

Potential clue to Ebola treatments uncovered, researchers say

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Electron micrograph of ebola. Source: U.S. Centers for Disease Control & Prevention

Unusual protein identified in quest for drug remedies.

(HealthDay)—Scientists who mapped out the shape and structure of a key protein in the Ebola virus say their discovery could help efforts to develop drugs to prevent or treat infection with the deadly pathogen.

The protein has a molecular architecture unlike any protein known to exist, according to the researchers. Its distinctive folded shape may be crucial to how the virus replicates itself inside cells, they said.

"This provides us with clues about how to interfere with the process of infection, as well as replication of the virus, which can, in turn, lead to discovery of [new drugs](#) and therapies that would take care of the

disease," said Zygmunt Derewenda, of the department of molecular physiology and biological physics at the University of Virginia School of Medicine.

The protein is "functionally very important, because it is the protein responsible for the packaging of the ribonucleic acid in the cell, so there are many copies of this protein that are necessary to accomplish that function," Derewenda explained in a university news release.

"This also means it may be easier to design drugs that bind to this protein because our target is so abundant in the cell and we can interfere with its function," the researcher added.

Researchers worldwide are attempting to develop Ebola treatments in the face of an epidemic in West Africa that has already killed thousands of people. On Wednesday, the first person diagnosed with the disease in the United States died in Dallas.

According to a recent report from the U.S. Centers for Disease Control and Prevention, cases in Liberia are doubling every 15 to 20 days, and those in Sierra Leone and Guinea are doubling every 30 to 40 days. There is no known treatment for the virus, which is spread by transmission of bodily fluids.

The study was published online in September in the journal *Acta Crystallographica Section D*.

Another University of Virginia researcher is using the findings about this Ebola [protein](#) in his efforts to pinpoint compounds that can inhibit the infection process and could be developed into drugs to fight Ebola.

About 40,000 compounds are being screened by Daniel Engel, of the department of microbiology, immunology and cancer biology.

"The idea is that if you survey such a large number of compounds, because of the diversity in chemical structure that they have, you should be able to find compounds that inhibit the process you're looking at—in this case, Ebola replication," Engel said in the news release.

Knowing the molecular structure of Ebola helps enable the scientists to manipulate promising compounds to make them more effective against the virus.

"After we find out what we have, we have to make them better and better," Engel said.

The promising anti-Ebola [compounds](#) are sent to the U.S. Army Medical Research Institute for Infectious Diseases, which handles all testing involving live viruses, according to the news release.

More information: The U.S. Centers for Disease Control and Prevention has more about [Ebola](#).

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