choice but to adopt the new seeds, however. She points out that large landowners, crop buyers, and government programs often choose the seeds that small farmers have to plant. "Free choice is a nice idea, but it doesn't seem to operate in the real world," she says. She adds that insects commonly spread pollen from self-pollinating crops to other plants, which could put at least a small fraction of a neighboring farmer's plants at risk of being sterilized.

Cary Fowler, a CGIAR delegate from the International Plant Genetic Resources Institute in Rome, Italy, says he is also concerned about the potential threat to crop biodiversity. If the technology reduces interbreeding with local varieties and eventually leads subsistence farmers to switch to genetically engineered crops, some traditional varieties may no longer be planted and will disappear. "You not only restrict the potential improvements, but you may wipe out the farmer's traditional varieties as well," leaving them little to fall back on if disease strikes the engineered varieties, says Fowler. Adds Mooney: "1.4 billion people depend on saved seed for their food security. Companies have to be damned right for them to risk the lives of all those people." Oliver counters, however, that the threat of losing crop biodiversity is inherent in the introduction of any improved crop. The answer, he says, is to increase support for international seed banks to store germ plasm.

At this point, both sides seem to agree on only one thing: that they don't see eye to eye. "Let's face it, there really are two sides to this," says Collins. And both sides seem to be digging in for a long battle.

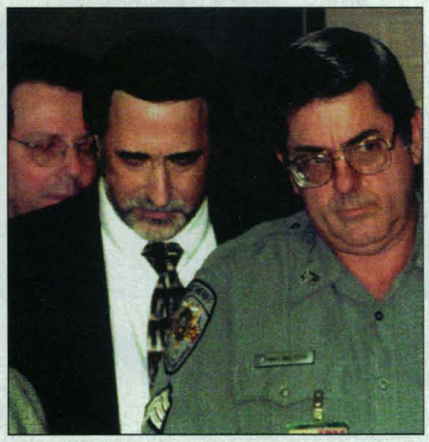
–ROBERT F. SERVICE

FORENSIC SCIENCE

## HIV Strain Analysis Debuts in Murder Trial

A Louisiana doctor was found guilty last week of attempted murder for injecting a former lover with HIV-infected blood. It was an unusual case by any measure, but it was also the first time that a DNA analysis of HIV strains was used in a criminal court in the United States. Although the specifics of this case might be rare, the same kind of evidence could be used whenever the source of a fast-mutating virus is at issue—for example, in cases involving transmission of HIV, food poisoning, or even biological warfare. And expert witnesses on both sides have said that the case points to the need for an explicit set of rules governing the use of such evidence in the courts.

The Louisiana case began in 1995 when Janet Trahan Allen, a nurse in Lafayette, accused Richard J. Schmidt, a local gastroenterologist, of deliberately infecting her with HIV and hepatitis C. She claimed that after she had threatened to break off her decade-long affair with Schmidt, he infected her with tainted blood in place of one of her regular vitamin injections. The blood, the state argued in court, came from two of Schmidt's patients, one of whom had hepatitis C and the other of whom had HIV.



**Convicted.** Richard J. Schmidt leaving court after trial for attempted murder.

As part of its case, the prosecution arranged for an analysis of the HIV strains in blood samples from Schmidt's HIV-positive patient and from Allen. The analysis was performed by Michael Metzker, at the time a graduate student in the lab of molecular biologist Richard Gibbs of Baylor College of Medicine in Houston. Metzker compared the gene sequences of the strains to see how closely related they were, using a technique called phylogenetic analysis. He reported that the strains from the two samples were more closely related to each other than to a set of controls from other HIV-positive patients in the Lafayette area.

Schmidt's lawyers fought to keep the DNA evidence out of the trial (*Science*, 14 March 1997, p. 1559). They argued that the laboratory work had been sloppy, noting that Metzker admitted that two of the control samples had been contaminated with a laboratory strain of HIV. Defense lawyers also said that the analysis was meaningless without a careful epidemiological study of other possible routes of infection. But the Louisiana 3rd Circuit Court of Appeals upheld District Judge Durwood Conque's ruling that the prosecution could use the analysis to support its case.

