

Researchers develop Ebola treatment effective three days after infection

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Lead UTMB author Thomas Geisbert. Credit: The University of Texas Medical Branch at Galveston

Researchers from The University of Texas Medical Branch at Galveston and Tekmira Pharmaceuticals Corp., have successfully developed a post-exposure treatment that is effective against a specific strain of the Ebola virus that killed thousands of people in West Africa.

The study results, in the April 22 edition of *Nature* journal, demonstrated that the treatment is the first to be shown effective against the new Makona outbreak strain of Ebola in animals that were infected with the virus and exhibited symptoms of the disease.

The treatment uses a sequence specific short strand of RNA, known as siRNA, designed to target and interfere with the Ebola virus, rendering it harmless. One of the advantages of this approach is the ability to quickly modify it to different viral strains.

"We quickly adapted our candidate treatment to

target the Makona outbreak strain of Ebola virus," said UTMB's Thomas Geisbert, professor of microbiology and immunology. "We were able to protect all of our nonhuman primates against a lethal Makona Ebola infection when treatment began three days following infection. At this point, those infected showed clinical signs of disease and had detectable levels of virus in their blood."

Although all infected animals showed evidence of advanced disease, those receiving treatment had milder symptoms and recovered fully. The untreated controls succumbed to the disease on days eight and nine, which is similar to that reported in the field after patients begin showing symptoms of Ebola.

This treatment also protected against liver and kidney dysfunction and blood disorders that occur during an Ebola infection. These results indicate that the [treatment](#) may confer protective benefits that go beyond improving survival rates and effective control of virus levels in the body.

"This study demonstrates that we can rapidly and accurately adapt our siRNA-LNP technology to target genetic sequences emerging from new Ebola [virus](#) outbreaks," said Dr. Mark Murray, president and CEO of Tekmira Pharmaceuticals.

The Tekmira siRNA-based therapeutic is now being evaluated in Ebola-infected patients in Sierra Leone.

More information: *Nature*, [DOI: 10.1038/nature14442](#)

Provided by University of Texas Medical Branch at Galveston

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