And Then There Were Three: A New Trivalent Herpes Vaccine Enters The Scene

By Josh Bloom — January 19, 2017

Make room, Genocea and Rational Vaccines. There may be a new Herpes kid on the block.

A new study[1] describes a trivalent vaccine—containing different strains — called HSV-2 gC2/gD2/gE2. HSV-2 refers to the herpes strain that causes genital herpes (1), and gC2, gD2, and gE2 are glycoproteins—proteins that are bound to sugars—that have different functions. The gD2 protein helps block the entry of the virus into the cell, while gC2 and gE2 help the virus evade the immune system.

This means that the vaccine produces antibodies that target two different mechanisms that help HSV-2 cause infection.

The degree of protection of the new vaccine, as well as the production of antibodies, were used to determine its effectiveness. It protected guinea pigs very well but did not do so well with Macaque monkeys. The monkeys were chosen because they are closest to humans and therefore more predictive of the efficacy of the vaccine in humans. The explanation for the absence of a strong response in monkeys was that the monkeys show only mild symptoms when exposed to herpes.

Nonetheless, there is a lot of enthusiasm, at least from the paper's lead author, Harvey Friedman, M.D., of the Perelman School of Medicine at the University of Pennsylvania: "I really do think this is more promising than other vaccine research out there. I've never seen anything published that comes close to our efficacy," he told Rachel Feltman of Popular Science [2].

Whether or not this happens will be decided, at least partially, by how well it holds up under post-
publication review. That will determine whether the group can find a drug company partner.

So, while the researchers are confident that they have a winner on their hands, there is no way to directly compare the Penn vaccine candidate to GEN-003, because it has not yet been tested in humans, which puts them significantly behind in the race. Phase II data on GEN-003 has been published. Rational Vaccines' CSO Dr. Bill Halford claims they will be publishing the results of an unregistered pilot study of their Theravax vaccine, done in a small group in a foreign country.

For detailed articles on the other herpes vaccine candidates, please read here [3].

Note:

1. Although HSV-1 is still called oral herpes, and HSV-2 genital herpes, the lines between the two are becoming blurred. In certain populations, HSV-1 causes more genital herpes.

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