At the trial last week, molecular biologist David Hillis of the University of Texas, Austin, testified for the prosecution that separate laboratories had redone the analysis on new blood samples and had found similar results. He says he told the jury that although "there's no way in these analyses to absolutely prove a direct transmission from one [person] to another," the "viruses from the two individuals were as closely related as viruses from two people could be." In addition, he said, the strains infecting Allen were a subset of those infecting Schmidt's patient, supporting the case for transmission from the patient to Allen. The prosecution also presented evidence that the seven men with whom Allen had had sex between 1984 and 1995—including Schmidt—had all tested negative for HIV.

Defense witness Bette Korber, head of the national HIV database at Los Alamos National Laboratory in New Mexico, told the jury, however, that the similarity between the strains could have been mere chance. She, with molecular virologists James Mullins and Gerald Learn of the University of Washington, Seattle, had searched a database of HIV strains in Louisiana and had turned up two pairs of infections that appeared to be more closely related than the patient's and Allen's, she said. Those infections, she testified, had no known or probable links to each other.

Korber says she believes the jury understood the limitations of the analysis. "I suspect in this case that the DNA data were interpreted in accord with the way I view it—as inconclusive," she says. Hillis, too, thinks the jurors were persuaded by other evidence, including testimony about a hidden record book that noted withdrawal of blood from the HIV-infected patient and Schmidt's previous threats to Allen and others. "The rest of the case was so strong," he says. "The scientific evidence had little bearing on the outcome of the case."

But both sides say similar cases are bound to arise, and guidelines like those developed by the National Academy of Sciences in 1996 to govern DNA fingerprinting are needed. Korber says such requirements

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should include an epidemiological investigation of risk factors, blind testing of samples, and clear records of the chain of custody of samples. She says juries should also be told explicitly that phylogenetic analysis cannot prove direct transmission.

Schmidt, who will be sentenced in the next month, faces 15 to 50 years in prison. His lawyers have said they plan to appeal.

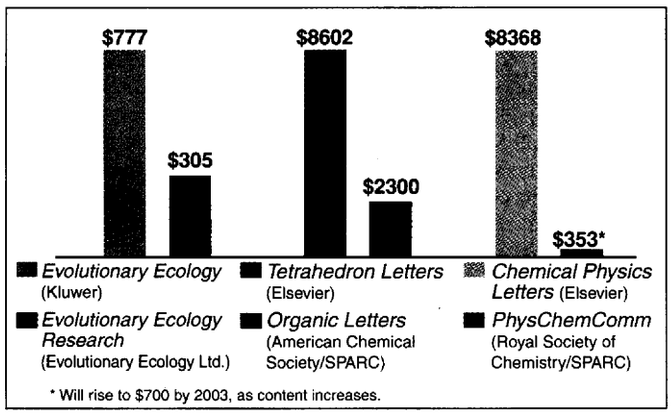
–GRETCHEN VOGEL

ACADEMIC PUBLISHING

## New Journals Launched To Fight Rising Prices

A librarian-led rebellion against spiraling prices for commercial scientific journals has gained some new allies. Last week, Britain's Royal Society of Chemistry (RSC) announced plans to launch a low-cost journal that will compete directly with a more expensive commercial publication, and a prominent ecologist has taken the unusual step of defecting from a successful title he founded a decade ago to start a lower cost competitor.

Both ventures are backed by the Scholarly Publishing and Academic Resources Coalition (SPARC), a Washington, D.C.–based organization that is encouraging scientific societies and rebel publishers to create journals that compete head to head with commercial titles. "We are focusing the spotlight on a lack of competition that we believe is narrowing the dissemination of knowledge," says Richard Johnson, enterprise director for the coalition. Although the new alliances are unlikely to ease the budgetary pressures on libraries anytime soon, industry observers say they suggest that a decade-old war between major academic libraries and a handful of large commercial publishers is heating up.




