person. The new outbreak demonstrates that the vaccine can indeed mutate to a virulent form and spread from person to person.

When the laboratory that conducted the routine surveillance tests of one of the Dominican Republic cases found a virus that was unsettlingly similar to wild poliovirus type 1, health officials quickly sent samples to the U.S. Centers for Disease Control and Prevention in Atlanta. There, scientists sequenced the virus—and later samples from the three other victims—and found that they all significantly diverged from the vaccine strain and now clearly resembled the virulent wild-type. It's not yet known how this reversion occurred. PAHO has convened a group of scientists this week to study the data and recommend subsequent action.

Although 73% of children under age 1 were vaccinated in the Dominican Republic in 1998, only about 20% of children had been vaccinated in the region where the outbreak occurred, says de Quadros. The World Health Organization (WHO) is striving for at least 90% coverage in its efforts to eradicate polio from the world by 2005. Whether this incident will delay the timeline remains to be seen, says Donald Henderson, an epidemiologist at Johns Hopkins University in Baltimore, Maryland, who led WHO's successful global eradication of smallpox. "We really want to zero in on this and check it out in great detail," Henderson says. "It's now 9 years since we've detected any circulating wild virus in the Americas. This comes as a great surprise to everybody."

–LIESE GREENSFELDER

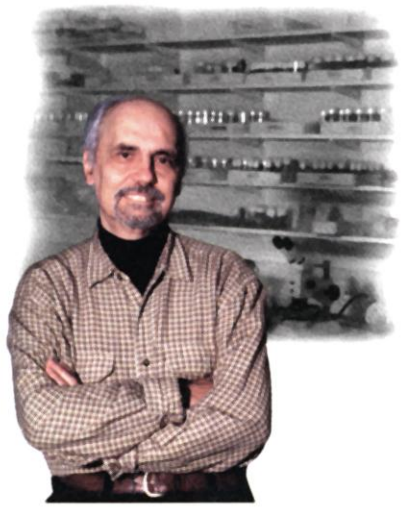
Liese Greensfelder is a writer in Nevada County, California.

MOLECULAR BIOLOGY

EMBL Rescued From The Financial Brink

COPENHAGEN—Scientists at the European Molecular Biology Laboratory (EMBL) were breathing a sigh of relief last week after the topflight center in Heidelberg, Germany, announced a 25% budget increase for the next 5 years. The boost eases months of uncertainty over how the lab would comply with an order to pay employees back salary and provides a measure of stability to its renowned but embattled European Bioinformatics Institute (EBI).

EMBL's governing council has approved a spending increase of $10 million a year, raising the lab's budget to nearly $50 million in 2001. "This is a major vote of confidence for EMBL," says director-general Fotis Kafatos. Much of the money goes to bailing out EBI. The bioinformatics institute in Hinxton, U.K., has struggled to pull in enough funding under unfavorable European Union guidelines that tend to be more generous to investigator-initiated projects and to neglect research infrastructure. Some $6 million a year—60% of EMBL's budget increase—will go to EBI, covering 40% of its costs. Kafatos says he's confident that "the rest will come from outside," citing possible collaborations with the U.K. Medical Research Council and other European funding agencies. The budget boost also will allow EMBL to establish a full-fledged center for mouse biology at its outstation in Monterotondo, Italy.



Flush. Fotis Kafatos calls EMBL's 25% budget boost "a major vote of confidence."

Long a center of basic research, EMBL now is trying to find ways to market its findings for income. Enthusiastically endorsing this new direction, the council of 16 member states approved the establishment of an externally managed venture-capital fund and the construction of a 6600-square-meter International Technology Transfer Center in Heidelberg that will serve as an incubator for start-ups from EMBL and member states. "EMBL has not made the best possible use of technology transfer in the past," says council chair Peter Gruss, a biologist at the Max Planck Institute for Biophysical Chemistry in Göttingen. Kafatos insists that EMBL's "academic culture will not be negatively impacted" by teaming up with industrial partners.

The council's benevolence eases jitters over a court ruling last year that forced EMBL to pay back salary to dozens of employees, prompting fears that the lab might have to make deep cuts in research or even shut down (*Science*, 5 November 1999, p. 1058). In the wake of the generous budget increase, "people are much more optimistic," says scientific coordinator Iain Mattaj. Indeed, adds Kafatos, "the outlook is not as unstabilizing as last year."

