searcher John Niederhuber of the University of Wisconsin, Madison.

Colleagues say von Eschenbach's range of experience makes him ideal for the position. Robert Young, president of Fox Chase Cancer Center in Philadelphia, says that von Eschenbach "is deeply committed to investigator-initiated research" and brings "as much involvement with advocacy and surveillance groups as anybody who has led NCI in the past." Cancer biologist Bert Vogelstein of Johns Hopkins University in Baltimore, who has collaborated on two studies with von Eschenbach, says the new NCI director has "a keen appreciation of the value and potential of basic research" in understanding the origins of cancer.

This range of experience feeds into his interest in fostering collaborations to battle cancer. At the national level, he has worked to help increase patient access to cancer data and treatments; at M. D. Anderson, he oversaw a venture with drug companies to develop protease inhibitors for treating prostate cancer. Von Eschenbach is expected to be on the job in early January; his appointment does not require approval by the Senate.

–JOCELYN KAISER

HARVARD DISAPPEARANCE

Lab's Fate Uncertain As Search Continues

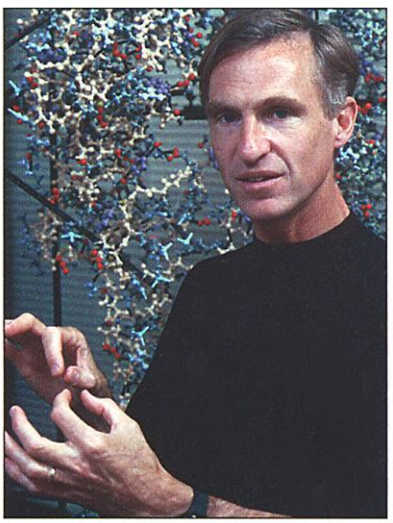
Tom Cech says he has been thinking about Don Wiley "hourly" ever since the Harvard biochemist vanished last month. As president of the Howard Hughes Medical Institute (HHMI), Cech has posted a $15,000 reward for information leading to an arrest in the baffling disappearance of his longtime scientific colleague, whose rental car was found at 4 a.m. on 16 November on a 2.9-kilometer-long bridge across the Mississippi River near Memphis, Tennessee. But Cech is also burdened with the knowledge that soon he may have to terminate funding of the HHMI investigator, a step that will disrupt the lives of some two dozen young scientists in Wiley's lab.

Police are still investigating the disappearance of the 57-year-old Wiley, a structural biologist who won the Lasker Prize for exploring how the body fights infections. The car was found several hours after he left a dinner with the advisory board of St. Jude Children's Research Hospital in Memphis. There are no indications of foul play, and Wiley's colleagues can't believe that he would have committed suicide. Harvard Police Chief Francis "Bud" Riley, who is in close contact with the Memphis police and the FBI, concedes that he has no idea what happened to Wiley. But he visits the Wiley lab periodically to keep the team apprised of the latest developments.

In addition to posting the $15,000 reward, HHMI has provided financial support to Wiley's family and dispatched its chief scientific officer, James Gavin, to meet with Wiley's lab. It even offered to hire a private investigator, which Harvard authorities declined. Individual pledges from Wiley's friends and colleagues have enabled Harvard and St. Jude's to post a separate $10,000 reward.

Friends and former students around the world praise Wiley as a brilliant and energetic researcher. "Don has had an incredible impact," says Lawrence Shapiro, a structural biologist at Mount Sinai School of Medicine in New York City. "He was the guy [who] everybody wanted to be." His vibrant personality created a collegial and productive lab, says biophysicist Brian Baker, who left Wiley's lab in August to take a job at the University of Notre Dame in Indiana. "His childlike enthusiasm toward science infected the whole lab."

Harvard biochemist Steven Harrison, who shares laboratory space and some students with Wiley but works on different projects, has taken on the overwhelming task of keeping his colleague's lab afloat. Harrison admits that work on the structure of viruses and human immune system proteins has been proceeding more "fitfully than usual." But day-to-day operations have resumed, he says, and regular lab meetings were scheduled to restart this week.



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Missing. Don Wiley's research focuses on the structures of viruses and immune system proteins.

HHMI, which has continued funding the Wiley lab, has a policy of speedy terminations when an investigator dies. "It is irresponsible to keep labs open without mentors on an ongoing basis," says Cech. HHMI will discuss the situation next month if Wiley does not reappear. Harrison says he has already met with lab members individually to review their "research and career goals." Cech says that HHMI will help them find new scientific homes should that be necessary.

