

the American Association for the Advancement of Science in Washington DC.

The advisory panel's recommendations should provide the information that lawmakers want, says Jon Retzlaff, managing director of science policy and government affairs for the American Association for Cancer Research in Washington DC. Retzlaff plans to start lobbying Congress with the recommendations in hand. "The concepts and the grant proposals that will be generated because of these proposals, I think, will inspire Congress to say, 'Yes, this is a worthy project,'" he says.

For now, uncertainty hangs heavy over moonshot-related discussions. At a meeting on 7 September, NCI deputy director Dinah Singer said that the agency aims to launch some moonshot programmes in fiscal year 2017 and might seek extra funding from the private sector. But some NCI advisers are concerned that without substantial new government cash, implementing the advisory-panel recommendations could hamper the NCI's current projects.

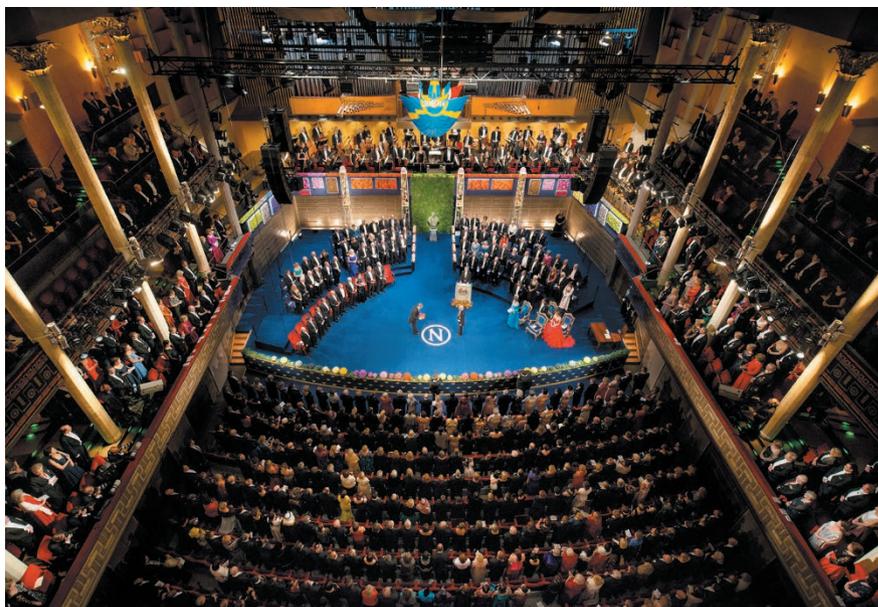
Agency director Douglas Lowy is hoping for a big budget boost from the government. "If we didn't get one, it's not that we wouldn't be able to start anything," he said. "It's just that the size, scope and speed would be dramatically different."

Despite the uncertainty, the report generated excitement among some cancer researchers. A call to expand the use of proven cancer-prevention and early-detection strategies was a pleasant surprise, says cancer geneticist Bert Vogelstein of Johns Hopkins University in Baltimore, Maryland. Although many specialists think that the approach could slash cancer deaths, it has not typically been high on the funding list, he says. "I was very impressed. They picked out some under-explored opportunities."

But at the 7 September meeting, several attendees argued that the report should have emphasized the need for research on disparities in cancer deaths that have been linked to race and economic status. "People are dying who shouldn't be dying," said Mack Roach, a radiation oncologist at the University of California, San Francisco.

That issue was largely left to the Moonshot Task Force, a separate advisory panel that is focused on improving access to cancer care and removing barriers to cancer research, said its leader, Greg Simon, chief executive of Poliwogg, a health-care investment company in New York City. The task force plans to release its report later this year.

The advisory panel's recommendations could not cover the gamut of cancer research, but the breadth of its recommendations was still impressive, says Stephen Elledge, a geneticist at Harvard Medical School in Boston, Massachusetts. "They did a pretty good job," he says. "I was glad they didn't just say, 'Oh we just need to sequence more tumours.'" ■



The medicine prize is awarded at a prestigious ceremony in Stockholm.

## ETHICS

# Nobel Assembly deals with scandal

*Prize-selection panel rocked by investigations into surgeon — but its credibility stays intact.*

BY ALISON ABBOTT

**I**n an unprecedented move, the group that selects the winners of the Nobel Prize in Physiology or Medicine — the Nobel Assembly — has asked two of its members to resign following a scandal at the institute that supplies the assembly's members.

