

sity in Paris, which suggest that infected people whose disease is not progressing have higher levels of these chemokines. Other unpublished data from Zagury, showing that hemophiliacs who were infused with infected blood but did not become infected had higher levels of all three chemokines, suggest that high concentrations of the proteins can even prevent infection. Gallo's hope is that this work might lead to the development of inexpensive, synthetic blockers of chemokine receptors that can be used for HIV treatment with "little or no toxicities."

Gallo also is anxious to determine whether vaccines that can increase levels of these chemokines—or down-regulate their receptors—might be protective. Further evidence for this idea comes from Nathaniel Landau and Richard Koup of the Aaron Diamond AIDS Research Center in New York City. These researchers have found that CC CKR5 is defective in a handful of exposed, uninfected people. This suggests that they are resistant to HIV because their receptors are genetically incapable of binding the virus, although that remains to be shown.

For his part, Levy counters that "compelling evidence" argues against the chemokines

being clinically relevant. In direct contrast to Zagury's data, Levy says he finds no correlation between clinical progression and chemokine levels. This point was underscored by immunologist Michael Ascher of the California Department of Health Services, who compared levels of these chemokines in eight LTNP to those in eight rapid progressors and found no difference. Levy did, however, find evidence for high levels of the elusive CAF in 16 of 28 uninfected people who have been repeatedly exposed to HIV by their infected partners. This means, Levy suggests, that CAF might be a better bet for treating or preventing AIDS.

Adding to Levy's skepticism about the chemokines is his firm belief that they differ markedly from the CAF he has been trying to unmask. Levy's test-tube experiments show that CAF inhibits HIV not by blocking the entry of the virus into CD4⁺ cells—which is what the chemokines do—but by suppressing the ability of an infected cell to make more virus. Levy, and, separately, Otto Yang and co-workers at Massachusetts General Hospital in Boston, further show that CAF's suppressive powers remain intact even in the presence of antibodies directed against

this trio of chemokines.

The enormous chasm separating the chemokine crowd from the CAF enthusiasts might be bridged if someone could isolate the elusive CAF. "Unfortunately, we can say more about what it isn't than what it is," says Levy, who contends that he has had trouble isolating CAF because it's produced in small amounts. Still, Levy has the strong support of colleagues that his observations are real. "Jay Levy is so correct [about CAF's unique effects] it's ridiculous," says Anthony Fauci, head of the National Institute of Allergy and Infectious Diseases.

The work on chemokines and the immune system's behavior is clearly not as advanced as that on the drug combinations (*Science*, 28 June, pp. 1882, 1884, and 1886). But while HIV drugs will likely go down in history as the stars of the Vancouver conference, for many basic researchers, the meeting will be remembered as a point in time when CD8⁺ cells finally got their due. "Before the meeting, someone called me and said, 'Why are you going? It's all over because of anti-retrovirals,'" says Levy. "Well, that hasn't captured the meeting. This is terrific. I'm relieved."

—Jon Cohen

'97 BUDGET

Congress Targets Fusion, Favors NIH

Congress delivered a double punch to the U.S. fusion program last week when House and Senate panels voted separately to chop its budget well below the amount researchers agree is necessary to keep even a modest effort on track. The proposed cuts are a significant blow to the fusion community's attempts to maintain U.S. capability in a field increasingly dominated by Europe and Japan.

These votes were part of a flurry of budget activity in Congress, as lawmakers raced to complete as much work as possible on 1997 funding bills before the August recess and the political conventions that will usher in the campaign season. So far, science and technology programs are generally faring better in the Senate, where the Appropriations Committee voted last week to give the National Science Foundation (NSF) an amount close to the Administration's request and restored cuts made by the House in a NASA Earth observation program and a controversial life sciences project that would put monkeys into orbit. Biomedical research also scored a major victory: The House approved a 6.9% increase for the National Institutes of Health (NIH); the Senate is likely to follow suit with a smaller boost.

The big loser in both chambers was fusion. While a Senate panel voted \$240 million for the effort, a House subcommittee

allocated only \$225 million—well below the \$264 million request and the \$244 million budget for 1996. Any cut would come on top of the one-third reduction the program suffered last year. The House bill in particular dismayed Department of Energy officials, for it included language that would force DOE to keep facilities open at the expense of university research. "It's unbearable," says Martha Krebs, director of DOE's energy research. "They clearly want to destroy the program."

