

Novartis Kicks Off Institute for Neglected Diseases

Drug company sees funding research to combat dengue and tuberculosis as corporate goodwill—and good business

SINGAPORE—Swiss drug giant Novartis is out to prove that it can do good for society while doing well for itself. With support from the Singapore government, Novartis is setting up a private, nonprofit institute dedicated to discovering better treatments for neglected diseases that are ravaging developing countries.

The Novartis Institute for Tropical Diseases (NITD) will initially focus on multidrug-resistant tuberculosis and dengue. Any resulting drugs will be available to developing countries without royalties, a step that Paul Herrling, Novartis's head of corporate research, hopes will "shine a light on the positive contributions we make to society." At the same time, NITD will give the company an entry into the medical and regulatory environments of developing countries.

Advocates for these neglected diseases gathered here last month for a 2-day conference to inaugurate the new institute and praise the initiative. "I'd like to see other countries do this," says Maria Freire, head of the Global Alliance for Tuberculosis Drug Development, adding that drug-delivery expertise is likely to prove far more helpful to the effort than money is. NITD will be in temporary quarters until April 2004, when it will move to a new building in Biopolis, a research park for the life sciences.

Novartis will pick up the lion's share of NITD's \$14.8 million annual budget for at least 10 years. Singapore's Economic Development Board is chipping in an undisclosed amount as part of its efforts to make the city-state a life science research powerhouse (*Science*, 30 August 2002, p. 1470). Additional support could come from international funding agencies and, later, income from sales in industrialized markets. NITD expects to hire 70 scientists, who will have access to specialists in other Novartis labs as well as the company's informatics databases and compound libraries. "The institute will have much more power than the 70 people actually here," Herrling says.

From a global health standpoint, new research efforts are overdue. Tuberculosis has rocketed back onto the public health agenda on the back of the AIDS epidemic, which leaves the body defenseless against the bacterium. And multidrug-resistant TB—difficult and expensive to treat—is on the rise. "More people died of TB in 2001 than ever before," notes Clifton Barry of the U.S.

National Institutes of Health's Laboratory of Host Defenses in Rockville, Maryland.

Freire says that "50-year-old treatments" offer sobering evidence of the state of TB research. Other scientists note that few researchers have taken advantage of the genome sequence of *Mycobacterium tuberculosis*, which has been available for 3.5 years. Herrling sees NITD filling that niche



In the spotlight. These are the first recruits to Novartis's new institute for tropical diseases in Singapore.

by applying genomics and molecular biology to the vast accumulated knowledge of TB.

With dengue, however, there is little to build on. The disease has been neglected because it is usually not fatal and typically occurs in outbreaks that coincide with the breeding season of its chief vector, the *Aedes aegypti* mosquito. Until recently, the disease was confined to relatively small geographic regions, but it is now sharply on the rise. There are no effective treatments for dengue infection.

Dengue is caused by four closely related flaviviruses, and an infection usually results in resistance to that particular variety, called a serotype. A second infection with a different serotype is the biggest risk factor for the disease progressing to dengue hemorrhagic fever (DHF), which can be deadly. Historically, that hasn't been a problem, because the four serotypes were geographically isolated. But greater population mobility has spread the dengue-carrying mosquitoes throughout the tropical world, and increased urbanization has made each succeeding outbreak more ferocious. In terms of caseloads

and economic burden, "dengue has worked its way into the top ranks of infectious diseases," says Duane Gubler, head of vector-borne disease research at the U.S. National Center for Infectious Diseases in Fort Collins, Colorado.

Researchers are trying to develop a single vaccine to protect against all four serotypes. But a failure in one part of the tetravalent vaccines might put some recipients at greater risk for DHF than if they had not been vaccinated. With that in mind, NITD plans to concentrate its dengue efforts on developing antiviral compounds to fight the disease. Researchers hope that administering antivirals in particular areas at the first indication of an outbreak will be more cost-effective than mass inoculations.

Molecular biologist Subhash Vasudevan is moving from James Cook University in Townsville, Australia, to head dengue efforts at NITD. He's encouraged by the success of antiviral compounds, such as protease inhibitors, in treating HIV. But work on antivirals for dengue is still at an early stage.

There's no shortage of scientists eager to take on that challenge. The institute quickly filled its initial 30 research openings, although the search for a director is still under way. "It's a dream of every drug-discovery researcher to find something that helps the developing world," says Thomas Keller, a chemist who transferred to NITD from the Novartis Respiratory Research Center in Horsham, U.K. Molecular biologist Sabine Daugelat will join the institute later this year after completing a 5-year stint at the Max Planck Institute for Infection Biology in Berlin. "I like the excitement of this opportunity to do applied work on TB drug discovery," she says.

The only damper on the enthusiasm of the global community is the realization of how much more work will be needed to reduce the toll from dengue and TB. At the very least, NITD must find partners to take drug leads through trials and into clinical use. Warns Scott Halstead, a dengue researcher at the Uniformed Services University of the Health Sciences in Bethesda, Maryland: "We're going to need real money" to bring treatments to the patients who need them. —DENNIS NORMILE