"world-class" salaries, the center intends to provide access to leading-edge computing and library facilities. So far, the lure of the new center has proven strongest among non-Asian scientists: Among the four junior fellows and eight postdocs that have already been recruited, U.S. and European researchers actually outnumber those from the Asia-Pacific region. But there is still plenty of room for talented scientists from all ports, Cho says, noting that the number of faculty members is expected to double next year and continue growing steadily for several years.

That expansion is one of the things that led German-born and -trained Manuel Drees to accept a junior fellow position. "This is one of the few areas of the world where support for science is steadily going up," he says. Drees plans to cut short a German government fellowship that supports his theoretical research in particle physics at the University of Wisconsin, Madison, to take up his position in Seoul this September. He admits that joining a new institute is "a bit of a gamble," but he's attracted by the "opportunity to build up science in this part of the world." He also believes, based on previous trips, that Korea is more accommodating to Westerners than any other non-English-speaking country in Asia.

An increased two-way flow of knowledge between East and West is an important goal, says Makoto Kobayashi, a KEK physicist who is helping to plan the center's future. If successful, the center could even foster sister institutes in other fields. "In that sense, this is a test case," Kobayashi says.

Although this week's conference marks the official opening of the center, many organizational details are still being worked out. A structure similar to CERN's is planned, with a governing body of representatives from member countries. Its initial budget will be between $5 million and $10 million, with Korea picking up most start-up costs and eventually providing a campus and buildings. The center is housed temporarily in buildings vacated by the Korea Advanced Institute for Science and Technology.

One model for the Asian center is the International Center for Theoretical Physics in Trieste, Italy, founded largely on the initiative of Nobel laureate Abdus Salam. Cho says APCTP will share that center's mission to educate future generations of scientists from the developing world by hosting workshops and seminars. There is even talk of offering full-fledged graduate-level courses.

But Cho emphasizes that APCTP's primary objective is "to be one of the best in the world." Adds Yang: "If the papers published by people associated with the center produce an impact in physics research, we would consider that a success."

–Dennis Normile

CONGRESS AND THE BUDGET

Panel Strikes Balance for NASA, NSF

Republican and Democratic lawmakers skirmished bitterly on the House floor for 2 days last week over the direction of science spending. The focus of the verbal brawling was a bill, to authorize programs, that has little chance of making it all the way through the legislative mill this year. So the debate was something of a sideshow to discussions on the 1997 budget that were taking place in a cramped room down the hall. There, a panel of House appropriators quickly and quietly approved small increases for NASA, the National Science Foundation (NSF), and research at the Environmental Protection Agency (EPA). These spending levels, for the fiscal year that begins on 1 October, suggest that this year's appropriations process may actually be much shorter and sweeter than last year's debacle.

The modest funding boosts are less than the Administration wanted for those agencies, but they exceed guidelines set last month by House Republicans in an effort to eliminate the deficit. And while the panel went along with Republican calls to cut global climate change programs and NASA's Earth Observing System (EOS), the reductions are less drastic than those outlined in the omnibus science authorization bill, H.R. 3322, that led to verbal fireworks on the House floor.

A FIRST LOOK AT SOME 1997 R&D BUDGETS

Agency	FY 1996	House Panel*
National Science Foundation (Selected programs)	$3.22 billion	$3.25 billion
Research	$2.31 billion	$2.42 billion
Education	$599 million	$612 million
Infrastructure	$100 million	0
NASA selected programs		
Mission to Planet Earth	$1.3 billion	$1.2 billion
New Millennium program	$342 million	0
Human Space Flight	$5.47 billion	$5.36 billion
Environmental Protection Agency		
Science and Technology	$524 million	$540 million

* Figures do not include across-the-board reduction of 1.32%.

SOURCE: HOUSE APPROPRIATIONS VA, HUD, IA SUBCOMMITTEE

The appropriations bill, approved on 30 May by a subcommittee chaired by Representative Jerry Lewis (R–CA), would increase NSF funding by 1%. The agency's research account would grow by $108 million, a 4.6% boost but still short of the Administration's request for an additional $166 million. Although legislators endorsed NSF's plan to eliminate its $100 million academic research infrastructure program, they included language that would hold NSF officials to their promise to spend $50 million from the research account on large instrumentation grants. And the entire program could be revived in the Senate.

