New, even more effective HPV vaccine in sight

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A recently published paper by the Department of Immunodermatology at the Medical University of Vienna has unveiled a second-generation prophylactic HPV vaccine. In future, this will not only protect against the majority of genital high and low-risk types, but also the types that are responsible for the development of skin warts.

The results of the pre-clinical study, which raises hopes for the future development of a broadly effective vaccine against the Human Papillomavirus (HPV), have recently been published in the highly respected magazine *Journal of Investigative Dermatology*. The study was

carried out by Christina Schellenbacher and a team led by Reinhard Kirnbauer from the Department of Immunodermatology at the MedUni Vienna (headed by Georg Stingl), with the collaboration of working groups from the Vienna University of Veterinary Medicine, the University of Malmö and the Johns Hopkins University (in Baltimore, USA). The next stage involves the vaccine's evaluation in clinical trials.

Unlike with the vaccines that have been available previously, which contain two to four antigens, the researchers adopted a different approach: they put together an individual, new antigen (RG1-VLP) from the human papillomavirus's main capsid protein L1 and auxiliary capsid protein L2. In laboratory studies, this vaccine demonstrated significantly broader effectiveness against high and low-risk types of HPV compared to the vaccines that are available currently.

New vaccine also effective against hand and foot warts

Unless previous vaccines, the new active ingredient also protects for the first time against cutaneous, or skin-based, types of HPV. These types of HPV cause hand and foot warts as well as flat warts, primarily among children, but also in adults. These skin changes can cause significant problems, especially for immunosuppressed patients.

Vaccination makes sense for children

The results of the study also raise the prospect of administering the vaccine to children. According to the researchers, this would help effectively prevent the development of skin warts during childhood and later infections with genital viruses.

Reinhard Kirnbauer, who is also already the inventor of the existing

HPV16 vaccine and therefore the key element of the new vaccine, also highlights two further advantages: "The vaccine has been formulated as a singular antigen (RG1-VLP), offering a prospective economic advantage compared to the existing licensed vaccines and a nine-in-one vaccine that is currently undergoing clinical trials. HPV-VLP vaccines also have an excellent safety profile, which means we are now keen to push ahead with the evaluation of the vaccine in clinical studies."

More information: Schellenbacher, C. et al. Efficacy of RG1-VLP Vaccination against Infections with Genital and Cutaneous Human Papillomaviruses, *Journal of Investigative Dermatology*. DOI: 10.1038/jid.2013.253

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