or MICA/B.

Meanwhile, Phillips and Lanier were also looking for NK cell receptors, but they were taking a different tack. They were searching through DNA databases for proteins that could transmit NK-activation signals the next step of the way—from the cell surface receptor into the cell. Such a molecule would presumably bind to the active receptor and could thus serve as bait to trap it. Lanier had a clue about the kind of protein to look for, because last year, his team had cloned the gene encoding a protein called DAP12 that performs the same job for another receptor that activates NK cells, and Lanier suspected that a related protein might perform the function for other receptors. Feeding the search algorithms with a *DAP12* sequence, Phillips and his colleagues came up with a new gene, *DAP10*, which resides right next to *DAP12* on human chromosome 19. "So we thought this is worth looking at," recalls Lanier.

The researchers then generated antibodies against DAP10, with which they hoped to pull out any putative NK cell receptor associating with DAP10. They fished out a single protein, which turned out to be NKG2D, the same receptor Spies's group had found. Says Lanier: "They had a ligand, and we had an adapter. We met in the middle at the NKG2D receptor."

By identifying DAP10 as a part of the machinery that relays the MICA signal into the cell, Lanier and Phillips's work may also help explain an unusual feature of the NKG2D receptor. Other immunologists have found that NK cells are endowed with receptors that turn down their killer activity when they contact the body's own MHC molecules. This keeps them from attacking normal cells. But MICA binding to NKG2D can override this inhibition. It may be able to do this, Lanier says, because NKG2D's partner, DAP10, feeds into a different intracellular signaling pathway than the inhibitory signals.

A good many questions still remain about NKG2D's functions, however. Because γδ T cells contain both it and a TCR, and both receptors seem to bind MICA, researchers wonder which of the two receptors is more important in activating these killer cells. Then again, says Spies, the answer may be simple. You may "need both receptors to elicit a strong response" in γδ T cells.

Also unclear is how important the MICA system is for controlling tumors. As immunologist Adrian Hayday of the University of London points out, "a lot of NK cells will kill tumor cells in a culture dish, but they won't do a good job in [the body], because tumor cells seem to have a superb capacity to turn off immune cells." He speculates that MICA recognition may serve mainly to ratchet up responses to pathogen-infected cells.

Whatever the physiological role of the MICA/NKG2D/DAP10 complex eventually turns out to be, however, these molecules are clearly not the whole story of NK cell activation. Indeed, researchers expect more NK cell receptors to emerge from test tubes and gene databases. "There's more to come in NK cell activation," predicts Eric Long of the National Institute of Allergy and Infectious Diseases. "This is a young field, and it's moving fast." –MICHAEL HAGMANN

FRENCH RESEARCH

Support Builds for Allègre's Reforms

PARIS—After more than 3 months of hearings, debates, lab visits, and electronic forums, two parliamentary deputies have delivered their diagnosis of France's ailing research effort and a lengthy prescription for reviving it. Their 140-page report, presented personally to French Prime Minister Lionel Jospin on 22 July, broadly echoes controversial reforms previously suggested by France's research minister, Claude Allègre. Like Allègre, deputies Pierre Cohen and Jean-Yves Le Déaut—both of whom are also active researchers—urge that France break down the barriers between universities and public research organizations, as well as boost both the number of young scientists and their research opportunities.

Although many French scientists had resisted what they saw as Allègre's heavy-handed approach to reforming French research (*Science*, 18 December 1998, p. 2162), the initial response to the deputies' report—which contains 60 proposals urging change through mostly voluntary incentives—has been much more positive. Henri-Edouard Audier, a chemist at the Ecole Polytechnique near Paris who had often chided Allègre for trying to ramrod French science reforms, told *Science* that the proposals were "balanced, realistic, and effective." If they are put in place, Audier says, "it will make a profound change in French research." Harry Bernas, a physicist at the Orsay campus of the University of Paris, says that "Cohen and Le Déaut really listened" to the scientific community. Jospin's staff is now reviewing the recommendations, before the prime minister decides whether to put them in place. (Allègre himself is studying the report and has no comment on it yet, according to his spokesperson.)

