Objection. Sen. Jesse Helms says that mice and rats won't benefit from "regulatory shenanigans."

from setting new rules on how scientists use and care for millions of research rodents. "A rodent could do a lot worse than live out its life-span in research facilities," Senator Jesse Helms (R–NC) said as he successfully introduced an amendment to a major farm bill. Helms said that the new language will keep biomedical research from becoming entangled by "regulatory shenanigans" promoted by the "so-called animal-rights crowd."

Animal-rights groups have vowed to strip the new rule from any final version of the bill, which still must be reconciled with a House version that lacks the lab-animal language. "It's a setback, but we are not rolling over on this one," says Nancy Blaney of the Working Group to Preserve the Animal Welfare Act, a coalition of animal-rights groups.

The controversy stems from a 30-year-old USDA policy that exempts mice, rats, and birds—which account for 95% of all experimental animals—from regulation under the Animal Welfare Act (AWA). Two years ago, after several court battles, USDA agreed to draft caging and care rules. The deal outraged biomedical groups, which argued that Congress never intended for AWA to cover laboratory animals. They also charged that USDA regulation would duplicate existing government and voluntary rules and drain millions of dollars from research accounts. The groups convinced Congress to delay the rules once, but last year lawmakers told USDA to begin writing the regulations (*Science*, 23 November 2001, p. 1637).

Animal-rights groups plan to blanket negotiators on the final bill with appeals to drop the new language, which says that lab rats and mice aren't covered by AWA's definition of "animal." "Lawmakers will be hearing from us. ... This is making a huge change in the law without adequate debate," says Blaney. But Frankie Trull of the National Association for Biomedical Research, which lobbied for the ban, says the new law "restates what has been agency policy for decades."

Many Washington policy watchers, meanwhile, are smiling at the sight of a research establishment often accused of liberalism joining forces with an archconservative and frequent opponent. Says one lobbyist: "I'm sure some scientists had to hold their noses when they learned that Jesse Helms was going to be their savior." –DAVID MALAKOFF

AIDS RESEARCH

Longtime Rivalry Ends In Collaboration

AIDS researchers Robert Gallo and Luc Montagnier, who fought a long and bitter battle over credit for the discovery of HIV and the resultant blood test, this week announced plans to collaborate on developing AIDS vaccines for Africa and other impoverished regions. "A whole lot of people say, 'Why can't you guys collaborate, why don't you work together to try to help solve the problem?' " says Gallo, who heads the Institute of Human Virology at the University of Maryland, Baltimore. "It will stop a lot of that." Montagnier, who recently retired from France's Pasteur Institute and now heads the World Foundation for AIDS Research and Prevention—an organization he helped form under the auspices of UNESCO—cites another reason: "If we join our efforts, it will be more credible for fund-raising. ... We have some names that can help."

Montagnier approached Gallo a few years ago about setting up a collaboration. Gallo says he became intrigued in part because Montagnier's foundation has begun to develop testing sites in Côte d'Ivoire and Cameroon; a collaboration might speed the testing of Gallo's vaccines. The two also plan to merge their vaccine approaches. Gallo's

Rapprochement. Robert Gallo (left) and Luc Montagnier sign collaboration agreement.

CREDITS: (TOP TO BOTTOM) GRANT HALVERSON/AP; ROBERT GALLO

ScienceScope

MIT Inquiry After nearly a year of pressuring Massachusetts Institute of Technology (MIT) leaders, security studies professor Theodore Postol has gotten the university to investigate alleged scientific misconduct by professors involved in ballistic missile defense studies. In an 11 February letter, MIT provost Robert Brown grudgingly agreed to the inquiry, which will be headed by Edward Crawley, aeronautics and astronautics department chair. Crawley's panel will examine whether MIT Lincoln Lab researchers involved in a 1998 study covered up failures in a Pentagon missile test, as Postol has charged (*Science*, 1 February, p. 776).

Postol says the inquiry is too little, too late, and refuses to cooperate. "I will only respond to an inquiry that clearly is independent," he says. But Brown has rejected including non-MIT officials on the panel, which is the first step toward a formal university investigation. The feud is likely to continue. In a 7 February letter to the MIT board, Postol rails against a culture of "negligence, indifference, and lying" within the university's management.

