

professionals. The emphasis will be on bench scientists who also make themselves available for field work, a formula which many experts have cited as a key to the success of the CDC.

The ECID plan calls for funding the agency in a manner similar to that of the European Molecular Biology Laboratory (EMBL) in Heidelberg, which is supported by annual contributions from all of the European Community (EC) member nations. "One of the main advantages of the ECID is that it will constitute a unique and very visible counterpart, instead of so many and somewhat cacophonous national organizations and institutes, to the American organizations and to [the World Health Organization]," claims Tibayrenc.

The creation of EMBL, for example, took several years of lobbying by researchers, and the laboratory's annual budget—about US\$50 million—is approximately one seventh that of the CDC. Many think it unlikely that the ECID will receive this level of funding.

Peter Smith, who heads the Department of Infectious and Tropical Diseases at the London School of Hygiene and Tropical Medicine, predicts that the center will never be established at all. National public



Michel Tibayrenc

health agencies may fear "a team of French epidemiologists descending upon them to investigate an epidemic ... [the ECID] obviously can't function that way."

Dan Colley, Head of the Division of Parasitic Diseases at the CDC, is more optimistic: "I would say that over the next year concrete plans could be made and proposals put forth. One would hope that over a 2–3 year period something might actually be formulated and enacted." Colley suggests that the center could focus on a few well-defined research areas initially, then expand in the future.

A strategy of gradual growth may be essential, given the broad nature of the board's current plans. In addition to intramural research, the ECID proposal calls for supporting basic science at other institutions, a role that would parallel that of the US National Institutes of Health (NIH) in principle, if not in scale. Tibayrenc asserts that the combined mission of the center will allow a broader range of projects. "The ECID ... research programs could be an opportunity to revive some very relevant fields of research that are presently deserted by young molecularist yuppies, such as classical parasitology and entomology."

ALAN DOVE, NEW YORK

Report recommends ground testing for space research

Priorities for future biomedical research in space are outlined in a new \$1 million, 276-page report by the US National Research Council entitled "A Strategy for Research in Space Biology and Medicine in the New Century."

The report reviews data from prior space missions in areas such as cell and developmental biology, sensorimotor integration, bone and muscle physiology and immunology, and advises that more ground research be done before taking experiments into space.

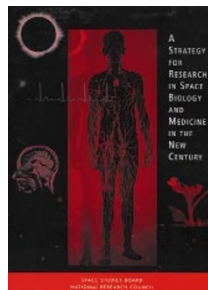
The FY98 NASA budget for life science research was \$50 million. "If one tenth the money was spent on Earth we could learn a lot more," says California Institute of Technology developmental biologist and member of the report committee, Elliot Meyerowitz.

For example, although the report recognizes that data on the bone loss observed in astronauts may have direct

applications to osteoporosis, it urges prudence in this field. "I am not advocating space research [for osteoporosis], there are lots of experiments that can be done to answer these questions on the ground," says committee member and vice president of bone biology and osteoporosis at Merck Sharp & Dohme, Gideon Rodan.

Nevertheless, the report proposes space-based experiments to be performed in several different areas of biological and medical research. "The committee took the point of view that the space station would go up anyway, so these are the experiments that should be done," admitted Meyerowitz. A copy of the report is available (<http://www.nas.edu/>).

KRISTINE NOVAK, NEW YORK



Nobel Prize for NO research

This year's Nobel Prize for Physiology or Medicine has been awarded to three US pharmacologists for their discovery that the unstable gas, nitric oxide (NO), is an essential regulator of vasodilation.

Working independently, Robert F. Furchgott, 82 (State University of New York, Brooklyn) and Louis J. Ignarro, 57 (University of California, Los Angeles), concluded in 1986 that NO is the factor released by endothelial cells that induces relaxation of blood vessel smooth muscle. Ferid Murad, 62 (University of Texas Medical School, Houston) discovered that the gas activates the cyclic GMP signal transduction pathway and that the vasodilator nitroglycerin ameliorates heart attacks by promoting NO release. Furchgott and Murad shared the 1996 Albert Lasker Award for Basic Medical Research, which is often considered a predictor of future Nobel Prize winners.



Ferid Murad, Robert Furchgott & Louis Ignarro

In addition to NO's importance in vasodilation, it also acts as a neurotransmitter in the central nervous system and is used by macrophages to kill bacteria and tumor cells. Drugs that regulate NO release are under development for the treatment of heart disease, high blood pressure, cancer and toxic shock syndrome. The anti-impotence drug Viagra promotes NO-induced vasodilation of penile blood vessels by preventing breakdown of cyclic GMP.

A delighted Furchgott, who still works on blood vessel biology in the laboratory, told *Nature Medicine* he has only one regret, "I feel that the Nobel Prize Committee could have made an exception this year and chosen a fourth person, Salvador Moncada, [to share the prize]."

Whereas it had been predicted that NO's crucial role in many physiological processes would earn its discoverers the coveted prize, the awarding of the Nobel Memorial Prize in Economic Science to Amartya Sen, Master of Trinity College, Cambridge, and an expert in welfare economics was unexpected. Sen is credited with changing how international organizations and governments respond to poverty and famine.

ORLA SMITH, NEW YORK