A DOE fusion advisory panel in March urged the government to spend at least \$250 million annually on the effort (not counting almost \$8 million for computer costs included in the budget). It said anything less would risk unraveling a program that funds three large facilities, a bevy of researchers scattered around the country, and the U.S. portion of an international effort to design a machine to test fusion on a large scale (*Science*, 22 March, p. 1660). The cuts now being planned by Congress "will make it difficult, if not impossible, to keep the program on track," says Michael Knotek, the Pacific Northwest Laboratory manager who led the review. The advisory panel planned to send a letter to DOE Secretary Hazel O'Leary this week protesting the proposed reductions, he added. But given the lack of political support for the program, House and Senate staffers

said fusion proponents should be thankful that the cuts did not go deeper.

Biomedical research, in contrast, continues to win broad support. The House voted on 12 July to provide a 6.9% increase for NIH, bolster support for extramural grants, and provide \$90 million to start building a new intramural hospital. The House did vote, however, for one provision researchers will find onerous: a ban on government funding of any research on human embryo material, including "spare" embryos likely to be discarded at private clinics. An amendment to lift the ban lost 167 to 256. The House also approved an amendment restricting the use of controlled substances such as marijuana in federal projects. NIH staffers worried last week that this could hurt investigation of some AIDS-therapy studies.

The Senate is expected to begin marking up its version of the bill containing NIH funding on 23 July. But Senator Arlen Specter (R-PA), who chairs the appropriations subcommittee that oversees NIH, says that the increase will be more modest. NIH's good fiscal fortune in the House comes at the expense of other items in the bill—especially education and jobs programs—and White House staffers warn that the president will veto this bill if it doesn't contain more money for social programs. That puts pressure on the Senate to limit NIH's windfall.

NASA also got some good news last week. The Senate Appropriations Committee voted



to restore a \$200 million cut imposed by the House to the agency's \$1.3 billion Mission to Planet Earth (MTPE) program. But the panel ordered NASA to slice \$100 million from its \$5 billion science, aeronautics, and technology budget, which includes MTPE funding. It would be up to NASA officials to decide where the cut would fall. The Senate also rejected the House proposal to halt funding for Bion, the joint U.S.-Russian experiment to launch monkeys into orbit (*Science*, 12 July, p. 175). A NASA official said he is confident Bion will survive, because the House

vote came before a recent independent review gave the program high marks.

NSF officials have few complaints with the funding levels set by the Senate panel. The agency's research account would rise by 5% to \$2.43 billion—the same as in the House-passed bill and only \$40 million below the president's request. The committee also added \$5 million to an existing competitive grants program to help small states and rejected the House's plan to cut NSF's operating budget by \$9 million.

Meanwhile, a House panel cut the \$220 million budget for the Commerce Depart-

ment's Advanced Technology Program in half and included language to halt the program's expansion by limiting it to small companies. About half of current funds now go to companies with more than 500 employees. Republicans have tried unsuccessfully since last year to kill the program, which they label "corporate welfare." The panel's more compromising approach is a clear sign that they are abandoning that effort.

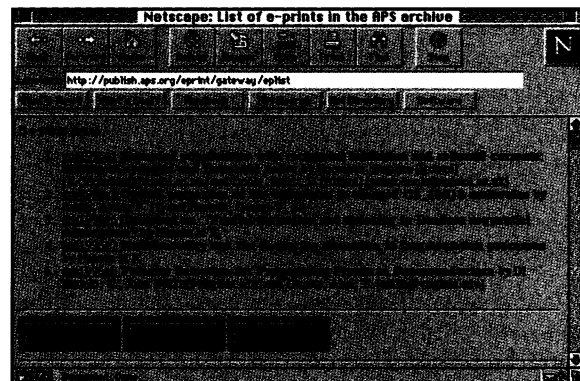
—Andrew Lawler

With reporting by Eliot Marshall and Jeffrey Mervis.

