

Can a combination immune therapy reduce genital herpes outbreaks?

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Herpes simplex virus. Credit: CDC

Yale investigators have shown that the combination of a vaccine and a medicated cream is a promising strategy to dramatically reduce the recurrence of genital herpes. Their study, co-led by researchers at the University of Pennsylvania and University of Cincinnati Children's

Hospital Medical Center, was published in the journal *npj Vaccines*.

Herpes simplex virus (HSV) type 2, which causes [genital herpes](#), is very common, affecting more than 400 million people worldwide. There's no cure and efforts to develop a vaccine have had limited success.

The research team tested a novel vaccine strategy, known as prime and pull, in guinea pigs infected with genital herpes. The "prime" involves a vaccine that generates a response to the virus from T cells, highly specialized immune cells. The "pull" consists of a cream containing imiquimod, a medication commonly used to treat genital warts. Applied to the affected area, the cream attracts key [immune cells](#) to the site of infection where they can block the virus from spreading and causing herpes lesions.

The study showed that the effect of the combination therapy was far greater than either the vaccine or [cream](#) alone. "It's the first time that a study has shown that prime-and-pull strategy can block existing [recurrent disease](#)," said co-corresponding author Akiko Iwasaki, the Waldemar Von Zedtwitz Professor of Immunobiology at Yale School of Medicine.

"Development of a therapeutic HSV [vaccine](#) is a high priority. Our exciting results have encouraged us and, hopefully others, to pursue this strategy with more vaccines," said co-corresponding author David Bernstein, professor of pediatrics and former director of the Division of Infectious Diseases at Cincinnati Children's Hospital.

The study team gave three rounds of treatment to the animals, noting that the strategy worked rapidly and beginning with the first round.

This strategy, if developed into a therapy for humans, could be a game changer for individuals with recurrent infections or resistance to standard antiviral treatment, said Iwasaki. Active herpes infection causes

painful lesions that are physically and emotionally harmful to affected people, she noted.

More information: *npj Vaccines*, [DOI: 10.1038/s41541-019-0129-1](https://doi.org/10.1038/s41541-019-0129-1)

Provided by Yale University

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