for promotion, jobs or grant funding.

Nature has seen several lists compiled by Chinese institutions that already tell researchers to avoid certain publications. The Zhongshan Ophthalmic Center at Sun Yat-sen University in Guangzhou circulated a document in January that warned its researchers against publishing in a list of journals that it labelled "controversial in the community" because they have had a lot of retractions. The Obstetrics and Gynecology Hospital of Fudan University in Shanghai has compiled another list. A representative of the hospital says that publications in the journals on its list are not forbidden, but that researchers cannot use grant money to pay the publication fees.

The first list contains two of the world's largest journals, *PLoS ONE* and *Scientific Reports*. Joerg Heber, editor-in-chief of *PLoS ONE*, says that he does not know why some Chinese universities discourage their researchers from submitting to the journal, because only a small fraction (119) of its almost 200,000 papers have been retracted.

A spokesperson from *Scientific Reports* said that they were unable to comment on individual decisions, but hoped that institutions will continue to recognize the journal's value. (*Nature*'s news team is editorially independent of its publisher, Springer Nature, which also publishes *Scientific Reports*.)

Omid Mahian, a thermal engineer at Xi'an Jiaotong University, thinks it would be better to have a national policy that applies to all researchers than for institutions to have their own lists.

And Shi Xiaolei, a science historian at the Institute for the History of Natural Science in Beijing, part of the Chinese Academy of Sciences (CAS), says that a national blacklist and those recently adopted at institutions "will have a positive impact on China's academic environment".

"The real problem is not with the journals, but with the person who submits the article."

Medical researcher Ren Chuanli says that a national blacklist might help to reduce scientific misconduct because it will punish some journals that publish low-quality manuscripts. "But the real problem is not with the journals, but with the person who submits the article," says Ren, who works at the North Jiangsu People's Hospital. He says that some high-quality journals publish low-quality papers, and that some journals that are considered low quality publish the occasional high-quality, highly cited article. Fraudulent papers, too, have appeared in journals of all qualities, so a blacklist based on overall journal quality won't necessarily stop those papers either, says neuroscientist Mu-ming Poo at the CAS Institute of Neuroscience in Shanghai.

Blacklists are also difficult to maintain because new journals are always launching, says Lars Bjørnshauge, the Cophenhagen-based managing director of the Directory of Open Access Journals. Bjørnshauge also wonders whether China might use blacklists as a way of promoting Chinese journals over others.

Yu Liping, who studies academic evaluation at Zhejiang Gongshang University in Hangzhou, doubts that the list will be comprehensive and include all the problematic Chinese journals that have been linked to scientific misconduct. Yu says lists of approved journals that meet certain standards are a better tool than blacklists for improving research standards.

Most researchers agree that what China needs is a more comprehensive system by which to evaluate research quality. "The important thing is whether those who evaluate research are actually evaluating the research and not only looking for papers in 'international' journals on the researchers' CV," says Bjørnshauge. ■

VIROLOGY

Hunting for HIV's hideouts

Scientists are testing new ways of mapping where the virus lurks in the body.

BY SARA REARDON

Antiretroviral drugs have transformed HIV infection from a death sentence to a chronic condition for many people who have the virus. But because HIV never truly leaves the body, the virus rebounds rapidly if patients stop taking the drugs.

Now, scientists are trying to work out how, and where, HIV hides when blood tests show that a person's viral load is low or undetectable. The location of this reservoir has long been a mystery, but that could soon change. Powerful new techniques are giving researchers an unprecedented look at how HIV travels though the bodies of people and other animals — turning up clues to the virus's hiding places and targets for future therapies.

HIV is a challenging foe because it integrates into the DNA of its host cells. Some scientists argue that a true cure would require the removal of all traces of the virus's DNA from the body, rather than simply preventing HIV from hijacking cells to replicate itself — and that goal might be unreachable. "We are starting to realize that getting rid of all the HIV DNA is not completely realistic," says Sara Gianella, an infectious-disease researcher at the University of California, San Diego.

