Mekalanos of Harvard University have been doing research on the genes that make pathogens virulent, and DARPA has been consulting both of them on how to exploit their work. Mekalanos is enthusiastic, but even if his work does find a new Achilles' heel of cholera, for example, he wonders how far it can be developed without support from industry: "You're going to have to bring big pharma into the equation ... because it still costs $200 million to develop one antibiotic." Jones agrees, adding that he is working hard to create an advisory group "without peer" drawn from industry and hopes that companies will be joining DARPA's effort.

New focus. Larry Lynn has made biology a priority.

In other project categories, DARPA is gearing up to support the development of quick sensors to detect and identify biological threats, medical and body-shielding techniques to counter an attack, and better computer systems for managing the response to an attack. One biosensor concept, according to DARPA's Alexander, consists of a single neuron stabilized in a silicon-chip array that monitors the cell's response to possible nerve agents in the environment—a fast, reliable, and portable system for detecting neurotoxins. Affymetrix Inc. of Santa Clara, California, a company that specializes in chip-based genetic analysis, and biochemist George Whitesides of Harvard University have both contributed expertise to the effort, which DARPA calls a "canary on a chip." A related project, Alexander says, aims to use color-coded fluorescent sensors linked to a variety of specific antibodies to give a quick readout on the contents of an incoming cloud from a biological weapon.

Skeptic academics

Jones is optimistic about developing these ideas into real products. At the same time, he adds that "I understand there is skepticism" in the academic community, but suggests that it exists in part because "there has not been the equivalent of a DARPA in the biological life sciences" until now. People may not appreciate how much can be accomplished when money is applied in a focused effort.

But one of DARPA's academic advisers who asked not to be named says he was "not overwhelmed by the choice of projects" in the initial round: "More than one was chosen that wasn't favored by the advisory panel." DARPA is "looking for another Internet," he adds, and he worries that this ambition may cause it to overlook unglamorous projects that deserve backing. Another biologist-adviser, asking not to be named, was disappointed for the opposite reason: He thought initial applications were not ambitious enough. DARPA "has a lot of money, and they want you to be really imaginative." But "we got a lot of rather conventional, good-science proposals" that didn't seem likely to cause any revolution.

Some also wonder whether biologists—an independent lot—will submit to DARPA's aggressive, team-dominated supervision. Maryland's Donnenberg notes, for example, that DARPA staffers "totally manage the whole thing. ... If a proposal is good, they think nothing of saying, 'How about you drop three of your specific aims, add a fourth, and collaborate with this other person?' " He sums up the approach thus: "We'd love to give you the money, but only if you study this instead." And Richard Lerner, president of The Scripps Research Institute, another DARPA adviser, notes that the agency needs to keep in mind that "you never know what you want to discover until you discover it."

But these and other scientists who know about DARPA's new project are generally supportive. For example, John La Montagne, infectious-diseases chief of NIH's National Institute of Allergy and Infectious Diseases, says he views the biodefense initiative as "complementary" to, and "much more applied" than, NIAID's work. As for Lerner, he seems delighted that molecular biology may have a new sponsor, as the Pentagon shifts its research focus from nuclear Armageddon to what Lynn calls "our war with Mother Nature." "Wouldn't it be nice," Lerner muses, "if one of the peace dividends is this kind of research?"

–Eliot Marshall

FRANCE

Archaeologists Take to the Streets

PARIS—A dispute sparked when construction work threatened an archaeological site in the southern French city of Rodez has become a rallying cause for French archaeologists. Last month, many researchers staged a weeklong strike, and 250 archaeologists and their supporters occupied the culture ministry's archaeology offices in Paris. These protests culminated in a demonstration that brought more than 1000 people onto the streets of Paris last week. Their goal: to persuade the government to pass new laws to protect vulnerable historic sites.

They got a swift response. On 29 January, French culture minister Philippe Douste-Blazy—who a week earlier agreed to temporarily halt construction in Rodez to allow rescue work to go on—told the protesters he would open a "great national debate" on the future of French archaeology.

Researchers initially put down their tools in mid-January to protest the potential destruction of vestiges of medieval, Gallo-Roman, and Iron Age structures in Rodez. The action came when it was revealed that French Prime Minister Alain Juppé had written to a local official 2 months earlier giving a developer the green light to continue construction of an apartment building at the site. Juppé's intervention circumvented efforts by the culture ministry, which had been negotiating with the developer to allow researchers to perform a brief mission of "rescue archaeology," to carefully record remains before construction proceeded. But the negotiations had stalled because the developer balked at paying for the study, which is the custom in France and many other countries.

Because France has regulations to protect sensitive sites, Juppé's action was "completely against the law," claims archaeologist Vincent Krier, leader of one of France's four archaeologists' unions, all of which participated in the strike. Officials, stung by the strength of the reaction, quickly backtracked, and on 23 January, Douste-Blazy announced that construction work at Rodez would be halted. But the strikers were not mollified. They are now pressing for stronger laws to protect historic remains from the bulldozers, including a formal requirement that developers pay for rescue archaeology. "The [current] law doesn't specify who must pay," says Françoise Audouze, director of the Center for Archaeological Research, a network of labs associated with the CNRS public research agency. "The developers are starting to refuse" to provide the necessary funds, she adds.

Another key demand is for a change in the legal status of the Association for National Archaeological Excavations (AFAN), a 2000-member private organization that carries out most rescue archaeology in France under contracts with the government. The strikers are calling for AFAN to be turned into a public organization, a move that would formalize the government's responsibility for protecting threatened remains. As for the national debate promised by Douste-Blazy, its scope has yet to be defined. But researchers involved in the action of the past several weeks have their own ambitions: "We are going to change the landscape of archaeology in France," says Krier.

–Michael Balter