**Price-wise.** The subscription prices of three established journals (top row, with publisher) are several times higher than what their competitors (bottom row) plan to charge.

SOURCE: SPARC AND OTHER PUBLISHERS

Soaring journal prices are not a new problem for librarians. Since 1986, median prices for scholarly journals issued by both commercial and nonprofit publishers have risen at least 169%, or more than three times the rate of inflation, according to the Association of Research Libraries (ARL) in Washington, D.C., which represents 121 collections in the United States and Canada. Unable to keep pace, ARL libraries have cut thousands of subscriptions and are now spending 124% more to stock 7% fewer titles.

In particular, librarians say that an increasing share of their budgets goes for widely cited, "must-have" scientific and technical journals published by a few dominant commercial publishers, such as Europe-based Reed Elsevier and Netherlands-based Wolters Kluwer. Each journal typically has less than 500 subscribers and can cost up to $15,000 annually, notes Ken Frazier, an ARL official who directs the University of Wisconsin, Madison, library system. "To say that commercial research journals are expensive is like saying tornadoes are windy," he jokes. Publishers, however, say their prices are justified by their quality and the number of pages they run.

ARL officials believe the academic market could benefit from a little competition—and last year they organized SPARC to provide it. The idea is that SPARC's 114 members will agree in advance to buy the new, cost-conscious journals endorsed by the group. That solidarity is intended to provide publishers with an immediate cash flow that might carry a new title through its perilous early years. In its first deal last July, SPARC teamed with the American Chemical Society, which agreed to develop three new journals over 3 years. The first, *Organic Letters*, will debut in mid-1999 as a $2300 alternative to Elsevier's $8602 *Tetrahedron Letters* (*Science*, 3 July, p. 21).

Now, with the two new deals, SPARC has expanded its reach. Last week, it joined the RSC and more than 100 European libraries to promote a new $353-per-year electronic chemistry journal called *PhysChemComm*. This time, the target is Elsevier's *Chemical Physics Letters*, which costs $8368. By publishing the journal, "the RSC sees itself reclaiming the moral high ground," says Mike Hannant, the group's electronic publisher. Elsevier officials, however, have charged that SPARC is promoting the proliferation of journals in an already overcrowded marketplace—and that only time will tell if soci-

## ScienceScope

### FRENCH MINISTER NOT IN SYNC WITH NEW LAB

The sudden opposition of the French science minister to a long-planned synchrotron has dismayed researchers.

Last week, while answering questions in Parliament, science chief Claude Allègre hinted that he won't support construction of the $180 million, 106-meter-diameter SOLEIL electron-storage ring, on the drawing board since 1991. Allègre said the machine isn't needed because there will soon be seven new European x-ray sources that can produce similar beams for biological and biomedical research.


The remarks outraged synchrotron scientists at the LURE facility in Orsay. "We are dumbfounded by your answers," they wrote to him on 22 October. And European synchrotron directors warned Allègre that, without SOLEIL, there won't be enough x-rays to go around and that French research could suffer.

Next month the European Science Foundation is expected to issue a report on beamline supply that could clarify the picture.

### U.K. LIFE SCIENCES GET BIG BOOST

Life sciences are the big winner as the British government announced this week how it would divvy up a $1.1 billion boost for science over the next 3 years.

The 15% hike in science spending was announced in July without details of how it would be distributed among the six main research councils. The new information shows the Medical Research Council's (MRC's) budget rising the fastest, by 6.8% after inflation. Hikes of slightly more than 3% go to engineering and the physical sciences, environmental research, and biotechnology and biology. Although particle physics and astronomy can expect just a 0.5% boost, officials say it's enough to preserve their place in various international projects. The government and the Wellcome Trust also will contribute equally to a $950 million pot to improve university laboratories.

George Radda, head of the MRC, says he is "enormously pleased" by the boost, adding: "It recognizes that research is a long-term business."