

NEWS



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Biologists asked to breed a culture of responsibility in face of terrorism

Diplomats and biosecurity experts meeting in Geneva this week are urging life scientists to act responsibly and prevent potential misuse of their work.

Governments can enact laws to prosecute people who use science to scare or hurt the public. And they can make rules to promote safety in research. But laws and rules go only so far in heading off potential abuses of science. When it comes to weighing up the potential risks and benefits of a piece of research, or deciding whether to publish a controversial result, scientists must fill the gap by adopting their own principles for proper conduct, say those at the Geneva conference.

The meeting, which runs from 13 to 24 June, focuses on codes of conduct in life-sciences research. It is the third 'Meeting of Experts' — a series of conferences intended to promote the international treaty that bans biological weapons. Formal negotiations on how to enforce the treaty collapsed in 2001, but are scheduled to resume next year.

Unlike physicists, who were forced to face up to the potential consequences of their work when nuclear weapons were developed in the 1940s, many biologists still do not believe that their work could possibly be misused, say biosecurity experts. But several recent papers have highlighted how bona fide research could be abused by terrorists or governments developing biological weapons.

For example, in 2001 an Australian team accidentally created a deadly version of

mousepox, a virus that is related to smallpox, by removing a single gene (R. J. Jackson *et al. J. Virol.* 75, 1205–1210; 2001). And in 2002, the journal *Science* published a paper describing how researchers had synthesized a whole polio genome from scratch (J. Cello, A. V. Paul and E. Wimmer *Science* 297, 1016–1018; 2002). Scientists played down the novelty of the paper, but alarm among the public was so great that a member of US Congress criticized the work and asked the US executive branch to review policies intended to stop research being used by terrorists (see *Nature* 418, 265; 2002).

The answers to such problems, say experts at the Geneva meeting, are codes of conduct. These are statements by scientific societies, trade organizations or other bodies that lay out principles to govern their members' activities. Advocates say they would force each researcher to think about the proper conduct, dissemination and use of his or her work.

"Developing a code of conduct really would give structure to the awareness that we need to create, especially among young professionals," says Mark Smolinski of the Nuclear Threat Initiative, an arms control think-tank based in Washington DC. He and others want to see scientists take an active role in preventing potential abuses of their work.

For instance, a researcher might choose to brief key government officials about a sensitive finding instead of publishing it in a widely

distributed journal — a possibility raised in ongoing controversy over a paper that models a bioterrorist attack on the US milk supply. Publication of this study has been delayed after protest from the US government (see page 855).

Some life-sciences organizations, such as the Washington-based American Society for Microbiology and the Australian Society for Microbiology in Melbourne, have already adopted codes of ethics that refer to biological weapons. But many experts feel that more researchers should adopt codes, especially at local levels. An influential report issued

in 2003 by the US National Academy of Sciences said that awareness of potential misuse of life sciences "varies widely" among researchers. It advised more education.

Just last week, a report was issued by an expert US commission, chaired by Harold Brown, former US secretary of defence, and Nobel laureate David Baltimore, president of the California Institute of Technology in Pasadena. It recommended that individual universities and research institutions set up committees to comply with biosecurity regulations and promote self-governance.

Experts at the Geneva meeting say that the conference is unlikely to lead to a binding international agreement on codes of conduct. But they hope it will encourage individuals and institutions to take action.

Erika Check

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