

Genetically-engineered vaccine shows promise in elusive quest to control herpes

A genetically edited form of a herpes simplex virus (HSV) has outperformed a leading vaccine candidate in a new preclinical study by researchers at the University of Cincinnati, Northwestern University, and the University of Nebraska-Lincoln. The vaccine, called R2, is a form of the herpes simplex virus type 1 (HSV-1) virus that causes cold sores around the lip, but can cross-protect against HSV type 2 (HSV-2), the sexually transmitted type of HSV that is usually responsible for genital herpes. To generate the vaccine, the virus was effectively engineered to keep it from taking refuge in the nervous system and eluding an immune response.

The newly reported study showed that vaccinating guinea pigs using the modified live virus vaccine significantly increased the production of virus-combating antibodies. And when challenged with a virulent strain of HSV-2, vaccinated animals displayed fewer genital lesions, reduced viral replication, and less of the viral shedding that spreads infection to others.

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"The fact that the viral shedding was knocked down so much with the R2 vaccine is really important, because it's the viral shedding—even if it doesn't cause lesions—that can then pass on the virus," said Gary Pickard, PhD, professor of veterinary medicine and biomedical sciences at Nebraska.

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