

► human DNA samples or share genetic data. Permission is also required to publish these data in international journals.

The ministry says genomics giant BGI in Shenzhen and Shanghai's Huashan Hospital were also caught breaking the regulations, after they put genetic information online without approval. The data were part of a large international study on the genetics of depression, which was published in *Nature* in 2015 (CONVERGE consortium. *Nature* 523, 588–591; 2015). The paper was based on anonymized sequence data from more than 10,000 Chinese women, which BGI acknowledges it did not have permission to publish in the paper's supplementary material.

A spokesperson for the company says it has destroyed the data, as requested by the ministry. They say the company has also requested *Nature* remove the article from its website. It remains online. A spokesperson for *Nature* would not comment on the matter. (*Nature's* news team is editorially independent of its journal team.)

Scientists and policy experts are worried that the government crackdown might deter researchers from sharing genetic data collected in China. "At a time when transparency, open access and sharing are high priorities, enforcing the 1998 rules obviously seems to be going in the opposite direction," says Nicholas Steneck, who studies research integrity at the University of Michigan in Ann Arbor.

Many countries control how their citizens' genetic material and data can be collected

and shared, mainly to protect people's privacy and ensure that samples are gathered with informed consent. China's rules are also meant to ensure that the country reaps some of the profits from patented discoveries.

But scientists say that complying with the rules is creating obstacles. An international collaboration investigating genetic samples from more than 140,000 pregnant Chinese women had to send a data-analysis expert to China because the data could not leave the

"If applying for permission is onerous or time-consuming, this will have a detrimental effect."

country, says group member Anders Albrechtsen, a geneticist at the University of Copenhagen.

The group — which included researchers from BGI — did not try to get approval to publish the anonymized genetic data. Instead, in a paper published in *Cell* in October, it included a disclaimer saying that the authors will provide only summary statistics to other researchers (S. Liu *et al.* *Cell* 175, 347–359; 2018). The president of BGI Research, Xu Xun, says the team feared that it would have taken too much time and effort to get permission to share the raw sequence data. He also thinks that sharing population-level statistics is sufficient.

Geneticist Paul Flicek of the Wellcome Sanger Institute in Hinxton, UK, thinks it

is reasonable for governments to require approval to share genetic information, but that "if the process of applying for permission is onerous or time consuming, this will have a detrimental effect on data sharing".

If China continues to enforce its regulations, genetics research in the country could become isolated from international groups, says Arcadi Navarro, a geneticist at Pompeu Fabra University in Barcelona, Spain.

A spokesperson for *Cell* says that the journal requires that the data behind publications be made available, but its policy acknowledges the need to respect the regulations and guidelines of review boards and national bodies, as well as laws on patient privacy and personal data.

China's science ministry did not respond to *Nature's* questions about whether its restrictions impede research.

In its announcement, the ministry did say that, as punishment for their breaches, BGI, AstraZeneca and Huashan Hospital had been banned from participating in international collaborations that use human genetic resources until they passed a data-privacy examination. BGI says it passed this in 2017. AstraZeneca says it is working towards its reassessment now. *Nature's* attempts to contact the hospital were unsuccessful.

Both BGI and AstraZeneca say that they accept the government's penalties and support the country's attempts to protect the genetic resources of its citizens. ■

POLITICS

Scientists win in US midterm elections

Trump administration's controversial science and environment policies could come under extra scrutiny as Democrats gain in Congress.

BY JANE J. LEE, AMY MAXMEN, JEREMY REHM & JEFF TOLLEFSON

The results of the political experiment are in. At least 12 candidates with backgrounds in science, technology, engineering or medicine were elected to the US House of Representatives on 6 November — including several who had never before run for political office.

They include Elaine Luria, a US Navy veteran and nuclear engineer in Virginia, and Chrissy Houlahan, a former business executive with a degree in engineering, in Pennsylvania. Illinois saw wins by registered nurse Lauren Underwood, a former senior adviser

to the Department of Health and Human Services, and clean-energy entrepreneur Sean Casten, who has degrees in engineering and biochemistry.

The four — all Democrats — are among roughly 50 candidates with science backgrounds who ran for the House in 2018, sparked in part by opposition to President Donald Trump. Fewer than half of these novice politicians made it past the primaries to the general election, but many science advocates are already looking to the next campaign cycle.

"I'm feeling good," says Representative Bill Foster (Democrat, Illinois), a physicist who has pushed to increase the number of scientists in elected office. Foster, the only current member

of Congress with a science PhD, is excited about wins at the state and local levels by candidates with backgrounds in science, technology, engineering or medicine (STEM). "We'll have a much deeper bench among STEM candidates in future races for Congress," he says.