Lewis's panel chopped NASA's request for EOS by $220 million, leaving the program with $1.2 billion, or about $87 million less than this year. The remainder of NASA programs were largely untouched, except for two increases requested by the Administration but not part of NASA's formal budget request. The White House asked for $558 million to replenish the agency's overloaded tracking and data-relay satellites, which the panel approved, and $342 million to work on new spacecraft technology, which it rejected. Including that tracking-system money would give NASA an overall budget of $14.2 billion, up from this year's $13.9 billion. Without the extra funding, however, the agency's budget plunges to $13.6 billion.

Lewis's subcommittee approved $540 million for EPA's science and technology budget, $39 million less than the president requested but a $16 million increase over 1996. Among programs targeted for cuts were the Environmental Technology Initiative and global climate change efforts.

These numbers are hardly set in stone, however. Lewis's panel also proposed a 1.32% across-the-board cut for all the agencies under its jurisdiction to ensure the committee does not exceed its allocation. "We fully expect that cut will go away," says one House staffer, if the subcommittee can receive more money for its programs. As it stands, however, NASA would lose $187 million and NSF, $43 million. The House Appropriations Committee meets on 13 June to consider the bill before it goes to the floor. The Senate will mark up its own version in July.

In contrast with Lewis's bill, the omnibus authorization bill could lead to a realignment of research programs and deep reductions in staff at NSF. It would limit NSF to six directorates—one less than the existing number. The change is aimed at NSF's social, behavioral, and economic sciences programs. Representative Robert Walker (R–PA), chair of the Science Committee, and NSF Director Neal Lane exchanged strongly worded letters last month on the topic, with Lane attacking

what he called "a blow" to those disciplines and Walker explaining that it was simply "proper management" in a time of fiscal austerity. The House did reject, by a vote of 339 to 59, a Science Committee–passed measure to change NSF's name to the National Science and Engineering Foundation.

Walker's bill also proposed a whopping $373 million cut in NASA's EOS effort, eliminating the Chem spacecraft, reducing funding for two others, and cutting the budget for the data system in half. The proposed cut was fought unsuccessfully by Democrats. Leading the attack on this and other measures was Representative George Brown (D–CA), who said the bill was "antiscience." However, in a rare show of bipartisan support, members of both parties voted 287 to 126 to continue authorizing $2.1 billion a year for the space station.

The noise level during the debate over this reauthorization bill may, however, be in inverse proportion to its chances of becoming law. Although Walker and the Republicans had enough votes to win House approval for the bill, the Senate is unlikely to consider 1997 authorizations for science agencies. The crush of other business will probably shunt the bill into a legislative siding, and in any case, many senators prefer to work through the Appropriations Committee. Moreover, Vice President Al Gore, who attacked the bill as "extreme legislation that would make unnecessary and unwise cuts," said he would recommend that President Clinton veto the measure if it reaches his desk.

All of this may foil Walker's wish to leave behind a new blueprint for science when he retires in January. But come what may, Congress is certain to approve a 1997 budget, and this first glimpse suggests that lawmakers, despite the occasional heated rhetoric, are searching for a middle ground.

–Andrew Lawler

With reporting by Jeffrey Mervis and Jocelyn Kaiser.

INFECTIOUS DISEASES

Malaria Hideout Found in New Mothers

Malaria has many dangerous and lethal tricks, but one is especially grim: attacking first-time mothers. Although repeated exposure to the disease brings some measure of immunity to people who live in malaria-infested areas, women often lose part of those defenses at the worst possible moment, during their first pregnancy. And while it's the mothers who come down with the disease, the fetus bears the brunt of the infection. In sub-Saharan Africa, it's linked to maternal anemia and low-birth-weight babies, who have an increased risk of subsequent disease and death. "Malaria in pregnancy is a problem of enormous importance," says Thomas Wellems, head of malarial genetics at the U.S. National Institute of Allergy and Infectious Diseases (NIAID). And until recently, it's been a puzzle without an answer in sight.

