

## Mosquito spit might be a universal vaccine ‘Holy Grail’ – preventing everything from malaria to Zika

Her idea revolved around mosquito spit.

Building on the work of colleagues and other scientists, [Jessica] Manning, a clinical researcher for the U.S. National Institute of Allergy and Infectious Diseases, believed she could use pieces of mosquito saliva protein to build a universal vaccine.

The vaccine, if it pans out, would protect against all of the pathogens the insects inject into humans – malaria, dengue, chikungunya, Zika, yellow fever, West Nile, Mayaro viruses and anything else that may emerge.

“We need more innovative tools,” said Manning. A vaccine like this would be “the Holy Grail.”

On [June 18], The Lancet published the initial results of this work with her colleagues: the first-ever clinical trial of a mosquito spit vaccine in humans.

The trial showed that an Anopheles mosquito-based vaccine was safe and that it triggered antibody and cellular responses.

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What Manning is looking for is called a vector-based vaccine. A vector is the living organism – like a mosquito – that transmits a pathogen such as malaria – between humans, or from animals to humans.

All existing vaccines for humans target a pathogen. Manning’s goes after the vector.

The idea is to train the body’s immune system to recognize the saliva proteins and mount a response that would weaken or prevent an infection.

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