ELECTRONIC PUBLISHING

APS Starts Electronic Preprint Service

For the past 5 years, the American Physical Society (APS) has listened to physicists extol the virtues of the electronic preprint archives located at the Los Alamos National Laboratory. The society has also been beset with predictions that its print journals will soon go the way of the dinosaurs, the victim of Los Alamos's brand of fast, virtually free, electronic distribution (*Science*, 9 February, p. 767). Now the APS has decided that the way to beat the unbeatable is to imitate it.



The first five. In its first 2 weeks, the APS preprint server received just five submissions.

On 1 July, after a year and a half of cogitation and debate, and the formation of an e-print archive task force, the APS went on-line with its own prototype preprint server (<http://publish.aps.org/eprint/>). In its first 2 weeks of operation, it has garnered all of five submissions, which suggests it has a long way to go to catch up to the nearly 300 submissions the Los Alamos archive gets per week, but the APS says that overtaking Los Alamos is not the point. The society started its archives to serve not just as a repository of un-peer-reviewed preprints but also the point from which articles are submitted to any APS journal for review and publication. The APS also views it as a learning exercise and a test bed for technological innovations that might fit its needs and those of physicists better, says Arthur Smith, the physicist who created the APS e-print archive.

"We simply need to learn how to do this stuff," says Smith, "and we need to be involved just for the vitality of the journals themselves. We don't know what direction we'll be going in the long run, but having a system in house allows us to test these things from the author end and then allows us to bring them into the publishing process in the future."

Among other things, the APS server will accept a broader range of word processing formats than the Los Alamos archives does, a nod to those physicists who still prefer to use Word Perfect or Microsoft Word rather than PostScript or TeX, the preferred formats of the Los Alamos system. And physicists who want to submit their articles to APS journals from its server will be able to do so with the click of a button. The APS server will also not be an archive: After a set amount of time articles not accepted by journals—either APS journals or others—will be removed. "We don't want to have all these useless publications that never made it into a refereed journal," says

Eberhard Bodenschatz, a Cornell University physicist and a member of the APS task force.

The initial reaction of the physics community has been mixed. One University of Virginia graduate student, who was submitting his first paper to both e-print servers and described himself as "an incompetent layperson," said the APS system seemed easier to use. He said he could submit a text file directly without having to convert it to anything, and that accompanying figures were easier to submit as well. But physicists used to the Los Alamos archive worry about a proliferation of e-print sources—what physicist Paul Ginsparg, who initiated and runs the Los Alamos archive, calls "Balkanization," requiring physicists to submit preprints to two distinct servers and browse two different databases every morning for new submissions.

"We've already received many comments

here about how much easier it has been to consult one source and be satisfied that everything is readily available in a consistent format without having to search multiple places," says Ginsparg. "This is one of the prime advantages that we'll have in physics, namely a unified database, and we're not about to let that slip away just because the APS has belatedly joined the 1980s." Ginsparg adds that if the APS system does prove easier to use, he could incorporate its features into the Los Alamos archives "in a nanosecond."

The APS task force agrees that unification is a virtue in the electronic world. Ideally, the two servers would be cross-linked, says Tony Johnson, head of the task force and a physicist at the Stanford Linear Accelerator Center. "To the end user, they will be transparent. You should be able to go to one central search engine and pull up a paper on the screen, and it shouldn't matter who published it" or in what database it resides.

Whether or not the APS e-print server will someday take the place of its print journals is something not even the APS administrators are willing to speculate on. "Our intent is to always play a role in whatever peer review evolves into," says Bob Kelly, APS director of journal information systems. "As far as publishing print journals, the market will decide how that flows."

Kelly and his APS colleagues want to emphasize that what's running now is a prototype—"a beta version," says Bodenschatz—and that they are asking physicists to use it, comment on it, and allow it to evolve. They plan the official version to go on line 1 October. In the meantime, they'll see if the physics community embraces it. "The APS is for the advancement of science," says Bodenschatz, "and it's supposed to be helping physicists. If a preprint server does that, we should have a preprint server. Ginsparg's is a one-man operation. If he decided tomorrow to turn all his machines off, they're gone. And who guarantees he doesn't? ... The idea was that this is probably done better through a society than through one individual."

—Gary Taubes