The advocacy group 314 Action, which sprang up after the 2016 election to help scientists run for office, says that 8 of the 22 candidates it endorsed for the House or Senate ultimately won. The group in Washington DC also backed about 50 candidates in state races, and 31 won.

"It's certainly exceeded our expectations of what we would be able to do this year," says Shaughnessy Naughton, 314 Action's

president. She says that the group spent US\$2 million during this election cycle on items such as ads and voter-registration drives, and contributed another \$250,000 to various candidates' campaigns.

That wave of interest is “indicative of people’s desire to get involved, and a recognition that it’s no longer okay to sit on the sidelines”, says Benjamin Corb, director of public affairs at the American Society for Biochemistry and Molecular Biology in Rockville, Maryland.

The victories for science candidates came as Democrats regained a majority of seats in the House, taking the chamber back from Republicans — who still control the Senate and the White House. Recapturing the House is “no small feat”, says Elizabeth Gore, senior vice-president for political affairs at the Environmental Defense Fund, an advocacy group in New York City. “It is going to change the dialogue in Washington, and will certainly change the dynamic around science and the environment.”

▲ CHANGING CLIMATE

One of the most dramatic transitions will involve the House Committee on Science, Space and Technology. Representative Eddie Bernice Johnson, a Texas Democrat and vocal critic of the Trump administration, is likely to take the helm from retiring Representative Lamar Smith (Republican, Texas). As chair, Smith has repeatedly questioned the science behind climate change, sought to pare back the National Science Foundation’s research portfolio and launched dozens of probes into alleged wrongdoing by individual scientists and US government science agencies.

By contrast, Johnson released a list of policy priorities on 6 November that includes fighting climate change — “starting with acknowledging it is real” — and making the science panel “a place where science is respected”.

Smith is not the only Republican with a strong



Eddie Bernice Johnson (left) is in line to become the next leader of the House science committee.

interest in science who will exit Congress at the end of year. Voters rejected a bid for re-election by Representative John Culberson of Texas, a space enthusiast who leads the House spending panel that oversees NASA, the National Science Foundation and the National Oceanic and Atmospheric Administration. Culberson’s stalwart support for a NASA mission to Jupiter’s moon Europa became a campaign issue after his opponent accused him of favouring pet projects and neglecting local issues in his district near Houston.

Culberson is “probably the strongest supporter of planetary science, maybe in history”, says Casey Dreier, senior policy adviser at the Planetary Society in Pasadena, California. “It was so neat to see someone in Congress who had a personal passion for the search for extra-terrestrial life.”

Holding even a slim margin in the House will give Democrats the power to investigate

the Trump administration’s policies. Gore says that this is likely to translate into congressional hearings that probe the administration’s efforts to roll back a variety of climate and environmental regulations, and explore whether they are justified by the available science.

“Some of the oversight that we will see in a Democratic House will be focused on re-establishing scientific integrity and highlighting the failure of the Trump administration to use scientifically based information for policy-making,” Gore adds.

Others worry that with Democrats taking the House and Republicans solidifying their majority in the Senate, political gridlock will worsen in the coming years. “The polarization in the Congress has increased,” says Robert Stavins, an environmental economist at Harvard University in Boston, Massachusetts. “What was left of moderate Republicans — those are the people who systematically lost to Democrats.” ■

ANCIENT GENOMICS

Migration to Americas traced

Genomes show that the Americas’ earliest settlers moved far and fast across the continent.

BY EWEN CALLAWAY

An ancient genomics is finally beginning to tell the history of the Americas — and it’s looking messy.

Genomes from dozens of ancient inhabitants of North and South America, who lived as much as 11,000 years ago, suggest that the populations moved fast and frequently. The findings, published on 8 November^{1,2}, indicate that North America was populated widely over a few hundred years, and South

America within 1,000–2,000 years by related groups. Later migrations on and between the continents connected populations living as far apart as California and the Andes.

“These early populations are really blasting across the continent,” says David Meltzer, an archaeologist at Southern Methodist University in Dallas, Texas, who co-led one study².

The studies also suggest that the prehistory of the Americas — the last major land mass to be settled — was just as convoluted as that of other parts of the world.

“I think this series of papers will be remembered as the first glimpse of the real complexity of these multiple peopling events,” says Ben Potter, an archaeologist at the University of Alaska Fairbanks. “It’s awesome.”

For decades, the peopling of the Americas was painted in broad brushstrokes, using data from archaeological finds and DNA from modern humans. Scientists discerned that groups crossed the Bering land bridge from Siberia into present-day Alaska, and then moved steadily south as the last ice age ended. Humans ▶