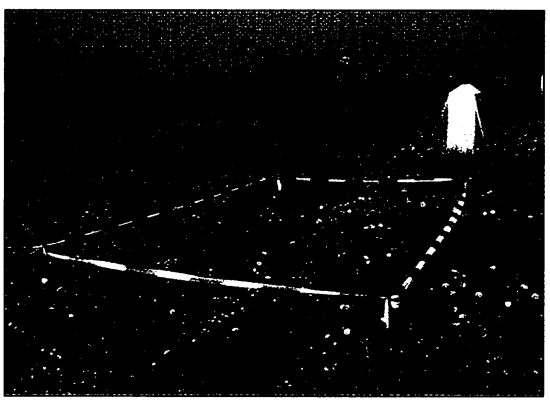
plot, wheat seeds engineered to resist the stinking smut fungus. Smuts and bunts—a related pest—devastated European wheat in the 18th century and continue to plague crops in many developing countries. The diseases are hard to detect and are spread mainly through planting infected seeds.

Sautter modified two Swiss spring wheat lines to express a viral gene, *KP4*, that encodes a protein that inhibits fungal growth. In greenhouse experiments, the transgenic plants proved 30% less susceptible than controls to infection with stinking smut. In 1998, Sautter was ready to take the next step: petition the Swiss Agency for the Environment, Forests, and Landscape (BUWAL) to grow the transgenic plants on a plot "twice the size of a double bed," he says.



Waiting for Godot? Christof Sautter displays his dormant 8-square-meter plot with safety measures, including a tent to prevent pollen from escaping.

But Sautter hesitated, worried about the outcome of a national referendum that would ban transgenic research (*Science*, 12 June 1998, p. 1685). The referendum was defeated, but the climate remained uncertain as parliament launched a debate—which is still going on—about how to legislate gene technology. According to Wilhelm Gruissem, director of ETH's plant biotechnology laboratory, BUWAL representatives requested an "informal" meeting at the Bern train station in December 2000 to discourage him and Sautter from submitting their field trial petition. BUWAL by then had already rejected two applications from other teams and appeared to be tipping its hand to the ETH duo: Gruissem claims they were told that their experiment would be "politically inopportune." BUWAL spokesperson Andreas Stuber confirms that the meeting took place but insists that its purpose was constructive.

Sautter and Gruissem went ahead with their application on 19 January, after which BUWAL requested additional greenhouse tests. They got a boost on 5 September when the biosafety commission ruled that the experiment posed no "appreciable" risk to people or the environment. But at a press conference on 20 November, Philippe Roch, director of BUWAL and former head of the Swiss World Wildlife Fund, announced that the department had rejected the application. Roch argued that it was impossible to assess the experiment's risks because too little is known about the KP4 protein and because the transgenic wheat contains a foreign antibiotic resistance gene. Although this gene is dormant and not known to pose a risk, Swiss legislators are moving to outlaw trials of plants that contain it anyway.

Gruissem rejects Buwal's rationale, arguing that the field trial would have been "the perfect risk-assessment experiment." The proposal included such restrictive safety measures—wire mesh to keep out field mice, for example, and a tent cover to prevent pollen from escaping—that members of the biosafety commission, Wittek recalls, joked whether it could still be called an open field trial.

ETH announced on 29 November that it will appeal the ruling to the Department of Environment, Transport, Energy, and Communications. In the meantime, Sautter's continued funding from the Swiss National Science Foundation stipulates that he must obtain approval by February for field trials of his wheat. Failing that, he says, he could pack up and go to the United States, although he says he would prefer to remain in Switzerland to argue the case for GM field trials.

Beat Keller, a plant biologist at the University of Zürich who coordinates the Swiss National Science Foundation program on wheat, sees the decision as a culmination of nonscientific approaches to the regulation of GM plants. "It is so obviously wrong," he says. And it is not likely to be righted anytime soon: Wittek says there are no other field-trial applications pending or in sight.

–GISELLE WEISS

Giselle Weiss is a writer in Allschwil.

