

Scientists discover how Marburg virus grows in cells

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A protein that normally protects cells from environmental stresses has been shown to interact Marburg virus VP24, allowing the deadly Marburg virus to live longer and replicate better, according to a cell culture study led by scientists at the Icahn School of Medicine at Mount Sinai. The investigators say that deciphering the molecular details of how Marburg virus and the host protein interact may help in developing inhibitors of the virus. Results from the study are published online March 13 in the peer-reviewed journal *Cell Reports*.

Infections with Marburg [virus](#) lead to death in as many as 90% of those infected. Once restricted to Africa, cases of the virus have been identified in travelers from Europe and the United States, making effective prevention and treatment a top biodefense priority.

"Marburg virus has been essentially untreatable," said the study's senior author, Christopher F. Basler, PhD, Professor of Microbiology, at the Icahn School of Medicine at Mount Sinai. "Our study shows that Marburg virus VP24 interacts with the host protein Keap1." Dr. Basler explained that Keap1 regulates the antioxidant response, normally protecting cells from harm. When the virus interacts with Keap1, Marburg virus-infected cells survive longer, facilitating virus growth.

The research builds on previous research in Dr. Basler's lab. Studying Ebola virus, they found that Ebola virus VP24 protein blocks interferon, an important part of the host defense against virus detection. Unlike Ebola virus, a different host protein was shown to interact with Marburg

virus.

"If we can develop inhibitors, the virus will die and replicate more slowly – that's the hypothesis that we have now," said Dr. Basler. Next, his laboratory hopes to pursue research and development of targeted therapies.

Provided by The Mount Sinai Hospital

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