

▶ second chunk of money will cover fees to international research organizations and pay for HEAL-Link — a government-paid portal that provides scientists with access to electronic journals. The portal was closed down on 1 July owing to a lack of funds (see *Nature* <http://doi.org/6s5>; 2015).

Details of the upcoming calls have not been released, but Fotakis says that they will focus on proposals that are designed to address immediate priorities, such as slowing or reversing a crippling brain drain and making the research environment more attractive. But even more important, he says, are his plans for the “day after the crisis”. “We are designing policies for a new scientific landscape ready for when things start to normalize here,” he says.

One planned task is to present Parliament with a law designed by his ministry to make research more efficient by removing bureaucratic obstacles that emerged as a result of austerity. Those include checks on spending insisted on by the organizations that represent Greece’s creditors — even ordering stationery is now a complicated procedure. “This law is ready to go and will be put before Parliament just as soon as the agreement between Greece and its creditors is certain,” Fotakis says.

Panayiota Poirazi, a computational biologist at the Institute for Molecular Biology and Biotechnology in Heraklion, knows only too well that researchers face greater problems than money. She has a €1.5-million ‘starting grant’ from the European Research Council but has not always been able to spend it because of the capital controls. “When the banks closed we could not replace an air-conditioning unit in our computer server room,” she says.

The research and innovation fund that Fotakis plans to create would be fed by public and private sources and foster basic and applied research, Fotakis says. Science will help to promote a “knowledge-based economy”, he says, “but also curiosity-driven research is needed to make an impact on the economy in the long term”.

It might be difficult to find much private investment in Greece right now, he acknowledges, but he is negotiating for support from various sources. One of those is the European Fund for Strategic Investment, which was created earlier this year to stimulate investment in high-risk, high-return innovations (see *Nature* <http://doi.org/6s7>; 2015).

Gorgoulis likes the sound of Fotakis’s plans: “This is the way to go if we want to have a long-term perspective, if Greece is to have a future.” But some researchers worry that the new uncertainties hanging over the current government could end up delaying, or derailing, the research plans. ■

*Additional reporting by Anastasia Christakou.*



The number of nations with a top-level infectious-disease lab is set to grow as Japan joins the fold.

#### INFECTIOUS DISEASE

# Japan to upgrade biolab security

*Fears about Ebola helped forge deal to elevate existing facility to BSL-4 status.*

BY HELEN SHEN

Japan is set to join an elite club with its decision to upgrade an existing infectious-disease lab to handle the most-hazardous pathogens. The move sweeps away more than three decades of political opposition to operating a top-biosafety-level facility 30 kilometres west of Tokyo in the city of Musashi-Murayama.

An agreement reached on 3 August between Japan’s health ministry and the mayor of Musashi-Murayama clears the way for the facility to begin limited work with pathogens such as the Lassa and Ebola viruses. Japan’s National Institute of Infectious Diseases (NIID) built the biosafety-level-4 (BSL-4) lab in 1981, but it has been limited to operating as a BSL-3 lab because of community safety concerns. Fears that Ebola might reach Japan during last year’s outbreak in West Africa partly motivated the policy change.

The deal sets several conditions for the lab’s activities: the NIID has committed to maintain

transparency in reporting lab operations and any accident, and the lab must restrict its BSL-4 work to diagnosing and treating patients instead of running a broader research programme. However, virologist Ayato Takada at Hokkaido University in Sapporo, Japan, hopes that the agreement will ease the way for other facilities where scientists can perform basic infectious-disease research at the BSL-4 level. Discussions are under way to build a bigger and more modern BSL-4 lab at Nagasaki University — a move that has similarly met with community opposition.

For now, Takada’s studies of Ebola virus must be done in collaboration with international partners; he flies to the United States several times a year to perform BSL-4 experiments. “It’s time-consuming and expensive,” he says. “I really hope the decision at Murayama will have a good influence on the likelihood of the Nagasaki University BSL-4 plan.”

Upgrading operations from BSL-3 to full BSL-4 status may take several months, says virologist Masato Tashiro, former director of the NIID’s Influenza Virus Research Center.

The original BSL-4 infrastructure at Musashi-Murayama has been maintained over the decades, but new protocols will need to be established and staff trained for the

higher-security-level work. The lab will also need to import samples from other countries to build a reference library for diagnosing suspected infections.