FUNCTIONAL GENOMICS

Pathogen Researchers Get Help From TIGR

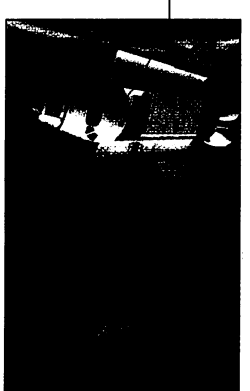
Immunologist Pam Baker is getting the backup she needs. As a professor at Bates College, a small undergraduate institution in Lewiston, Maine, Baker doesn't have easy access to the advanced gene research tools that could help her understand how the bacteria *Porphyromonas gingivalis* helps spark gum disease. So she was pleased when The Institute for Genomic Research (TIGR) in Rockville, Maryland, recently offered to provide her with the specialized glass microarrays that can document how *P. gingi-*

ScienceScope

Pluto Power NASA says it doesn't have the money, and the White House insists it won't back the mission, but Congress is getting its way—for now. The space agency last week chose a team led by Alan Stern of the Southwest Research Institute in Boulder, Colorado, and the Applied Research Laboratory (APL) in Laurel, Maryland, to start designing a spacecraft for a 2006 flight to Pluto.

The push to go to the solar system's farthest planet comes from Congress, which allocated $30 million for the flyby in the recently approved 2002 NASA budget. Underlining the importance of politics, APL director Richard Roca praised the work of "avid space science supporters, such as Senator Barbara Mikulski [D–MD]," who leads the Senate subcommittee that oversees NASA's budget. But the Administration continues to insist that there's just not enough money for a launch, presaging another showdown next year.

No New Toys Geophysicists hoping to unveil parts of "the most complete, highest resolution, digital topographic map of Earth" at next week's meeting of the American Geophysical Union will probably have to contain their excitement a few more months. In the aftermath of 11 September, the Defense Department's National Imagery and Mapping Agency (NIMA) has "requested" that NASA not release any of the data returned by the Shuttle Radar Topography Mission (SRTM, right), in which NIMA was a major partner.

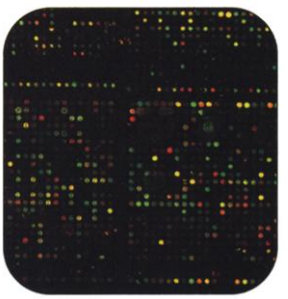


After almost 2 years of processing the 10 terabytes of data, researchers had topographic maps of Oregon, California, and the Philippines' Mount Pinatubo volcano ready to show their colleagues how geologic hazards such as landslides, coastal erosion, and volcanic mudflows can be better understood and anticipated. NIMA is "talking to NASA about how to start releasing the data," says SRTM deputy project scientist Tom G. Farr of the Jet Propulsion Laboratory in Pasadena, California. "They're just trying to be cautious, to do the right thing. I don't think it'll be longer than a few months"—just long enough to spoil the holiday fun.

CREDIT: (RIGHT) NASA

POTENTIAL TARGETS

Aspergillus fumigatus; Bacillus anthracis; Borrelia burgdorferi; Yersinia pestis; Burkholderia mallei; Chlamydia pneumoniae; Entamoeba histolytica; Enterococcus faecalis; Group B *Streptococcus; Mycobacterium smegmatis; Mycobacterium tuberculosis; Neisseria meningitidis; Plasmodium falciparum; Pseudomonas aeruginosa; Rickettsia prowazeki, R. conorii, R. typhi; Salmonella typhimurium; Staphylococcus aureus; Streptococcus pneumoniae; Vibrio cholerae*



Candidate list. A new center will pick three organisms to start from a pool of pathogens for focused work, including microarray preparation.

valis's genes and proteins behave during infection. "We've got just basic equipment, [so to be able] to use microarrays is a big step up," she says.

Many other disease researchers soon will be joining Baker in benefiting from TIGR's expertise. Last week the institute announced that it has signed a 5-year, $25 million contract with the National Institute of Allergy and Infectious Diseases (NIAID) to help scientists expose the inner workings of at least 10 human pathogens whose genomes have been sequenced. The new Pathogen Functional Genomics Resource Center will exploit the growing sequence archive by "making some essential tools more easily available to microbial researchers," says TIGR's Robert Fleischmann, one of the center's leaders.

