

Genome deciphered for elephantiasis worm

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By Will Dunham

WASHINGTON (Reuters) - Scientists have mapped the genome of a worm that causes elephantiasis in what they called on Thursday an important step toward developing new drugs or vaccines to fight the mosquito-borne disfiguring disease.



Elephantiasis is marked by hideous swelling of the arms, legs, head, genitals or breasts. It is caused by small, thread-like parasitic worms that can live for years inside the human body and thrive in the human lymphatic system.

Writing in the journal *Science*, the researchers said they figured out the genetic content of *Brugia malayi* (pronounced BROO-gee-ah ma-LAY-eye), one of the worms most responsible for causing elephantiasis, also called lymphatic filariasis.

Experts said more than 150 million people worldwide have been infected by this and similar parasites, particularly in parts of Africa, Asia and Latin America. The World Health Organization estimates that more than 40 million people are seriously incapacitated and disfigured by elephantiasis.

People generally get infected when bitten by a mosquito that previously has eaten the blood from another infected person containing the worm larvae.

The researchers said knowledge of the genes involved in various functions of the worm might point to ways to undercut its disease-causing properties, guiding the development of new drugs or vaccines.

They also said that a fuller understanding of the way the worm manages to elude an infected person's immune system could help in the development of new methods to prevent people's bodies from rejecting transplanted organs.

The worms release chemicals that lessen the response of the immune system, the body's natural defenses. The immune systems of some patients who get a transplanted organ sometimes attack it as if it were a foreign invader.

'BETTER DRUGS'

"We need better drugs, better therapies. Right now the therapies are not completely effective," said Elodie Ghedin, an infectious diseases expert at the University of Pittsburgh School of Medicine in Pennsylvania who led the study.

"When we have the whole genome like this, we have a list now of potential genes that now can be studied in more detail," Ghedin added in a telephone interview.

The worms often place themselves in front of vessels that drain liquid from lymph nodes, obstruct the drainage and cause surrounding tissues to fill with fluid and swell. The tissues can become infected, turning black and oozing puss. People with the disease often have swollen limbs of massive size that leave them disabled.

"It's very painful," Ghedin said.

Diseases caused by these kinds of parasitic worms are treatable, but current treatments were devised decades ago, Dr. Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases, said in a statement.

"There is an urgent need for new discoveries in this area because of the limitations of the current drugs, including toxicities and the development of resistance," he said.

Fauci's institute is part of the U.S. National Institutes of Health, which backed the research.

The female worms can live up to eight years in the body. Existing drugs, which must be taken for years on end, zero in on the worms' larvae and do not eradicate the adults.