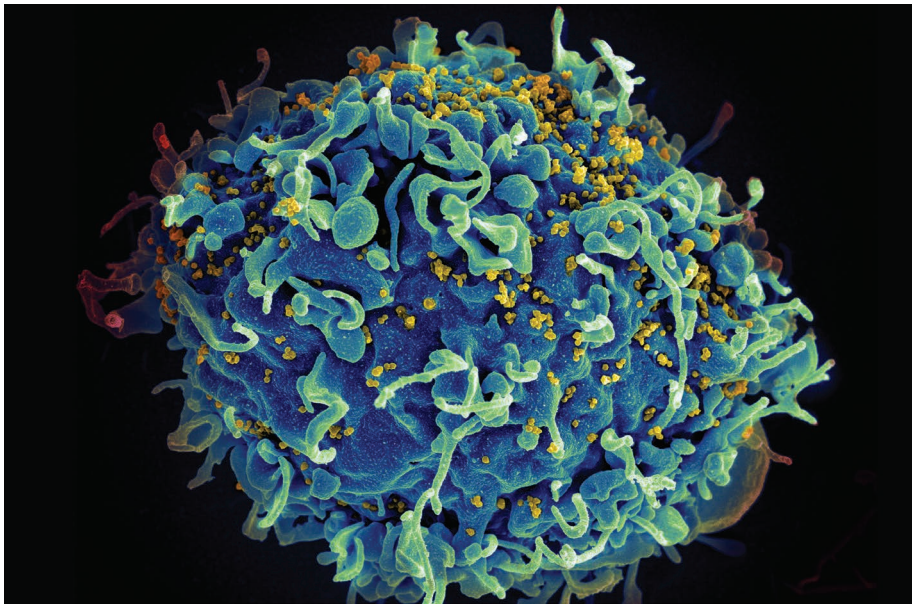
The best that researchers can hope for may be to permanently silence or contain HIV after infection, says Gianella, who last week presented new findings on HIV's hideouts at a meeting organized by the US National Institutes of Health (NIH). Although antiretroviral drug cocktails — known as ART — can suppress HIV in immune cells in the blood, the first results from Gianella's "Last Gift" study confirm that the virus can stash itself in dozens of tissues.

The project examines bodies donated by people with HIV who enrol when they are within six months of death from unrelated conditions. All participants are on ART when they sign up for the study, but some are asked to stop taking the drugs. Gianella's team collects blood samples while donors are alive, and about 50 different types of tissue after death. The samples from people who stopped taking ART show where HIV has rebounded, whereas samples from people who continued on the drugs can provide clues about the virus's reservoir.

The researchers did not detect HIV in the blood of their first donor, who continued taking antiretroviral drugs until his death. But they did find viable virus in nearly all of the 26 tissues they examined after the man died.

Janice Clements, a pathobiologist at Johns Hopkins University in Baltimore, Maryland, calls the project "amazing". After a person with HIV dies, she says, researchers can rarely acquire tissue samples quickly enough to measure the level of virus present, and they usually don't know whether the dead person had been taking antiretroviral drugs.

Clements' research has shown that HIV tends to linger in the brain and cause neurological problems, because most antiretroviral drugs can't cross the blood–brain barrier. At the meeting, Clements and her colleagues presented the first evidence that simian immunodeficiency virus (SIV), which is closely related to HIV, survives in the spinal cord of macaques taking antiretroviral drugs and spreads quickly after the animals stop taking the drugs. "This is unlike any virus we've cured," she says.



NATIONAL INSTITUTE OF ALLERGY AND INFECTIOUS DISEASES/NIH/NCI/SPL

HIV invades immune cells called T cells and uses them to replicate itself.

Nicolas Chomont, a virologist at the University of Montreal in Canada, says that HIV's behaviour in tissues that are known to be part of the reservoir is complex, with virus levels going up and down. "People will tell you the reservoir is everywhere, and that might be true," he says. "Even if it's true, we need to understand if [the virus] in the brain and the big toe are the same."

Tracking these patterns over time might require identifying traces of HIV in the reservoirs of living people — a daunting task. "For these very rare events, you need to know where to look," says Thomas Hope, a cell biologist at Northwestern University in Evanston, Illinois.

At the NIH meeting, Hope presented a new imaging technique in macaques infected with SIV. The researchers inject the animals with antibodies that bind to the virus, which makes it visible in positron-emission tomography (PET) scans of the monkeys' bodies.

The approach has revealed that SIV spreads through mucosal cells in the animals' guts and lymph nodes within hours of infection. Hope has begun to treat infected macaques with ART to determine where and how quickly the drugs lower their levels of SIV. After six months of treatment, the researchers plan to stop the treatment and scan the monkeys to see where the virus has rebounded.

And later this year, another team will begin one of the first PET imaging studies of people with and without HIV in their blood, using a different antibody. Timothy Henrich, an infectious-disease researcher at the University of California, San Francisco, who is directing the study, says that his group hopes to measure what happens when people on ART stop taking the drugs. Gianella's team also wants to test PET imaging in Last Gift participants.

Ultimately, working out where HIV hides will require researchers to do more than just measure the virus in blood, Hope says. Blood immune cells are "going to be a more minor player compared to the dark-matter reservoir", he says. "We know it's there." ■