

# Bacterial AIDS vaccine ready for testing

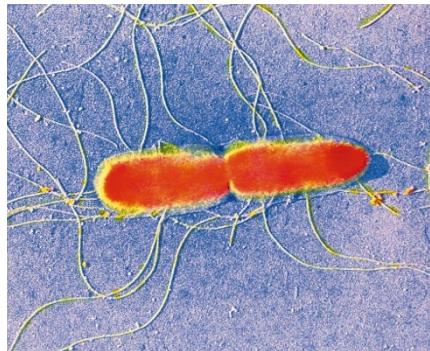
Paul Smaglik, Baltimore

Robert Gallo, director of the Institute of Human Virology in Baltimore, Maryland, last week unveiled plans to test a novel AIDS vaccine in Baltimore and Uganda within the next two years. Unlike most vaccines against HIV, it can be delivered orally. Also unusual is its use of a bacterium — a weakened form of *Salmonella typhi* — to deliver a package of HIV genes.

An orally administered vaccine for AIDS would be relatively cheap and easy to administer. Gallo believes the oral *Salmonella* approach may be particularly useful, as it seems to stimulate strong immune responses in mucous membranes, thought to be the key to preventing the heterosexual transmission of HIV. This is the most common way for the disease to spread in Africa and throughout the developing world.

But in announcing the planned trial, Gallo was at pains not to promise too much. This reflects past experience: despite more than a dozen clinical trials for preventative AIDS vaccines, no one candidate has emerged as a clear solution to the pandemic.

The vaccine was developed by George Lewis, director of the Institute for Human



**Germ warfare: weakened *Salmonella* could deliver an immune-boosting cargo of HIV genes.**

Virology's vaccine division, and his colleague David Hone. It consists of a strain of *Salmonella* that cannot itself cause disease, carrying genes for an HIV protein called gag and fragments of several other viral proteins. Andrew McMichael, of the University of Oxford, originally chose this package for use as a 'naked' DNA vaccine.

Once inside human cells, the cell walls of the weakened *Salmonella* break and release the HIV DNA. The host cell then transcribes this DNA, to produce the HIV proteins

which trigger an immune response. The goal is not to elicit the production of antibodies against HIV, but to prompt cytotoxic T-lymphocytes to recognize and destroy any cells infected with the virus.

The vaccine's development is being sponsored to the tune of US\$1 million over the coming year by the International AIDS Vaccine Initiative (IAVI), which has been given US\$25 million from the Bill and Melinda Gates Foundation. Wayne Koff, IAVI's vice-president for research and development, says the jury is still out on the vaccine: "It's unclear if these are the right genes at this time."

However, one advantage of the *Salmonella* system is that the relatively large bacterium could carry a suite of different genes. Gallo expects to tinker with other possible gene components in the laboratory while this approach is being tested.

Tony Fauci, director of the US National Institute of Allergies and Infectious Diseases, agrees that it pays to be cautious. "We have been burned before in trying to predict how a candidate will fare before the trial even starts," he says. "Having said that, I like this approach." ■

♦ <http://www.iavi.org/4/index.asp?highlight=134>