

The Long Search for a Malaria Vaccine



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A child suffering from malaria sleeps under a mosquito net while a mother feeds her child, also suffering from malaria, at a hospital in Kenya in 2009

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This is the VOA Special English Health Report.

Malaria control efforts currently depend on things like chemically treated bed nets and spraying against mosquitoes. But scientists keep trying to find other ways to prevent the disease.

A number of vaccines remain under development. Most contain genetically engineered versions of a few proteins from the Plasmodium parasite. Plasmodium is the organism that causes malaria. Those modified proteins are designed to get the body's defenses to launch an immune response against the Plasmodium. But the parasite contains thousands of proteins.

Another experimental vaccine includes a deactivated version of the entire parasite. Robert Seder is a researcher at the National Institute of Allergy and Infectious Diseases, near Washington.

ROBERT SEDER: "So instead of picking out one or two or three genes, you have the potential for what we call breadth -- generating an immune response that would be broad rather than narrower. And so that would be a good thing."

Radiation is used to weaken the parasite so it cannot make people sick or get spread by a mosquito. To make the vaccine, scientists use the parasite at a time in its growth when the organism is called a sporozoite

This idea has been known since the nineteen sixties. But Mr. Seder says a discovery by a researcher at a vaccine company cleared the way for progress.

ROBERT SEDER: "The major breakthrough here was that my collaborator, Stephen Hoffman at Sanaria, developed a method where he could isolate the sporozoites and purify them so that they could administer it as a vaccine to humans. And no one thought that that was possible."

But no one knew either if the weakened sporozoites would activate the immune system to protect against malaria. So researchers tested it on volunteers and found that it was safe -- there were only minor side effects. But it was not very effective. Only two out of forty-four volunteers were protected when bitten by malaria-infected mosquitoes.

To find out why, the researchers tested the vaccine on laboratory animals. They decided that the problem was the way the vaccine had been given to the volunteers. It was injected into the skin, to simulate the bite of a mosquito. Mr. Seder says it would have been more effective if it had been given directly into the blood.

However, vaccines are generally given by mouth or injected into the skin or muscle. Having to inject it into the blood could make vaccination programs more difficult if the vaccine is approved for general use. Mr. Seder says it is also too soon to know how much the vaccine would cost.

For now, more testing is needed. A report on the study appeared in the journal Science.

And that's the VOA Special English Health Report. You can find more stories about the fight against malaria at voaspecialenglish.com. I'm Steve Ember.

Contributing: Art Chimes