HHMI does not dis-

ScienceScope

Budget Strings *Science* has learned that the National Science Foundation (NSF) is slated to get an increase of 4% to 5% in the president's upcoming budget request for 2003. That's pretty good during a war, observers say. But the money comes with some strings attached.

The biggest flap surrounds the White House's plan to transfer $121 million from four other agencies (*Science*, 7 December, p. 2066). Supporters of three Smithsonian Institution centers are howling the loudest about a shift of $35 million. But three other programs also take a hit: $19 million from the Environmental Protection Agency's Science to Achieve Results (STAR) program of environmental grants and graduate fellowships; $10 million from hydrology programs at the U.S. Geological Survey, and $57 million from the National Oceanic and Atmospheric Administration's Sea Grant program. The White House also wants to add $60 million to a math and science education partnerships program that will debut in 2002 with $160 million. But NSF may be forced to trim other programs.

International Ire European, Japanese, and Canadian officials blasted NASA last week for unilaterally scaling back plans for the international space station. At a 6 December NASA advisory group meeting in Washington, D.C., the partners rejected a U.S. money-saving move to trim the station's crew from six to three. "Totally unacceptable," said J. Feustel-Büechl of the European Space Agency. The Europeans plan to write a protest letter to U.S. Secretary of State Colin Powell. Meanwhile, NASA-Administrator-to-Be Sean O'Keefe said at his 7 December Senate confirmation hearing that it is his "fondest hope" to expand the station's crew. But soaring costs in the station and other programs are forcing NASA to "ride the crest of a wave we don't fully control."

Looking Up The European Union's (E.U.'s) Council of Research Ministers, meeting in Brussels on 10 December, has approved a $15.6 billion science budget for 2002–06—a 17% overall increase over the previous 4-year period. The Sixth Framework Program will include support for three new research areas: health-related research in genomics and biotech ($1.9 billion), nanotechnology ($1.2 billion), and food safety ($609 million). Andrea Dahman, spokesperson for E.U. research commissioner Philippe Busquin, expects the plan to win final approval soon from the European Parliament and the E.U.'s finance ministers. "We don't expect any major hiccups," she says.

close funding levels for individual investigators, but the typical award is about $1 million annually. Wiley also receives $350,625 in annual National Institutes of Health grants awarded through Harvard that don't expire until 2005 and 2006.

The news about Wiley has devastated the close-knit structural biology world. "It's a shock for everybody," says NIAID structural biologist David Garboczi, a former Wiley postdoc. But besides cooperating with the investigation, there is little that scientists can do. "Playing Hercule Poirot from one's desk in Cambridge is not very useful," says Harrison.

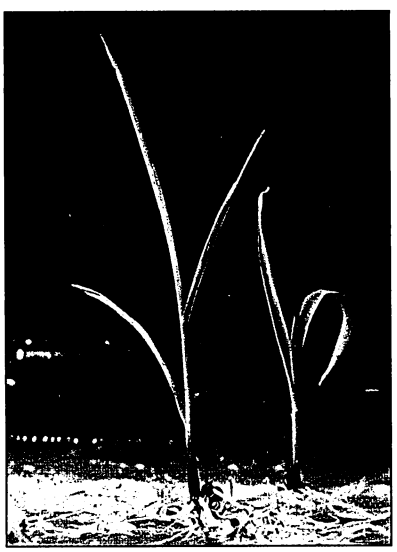
–JOSH GEWOLB

MICROBIAL GENOMES

New Genome a Boost To Plant Studies

Molecular biologists have bared the soul of one of nature's best genetic engineers. On pages 2317 and 2323, two teams describe the genome sequence of *Agrobacterium tumefaciens*, a soil microbe whose ability to transfer DNA into plant cells has transformed plant and crop science.

Some 25 years ago, researchers realized they could take advantage of the microbe's route of infection to ferry foreign genes into plants. *Agrobacterium* has been "the workhorse of the agrobiotech industry" ever since, says Joe Ecker, a plant scientist at the Salk Institute for Biological Studies in La Jolla, California. The new sequence data have already revealed clues about *Agrobacterium*'s astounding ability to parasitize plants and should help both academic and corporate researchers better harness its talents, says Ecker. The data also reveal unexpected hints about the microbe's origins, says Andrew Binns, a molecular geneticist at the University of Pennsylvania in Philadelphia. Binns, along with Mary-Dell Chilton, now with Syngenta in Research Triangle Park, North Carolina, and others, helped launch *Agrobacterium* as a full-fledged genetic engineer in the 1980s.