But scientists around the world don't see the events at the Karolinska Institute (KI) in Stockholm as a threat to the reputation of the medical prize. They say that the assembly is sufficiently separate to the KI and has handled the affair well so far.

"Everything is exploding now, but the long-term credibility won't be affected," says cancer researcher Julio Celis, associate scientific director of the Danish Cancer Society Research Center in Copenhagen.

The scandal involves the surgeon Paolo Macchiarini. Multiple inquiries have alleged that he committed scientific misconduct and subjected patients to unethical, experimental tracheal transplant operations, three of which occurred at the affiliated Karolinska University Hospital. Two of the patients have since died, and the third has required continuous hospital care since the transplant. In June,

Swedish public prosecutors opened investigations following preliminary charges against Macchiarini of involuntary manslaughter and causing grievous bodily harm. Macchiarini has denied the allegations.

On 5 September, an independent report that revealed institutional problems at the KI mentioned Nobel Assembly members Harriet Wallberg-Henriksson and Anders Hamsten — both former KI vice-chancellors — for their roles in hiring Macchiarini in 2010 and subsequently extending his contracts. (Hamsten resigned as vice-chancellor in February after acknowledging that he had misjudged Macchiarini; the KI dismissed Macchiarini in March.)

The call for Wallberg-Henriksson and Hamsten to resign came a day after the report and is a first for the 115-year-old panel, says neuroscientist Thomas Perlmann, secretary of the Nobel Committee, whose fixed-term members are elected from the more permanent assembly.

"The professionalism of some of the faculty at the Karolinska Institute has been called into question, and this won't go away," says Erwin Neher of the Max Planck Institute for Biophysical Chemistry in Göttingen, ▶

► Germany, who won the medicine prize in 1991. “But I don’t think this discredits the Nobel prize — they are two different things.”

When Alfred Nobel died in 1896, he left the bulk of his fortune — amassed from his explosives businesses — to the Nobel prizes. His will specified which institutions would select each prize, and declared the KI in charge of medicine. The first prizes were awarded in 1901.

At first, the entire KI faculty selected the medicine winners, but by the 1970s it had grown too large for this to be practical — and a new law made all documents at state institutions accessible to the public, ruling out secret deliberations. So in 1977, the Nobel Assembly was created, comprising 50 KI professors; the Nobel Foundation pays for its operations.

The Nobel Committee has also done a good job of separating itself from the Macchiarini affair since it began, says neuroscientist Eero Castrén at the University of Helsinki. KI geneticist Urban Lendahl, who participated in the decision to hire Macchiarini, resigned his position as secretary-general of the Nobel Committee in February, notes Castrén. (Lendahl

stepped down because he anticipated that he would be involved in the investigation.)

Two other assembly members — clinical immunologist Katarina Le Blanc, who co-authored a paper with Macchiarini that is under investigation by the Central Ethical Review Board, and Hans-Gustaf Ljunggren, who was dean of research at the KI from 2013 until February — have not been asked to resign because there is still “uncertainty over their roles” in the Macchiarini affair, says Perlmann.

“To protect the brand”, he adds, none of the three, nor Wallberg-Henriksson, nor Hamsten, has participated in assembly activities since February. Perlmann says that the Nobel Committee is not taking further action, but will monitor perceptions of the prize to see whether it needs to do more.

“It is important that institutions deal in a fair way with those whose judgement or moral probity has been called into question,” says Steven Hyman, director of the Stanley Center for Psychiatric Research at the Broad Institute in Boston, Massachusetts, who has nominated prize candidates to the Nobel Committee. “The

Nobel Assembly seems to be doing this.”

He adds: “There is no benefit to the world, or to patients who have been harmed, by using a very serious incident to undercut a globally important institute.”

The assembly has survived other challenges, usually relating to complaints about its choices. In 1994, it encountered accusations — quickly discredited — that it had allowed a drug company to buy the 1986 medicine prize for Italian neuroscientist Rita Levi-Montalcini.

Just as the Swedish king never comments on politics, the Nobel Assembly never comments on such complaints. But during its 100th anniversary celebrations, it acknowledged some regrets — such as awarding a share of the 1923 prize for the discovery of insulin to John Macleod, whose role is now questioned, and the failure to recognize Oswald Avery, who identified DNA as the genetic material in the 1940s.

