

Team identifies toxic Ebola protein fragment

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William Gallaher, PhD, Emeritus Professor of Microbiology, Immunology & Parasitology at LSU Health New Orleans School of Medicine, has discovered a fragment of an Ebola virus protein that is toxic to cells and may contribute to infection and illness. The findings were published online January 20, 2015, in the open access journal, *Viruses*.

The fragment was found within a grouping of amino acids that is made in parallel with the protein involved in attachment of the virus to [cells](#). Called the "Delta peptide," it has been shown recently to block the Ebola virus from attaching to already-infected cells. The new findings suggest that Delta peptide possibly functions by changing membrane permeability.

Following his discovery, Dr. Gallaher contacted Robert Garry, PhD, Professor of Microbiology and Immunology at Tulane University School of Medicine, a longtime collaborator, to produce a structural model and potential mechanism of action. The results of that modeling work were fashioned into a manuscript that was subjected to rigorous peer view by experts in the field and are being made public only after acceptance into a special issue on "Advances in Ebolavirus, Marburgvirus, and Cuevavirus Research 2014-2015" in *Viruses*.

Although preliminary studies using synthetic peptides have confirmed the potential of the fragment, its specific role and potency in its natural environment within Ebola virus-infected cells are yet to be determined. However, Dr. Gallaher and his colleagues have determined how to

deactivate the toxic properties of the Ebola protein fragment in the laboratory environment. He and his colleagues are also developing inhibitors of the toxic mechanism, which may ultimately be useful as drugs, should a role for Delta peptide in Ebola virus disease become established by future studies.

According to the Centers for Disease Control and Prevention (CDC), the 2014 Ebola epidemic is the largest in history, affecting multiple countries in West Africa. Two imported cases, including one death, and two locally acquired cases in healthcare workers have been reported in the United States. As of January 16, 2015, the CDC and World Health Organization report 13,510 laboratory-confirmed cases and 8,483 deaths worldwide.

More information: <http://www.mdpi.com/1999-4915/7/1/285>

Provided by Louisiana State University

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