More Light Germany wants its brightest scientists to focus on cutting-edge optics technology. Government officials this week said they will spend $243 million over the next 5 years on an array of projects, including optical lithography for better computer chips and optical scanners to identify new drugs, in a bid to lift Germany back to the top of a field it once dominated. Japan and the United States have the lead in some optics fields, says Eckhard Heybrock of VDI, the German association of engineers, who advised the government on the new program. To catch up, Germany will award funding to applied research done by several recently established "competence networks," collaborations between academic and industry researchers.

Yucca Yes Saying 2 decades of study is enough, President George W. Bush last week approved plans to bury radioactive waste from U.S. commercial nuclear reactors under Yucca Mountain in Nevada. But state politicians are vowing to block the long-controversial plan in the courts and Congress (*Science*, 28 April 2000, p. 602). Nevada governor Kenny Guinn (R) sued Bush just hours after the 15 February announcement, claiming the state didn't get enough time to review an environmental study. And a major congressional fight over the issue is expected this summer. The White House needs to win a simple majority in the House and Senate for the plan to proceed.

team focuses on stitching various HIV genes into *Salmonella*, as well as studying a version of HIV's surface protein that they believe can stimulate potent anti-HIV antibodies. Montagnier has emphasized making vaccines from pieces of HIV's proteins gag, tat, and nef. Gallo says much of the joint work will be done in the lab of the University of Rome's Vittorio Colizzi, who has already been working with Gallo's lab and has had a separate project with Montagnier's foundation.

Gallo, 64, and Montagnier, 69, did collaborate before their famous falling-out. In 1983, when the cause of AIDS remained a mystery, Montagnier published a paper in *Science*, with Gallo's help, that implicated HIV as the cause. But it was not until 1984, when Gallo's lab published four back-to-back papers, also in *Science* (4 May 1984, pp. 497–508), that persuasive evidence linked HIV to the disease. Montagnier and his team felt badly slighted and charged that Gallo inappropriately hogged credit for the discovery. And when analyses proved that the blood test developed by Gallo's lab relied on a sample of HIV supplied by Montagnier, the question then became: Did Gallo's lab deliberately use the French virus without crediting the group, or was it an innocent contamination? A U.S. investigation cleared Gallo of wrongdoing, and Montagnier himself says he does not believe theft occurred. "This is settled now," he says.

The new collaboration with his longtime rival comes at an opportune moment for Gallo. This month, *Chicago Tribune* reporter John Crewdson published a highly critical book about Gallo's role in the discovery of HIV—*Science Fictions: A Scientific Mystery, a Massive Cover-Up, and the Dark Legacy of Robert Gallo*. "The timing was not calculated," says Gallo, who dismisses speculation that the rapprochement is pure public relations. "They can say that," he says, "but there's substance to the collaboration."

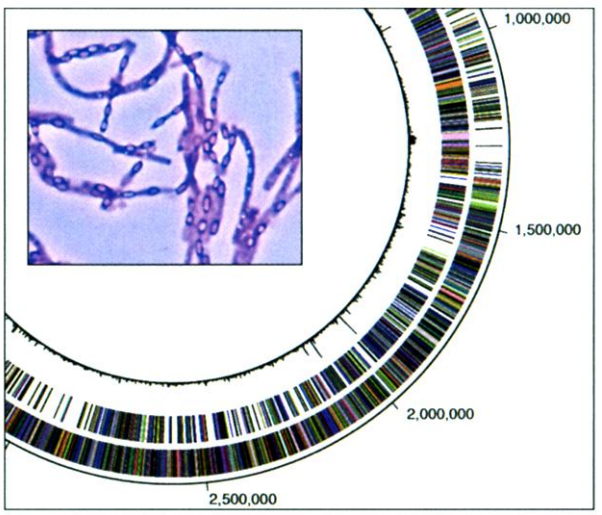
Montagnier also dismisses speculation that the two want to impress the Nobel Prize Committee, which notoriously shies away from researchers embroiled in controversies. "If the prize comes, it will come too late," says Montagnier. "I would have preferred it could have come earlier, and then I think it could have given us more influence to do something in Africa."

