

Will the regulator please stand up

It's time for the South Korean government to launch an investigation into how eggs were obtained for a ground-breaking stem-cell experiment.

Once again, Seoul National University's Woo Suk Hwang is this week being accused of possible impropriety in allegedly obtaining human eggs for the first experiment to derive human stem cells from a cloned human embryo.

His accuser this time is Gerald Schatten of the University of Pittsburgh, a long-time collaborator of Hwang's. In a statement on 12 November announcing that the collaboration will now end, Schatten cites charges, first aired in *Nature* in May last year, of "oocyte donation irregularities" at Hwang's laboratory (see *Nature* 429, 3; 2004).

There were calls for an investigation back then, but South Korea's handful of bioethicists had no leverage, and nothing happened (see *Nature* 429, 490; 2004). Much of the Korean media repeated and endorsed Hwang's denials. Far from launching an investigation, the government backed his research with generous funding and dedicated a postage stamp to him. Some politicians even pledged to spearhead a drive to win him a Nobel prize.

Stem-cell researchers worldwide were scarcely more critical, perhaps fearing that any suggestion that this high-profile research had rested on an unethical practice would stain a field that has enough controversy attached to it already. As the situation in Japan amply demonstrates, such fears can rapidly thwart research opportunities in this sphere (see page 262 of this issue).

Schatten's actions reopen the questions raised last year. Did the experiment use eggs donated by a graduate student or by a member of the research team? Did donors receive payment for their eggs? Hwang has vigorously denied these allegations.

But this time, it will be harder for the Korean authorities to ignore these questions. The Korean media is taking a more critical view. According to some reports, Ky Young Park, the president's adviser for science and technology, has already promised an investigation.

An investigation led by Park would be less than optimal, however, as she was a co-author on the Hwang paper (*Science* 303, 1669–1674; 2004). She subsequently described her role in the work as that of a 'bioethics consultant' — and told *Nature* that she hadn't given any thought to the ethics of egg donation.

Park's real role in the work remains something of a mystery. Almost anyone else would be better placed to investigate this episode, but it remains to be seen who will do it. The ministry of science and technology does not seem to be keen. As time passes, an inquiry may become more difficult to conduct.

A thorough investigation is nonetheless required, not just for the sake of scientific integrity in South Korea, but to help persuade sceptics worldwide that research on human embryonic stem cells is being done ethically. This field of research could yet prove to be immensely fruitful, but it requires strong public support.

Stem-cell researchers will now find themselves on the defensive in proving that they are ready to stick to strict ethical codes. Just when Hwang was tying together an international stem-cell network with his laboratory at its hub (*Nature* 437, 1077; 2005), these allegations will reverberate around the world of developmental biology.

To maintain public support for any controversial field of science, researchers need to follow strict ethical guidelines — and be seen to be doing so. If for whatever reason that doesn't happen, responsibility jumps up a level. It then becomes the job of regulatory bodies and funding agencies to ensure that researchers are brought to account. Is anyone in South Korea going to step up to the task? ■

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Heavy weather

Washington DC still doesn't seem to understand the threat posed by global warming.

Climate change is a political science, and a messy one at that. This issue of *Nature* includes overviews and opinions that shed light on how researchers and citizens are responding to the regional effects of climate change. But at any level, the field is beset with genuine scientific uncertainties and complexities. Politically, these challenges are compounded by confusion on the part of the public and manipulation by sceptics of global warming.

The United States, of course, is rife with both confused citizens and vocal sceptics. But it is also home to many of the world's leading climate scientists, and they are involved in a major attempt to take

the lead in this arena — an effort that now seems, unfortunately, to be foundering.

This week the US Climate Change Science Program held a workshop to assess its progress so far, and to look ahead to its future goals. The programme is supposed to produce 21 reports summarizing various aspects of climate science (see *Nature* 436, 890; 2005). These should represent the best consensus that science can offer, and are due to be signed off by the US government, with the White House being the final step in the approval process. But if the brief history of the project's first report is any guide, the exercise will be lucky if it ever reaches fruition.

Climate researchers had hoped that this week's meeting would showcase the science coming out of the first report, on temperature trends in the troposphere. The report had successfully undergone review by the National Research Council and was about to be posted on the web for 45 days of public review. After that, with any changes

duly incorporated, it would be sent to the White House for approval.