Even if the reforms do go forward, however, not everyone thinks they go far enough. Among those disappointed is Pierre Chambon, director of the Institute of Genetics and Molecular and Cellular Biology near Strasbourg, who had argued for

ScienceScope

Waiting and Worrying Preliminary signs are that biomedical research again will be the big winner in the 2000 budget, while other disciplines fight to keep from losing ground.

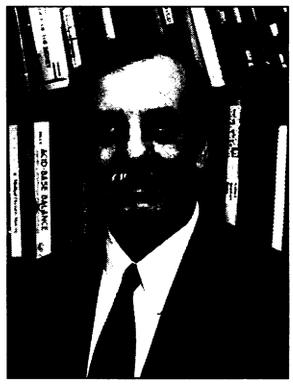
Last week, the House appropriations subcommittee for Labor, Health and Human Services, and Education scheduled a vote on a bill to raise the budget of the National Institutes of Health by 8.6% in 2000, to $16.95 billion, according to congressional aides. But the meeting was canceled after battles over tax cuts and domestic programs made it impossible to reach agreement. So Representative John Porter (R–IL), the subcommittee chair, put the plan on indefinite hold. The counterpart subcommittee in the Senate, chaired by Arlen Specter (R–PA), hasn't even set a date for a vote.

On Monday the House did take its first step toward funding the National Science Foundation (NSF). But the news wasn't good: The Housing and Urban Development–Veterans Affairs spending panel recommended a 1.5% cut in NSF's current $3.74 billion budget, which the Administration had wanted to raise by 5.8%. The panel deferred all but $35 million of a $146 million information technology initiative, including $35 million for a teraflops computer. However, it did approve $35 million of a proposed $50 million biocomplexity effort.

NSF director Rita Colwell didn't try to mask her disappointment. "We're able and ready to do 21st century science and engineering—but we can't do it on a 20th century budget," she said in a prepared statement. At the same time, NSF official Joel Widder says it could have been "a lot worse" had the committee not used an accounting gimmick: Appropriators declared $5.4 billion for veterans' health care and disaster relief "emergency" funding, so that it wouldn't count against the amount the panel can spend.

NASA received even worse news from the same panel, which cut $1.325 billion from its $13.67 billion budget. "These cuts would gut space exploration," says NASA Administrator Dan Goldin. "NASA has always stepped up to budgetary challenges, but this time [we] plan to fight." The full House was kinder to defense-related research, voting a 5.9% boost, to $8.25 billion, in the science and technology portion of the defense budget. That reverses the Administration's proposed cuts and tops the modest 1.1% increase in the Senate.

were "honest differences of opinion between Dr. Kassirer and the medical society over administrative and publishing issues." The two sides were "unable to find common ground," the society said, and for that reason, "the best course of action" was to search for a new editor. The society will name an interim editor soon, possibly Executive Editor Marcia Angell.



Irreconcilable differences. Jerome Kassirer.

To some, Kassirer's dismissal looked like a reprise of the decision by the American Medical Association (AMA) 7 months earlier to fire George Lundberg, editor of *The Journal of the American Medical Association* (*Science*, 22 January, p. 467). Kassirer had less tenure than Lundberg—only 8 years compared to 17—but, like Lundberg, he clashed with the physician-executives who run the parent organization and lost. But Frank Fortin, spokesperson for the Massachusetts Medical Society, argues that the two cases are very different, noting that *NEJM*'s owners never challenged Kassirer's editorial decisions: "This is not about the editorial independence or integrity" of the *NEJM*, he says. The disagreements had to do with business matters, Fortin explained, but he declined to discuss specifics. In contrast, AMA president E. Ratcliffe Anderson last January said Lundberg had been fired for publishing an "inappropriate" article on oral sex during President Clinton's impeachment trial.

According to Marshall Kaplan, chief of gastroenterology at Tufts University New England Medical Center in Boston and an associate editor of *NEJM*, Kassirer disagreed sharply with *NEJM*'s owners on plans to use the journal's name on other publications. Kaplan mentioned, for example, that the society recently bought *Hippocrates*, a popular journal for physicians, and that it had plans to develop new publications for patients similar to *Heart Watch*, a newsletter it now publishes. Kaplan said he and "most of the editors" feared it would "dilute" the reputation of the *NEJM* to place its name on publications that are less rigorously reviewed. But the medical society, he believes, has decided to increase its revenues to help pay the mortgage on "luxurious" new headquarters it built in the Boston suburb of Waltham. The *NEJM* staff, now ensconced near Harvard Medical School in Brookline, is not eager to relocate to the new building, which opened 2 weeks ago.

