

Host proteins that impair Ebola virus infection identified

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Ebola virus particles (red) on a larger cell. Credit: NIAID

Several proteins have been identified in hosts that interact with Ebola

virus and primarily function to inhibit the production of viral genetic material in cells and prevent Ebola virus infection, according to a study led by the Institute for Biomedical Sciences at Georgia State University.

Zaire ebolavirus or Ebola virus, an RNA virus pathogen that belongs to the filovirus family, causes outbreaks of severe disease in humans. This public health threat has produced outbreaks where reported case fatality rates ranged up to 90 percent.

The West Africa Ebola virus epidemic from 2013-2016 resulted in more than 28,000 infections and more than 11,000 deaths. Four outbreaks occurred in the Democratic Republic of Congo from 2017-2021 and Ebola virus reemerged in Guinea in 2021.

The study identified several [host proteins](#) that interact with the Ebola virus [protein](#) VP30, which plays a critical role in initiating viral transcription. The host proteins RBBP6, hnRNP L and PEG10 inhibit viral RNA synthesis and Ebola virus infection. Another host protein, hnRNPUL1, has the opposite effect and enhances viral RNA synthesis and Ebola virus infection.

The findings are published in *The EMBO Journal*.

"These findings are remarkable because we typically think of Ebola virus as growing uncontrolled in infected people. Our data show that our cells contain multiple proteins that target the same viral interface to slow virus gene expression and replication," said Dr. Christopher Basler, corresponding author of the study, professor and director of the Center for Microbial Pathogenesis in the Institute for Biomedical Sciences and a Georgia Research Alliance Eminent Scholar in Microbial Pathogenesis. "We hope that these findings will enable us to develop new ways to prevent or treat Ebola virus infections."

More information: Jyoti Batra et al, Non-canonical proline-tyrosine interactions with multiple host proteins regulate Ebola virus infection, *The EMBO Journal* (2021). [DOI: 10.15252/emboj.2020105658](https://doi.org/10.15252/emboj.2020105658)

Provided by Georgia State University

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