Several AIDS researchers who know both Gallo and Montagnier are perplexed by the collaboration, as the two scientists clash not only in style but over substance. Montagnier, for example, contends that HIV relies on cofactors to cause disease, an idea that Gallo soundly rejects. Still, none wanted to comment publicly on the new effort. And both Gallo and Montagnier dismiss the idea that their relationship might devolve into another high-profile tempest. "We're wiser, more mature," says Montagnier. –JON COHEN

MICROBIAL GENOMICS

TIGR Begins Assault on The Anthrax Genome

Until recently, microbiologists were elated when the genome of their favorite bug was sequenced. Now, one genome is just not enough: The emerging gold standard is to produce multiple genomes of one species and compare them. Riding the bioterrorism wave, The Institute for Genomic Research (TIGR) in Rockville, Maryland, plans on taking anthrax to this next level. This year, the institute may sequence the genomes of as many as 20 different *Bacillus anthracis* strains from around the world, says TIGR director Claire Fraser—three times more than have been sequenced for any other species.



Circled. The genome of the Ames strain is almost finished, but many others will follow.

Having a wide range of anthrax genome sequences could help investigators nab future bioterrorists and aid in designing drugs and vaccines. But the plan for the vast project was hatched last summer, well before fears of bioterrorism exploded. Charting genetic diversity across a large number of strains is fascinating in its own right, says Fraser: "It's something that we've wanted to do for a very long time, and it has nothing to do with the biodefense issue."

The strains will be selected by anthrax geneticist Paul Keim of Northern Arizona University in Flagstaff, who is involved in the criminal investigation of last fall's attacks (*Science*, 30 November 2001, p. 1810). TIGR and the funder, the National Institute of Allergy and Infectious Diseases, will review the project after the first four genomes are complete, says Fraser, to see how useful the information turns out to be. At the current price of about $150,000 per genome sequenced to eightfold coverage, the project could cost $3 million.

TIGR has already produced the sequence of two *B. anthracis* genomes. One, a lab strain called Ames, has been in the works for several years, and the last gaps should be filled within weeks, TIGR's Timothy Read reported at a meeting.* In addition, the institute has determined the draft genome sequence of what is now known as the Florida strain: the anthrax that killed photo editor Robert Stevens of American Media Inc. in Boca Raton last October. Although that microbe, too, belongs to the Ames strain, TIGR says subtle differences set it apart from the first one—differences that may help identify the perpetrators of the attacks.

Not long ago funders scoffed at the idea of comparing the genome sequences of multiple strains. Indeed, geneticist Frederick Blattner of the University of Wisconsin, Madison, recalls that funding agencies twice turned down his proposal to sequence a second *Escherichia coli* genome a few years ago, arguing that it would be a waste of money. When its genome was finally sequenced, that second bug—the O157:H7 strain, infamous for causing deadly food-borne outbreaks—turned out to have a million more base pairs than the first strain sequenced and almost 1400 new genes.

Those differences have given researchers countless clues to understanding both microbes, says Fraser. By now, the genomes of five other strains of *E. coli* are being sequenced or have been finished; other pathogens to get such thorough treatment include *Staphylococcus aureus* and *Chlamydia pneumoniae*, with five strains each. The anthrax project would dwarf those efforts.

Keim, who will also prepare the DNA for the sequencing effort, says he has come up with a list of candidate strains that best represents anthrax's phylogenetic diversity. Comparing the genomes should reveal why some strains are more virulent than others, or why some are better at surviving in the soil, says Martin Hugh-Jones of Louisiana State University, Baton Rouge. "I think you'll see what the really good genes are, and which ones are just coasting along," he says.

With existing tools, however, researchers have so far found very few genetic differences among strains. For instance, using his standard DNA fingerprinting system, which looks at 15 different markers called VNTRs, Keim has been unable to discriminate

* Second Conference on Microbial Genomes, Las Vegas, Nevada, 10–13 February.

CREDIT: (DIAGRAM) TIMOTHY READ/TIGR; (INSET) MICHAEL ABBEY/PHOTO RESEARCHERS INC.