–LONE FRANK

Lone Frank is a writer in Copenhagen, Denmark.

CREDITS: (TOP TO BOTTOM) EMBL; WILLIAM R. GOODWIN/U.S. NAVY PHOTO

ScienceScope

Gifted Santa Claus has paid an early visit to 28 top university labs across the United Kingdom. The U.K. government, in concert with the Wellcome Trust charity, earlier this week announced it would distribute $180 million for projects across the sciences. Specific grants are still being negotiated, but the presents include a Center for Post-Genomic Virology at University College London; 900-megahertz NMR facilities at the universities of Birmingham and Oxford; a lab for studying cancer-causing viruses at Imperial College; and a Center for Fundamental Physics at the University of Durham.

Parting Present Retiring Representative John Porter (R–IL), a major player in boosting the budget of the National Institutes of Health over the last few years, will donate his unused campaign funds to biomedical science. Porter announced this week that he will give about $325,000 to Northwestern University Medical School in Evanston, Illinois, as part of a $2 million campaign to create a professorship bearing his name. Porter is a graduate of the school, which is a first-time beneficiary of leftover campaign cash, says Northwestern president Henry Bienen.

Defense Posture Congress still hasn't finished work on spending bills for the 2001 budget year, which began 1 October. But researchers are raring to go on the 2002 budget. For instance, the 40-member Coalition for National Security Research is calling on the White House and Congress to boost the Pentagon's science and technology budget by $900 million, to $10 billion. "A dynamic, merit-based military research enterprise" is essential to both universities and national security, the academic group argues in a statement released last month.

That message is echoed in a recently surfaced report by a Defense Science Board task force. It calls for a 30% boost over 3 years in basic research at universities, even if it means diverting funds from applied work. The panel, chaired by Walter Morrow of the Massachusetts Institute of Technology's Lincoln Laboratory, says that a hike in the current $1 billion budget is "judged necessary to counter the increasingly short-term focus of industrial R&D." The first reaction will come in the new president's proposed budget to Congress, due out in February.

companies are battling for priority. Already, Chiron Corp. of Emeryville, California, has filed a string of lawsuits to protect its patents on HCV (*Science*, 2 July 1999, p. 28). Rice has begun making his replicon system available through a small company he founded, Apath LLC of St. Louis. Other groups are said to be developing similar replicons, and these, too, could become available. Apath is offering nonexclusive licenses to use its so-called "Blazing Blight 7" technology. The name refers to the system's blazing efficiency in producing HCV proteins and to the co-inventor at Washington University, Keril Blight.

Rice, now at Rockefeller University in New York City, says his replicon builds on earlier work by Ralf Bartenschlager and colleagues at the Institute for Virology at Johanes-Gutenberg University in Mainz, Germany. In work reported last year (*Science*, 2 July 1999, p. 110), Bartenschlager's team took the HCV genome apart and reassembled it into a replicon, editing out parts and adding new pieces, including an antibiotic resistance gene that can be used to select the cell clones that produce the viral proteins.

Replicons have drawbacks, however. Although they include genes that regulate some host-pathogen interactions, they do not include key genes that enable the virus to infect human cells and replicate normally (see diagram). And according to Rice, Bartenschlager's initial system is inefficient, producing HCV proteins in only about one in a million host cells.

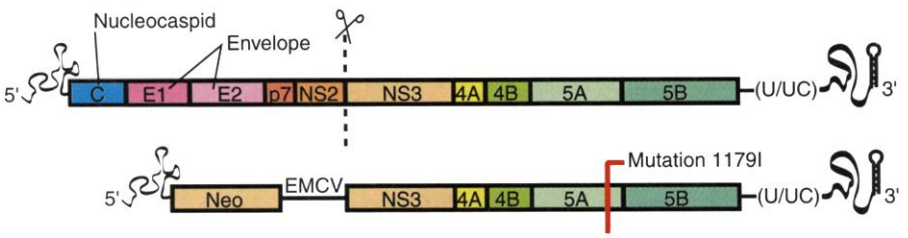
To improve the efficiency, Rice and Blight rebuilt the system using Bartenschlager's data from GenBank, looking for genetic mutations that might enable the replicon to be more productive. They found 10 interesting mutations, one of which, called S1179I, was outstanding. Replicons with this mutation produced abundant viral proteins in one out of 10 host cells. "That really makes a big difference," Rice says. "It means you can do experiments over a long term" without having to rely on cumbersome cell selection techniques, and "it is going to allow us to do genetic studies on a much shorter time scale."