“The prize has survived many things,” says cell biologist Måns Ehrenberg of Uppsala University, who has served on the committee that selects the Nobel Prize in Chemistry. “The standard of evaluation no one can criticize.” ■

## BIOLOGY

# DNA reveals four giraffe species

Finding could guide efforts to conserve the iconic animals.

BY CHRIS WOOLSTON

One of the most iconic African animals has a secret. A genetic analysis suggests that the giraffe is not one species, but four — a finding that could alter how conservationists protect the animals.

Researchers previously split giraffes into several subspecies on the basis of their coat patterns and where they lived. Closer inspection of their genes, however, reveals that giraffes should actually be divided into four distinct lineages that don’t interbreed in the wild, scientists reported on 8 September in *Current Biology*<sup>1</sup>. Previous genetic studies<sup>2</sup> have found discrete giraffe populations that rarely intermingled, but this is the first to detect species-level differences, says lead author Axel Janke, a geneticist at Goethe University in Frankfurt, Germany.

“It was an amazing finding,” he says. He notes that giraffes are highly mobile, wide-ranging animals that would have many

chances to interbreed in the wild, if they were so inclined. “The million-dollar question is what kept them apart in the past.” Janke speculates that rivers or other physical barriers kept populations separate long enough for new species to arise.

## RUMINATING ON RUMINANTS

The study tracked the distribution of 7 specific gene sequences — chosen to measure genetic diversity — in nuclear DNA from skin biopsies of 190 giraffes. It also analysed the animals’ mitochondrial DNA. The sequences fell into four distinct patterns that strongly suggested separate species. Janke says that the four species are about as different from each other as the brown bear

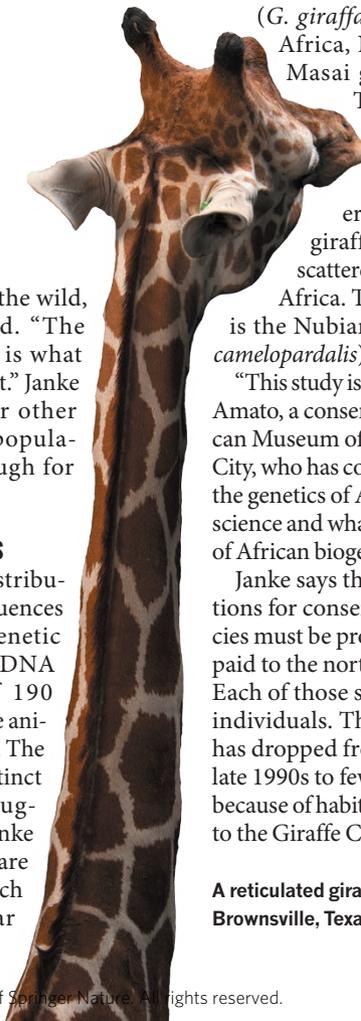
(*Ursus arctos*) is from the polar bear (*Ursus maritimus*).

The researchers suggest replacing the current species name, *Giraffa camelopardalis*, with four new ones: the southern giraffe (*G. giraffa*), found throughout South Africa, Namibia and Botswana; the Masai giraffe (*G. tippelskirchi*) of Tanzania, Kenya and Zambia; the reticulated giraffe (*G. reticulata*) found in Kenya, Somalia and southern Ethiopia; and the northern giraffe (*G. camelopardalis*), found scattered through central and eastern Africa. The one remaining subspecies is the Nubian giraffe (*G. camelopardalis camelopardalis*) of Ethiopia and South Sudan.

“This study is pretty persuasive,” says George Amato, a conservation biologist at the American Museum of Natural History in New York City, who has conducted extensive research on the genetics of African wildlife. “I applaud the science and what it adds to our understanding of African biogeography.”

Janke says that the findings have implications for conservation: all of the giraffe species must be protected, with special attention paid to the northern and reticulated giraffes. Each of those species has fewer than 10,000 individuals. The overall number of giraffes has dropped from more than 140,000 in the late 1990s to fewer than 80,000 today, largely because of habitat loss and hunting, according to the Giraffe Conservation Foundation.

A reticulated giraffe at the Gladys Porter Zoo in Brownsville, Texas.



JOEL SARTORE/NGC/GETTY

**CORRECTION**

The News story 'Nobel Assembly deals with scandal' (*Nature* **537**, 289–290; 2016) erroneously gave Stockholm as the location for all of the Nobel prize ceremonies.