

Researchers find potential novel treatment for influenza

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An experimental drug has shown promise in treating influenza, preventing lung injury and death from the virus in preclinical studies, according to University of Maryland School of Medicine researchers publishing in the journal *Nature* on May 1.

The scientists found that a drug called Eritoran can protect mice from death after they have been infected with a lethal dose of influenza virus. The potential value of this drug as single therapy or in combination with antivirals is further supported by previous research that found that it is safe for use in humans. The findings are of particular interest to scientists now that the latest [deadly strain](#) of flu, H7N9, is spreading in China – 82 people in China had been infected with the new strain of [flu virus](#) as of April 26, and 17 had died.

Previous scientific studies have revealed that [acute lung injury](#) caused by the influenza virus is the result of an [immune reaction](#) mediated by a protein called Toll-like receptor 4 (TLR4). Senior author Stefanie Vogel, Ph.D., Professor of Microbiology and Immunology and Medicine at the University of Maryland, and colleagues previously demonstrated that mice that lack the ability to signal through TLR4 are highly refractory to influenza-induced lethality. In their new study, they extend these findings by showing that Eritoran—a synthetic inhibitor of TLR4, originally developed by Eisai Inc. for treatment of sepsis—improved clinical symptoms and prevented death when administered up to six days after infection with the [influenza virus](#). Existing [antiviral medications](#) must be administered within two days of infection to be optimally

effective.

Annual [influenza epidemics](#) are estimated to result in 3 million to 5 million cases of severe illness and 250,000 to 500,000 deaths yearly worldwide. The virus is continually evolving and new variants give rise to seasonal outbreaks. Increasing resistance to existing [antiviral therapies](#) and the short time-frame in which these agents are effective highlight the critical need for new treatments, such as Eritoran.

"Currently, vaccines and antiviral medications are the two main approaches to preventing influenza," says Dr. Vogel. "Problems associated vaccine development may limit efficacy and/or vaccine availability. In addition, people suffering from influenza may not go to the doctor or to the emergency room in time for the antivirals to be effective. Also, as the flu adapts to resist existing treatments, we are in search of new therapies to save lives and prevent severe illness. Our research seems to show that Eritoran could provide doctors with a new tool in their flu-fighting toolbox, as well as several more days to treat the sickest of patients successfully . More basic research is needed, but we are hopeful that this medication could one day change the way that we treat severe influenza and possibly other pathogens that cause disease by a similar mechanism."

More information: [dx.doi.org/10.1038/nature12118](https://doi.org/10.1038/nature12118)

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