Now, however, a possible solution is emerging in a tissue that only pregnant women have: the placenta. Red blood cells infected by the malaria parasite produce surface proteins that allow them to bind to particular tissues in the body. And on page 1502, scientists report finding a specialized subgroup of infected blood cells that can hide out on the placental walls. Because cells bearing the receptor protein needed to bind to the placenta are an uncommon phenotype that occurs only in large numbers during pregnancy, even women who are normally immune to malaria lack the immune defenses needed to attack them.

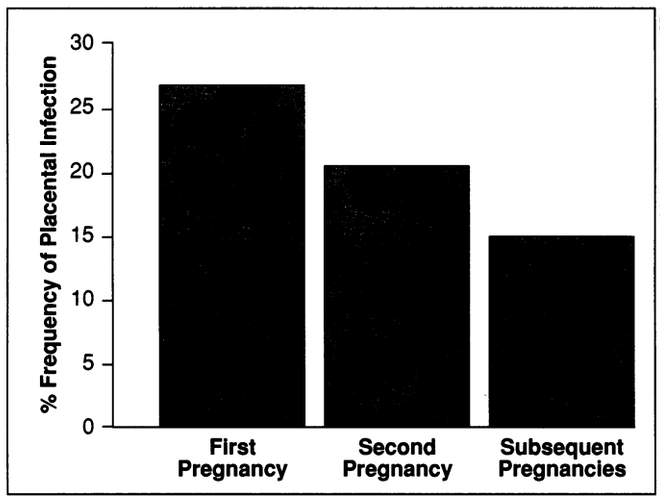
Malaria researchers welcome the new work, which was carried out by Michal Fried and Patrick Duffy at the U.S. Army Medical Research Unit–Kisumu, Kenya, and the Kenya Medical Research Institute, Kisumu. "It's the first fresh idea on the problem we've had in ages," says Louis Miller, chief of the Laboratory of Parasitic Diseases at the NIAID. Not only does it offer an explanation for this immunological mystery, but Miller and others say that the discovery that infected red blood cells bind to a particular receptor on the placental cells—a protein known as chondroitin sulfate A (CSA)—opens up new therapeutic approaches. A treatment that blocked the infected cells' ability to bind to CSA, for instance, could be an effective check on the disease, although scientists caution that they need to learn much more about the molecular interactions involved before such a check is developed.

Malaria parasites—the most serious form that infects humans is called *Plasmodium falciparum*—are transmitted by the bite of blood-feeding mosquitoes. The parasites grow and reproduce in red blood cells until the cells are filled to the bursting point. When the cells rupture, the parasites flood out and infect new cells. If the body has been exposed to the parasites before, it can counterattack: Antibodies detect affected cells that are circulating in the bloodstream and mark them for subsequent destruction in the spleen.

This scenario, however, couldn't explain the presence of infected red blood cells in the placentas of pregnant women who had already built up immunity to malaria, says malaria researcher Kevin Marsh of the Kenya Medical Research Institute in Kilifi, near Mombasa. "No one has understood why the parasites are there," he says. "Many researchers have thought it may be the result of changes in the immune status of mothers which occur during pregnancy," he adds. But because mothers actually become much less susceptible to malaria after their first or second pregnancy (see chart), pregnancy itself seemed unlikely to have lowered the mothers' defenses.

The groundwork for a different answer was laid last year. Three groups reported that malaria parasites have between 50 and 150 genes from a large family, known as *var* genes, that encode proteins that bind to receptors on various host cell surface molecules (*Cell*, vol. 82, p. 77, 1995). This diversity of *var* genes suggested that the parasites had an enormous repertoire of potential host binding sites, says Wellems, enabling them to hide out in a variety of tissues and present a variety of antigens in an effort to beat the immune system. Just such a "sequestration" mechanism, in fact, has long been thought to be behind cerebral malaria, where infected cells bind to blood-vessel walls within the brain.

Fried and Duffy, who were working with women from the malaria-endemic area of western Kenya, wondered if parasite-infected cells might have some particular mechanism for binding to the placenta. This could explain infection in newly pregnant women: Cells capable of



Vulnerable victims. Malaria parasites (shown in graph) most often infect the placenta during first pregnancies of Kenyan mothers.