Kanter's group and many other organizations, including scientific societies, were especially angered by a clause that extends protection to existing patents that have not yet yielded marketed products. This so-called "pipeline" provision would prevent a Brazilian lab, for example, from someday copying a product patented by a U.S. or British drug company that is still under development. Companies have 1 year to submit their existing patents for revalidation by Brazilian authorities.

Senator Ney Suassuna, author of a previous version of the law, argues that the pipeline principle will damage Brazil's commerce and scientific research. But Francisco Teixeira, a lobbyist for an organization representing 31 multinational companies, says that the provision "can't damage something that does not really exist. ... It will protect not only foreign research but the little research done in Brazil as well."

Many groups were also troubled by a provision allowing the patenting of microorganisms. They protested that Brazil's enormous genetic assets—its vast biodiversity—would eventually be owned by multinationals. In the end, the language was modified to apply only to transgenic organisms—what Kanter calls a "little victory."

The new law is expected to wean Brazilian scientists from their current practice of going overseas to patent their discoveries. Sérgio Ferreira, a pharmacologist at the University of São Paulo and one of the country's most-cited researchers, holds a British patent on an analgesic that inhibits interleukin-1. He filed in Britain because the work was done in Britain and, in any case, it could not have been patented in Brazil. The substance is undergoing toxicological tests by a company that aims to market it. While Ferreira hopes that the new law "will create a patent mentality among researchers that will stimulate research," he is also president of the Brazilian Society for the Promotion of Science (SBPC), which fought against some aspects of the legislation. "It might not have a harmful effect on research," says Ferreira diplomatically. "The question now is how to carry out the new law with the proper commercial perspective."

–Cláudio Csillag

Cláudio Csillag is a science writer in São Paulo.

MOLECULAR BIOLOGY

Unique Protein Database Imperiled

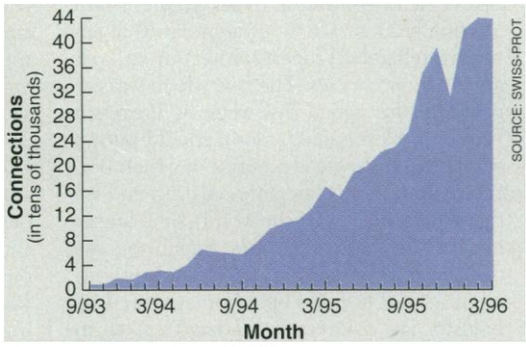
Molecular biologists around the globe got a surprise e-mail last week, urging them to send messages of support for one of their most important databases: SWISS-PROT, a database of amino-acid sequences of naturally occurring proteins, pioneered by Amos Bairoch of the University of Geneva. The database, and others associated with it, has been plunged into crisis by the failure to win a development grant from the European Union (EU). Bairoch and his colleagues are now seeking emergency funding to keep the publicly accessible database from being sold to a private company, and they are warning that if no funds are forthcoming, SWISS-PROT could be shut down by the end of June.

"As it stands, the situation is extremely bleak," says Graham Cameron, head of services at the European Bioinformatics Institute (EBI) near Cambridge, United Kingdom, a key partner in the development of SWISS-PROT. "To lose SWISS-PROT now would be like losing access to the Internet. It is a tool that so permeates life in molecular and cell biology that everyone depends on it," says James Garrels, president of the biotechnology company Proteome of Beverly, Massachusetts.

SWISS-PROT has proved increasingly valuable to researchers who want to analyze protein structures and look for similarities to other proteins. It now contains the sequences of more than 50,000 proteins, consisting of more than 18 million amino acids, and it carries a high level of information about the sequences, such as a description of their function, domain structure—common three-dimensional subregions of proteins—and other features useful for researchers. "It's a vital tool for a lot of our research," says Mike Waterfield, head of the Ludwig Institute of Cancer Research in London.

Waterfield's assessment is borne out by the number of queries SWISS-PROT receives. SWISS-PROT was the first molecular biology database to connect to the World Wide Web in 1993, and its main server attracted about 7000 users in September that year. So far this year, it has been logging more than 400,000 connections per month. SWISS-PROT also acts as a reference for other databases, and their future may also be uncertain if new funding cannot be found, says Bairoch.

The funding problem stems from a decision 2 years ago by the Swiss government, which had been supporting the database, to seek a European or international partner to share the costs. Switzerland said that it would continue to fund SWISS-PROT only if international funding were found. Bairoch and his team sought a grant of $1.9 million from the EU, to be matched by $1.4 million from Switzerland, for a 3-year development program. But EU officials told the database team last week that the proposal, while scientifically sound, did not have high enough priority to justify funding. "Without the EU funds the Swiss will not pay up," says Cameron. "I guess the EU may not have realized the significance of their decision," adds Bairoch. But a Brussels official says that the EU was not happy with this funding arrangement in Switzerland.



Heavy use. More than 40,000 researchers now connect to SWISS-PROT each month.

So Bairoch and his colleagues are turning to the user community while continuing to seek alternative sources of funding. "I'm talking to a couple of pharmaceutical companies that are interested, but my main wish is to see the database remain in the public domain," says Bairoch. The European Molecular Biology Laboratory in Heidelberg, Germany—the parent organization of EBI—is also wary of private ownership. "It's very much at odds with our mission," says Cameron. And some industrial scientists agree. Jonathan Knowles, European director of research at Glaxo Wellcome, Britain's biggest drug company, believes that the information should remain in the public realm: "The sequence data represent an enormous leap forward for biomedicine, and it's important everyone can have total accessibility to the data."

The team is now hoping that a resounding vote of support from users will help persuade Swiss and EU funders to continue supporting the database. So far, the response has lived up to their expectations: Within hours of publicizing their plight on 10 May, Bairoch had received hundreds of e-mails, including one from Harvard University Nobelist Walter Gilbert. But many researchers are hastily assessing the damage should the database be lost. "You could get by without SWISS-PROT if researchers wrote their own programs to search different databases," says Waterfield. "But it'd be like going back to the Dark Ages." Molecular biologists should know within the next 6 weeks whether the Dark Ages are a prospect or not.

–Nigel Williams