

In the past five years animal-rights activists have perpetrated a string of violent attacks. In February 2008, the husband of a breast-cancer biologist in Santa Cruz, California, was physically assaulted at the front door of their home. In the same month, the biomedical research institute at Hasselt University in Diepenbeek, Belgium, was set on fire. In the summer of 2009, activists desecrated graves belonging to the family of Daniel Vasella, then chief executive of the pharmaceutical company Novartis, based in Basel, Switzerland, and torched his holiday home.

A poll of nearly 1,000 biomedical scientists, conducted by *Nature*, reveals the widespread impact of animal-rights activism. Extreme attacks are rare, and there does not seem to have been any increase in the rate of their incidence in the past few years, but almost one-quarter of respondents said that they or someone they know has been affected negatively by activism.

More than 90% of respondents agreed that the use of animals in research is essential, but the poll also highlights mixed feelings on the issue. Nearly 16% of those conducting animal research said that they have had misgivings about it, and although researchers overwhelmingly feel free to discuss these concerns with colleagues, many seem less at ease with doing so in public. More than 70% said that the polarized nature of the debate makes it difficult to voice a nuanced opinion on the subject, and little more than one-quarter said that their institutions offer training and assistance in communicating broadly about the importance of animal research (see 'Assessing the threats').

CRACKING DOWN

During the past decade, both the United States and the United Kingdom have enacted tough laws in response to violent tactics from activists. In 2005, the United Kingdom created the Serious and Organised Crime and Police Act, allowing stiff sentences to be imposed on those who intimidate companies and individuals that contract with animal-testing labs. Activists have since been found guilty of blackmail for terrorizing individuals and companies with financial ties to Huntingdon Life Sciences, a contract animal-testing company in Cambridgeshire, UK (see page 454). In the United States, the 2008 Animal Enterprise Terrorism Act was brought in to combat property damage and threats that produce a 'reasonable fear' of death or injury for researchers or their relatives, although its enforcement has been challenged in the courts.

These laws do not seem to have driven down the rate of violence. The Foundation for Biomedical Research in Washington DC, which is in favour of animal research, and the anti-animal-research magazine *Bite Back*, based in West Palm Beach, Florida, collect accounts of activism incidents from media reports and activist websites, respectively. Although not comprehensive, their data suggest that the worldwide incident rate has been stable for five years or more, with some regional variation. Activity in Britain seems to have dropped since the anti-Huntingdon campaign cooled. Protests have also been scaled back at the Biomedical Sciences Building at the University of Oxford, which opened in 2008 and houses research animals including primates.

Nearly one-quarter of biologists say they have been affected by animal activists. A *Nature* poll exposes the

BATTLE SCARS

BY DANIEL CRESSEY

Although *Nature's* survey was not designed to measure the incidence of activism, it suggests a similar picture: 45% of respondents said they had not perceived an increase in activist activity in the past five years, with some regional differences. US scientists were more likely to say that activism had increased, whereas many UK scientists reported a perceived decrease. Sally Rockey, deputy director for extramural research at the US National Institutes of Health in Bethesda, Maryland, says that the responses probably reflect the publicity drawn by high-profile incidents, not real increases. "There have been some life-threatening situations, arson and bomb threats for example. One of the things we've seen is some investigators have been targeted at their homes," says Rockey.

Animal researchers who said that they

or someone they knew had been affected by activism wrote about incidents ranging from anonymous threats and protests outside laboratories to vandalism, 'liberation' of animals, physical attacks by masked activists and bombs both real and simulated. "Home damaged, young children terrorized, death threat, etc," reports one genomics researcher matter-of-factly.

A small number, about 15% (26 respondents), who had been negatively affected by activism said that they had changed the direction or practice of their research as a result. After encountering violent protests, one US academic was "much less willing to conduct any studies on non-human primates, despite their absolute critical relevance for neuro-protection research".

PRIMAL CONCERNS

Only 38 scientists working with non-human primates responded to the survey, but they were the group of respondents most likely to strongly agree that activism is a problem. Frankie Trull, president of the Foundation for Biomedical Research, says that in her experience, primate researchers are targeted more than those in any other type of animal work.

Although more primate research is conducted in the United States, the ability to work with primates has been challenged in Europe. In 2009, the European Union considered legislation that would have restricted work on non-human primates to research investigating "life-threatening or debilitating" conditions. It took a concerted campaign by researchers to amend it to allow for basic research in addition to applied work.

Hannah Buchanan-Smith, an animal-welfare researcher at the University of Stirling, UK, says, "Primate laboratory researchers are finding it harder to justify their research to the public." Buchanan-Smith refuses to do any animal research that causes pain, suffering, distress or lasting harm, and says that basic research on primates presents a particular ethical challenge.

She argues for alternatives to animal testing. "Replacement is the ultimate goal and we are moving in that direction with certain groups of animals," she says. "I very much hope in my lifetime that will be achieved in primate research."

Stefan Treue, head of the German Primate Centre in Göttingen, views primate research in a different light.

