

US stem cell climate improves, raising concerns elsewhere

The world's first clinical trial using embryonic stem cells has received approval in the US, leaving experts in other countries to ponder whether an improved climate for such research within the US will force them to compete more fiercely to retain top scientists in this field.

Just three days after US President Barack Obama stood at his inauguration and promised to “restore science to its rightful place,” the country's Food and Drug Administration (FDA) granted the biotech company Geron approval to conduct a stem cell trial in people with acute spinal injury.

Geron's trial, designed to determine the safety of the stem cell approach, will involve eight to ten participants who are fully paralyzed from the waist down. “We hope to frame shift the outcome of these patients from one of no hope, those confined to a wheelchair for life, to an outcome where patients will have some residual sensation and function that can improve over time with rehabilitation,” says Thomas Okarma, chief executive officer of the company, which is based in the San Francisco area.

The researchers at Geron will inject glial cells—supportive cells of the nervous system—derived from human embryonic stem cells directly into the spinal lesion sites. Previous animal studies that also used this approach reported a marked and seemingly permanent improvement in the locomotion of rats (*J. Neurosci.* **25**, 4694–4705, 6947–6957, 9624–9636; 2005). “In a sense, the glial cells think they are making a new spinal cord for the first time,” Okarma says.

The advance of the Geron trial will perhaps help reverse the perception that the US government is hostile toward stem cell research—a reputation it earned in large part owing to the 2001 decision by then President George W. Bush to restrict federal funding for studies involving embryonic stem cells. As a result of the 2001 restrictions, some US scientists relocated their labs to other countries to avoid such barriers to research.

On 19 January, less than a week before the Geron announcement, the British company ReNeuron received approval to conduct the first UK clinical trial with neural stem cells for people who have suffered a stroke. Unlike the Geron trial, which will use embryonic stem cells, the ReNeuron trial will use stem cells derived from fetal brain tissue.

But the approval of the Geron trial—along with the reversal of George W. Bush's ban on federal funding for embryonic stem cell research, which is anticipated as *Nature Medicine* goes to press—could spell difficulties

for stem cell research communities in countries such as the UK, Singapore and Canada.

Mick Bhatia, director of the Stem Cell and Cancer Research Institute at McMaster University in Canada, thinks that the announcement by Geron is exciting. However, he adds that there is some fear of losing researchers who may decide to move back to the US. “We are on the trajectory to recruit more researchers, and now I am worried that our odds of doing that are going to be more difficult.”

In response to the Geron announcement, Evan Harris, a member of the British Parliament and science spokesman for the

Liberal Democrat party said in a statement that “the UK now has to face up the fact that the USA—post-Bush—is back in the race for these therapies, and we must become a more attractive place to do this sort of research.”

Not everyone shares this view, however. “What Britain has done is great,” says John Sinden, chief scientist at ReNeuron, “but most of the stem cell action, in terms of development, has been in the non-government-funded field in the USA. So it was always going to be the case that America was going to take the lead—the US has critical mass in terms of money and people.”

Nayanah Siva, London

Tanks pose possible dengue threat

As Australian homeowners act on incentives to install rainwater tanks in response to global warming, they are creating new breeding opportunities for the *Aedes aegypti* mosquito, which carries dengue fever and prefers to lay its eggs in stagnant water.

According to a new study, proliferation of domestic water storage systems is likely to provide a greater stimulus to the southward expansion of dengue than a warming climate (*Funct. Ecol.*, doi:10.1111/j.1365-2435.2008.01538.x; 2009)

“The potential direct impact of climate on the distribution and abundance of *Aedes aegypti* is minor when compared to the potential effect of changed water storage behavior,” says Michael Kearney, a researcher at the University of Melbourne and lead author of the modeling study.

Federal and state governments offer cash rebates to householders to install water collection and recycling systems as the southern half of the continent endures the kind of extended drought predicted to be more frequent as a result of global warming trends.

Dengue was prevalent as far south as Sydney in the late 1800s but has been restricted to the tropical north since the 1960s, when reticulated water supplies largely replaced domestic storage systems.

Some experts have called the dengue fever problem in Australia the worst the country has seen in 50 years. In the past several months, more than 400 cases of dengue fever were reported in north Queensland, where heavy monsoon rains caused prolonged and widespread floods.

Simon Grose, Canberra, Australia



Egg-static bugs: Mosquitoes breed in standing water

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