But this autumn, almost two years after they began work on the report, the authors were informed of a fresh requirement — that they be approved as governmental advisers under the terms of the Federal Advisory Committee Act. In theory, this extra layer of bureaucracy is meant to ensure the legitimacy of those who act as advisers. In practice, it meant that the climate scientists were fingerprinted and had their financial backgrounds checked. During this process, the report's authors were not supposed to speak to each other for several months, while their report languished.

Meanwhile, internal bickering broke out into the open. Group member Roger Pielke, a climatologist at Colorado State University, withdrew from the panel, claiming that his views that land-use changes contributed substantially to climate change were being suppressed (see *Nature* 437, 9; 2005).

Even under such conditions, science will out. Three papers based on the tropospheric temperature report have already been published in *Science* (doi:10.1126/science.1114772; doi:10.1126/science.1114867; doi:10.1126/science.1115640; 2005). The researchers are now obtaining clearance to act as governmental advisers. And on 16 November, the three lead authors of the *Science* papers were due to discuss the

findings at a seminar being held for congressional staff by the American Meteorological Society in Washington DC.

One of the researchers, climate modeller Benjamin Santer of Lawrence Livermore National Laboratory, had not been on Capitol Hill for a decade. In 1995 he was subjected to severe and unjustified criticism for his participation in that year's report from the Inter-governmental Panel on Climate Change — its first report to state that humans were having a discernible effect on the climate. Santer became the target at which climate sceptics took aim.

Santer's willingness to return to the fray is commendable. Global-warming sceptics still hold far too much sway in Washington, where one congressman earlier this year summoned novelist Michael Crichton to testify as a 'scientific' witness on climate change because of his pseudoscientific novel *State of Fear*.

In the face of such attitudes, researchers must stay the course. The government needs to streamline and accelerate the flow of information through the climate-change programme. The Bush administration owes the US public that much at least. ■

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Pulling together

Protests by Chinese students at Yale University are highlighting strains on a symbiotic relationship.

Chinese students and scientists are playing an increasingly important role in US laboratories. According to the New York-based Institute of International Education, US academic institutions are now home to some 80,000 Chinese nationals, many of them in the sciences.

They are attracted to the United States, in the main, because of its excellent research universities, which are delighted to recruit well-trained and hard-working Chinese nationals. But as our News Feature on page 278 demonstrates, reality doesn't always quite meet the visitors' expectations.

Xuemei Han, a Chinese national, was admitted by Yale University to study ecology on the basis of her strong academic background. But the language barrier, funding problems and bureaucratic tussles ultimately led to a public falling-out, which quickly escalated to become a focal point for major protests by a large number of Chinese students at Yale.

Thanks to Yale's academic reputation and its unusually well-organized graduate student body, this chain of events has won widespread attention. But it is hardly unprecedented, and enquiries by *Nature* reaffirm that many Chinese researchers feel out of step with their supervisors or their institutions.

Some supervisors may be tempted to dismiss these complaints as the usual belly-aching from the lower echelons of the laboratory. After all, it is certainly true that many of the problems encountered by Chinese graduate students are shared by their colleagues, both US-born and foreign.

But there are some issues that are particularly acute to Chinese

graduate students — by far the largest such immigrant group in the United States. One of these is the language barrier, which can be formidable for students who have often received years of written language training at home but may speak English haltingly at first. Some students also come from an academic environment where dissent is rare, and may fail to assert themselves as readily as their US colleagues. Many Chinese students interviewed by *Nature*, for example, were reluctant to give an opinion, even privately, about how their laboratories ought to be run. Finally, Chinese students have faced strenuous visa restrictions that can complicate their travel arrangements and engender insecurity about their status in the United States. Taken together, these factors can leave them feeling more isolated and disaffected than their US-born counterparts.

The principal investigators who are directly responsible for supervising the students should be aware of these concerns, and, where necessary, take appropriate actions to address them. They should make sure that students have the resources available to improve their language skills. Obviously, they should encourage everybody in the laboratory to bring forward their own ideas. And they should be patient with people who face the logistical challenges of visas and international travel back home.

Today's scientific workforce is highly mobile, and while many Chinese students and scientists will no doubt complete outstanding careers in the United States, many others will choose to return home and build up their own laboratories there. In the decades to come, these laboratories will become globally important. The experience of Chinese students and young scientists in the United States will set the tone for scientific relations between the world's only superpower and its emerging rival. ■

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