Typical BSL-3 labs include two sets of self-locking doors and directional airflow to prevent the escape of potentially lethal, airborne pathogens. But BSL-4 labs have extra features that protect the workers and prevent the escape of highly lethal microbes that cause infections for which there are no treatments or vaccines.

## EBOLA RESPONSE

Over the years, the NIID made various attempts to gain public support for BSL-4 operations at the site, but some citizens and politicians were concerned that the risks outweighed the benefits. That began to change last year as the Ebola outbreak raged in West Africa. Japan, like many other countries, worried that the virus could cross its borders through international travel.

Japan joins a growing club of nations that have considered or expanded BSL-4 capabilities over the past decade — many spurred by the 11 September 2001 terrorist attacks. The Federation of American Scientists in Washington DC, a non-profit organization specializing in security matters, estimated in 2011 that roughly 40 BSL-4 labs existed or were under construction worldwide, although some researchers consider that an overestimate.

“It was odd that a global player in science and a highly developed industrialized country such as Japan has not had that type of facility. It’s brilliant that they have one now,” says virologist Paul Duprex at Boston University School of Medicine in Massachusetts.

Others, however, argue that BSL-4 labs serve only a small slice of infectious-disease research, and that existing facilities already exceed global needs. “BSL-4 facilities are fantastically expensive to construct and operate, and that comes at the cost of other areas of biomedical research,” says molecular biologist and biosecurity specialist Richard Ebright at Rutgers University in Piscataway, New Jersey. Although the Musashi-Murayama lab itself is limited in scope, Ebright says, “the most likely impact is that this will influence more nations to join this club.” ■

## SOCIETY

# Most gay scientists are out in the lab

*Female-dominated fields found to be more welcoming.*

BY MARLA BROADFOOT

Lesbian, gay, bisexual and transgender (LGBT) scientists feel more accepted in the workplace than their peers in other professions, a US survey suggests. The study, published in the *Journal of Homosexuality*, also found that respondents in scientific fields with a high proportion of women, such as the social sciences, were more likely to be out to their colleagues than those in male-intensive disciplines such as engineering (J. B. Yoder and A. Mattheis *J. Homosexuality* <http://doi.org/6vc>; 2015).

That result may suggest that laboratories with more women tend to be more receptive to people who do not fit the stereotype of a scientist as a straight, white man, says Jeremy Yoder, an evolutionary ecologist at the University of British Columbia in Vancouver, Canada, and co-author of the study.

The Queer in STEM survey gauged the experiences of more than 1,400 LGBT individuals working in science, technology, engineering and mathematics (STEM) fields. The 58-item online survey included questions about gender and sexual identity, professional expertise and whether respondents felt that their work and social communities were welcoming or hostile.

Other studies have indicated that out employees feel more accepted at work, whereas those who are closeted or not open about their identities are more likely to be stressed at work and have negative attitudes towards their work and co-workers (K. H. Griffith and M. R. Hebl *J. Appl. Psychol.* **87**, 1191–1199; 2002).

Participants rated their openness about their gender and sexual identities on a scale from 0 (“I am not out to anyone in this group”) to 5 (“As far as I’m aware, everyone in this group

could know”). The results indicated that the majority of the respondents (57%) were out to half or more of their colleagues, a greater proportion than the 47% of people who said that they were out in a 2014 survey of the general US workforce by the Human Rights Campaign Foundation in Washington DC.

“There is reason to believe this difference could be real,” says Yoder. “In STEM workplaces you are working with a fairly well-educated set

**“You are working with a fairly well-educated set of co-workers, and you may very well be able to expect a more open culture.”**

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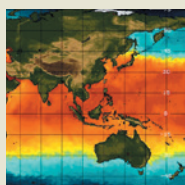
Most respondents identified themselves as lesbian, gay, bisexual, transgender, queer or asexual. Some ticked more than one box, and

5% wrote down an identity not included in the survey’s list, such as polyamorous, non-monogamous or pansexual. The researchers relied on social media and networking to recruit respondents, so they were concerned about the representativeness of the sample. A geographic analysis found that respondents came from US Census Bureau regions roughly in proportion to their estimated LGBT populations, but survey respondents tended to be young and to work in the life sciences.

“The study breaks new ground in providing a national portrait,” says Kristen Renn, a social scientist at Michigan State University in East Lansing who studies LGBT college students. She adds that the findings “provide a sense of possibility” to LGBT and queer youth who are exploring careers. “For those wondering, ‘Can I be an openly queer chemist?’” she says, the answer is: “Yes. And you won’t be alone.” ■



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