Chisari says that the Rice team's work provides "a major improvement in the efficiency of the replicon system that Bartenschlager developed." He and Stanley Lemon, dean of medicine at the University of Texas Medical Branch at Galveston, note, however, that it will be important to develop a system that can produce all the important HCV proteins. Both Bartenschlager and Rice are working on such projects.

Academic researchers also hope that the Apath replicon will be easy to obtain. Until now "it's been hard to get a system that was widely enough available so that people could play with it," Lemon says. It will be great news, he continues, if this innovation means that the technology will now be widely available. Bartenschlager could not be reached for comment.

Asked whether Apath would seek restrictions on academics' use of the new technology, Rice said he does not want to do anything that would "impede academic research." Apath may ask for a 30-day prepublication review of scientific papers written by those who use the technology. And it may request that such investigators who produce patentable discoveries negotiate first with Apath on the intellectual property rights. But aside from that, Rice says, "I think that sharing material for academic research should be done with as few strings as possible."

–ELIOT MARSHALL



Cut and paste. From the hepatitis C genome (top), researchers cut genes for structural proteins and added others to make a replicon (bottom). A productive mutation (S1179I) appeared in region 5A.

CREDITS: (LEFT TO RIGHT) RICE *ET AL.*; NIH

PALEONTOLOGY

Tiny, Feathered Dino Is Most Birdlike Yet

Last November, in what was to prove an embarrassing blunder, *National Geographic* magazine trumpeted the discovery of a "missing link" between birds and dinosaurs. *Archaeoraptor* turned out to be a primitive bird with a dinosaurian tail glued on (*Science*, 14 April, p. 238). Even so, many paleontologists saw a silver lining in the debacle: The chimera consisted of two partial specimens interesting in their own right. Now Chinese paleontologists describe the dinosaurian half, and they say it reinforces the same message as the falsified *Archaeoraptor* did: Birds evolved from dinosaurs.

The new fossil, dubbed *Microraptor*, is by far the smallest adult dinosaur yet discovered—about the size of a crow. Like some

ScienceScope

Looking for Alternatives British scientists should beef up their research on alternative medicine, according to a report issued last week by the House of Lords' Science and Technology Committee. Noting a dearth of high-quality research in alternative medicine, the committee urged the National Health Service and the Medical Research Council to develop a few "centres of excellence," following the path taken by the U.S. government's National Center for Complementary and Alternative Medicine. The report added that the work should ultimately be guided by a clearinghouse that is partly funded by the government.

In a separate report, the Foundation for Integrated Medicine, an advocacy group headed by Prince Charles, offered to fill that role. It outlined a 5-year, $7 million plan to jump-start new research, support existing studies at medical schools, and fund 5-year fellowships to train medical students in research methods for alternative medicine. Right now, the field is "not particularly respectable as a research career," notes the foundation's Tricia Darnell. Increasing funding would make it "more mainstream," she says.

The foundation hopes for backing from the U.K. Department of Health but admits the agency has been "lukewarm" to the idea. Meanwhile, the foundation welcomes feedback (www.fimed.org) and is waiting for a government response to the House of Lords' report.

Apple II Last January, some observers dubbed neuroscientist Gerald Fischbach "director-to-be" of the National Institutes of Health (NIH), after Harold Varmus quit the post for a prestigious job in New York City. But by spring, the White House had decided that election-year politics would sink the planned promotion of Fischbach, who had run the National Institute of Neurological Disorders and Stroke for 2 years.

Now, Fischbach is also headed to the Big Apple. Columbia University last week appointed him to its top medical post. As vice president for health and medical sciences, he will command an $815 million budget and be dean of the faculties of health and medicine. His wife, Ruth Fischbach, is leaving a biomedical ethics position at NIH to become a professor of bioethics in psychiatry at nearby Columbia-Presbyterian Medical Center.

Contributors: Richard Stone, David Malakoff, Erik Stokstad, Eliot Marshall