

## US panel recommends major tuberculosis vaccine effort

In a report released on August 20th, an advisory group at the US Centers for Disease Control and Prevention (CDC) recommended a large-scale effort drawing on the resources of government, academic and corporate researchers to develop a new generation of vaccines against tuberculosis (TB). Although it acknowledges that cur-

rent drug treatments and control measures have made considerable inroads against the disease, the report from the Advisory Council for the Elimination of Tuberculosis (ACET) concludes that eliminating TB as a public health threat will ultimately require an effective vaccine.

TB causes an estimated 3.1 million deaths per year worldwide, equaling the death rate from all diarrheal diseases combined. Though the emergence of the global AIDS pandemic led to a dramatic resurgence of TB during the 1980s, renewed control efforts have now brought US incidence of the disease to an all-time low. But Helene Gayle, Director of the National Center for HIV, STD, and TB Prevention at the CDC, cautions that "the rate remains 75 times greater than the level necessary to eliminate this disease as a significant public health threat." Bridging that gap, the ACET report states, will require new vaccines.

The only TB vaccine currently in widespread use, bacille Calmette-Guérin (BCG), provides protection from some severe childhood forms of TB and leprosy, but does not prevent the development and spread of the more common adult disease. And while several potential pre-infection TB vaccines are in development (see table), the ACET report calls for researchers to focus efforts on developing what many regard as a more elusive goal: an effective post-infection vaccine.

Pre-infection vaccines stimulate an immune response that prevents infection at the earliest stage—when the organism undergoes limited replication in the lung before becoming dormant. But an estimated 2 billion people worldwide are already infected with latent TB, which may re-emerge and become contagious when the host's immune system is weakened. Targeting this stage of the disease is

Tuberculosis vaccines in development		
Manufacturer	Development phase	Country
Stanford Rook Holdings & South African MRC & UK National Heart, Lung and Blood Institute	III	UK, Uganda & Zambia
Cel-Sci Corp. & University of Maryland	preclinical	USA
Pasteur Merieux & Cornell University, NY	preclinical	USA
Pasteur Merieux & ID Biomedical	preclinical	USA
VacTex Corp.	preclinical	USA
National Institute for Medical Research	preclinical	UK
Hammersmith Hospital	preclinical	UK
Institute of Cancer Medicine and Cell Biology	preclinical	Australia
Merck & Co.	preclinical	USA
Corixa & SmithKline Beecham	preclinical	USA

Courtesy of ADIS International

much more challenging. "There's still very little we understand about reactivation of TB," says Lee Riley, a professor in the Department of Public Health at the University of California, Berkeley.

For either type of vaccine to be developed, considerable advances will have to be made in understanding *Mycobacterium tuberculosis*, the causative agent of TB. In

June, researchers published the complete genome sequence of the organism (*Science*, **393**, 537; 1998), but other hurdles remain. While emphasizing that the genome sequence is an invaluable tool, Riley states that "we don't have the biological information on many of the genes that are being identified,

so until that's really done in much more depth, I'm not exactly sure how quickly we can get at the information that's going to be useful for vaccine development." According to Ian Orme, a TB researcher at Colorado State University, "this will take a lot of money, and we shall not see any

results for a significant period of time."

Money, at least, has become less of a problem for TB researchers in recent years. In 1991, the National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health (NIH), budgeted \$5 million for work on TB. By 1996, that funding had risen to nearly \$65 million, representing the lion's share of worldwide public funding for research into the disease. "The NIH has responded appropriately to the crisis. In addition, I perceive a deep commitment on the part of the NIH officials overseeing TB research," says Orme.

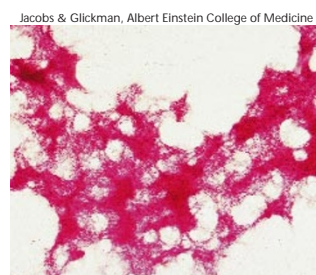
Rather than calling for major funding increases to bring about development of a TB vaccine, the ACET report recommends

greater inter-organization coordination, similar to the Multilateral Initiative on Malaria being coordinated by the World Health Organization, the CDC and other agencies (*Nature Med.* **4**, 479; 1998, Vaccine Supplement).

The ACET recommendations are non-binding, and although they have been widely embraced by

TB researchers, many acknowledge that the advances that must be made in understanding the immune response to this pathogen make the development of new vaccines, especially for post-exposure treatment, more than a decade away.

ALAN DOVE, NEW YORK



TB vaccine strain viewed by fluorescence microscopy

## New research centers created worldwide

### Buenos Aires

Another stage in the establishment of Luc Montagnier's global network of HIV/AIDS research centers has been completed. The World Foundation AIDS Research and Prevention organization, founded in 1993 by Montagnier and director General of UNESCO Frederico Mayer, secured a \$12 million loan from the inter-American Bank last month to set up a research site in Buenos Aires.

The Argentinean site is one of seven that form the network. Facilities in Paris, the

Ivory Coast, Rome and New York (*Nature Med.*, **4**, 260; 1998) are already operational. The Foundation is now in discussions with the South African government to set up a site in Pretoria, and is negotiating with the Philippine government to open the last of the laboratories there. According to the Foundation's secretary general, Pierluigi Vagliani, the loan for the Buenos Aires site will cover building and equipment costs in addition to providing operating expenses for the next five years. The site will employ around 20 researchers.