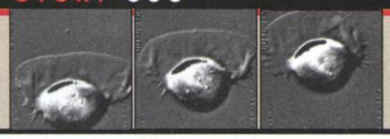
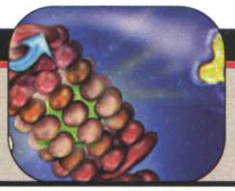




mal model would be a poor surrogate, Jahrling says that he expects to refine the model by testing lower doses and alternate infection routes. The Russian repository has won funding to ramp up its smallpox effort this year, and it too hopes to vet the monkey model.

Some countries are troubled by an open-ended research effort. "A final date for destruction should be determined, and no excuses should be given for further delay," says Sha Zukang, China's Permanent Representative to the United Nations in Geneva. But China, which is not on the governing board, is unlikely to find many allies to press that point. An Indian representative, for example, sat quietly throughout the discussion at the WHO board meeting, although his country had until recently advocated swift destruction of the stocks.

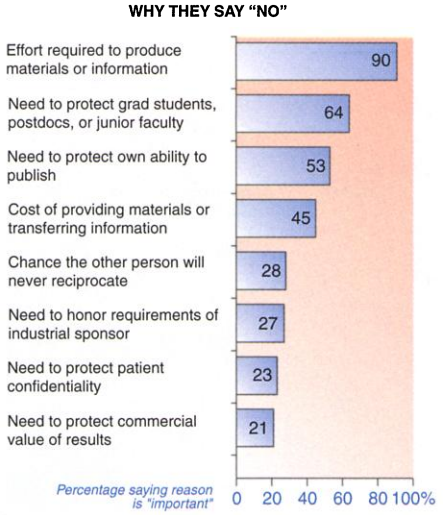
The heightened concern about bioterrorism has led some health experts to question the central tenet that stocks of any microbial killer should be destroyed once it is eradicated in the wild. But proponents of eradication say that steps are also being taken to address a bioterror threat. With respect to polio, "efforts have been under way for some time to inventory laboratory stocks and to develop a framework for specimen storage and future research," says James Hughes, director of the CDC's National Center for Infectious Diseases. The fact that the debate is taking place at all, however, represents another example of the expanding legacy of last fall's tragic events. **–RICHARD STONE**

PROFESSIONAL ETHICS

Data Hoarding Blocks Progress in Genetics

More than a quarter of U.S. geneticists say they can't replicate published findings because other investigators won't give them relevant data or materials. And the rejections are more than a breach of professional etiquette; they say that data hoarding actually retards progress in the field.

The results of a new survey, led by researchers at Massachusetts General Hospital in Boston, tarnishes what has traditionally been a badge of honor among scientists: the sharing of information that allows others to replicate or disprove the original finding. "That's a pretty big deal," says Robert Cook-Deegan, a science policy analyst at the Kennedy Institute of Ethics at Georgetown University in Washington, D.C. "And it's getting in the way of reliable science."



Too much trouble. The amount of effort required tops the list of reasons that geneticists don't share data.

The survey team, led by David Blumenthal and Eric Campbell of the hospital's Institute for Health Policy, compared the responses of 1240 geneticists with 600 other life scientists from the 100 universities that receive the most funding from the National Institutes of Health (NIH). The results appear in the 23/30 January issue of the *Journal of the American Medical Association*.

The survey explores a bread-and-butter issue: 84% of the geneticists report that they have asked another researcher to provide information, data, or materials related to published research. But almost half (47%) said that at least one request had been denied in the previous 3 years. The rejections had a significant impact on their work: 28% say that they had been forced to end a collaboration, and 21% had abandoned a promising line of research. The most likely requests to be thwarted were for biomaterials such as mice or viruses (35% had been denied such a plea), followed by sequence data (28%), findings (25%), phenotypes (22%), and lab techniques (16%).

Despite the widespread rejections, the survey found that naysayers were a distinct minority. Only 12% of geneticists reported that they had denied a request. This number may be an underestimate, Campbell explains, because researchers don't like to admit they resisted sharing their data. The most common reason cited for denying a request was the amount of effort required to produce the data (see table). Indeed, the more requests received, the more likely the scientist was to say no. Those engaged in commercial activities were also more likely to deny requests.

Geneticists say this proprietary behavior is having a negative impact on their field. Some 73% felt that withholding of data slowed progress in genetic research in general, and 58% said it had limited their own work. About the same fraction reported that it hindered the training of students and postdocs. More than twice as many scientists (35% to 14%) thought that withholding had risen rather than fallen over the last decade, although a bare majority (51%) said they hadn't noticed any change.

Campbell and his colleagues suggest that researchers might be more forthcoming if funding agencies provided money to defray the costs of meeting requests. Another step, they say, would be to make material transfer agreements more user friendly. "It's a legitimate cost of doing research," agrees Wendy Baldwin, NIH's deputy director for extramural research, adding that researchers could either list the cost in their grant application or apply for a supplemental award.

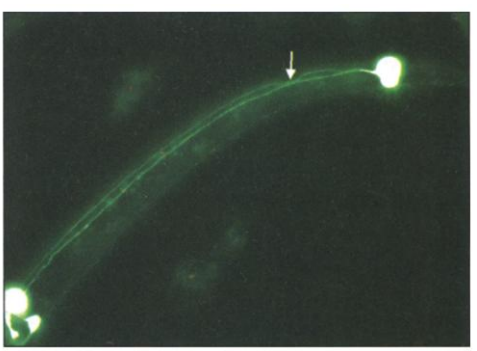
NIH could also put more pressure on researchers to behave civilly, says Cook-Deegan, including a better system to track who's being uncooperative. "There's no shaming strategy available here," he says.

–ERIK STOKSTAD

NEUROSCIENCE

Genes Keep Neurons' House in Order

As any homeowner knows, timely maintenance is vital for keeping a building functioning properly long after construction is finished. The same is evidently true for the complex architecture of the nervous system



Out of line. Axons in *Caenorhabditis elegans* stray from their proper places (arrow) when ZIG proteins are missing.

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