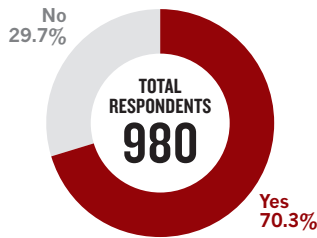
He says that after lay-people have visited his laboratory and seen how work

ANIMAL RESEARCH
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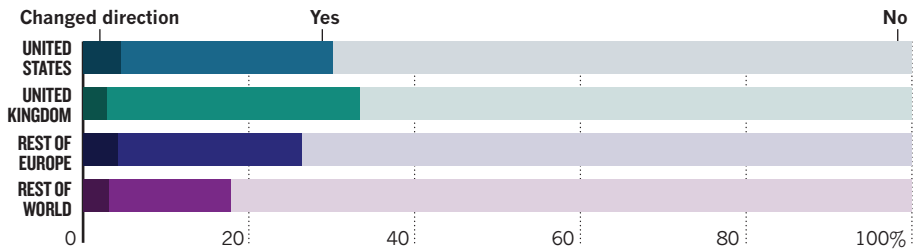
Assessing the threats

Biomedical scientists who responded to a survey mostly support animal experimentation, but attitudes towards animal-rights activists differ around the world.

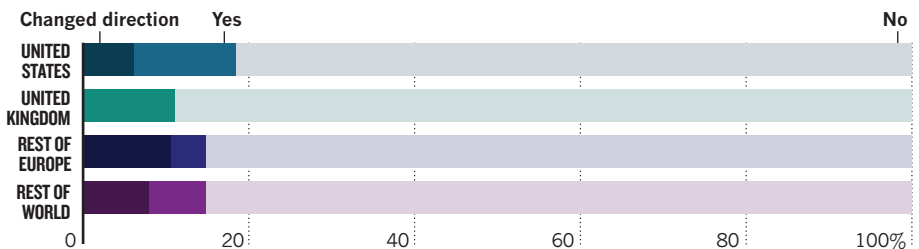
Q Do you conduct experiments on animals?



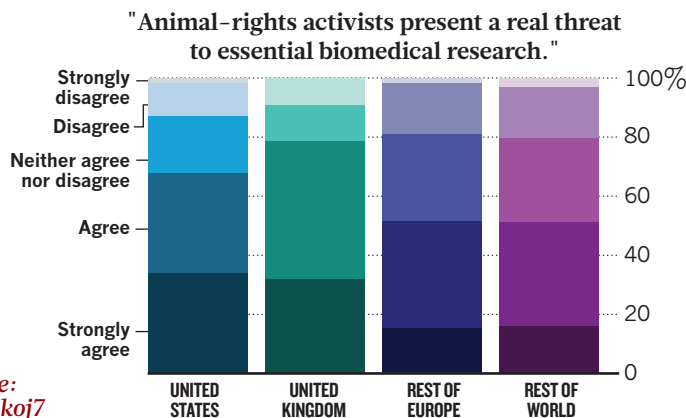
Q During your career, have you or anyone you know been affected negatively by animal-rights activists and have you changed research direction as a result?



Q Have you ever had misgivings about the role of animals in your research, and did you change research direction as a result?



Q To what extent do you agree or disagree with the following statements?



For full results, see: go.nature.com/o6koj7

is conducted and why, "something like 98% understand and accept that this is a small but important and irreplaceable part of biomedical science that is conducted to the highest ethical standards".

Treue rejects an ethical distinction between basic and applied research. "It's not a logical argument to say, 'I accept applied research but I don't want the underlying basic research', because you can't have one without the other. I have to admit that partly the science community is to blame for not explaining that more clearly and more frequently in public," he says.

PUBLIC CONSULTATION

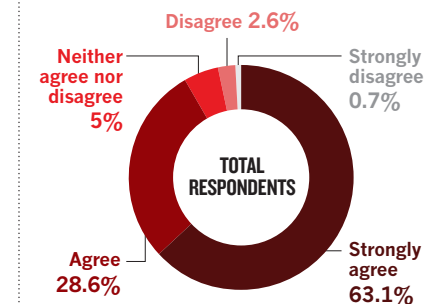
Some results from the survey suggest that communication with the public might be improving. Fifty-five per cent of animal researchers said that their institutions encourage communication with the general public about their work, and only 7% said that this is actively discouraged. In a

poll run by *Nature* on this subject in 2006, only 29% of researchers said that they were encouraged to discuss their work, and 11% had been discouraged (see *Nature* 444, 808–810; 2006).

This is good news, says Rockey, but there is much to be done. More than half of the researchers who said they are encouraged to discuss their work indicated that their institutions offered no support or training on how to do so. "It's important for institutions to have outreach programmes which engage the public in explaining the importance of the research," says Rockey.

It can be challenging to explain the type of nuanced positions on animal research that the poll revealed: 33% of respondents had "ethical concerns" about the role of animals in their current work. Researchers wrote about their preoccupations with reducing pain, minimizing the numbers of animals used and showing respect for their subjects. Some 16% reported "misgivings"

"Animal research is essential to the advancement of biomedical science."



about work they have done, and half of these (54 researchers) said that they changed their research or practices as a result, suggesting that personal reflection may be more effective than activism at changing behaviour. "I consider these issues virtually daily," wrote a US neuroscientist. "The day I stop considering these issues is the day I quit. I know few scientists who don't feel similarly."

Trull welcomes scientists thinking deeply about the issues involved in working with animals, and is glad that 93% of researchers said they feel free to discuss concerns about ethics with colleagues. "There are a lot of those discussions and debates that go on in the research community. It's a privilege to use these animal models," she says. "Scientists need to view it in this way and I think they do." ■ SEE EDITORIAL P.435

Daniel Cressey writes for *Nature* from London. Survey work was aided by Laura Harper.