DNA transformer. Researchers have deciphered the genome of the bacterium that helped transfer herbicide resistance genes to this corn plant.

Two independent teams tackled the 5.67-million-base genome. Steven Slater, a bacterial geneticist at Cereon Genomics Inc. in Cambridge, Massachusetts, and his colleagues worked with about a dozen undergraduates at the University of Richmond in Virginia. The other effort was led by microbiologist Eugene Nester at the University of Washington, Seattle. After reading about each other's projects on the Web, both teams agreed to publish their results back to back.

Agrobacterium infects wounded plants, causing disease in some 600 species, including cherries, grapes, and roses and other ornamental plants. Infection leads to tumorlike growths called galls that typically form at the base of the plant. So-called crown gall disease "can cause very serious economic damage," says Nester, destroying whole vineyards, for example.

During the process of infection, *Agrobacterium* transfers some of its DNA to the plant host. When the bacterial DNA is incorporated into the plant's genome, the plant produces growth hormones, and these, in turn, stimulate gall formation. The tumors make novel carbon compounds—again thanks to newly acquired *Agrobacterium* genes. By feeding off these compounds, *Agrobacterium* is able to outcompete any other microbes that colonize the gall.

Although agricultural scientists have piggybacked on this process to transfer genes that make plants hardier and resistant to salt, cold, viral disease, and insect pests, a lot remains to be learned about the infection process. Often, gene transfer is not very efficient, for example. "We felt that there were many questions that could be approached only if we knew the sequence," says Nester, who recruited the University of Washington's Maynard Olson and his team to do the actual sequencing. Both Nester's and Slater's groups are combing through the newly discovered repertoire of 5400 genes looking for those involved in DNA transfer. "It's an area that's ripe for exploration that could lead to ways [to do] more efficient transformation," says Binns.

Agrobacterium's genes are distributed on four pieces of DNA: a linear and a circular chromosome that carry the run-of-the-mill housekeeping genes, and two smaller pieces of circular DNA called plasmids. "All four of these DNA molecules play a role in the interaction with the plant," Slater reports. His team was particularly intrigued by genes for enzymes that suggest *Agrobacterium* feeds off the plant's own nutrients, including cellulose and peptides. Researchers have suspected that this thievery was occurring but had lacked definitive proof. And Nester's group found that *Agrobacterium* doesn't use the usual array of genes that many plant pathogens use to gain access to their hosts. It lacks the so-called type III secretion system responsible for pathogenicity in many bacteria and instead has three versions of type IV; Nester wants to know why this pathogen is different.

The sequence also revealed a closer kinship than researchers had expected with rhizobium bacteria, symbionts that cause plants to form nodules on their roots. Rhizobium bacteria flourish in nodules, producing ammonia in return for the plant's hospitality, whereas *Agrobacterium* sponges off the plant without apparently giving anything in return. A comparison between the new sequence and that of the recently sequenced *Sinorhizobium meliloti* (*Science*, 27 July, p. 668) revealed that "big chunks of DNA are essentially the same in both," Nester reports.

Thus, the two could have a recent common ancestor and might belong to the same genus. At first glance, says Binns, because *Agrobacterium* has some of the genes needed for nitrogen fixation, it seems that it might have evolved from a primitive rhizobium. Alternatively, gene transfer between the two species might explain some of the shared genes, he adds. Whatever the explanation, these very different lifestyles "have occurred without a whole heck of a lot of change in the whole genome."

–ELIZABETH PENNISI

MAMMALIAN EVOLUTION

Placentals' Family Tree Drawn and Quartered

A nearly 240-year-old statistical technique has helped sort out the evolutionary history of the broad class of mammals that give birth to live, fully developed young. As William Murphy and Eduardo Eizirik of the National Cancer Institute (NCI) in Frederick, Maryland, and their colleagues report on page 2348, the technique places placental mammals in four major groups. The researchers propose that these groups arose in large part because of the breakup of the giant landmasses that predated modern continents, and that placental mammals in what is now Africa have the most ancient ancestors.

Those conclusions are likely to prove controversial. Researchers are sharply divided on where and when mammals arose; two distinct camps disagree by at least 35 million years. The new work "adds more ammunition" to the case for an early divergence of mammals, notes J. David Archibald, an evolutionary biologist at San

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