Scientists have sequenced the genomes of more than two dozen pathogens over the last 7 years, including killers such as cholera and syphilis, with more pending. But putting all that information to use in understanding infections or developing drugs is difficult. It takes expertise and money to make the specialized reagents, gene clones, and microarrays—chemically treated glass slides or silicon wafers that can detect the activity of hundreds of genes at a time—that researchers need. To avoid funding duplicate requests, NIAID officials 2 years ago began looking at ways to centralize some toolmaking and training activities, and last year they announced a competition to select a host for the new center.

As the winner, TIGR is moving quickly to outfit labs and recruit a staff of 25 and a 10-member advisory committee; it hopes to have the center humming by spring. A first task will be to select three target pathogens from a short list of hot candidates (see table), with at least another seven coming by 2004. Then TIGR can begin making and distributing materials, processing samples, and analyzing data for needy labs.

Some offerings, however, will be rationed because of their high cost. Microarrays, for instance, may initially be available to just 10 selected labs per pathogen, says Fleischmann, with each lab getting about 150 of the glass slides. The center also has to work out data-sharing and patenting policies. In both cases, Fleischmann says the intent is to share information and materials as widely as possible, particularly with labs at smaller institutions such as Bates.

Eventually, organizers hope TIGR will help the research community solve two long-standing problems: training talent and establishing workable, accepted standards for various lab techniques and data-storage methods. Says Fleischmann: "We want to be more than a factory for pumping out reagents."

–DAVID MALAKOFF

PATIENT PRIVACY

Researchers Say Rules Are Too Restrictive

A coalition of biomedical societies and research universities is mounting a major assault on a new rule covering the privacy of health records, arguing that the regulation will stifle research. However, patient rights groups say that scientists are overreacting to needed reforms.

The Privacy Rule sets out new procedures for handling patient records, including a requirement that certain information be stripped from records that researchers can use without prior permission. It also gives patients the right to see their records and to find out if they have been made available to a public health or law enforcement agency, or for research.

The 32-page rule was hammered out by the Department of Health and Human Services (HHS) in response to a 1996 health insurance law; it was published in final form in December 2000 as one of the Clinton Administration's final acts and goes into effect in April 2003. But the Bush Administration decided to review portions of the rule after concerns poured into HHS over how it will work. Health care organizations and researchers have taken advantage of that opportunity to make their case.

The new rule "will seriously impair our ability to conduct clinical trials" as well as pathological, epidemiological, and genetic studies, says a 20 November letter to HHS Secretary Tommy Thompson, signed by more than 60 professional societies and 110 universities. David Korn, senior vice president for biomedical and health sciences research at the Association of American Medical Colleges (AAMC), which has spearheaded the campaign, says that changes the biomedical groups have proposed would not weaken patient privacy.

The letter urges HHS to pare down the amount of data cleansed from patient records before they are made available to researchers. Removing even data such as zip codes and birth dates, says Korn, makes the data "useless" for research that requires such "identifiers." Researchers who want to use identified data without a patient's permission can apply for a waiver from an ethics board. But the rule lays out fuzzy review criteria, such as weighing whether a privacy risk is "reasonable." The research community urges HHS instead to leave the decision in the hands of the ethics review panel that assesses the original study. Other recommendations include easing restrictions on access to existing archives.

The researchers have found receptive ears for some of this: In a 21 November letter to Thompson, an advisory committee to HHS that has been tracking the rule says it "detected a high level of anxiety" from researchers in recent public hearings and recommends reconsidering a few sections, including the rules for stripping identifiers. But other complaints result from a "misunderstanding" of the rule, says panel member Mark Rothstein, a bioethicist at the University of Louisville School of Medicine in Kentucky. Angela Choy of the consumer-oriented Health Privacy Project at Georgetown University in Washington, D.C., says the rule offers researchers "lots of ways to get" the information they need.

Biomedical groups worry that some hospitals may decline to share any data to avoid the cost of compliance and to steer clear of criminal penalties

Eyes only. Access to patient data sparks renewed debate.

CREDITS: (ARRAY) NIH; (PAPERS) TIM WRIGHT/CORBIS