reports that presidential action was being delayed to coincide with congressional legislation. On 4 February, DeGette, together with Michael Castle (Republican, Delaware), introduced such legislation, which would explicitly permit federal funding for research on stem-cell lines derived with parental permission from embryos left over at fertility clinics and otherwise slated for destruction. And on 18 February, six Republican members of Congress led by Castle wrote to Obama to "urge that you immediately lift the current federal restrictions on funding for embryonic stem cell research".

The White House has been by turns affirming and evasive. Senior presidential adviser David Axelrod, when asked on *Fox News Sunday* on 15 February when the president would enact an executive order, replied only that Obama is "considering" such a move. White House spokesman Shin Inouye told *Nature* last week: "President Obama is committed to providing federal support to stem-cell research. His administration will be acting soon to lift the previous restrictions on this important effort."

Some Washington insiders suggest that there

R. EDMONDS/AP PHOTO

Energy agency scrambles to spend stimulus money

Weeks into the most high-profile job of his career, US energy secretary Steven Chu is trying to convert pieces of a sprawling research complex into engines of technology-driven economic development.

New to Washington and honest about the challenges ahead, Chu has already developed a self-deprecating demeanour. "I feel like I've been dumped into the deep end of the pool," he told reporters after fielding a question about US crude-oil inventories on 19 February.

The Nobel-prizewinning physicist now has authority over some \$40 billion in one-time stimulus funding, which Democratic leaders hope he can use to quickly chart a greener course to economic recovery. The immediate question is whether Chu, like many of his colleagues at other federal agencies, can spend the money quickly — the deadline for allocating most of the funds is 30 September 2010 — and effectively. The Department of Energy's entire annual



FutureGen, an experimental coal-fired power plant that was axed under Bush, may be revived.

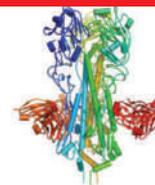
budget was around \$24 billion last year.

Chu is tackling the challenge of how to spend all the money from a business perspective. He has hired Matt Rogers, a former director of the New York-based consultancy McKinsey and Company, to streamline operations by increasing staff numbers, contracting with outside business partners, and cutting paperwork

on applications for loans and grants from thousands of pages to something on the order of 50.

That process could come to fruition as early as April, when Chu says he hopes to issue the first loan guarantees under an existing programme intended to help fund low-carbon energies. If he succeeds, he will have accomplished in three months

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**INFLUENZA**

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is no more to the delay than a president consumed by a major economic crisis. Others note that the new administration had (at the time *Nature* went to press) yet to install a National Institutes of Health (NIH) director or secretary of health and human services — key people the president will need to rely on to enact an executive order and serve as the public face of the administration on a controversial issue.

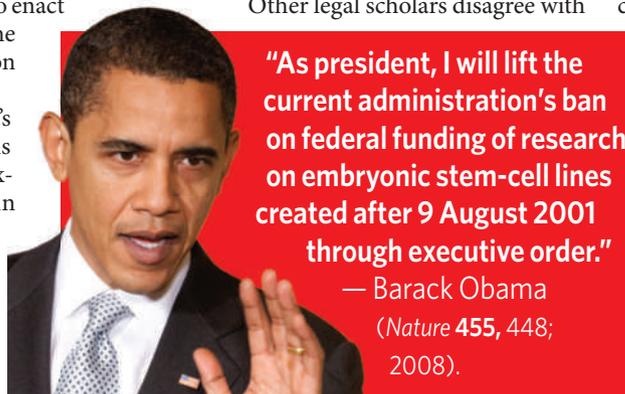
Yet others contend that Obama's lack of action five weeks into his presidency highlights the complexity of the legal issues involved in reversing the Bush ban, which limited federal funding for stem-cell research to a score of lines derived before 9 August 2001.

Louis Guenin, a lecturer on ethics at Harvard Medical School in Cambridge, Massachusetts, believes that an Obama executive order could be successfully challenged in court in the absence of enacted legislation explicitly approving federal funding for stem-cell research. That, he says, is because of the Dickey–Wicker amendment: a law first enacted by Congress in 1995 and renewed each year since, which prohibits US funding of research in which embryos are created or destroyed.

