face beneath the ice—perhaps a meter down—to evaporate more ice, allowing the CO_2 gas to build up there. Kieffer predicts that small, branching gas channels will feed into larger ones, like merging raindrops on a windowpane. Where these big channels break through to the surface, he predicts that the gas could reach a velocity of 50 meters per second, fast enough to keep the jets open throughout the 150-day CO_2 evaporating season. Clifford calls Kieffer's hypothesis "interesting" and "reasonably coherent" but notes that important details remain to be filled in. They include whether the proposed mechanism can produce gas channels large enough to be seen from space, and whether the martian CO_2 ice is sufficiently clear for the bottom-up heating effect to occur. But he doubts that any of these will prove fatal to the basic theory.

Andrew Ingersoll, a planetary scientist at the California Institute of Technology in Pasadena, says black spiders and dark fans are just part of the "crazy stuff" that makes up the overall puzzle of the Red Planet's atmospheric dynamics. **–RICHARD A. LOVETT**

Richard A. Lovett is a science writer based in Portland, Oregon.

BIOMEDICINE

'Glue Grant' Boosts Cell Signaling Consortium

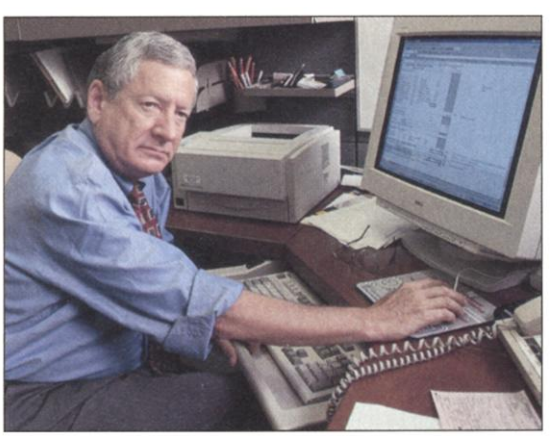
A "glue grant" may sound like financial support for a revolutionary adhesive, and in fact, that's not far off the mark. The National Institute of General Medical Sciences (NIGMS), in announcing its first glue grant last week, said it aims to use a novel funding approach to bind together researchers in cutting-edge fields at many institutions, allowing them to transcend their individual areas of expertise.

NIGMS has awarded $5 million a year for 5 years to a group of scientists studying cellular signaling. The project is headed by Alfred Gilman, chair of pharmacology at the University of Texas (UT) Southwestern Medical Center in Dallas and co-recipient of a Nobel Prize in 1994 for his work on "G proteins," which act as gatekeepers for information entering cells. To speed their findings into the public domain and make them available for use in drug testing, Gilman and members of the project have agreed to post new results in a public database and forgo some patent and authorship claims.

The group of 50 participating scientists at 20 universities, called the Alliance for Cellular Signaling (AFCS), expects to spend a total of $10 million a year on this work. They have raised half of this sum through pledges from individuals, institutions, and corporate backers, including Eli Lilly and Co., Johnson & Johnson, Merck, and Novartis, among others. The drug companies also have agreed to forfeit proprietary rights to alliance findings.

Researchers have identified thousands of cellular signaling molecules that carry information between and within cells. "The classic example is the fight-or-flight response," said Gilman, in which signals from the brain trigger responses in the heart, blood vessels, lungs, and gastrointestinal system. The AFCS plans to chart interactions among these signaling molecules to produce a model of how mouse heart muscle cells (cardiac myocytes) and immune cells (B cells) respond to stimuli. Gilman foresees pharmaceutical companies using it to develop "a treasure chest of very specific drugs."

Officials at NIGMS said that increased public funding, combined with Internet links that permit quick transfer of mammoth data sets, has made the time ripe for such huge cooperative studies. "This differs from anything else we're doing, or anything that we've done before, in that it doesn't supply underlying research support for investigators," said Marvin Cassman, director of NIGMS. It will enable researchers "to reach a goal they can achieve only by working together." Michael Rogers, director of NIGMS's Division of Pharmacology, Physiology, and Biological Chemistry, finds it "remarkable" that "traditionally independent-minded individuals" are now ready to join big collaborations.



Equal access. Alfred Gilman says the consortium will make findings immediately available on the Internet.

CREDIT: DAVID GRESHAM/UT SOUTHWESTERN MEDICAL CENTER

Scientists participating in the alliance will be asked "to steer, to guide, to hypothesize, and to design models," said Gilman. In addition, 250 "member" scientists around the world will host Web sites and augment the AFCS database. The glue grant will fund work in seven newly established labs. Stanford University will be in charge of microscopy; the California Institute of Technology, molecular biology. The San Francisco Veterans Affairs Medical Center will deal with signaling assays. The University of California's San Diego Supercomputer Center will be the hub of bioinformatics. UT Southwestern will have three new labs, one focusing on antibodies and one on each type of mouse cell under investigation.

Part of the glue that holds the alliance together is electronic. AFCS plans to communicate via Internet 2, a university-based system with enhanced bandwidth and speed. A virtual conferencing system will allow Gilman to meet simultaneously with 36 of his colleagues. Gilman said it was necessary to forfeit some intellectual property and first-time publication rights to allow "real-time" posting of group findings. "There will be publishing opportunities for the people employed in the labs," he explained, "but it will be higher level interpretation, not conventional findings." The community has "got to know that we're playing fair with them and that everybody's got an equal shot" at the alliance's data, he added.

Private donors may be sacrificing proprietary rights in the short run, but their investment may pay off later as their own researchers use the AFCS models to develop new drugs. Steven Paul, group vice president of Lilly Research Laboratories of Eli Lilly and Co., said his company made its $500,000-a-year pledge not out of philanthropy but because its scientists hope to glean immediately useful data. "This is a fantastic group of extraordinary scientists," said Paul. "We feel strongly that there will be enormous public ramifications." **–KATHLEEN FISHER**

Kathleen Fisher is a writer in Alexandria, Virginia.

U.S. POSTDOCS

Report Urges Better Treatment, Status

For years, U.S. postdocs have been complaining about paltry salaries, lack of benefits, and lowly status. This week, they won some high-level support. A committee of the National Academies of Sciences and Engineering and the Institute of Medicine has validated many of the complaints and lent its considerable weight to efforts to provide greater institutional support for postdocs. At the same time, however, the panel sidestepped two burning issues by explicitly declining to recommend a boost in postdoc salaries or take a position on whether to curtail the size of the postdoc workforce, which has more than doubled in the past 20 years to an estimated 52,000 (see graph).

The recommendations are contained in a guide* issued this week by the academies' Committee on Science, Engineering, and

* Web Guide to Enhancing the Postdoctoral Experience for Scientists and Engineers (nationalacademies.org/postdocs), 2000.