

## Statement from the National Cancer Institute on FDA Approval of the HPV Vaccine

*Collaborative science at NCI led to invention of technology for HPV vaccine*

Nearly two decades ago, researchers at the National Cancer Institute (NCI), part of the National Institutes of Health, and other institutions began searching for the underlying causes of cervical cancer. That scientific quest led to today's approval by the Food and Drug Administration of the vaccine Gardasil™, which protects against infection from the two types of human papillomavirus (HPV) that cause the majority of cervical cancers worldwide.

Population studies helped to establish the link between HPV infections and the disease, revealing that while most HPV infections clear and do not lead to cancer, virtually all cases of cervical cancer were caused by HPV infection. NCI scientists Douglas Lowy, M.D., and John Schiller, Ph.D., pioneers in HPV research, then examined ways to boost the body's immune response to prevent the cancer-causing infection. This work led to the development of the technology on which the HPV vaccine is based.

"Genetic engineering - technology involving the manipulation of genetic material - was used to create this vaccine, which is made up of non-infectious virus-like particles (VLPs)," explained Lowy, chief of the Laboratory of Cellular Oncology in NCI's Center for Cancer Research (CCR). "These hollow spheres, formed by a single protein from the virus (L1 protein), trigger an antibody response that is capable of protecting the body against infection by the targeted virus types."

"Gardasil is similar to other immunizations that guard against viral infection," said Schiller, deputy chief of the Laboratory of Cellular Oncology in CCR. "By preventing infection with two of the HPV types that can cause cervical cancer, this vaccine, if given prior to exposure to these sexually transmitted viruses, can protect women from ultimately developing cervical cancer."

"This vaccine opens a new era in cancer prevention," said NCI Acting Director John E. Niederhuber, M.D. "It has the potential to save women's lives, as well as to reduce health disparities in the United States and around the world."

Niederhuber added, "NCI's immunology and vaccine research regarding HPV infection is far from finished. We continue to work on improved vaccines and immunization technology, to make these prevention strategies even more effective and accessible to women worldwide."

HPVs not targeted by the current vaccines also can cause cervical cancer; women should continue to be screened with a Pap test or an approved alternative screening method.

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To view a Spanish version of this statement, please go to <http://www.cancer.gov/newscenter/pressreleases/HPVStatementSpanish>.

Additional information about HPV, vaccines, and cervical cancer is available at <http://www.cancer.gov/cancertopics/hpv-vaccines>.

For more information about cancer, please visit the NCI Web site at <http://www.cancer.gov>, or call NCI's Cancer Information Service at 1-800-4-CANCER (1-800-422-6237).