“Anyone concerned about complicity in embryo destruction is keen to spot collaboration,

inducement, or artifices to mask them,” says Guenin. “In view of congressional intent to prevent taxpayer complicity, ‘research in which a human embryo or embryos are destroyed’ captures any project whose demand for materials induces embryo destruction.”

Other legal scholars disagree with



“As president, I will lift the current administration’s ban on federal funding of research on embryonic stem-cell lines created after 9 August 2001 through executive order.”

— Barack Obama

(*Nature* 455, 448; 2008).

Guenin, and point to a 1999 legal opinion by Harriet Rabb, then the general counsel at the Department of Health and Human Services, which concluded that federal funding for stem-cell research does not contravene Dickey–Wicker because the cells themselves are not embryos and research on already derived cells does not destroy embryos. The Rabb opinion has never been tested in court.

Guenin has caught the ear of some key scientists, including John Gearhart, director

of the Institute for Regenerative Medicine at the University of Pennsylvania in Philadelphia. During the presidential transition, Gearhart forwarded a 29-page Guenin memo to Harold Varmus, a former NIH director and a leading member of the Obama transition team. “I am concerned that an executive order is not sufficient to prevent what happened during the Bush administration on stem-cell research,” says Gearhart.

Varmus was out of the country and did not respond to an e-mail asking for comment.

George Daley, the associate director of the Stem Cell Program at the Children’s Hospital, Boston, passed the same memo to Alta Charo, a professor of law at the University of Wisconsin, Madison, and another transition-team member. “I think it’s an important issue to vet,” says Daley. “We want to make sure we do have all the

possible legal rights to get funding.”

Charo said that her role on the transition team prevented her from commenting.

DeGette, for her part, argues that legislation is needed — but not to subvert court challenges. She wants to prevent Obama’s successor from reversing an Obama executive order. “My main concern is that the whole issue of embryonic stem-cell research does not become a ping-pong ball,” she says.

Meredith Wadman

what previous department officials have been unable to do in three years. And Chu says he plans to get a new loan-guarantee programme up and running by early summer. “The goal is to begin these investments in months, not years,” he says.

And yet he acknowledges that much of the money isn’t going to get spent anytime soon, because agencies such as the energy department simply aren’t designed to accommodate sudden wealth. In fact, Chu says that his agency may get only 70% of the money out by the end of 2010.

The sudden spending spree caught many off guard. “We’re kind of like the dog that caught the car,” says Ernest Moniz, a physicist at the Massachusetts Institute of Technology in Cambridge who served as undersecretary of energy for President Bill Clinton. After years of complaining about a lack of resources, the energy community has received an unexpected windfall and must now perform. “If we don’t do it well,” Moniz says, “the technical term is: we are toast.”

Unfortunately, he says, the energy department doesn’t have a list of prioritized

projects that would guide spending across the spectrum of research and development. And in many areas where programmes are up and running, the vetting processes used today take two years when they are functioning properly, a prospect that is “inherently inconsistent” with current goals.

Among other things, the stimulus legislation provides the energy department with some \$11 billion for improving the electricity grid, although it’s not clear how all of that money will be spent. Chu says that another \$6.5 billion in loan authorizations will go directly to utilities in the northwest that already have energy transmission projects in the works. The department received \$5 billion that will probably flow through to states and local communities for home weatherproofing programmes, but details are scanty about how the agency plans to deploy \$2 billion for advanced batteries as well as \$1.6 billion for basic research.

As part of its windfall, the energy department received \$3.4 billion for fossil-fuel research and development. Many, including Moniz, are pushing to use some

of that money to revive FutureGen, a demonstration coal-fired power plant that would pump its carbon dioxide emissions underground. The Bush administration cancelled the project in January 2008 because of rising costs; it then proposed funding a series of carbon capture and sequestration (CCS) projects through commercial partnerships.

Although few disagree with the idea of funding a range of projects instead of one, many point out that in FutureGen’s absence, nothing is happening. Chu, who has called coal his “worst nightmare” and questioned the viability of clean coal technologies, says the administration is looking at FutureGen “very closely”. He won’t commit, however, and says he would like to see several projects that demonstrate the full suite of CCS technologies in cooperation with international partners.

“What I would really like to do is pilot a number of projects,” Chu says. “It’s not a slam-dunk which technology is the right one.”

Jeff Tollefson