Like others, Kaplan described Kassirer as a "very successful editor." Massachusetts Medical Society president Jack Evjy also praised Kassirer in a prepared statement last week, saying the editor had redesigned the journal, shortened the turnaround time for manuscript review, and rapidly informed doctors of new medical developments.

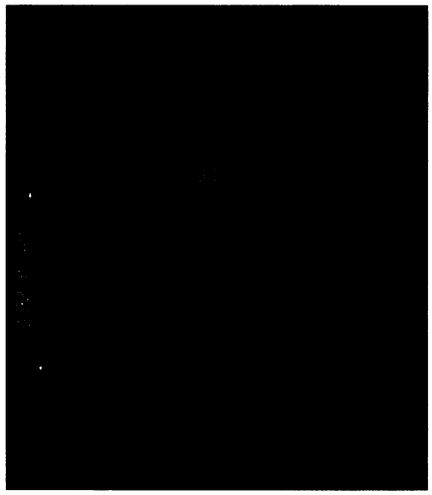
But many people were dismayed by what they interpreted as a loss of editorial authority. Epidemiologist Walter Willett of Harvard School of Public Health in Boston says he thinks the society "views the journal as a cash cow and wants to milk it even harder." Richard Horton, editor of *The Lancet*, says he thinks the Lundberg and Kassirer dismissals highlight "an acute crisis that is developing between the professional values of medicine and corporate values that have overtaken much of U.S. medicine in recent years." Medical journals, he says, are sustained by the trust that readers place in them. Abruptly firing editors, he says, can "damage that trust."

—ELIOT MARSHALL

PLANETARY SCIENCE

Telling Pluto and Its Partner Apart

Scientists have added another compound to the list of organic molecules detected on the solar system's coldest planet. Spectroscopic images show that Pluto harbors ethane, according to astronomers at Japan's Subaru Telescope on Mauna Kea, Hawaii. Their images, released last week, add to the evidence that Pluto and its satellite Charon have very different compositions, suggesting that



Pried apart. Pluto and its moon Charon, never before separated by a ground-based telescope.

ScienceScope

Pardon Ahead? Supporters of Ahn Jae-ku, a jailed 65-year-old Korean mathematician, are hoping that the longtime human rights activist will be freed next month as part of ceremonies for the country's annual Liberation Day on 15 August. Ahn was fired in 1976 from Kyoungbuk University for criticizing the then-military government and was arrested and convicted in 1979 for "antistate" activities. After his release in 1988, he was rearrested in 1994 for forming a discussion group that was alleged to be working on behalf of North Korea. Last year his life sentence was reduced to 20 years.

Ahn's son, Sae Min, says that President Kim Dae Jung, himself a former political prisoner, "made a promise to many people" during an award ceremony last month in Philadelphia. "That's why I think he'll be freed." Last week the human rights committee of the U.S. National Academy of Sciences sent a letter to Kim urging Ahn's release.

The Big Sweep In a surprising promotion, anthropologist Richard Leakey (right) has been elevated from director of the Kenyan Wildlife Service (KWS) to head of the civil service, the highest nonpolitical job in the Kenyan administration. Leakey has been an outspoken critic of Kenyan President Daniel arap Moi, but in announcing the appointment Moi said Leakey has his full support to "change the culture of corruption and inefficiency in our public service." Leakey told *Science* he plans to push for "policies rooted in conservation." Biologist Nehemiah Rotich, head of the East African Wildlife Society and acting director of KWS, is rumored to be a top candidate to succeed Leakey.

Manhattan Bound? The rumors that Harold Varmus, director of the National Institutes of Health, may move to New York City to take charge of the Memorial Sloan-Kettering Cancer Center (MSKCC) have been bolstered by a claimed starting date: 1 February 2000. According to researchers at a recent Gordon Conference, that's when Varmus would succeed Paul Marks, who announced his plans to retire in 2000 last year. Varmus was out of town, as was Marks, and neither could be reached for comment. Says an MSKCC press officer: "It's a nice rumor; I just hope it's true."

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