United States to fund the project, which would take an estimated 5 years and cost between $50 million and $90 million.

Malaria researchers say that sequencing the mosquito's genome—which, at 260 million base pairs, is about the size of one large human chromosome—should lead to a better understanding of interactions between the insect and the parasite. "Having the genome sequence would be fantastic," says molecular entomologist Robert Saunders of the University of Dundee in the United Kingdom.

Malaria kills more than 1 million people worldwide each year, and an estimated 86% of those deaths occur in Africa, where it is the second leading cause of mortality after AIDS (*Science*, 14 May, p. 1101). The disease is caused by the protozoan parasite *Plasmodium*, which infects red blood cells and causes them to burst when progeny parasites are released. Since 1995, an international team of researchers has been sequencing the genome of *Plasmodium falciparum*, the species responsible for the most serious form of malaria. The proposed *Anopheles* sequencing project would complement this work.

To enter its human host, *Plasmodium* needs the help of the *Anopheles* mosquito, which injects the parasite into the host's bloodstream while it ingests blood. Some strains of *Anopheles*, however, are resistant to the parasite, mounting an immune response that kills off the protozoan before it can mature. What some researchers call the "Holy Grail" of malaria control would be to create a genetically modified mosquito incapable of transmitting *Plasmodium*, an aim that would be greatly aided by knowing the sequence of the mosquito's genome.

Although the project's supporters have yet to raise the funding, they were encouraged by the fact that the meeting was attended by emissaries from major genome research agencies as well as leading gene sequencing centers. "I'm not really worried" about getting the money, says Fotis Kafatos, director of the European Molecular Biology Laboratory (EMBL) in Heidelberg, Germany, who initiated the project together with *Anopheles* expert Frank Collins of the University of Notre Dame in Indiana. The participants included representatives of NIAID—the infectious disease institute of the U.S. National Institutes of Health (NIH)—and the Wellcome Trust, Britain's mammoth biomedical research charity. Also attending were gene sequencing jockeys from the Wellcome Trust–funded Sanger Centre near Cambridge, France's Genoscope, and The Institute for Genomic Research in the United States.

Kafatos points out that a lot of research has already been done on the *Anopheles* genome, including genetic mapping and preliminary sequencing at Genoscope, EMBL, the University of Iowa, and other centers. "We have really already started, and as the money comes in that will determine how fast we go," Kafatos says. NIH has already said it will consider grants of up to $1.5 million per year for at least the first 2 years of the project. Wellcome director Michael Dexter told *Science* that although there is "excitement" at the trust about the proposal, funding decisions will have to wait until a replacement is found for outgoing Sanger director John Sulston.

Anopheles researchers argue that recent advances in efforts to create transgenic mosquitoes have added urgency to the plan. Mosquitoes have long proved awkward to modify genetically, in part because their eggs are hard and difficult to inject with foreign DNA. Last year, however, two research groups, one led by Collins and the other by Anthony James of the University of California, Irvine, succeeded in injecting foreign genes into embryos of *Aedes aegypti*, the mosquito vector for the viruses that cause yellow fever and dengue fever. This raised the hope that *Anopheles* might be similarly modified. "People will say that it's science fiction until the day you do it," comments Morel. "The human genome is already being sequenced, and so is *Plasmodium*. Once we have *Anopheles*, we will have all three actors in the malaria cycle." **–MICHAEL BALTER**

IMAGING

X-ray Crystallography Without Crystals

For much of his career, David Sayre has been seeing spots and doing everything he can to get rid of them. Sayre, an x-ray crystallographer now retired from IBM, makes images of materials using x-rays, which can reveal fine detail down to the arrangement of atoms in a molecule. But this ultrahigh-resolution imaging technique only works on crystals, in which many copies of a molecule are lined up in a regular array. When x-rays are targeted at such a crystal, they bounce off the atoms and interact to produce a set of diffraction spots, which researchers can mathematically reconstruct into an image of the molecule. Now Sayre and colleagues in the United States and the United Kingdom have done away with the need to form molecules into a crystal and diffract x-rays into spots. In this week's issue of *Nature* they report creating the first diffraction image from a noncrystalline sample, a feat that could revolutionize the imaging of the vast array of materials that cannot be crystallized, providing ultrahigh-resolution images of everything from cells to individual protein molecules.

"It's really a brilliant experimental

CONGRESS

U.S. Science Advocate George Brown Dies

Scientists have lost one of their leading advocates in Congress. Representative George E. Brown Jr. (D–CA), the oldest member of the House of Representatives and a leader of its Science Committee, died 15 July of an infection following open heart surgery. The physicist-turned-politician was 79.

Brown studied physics and engineering at the University of California, Los Angeles, in the 1940s and entered politics in 1954, winning a congressional seat in 1962 which he held ever since, except for a 2-year hiatus after losing a Senate race in 1970. He joined the House Science Committee in 1965, rising to chair in 1990. After Republicans won control of the House in 1994, Brown became the committee's senior Democrat. That post is now expected to pass to Representative Ralph Hall (D–TX), a Science Committee veteran and a former chair of its space science subcommittee. Observers say Hall's ascension is not likely to change the committee's direction.

One of the few House members with scientific training, Brown was an outspoken and often wry advocate for government spending on basic research and a booster of crewed and uncrewed space exploration. He was also a force behind the 1976 strengthening of the White House science adviser's office and the 1972 creation of Congress's Office of Technology Assessment, which the Republican leadership disbanded in 1995.

Brown was Congress's "wise man of science," says Rita Colwell, head of the National Science Foundation. "Even after sitting through hundreds of presentations by researchers, George never lost a genuine delight in hearing of new breakthroughs," recalls Representative F. James Sensenbrenner Jr. (R–WI), the current chair of the Science Committee. D. Allan Bromley, dean of engineering at Yale University and a science adviser to several Republican presidents, says Brown "will be very much missed." **–DAVID MALAKOFF**