

HPV vaccine could prevent breast cancer: research

September 3 2009

Vaccinating women against the human papillomavirus (HPV) may prevent some forms of breast cancer and save tens of thousands of lives each year, new Australian research suggests.

Using genetic probes, researchers at the University of New South Wales tested cancerous breast cells and found several strains of HPVs known to have a high risk of initiating cancer of the cervix. [HPV](#) has a causal role in 90-95 per cent of cervical cancers.

The research was conducted by a team from the UNSW School of Biotechnology and Biomolecular Sciences, led by Visiting Professor James Lawson, and is published in the *British Journal of Cancer*.

The team confirmed the presence of high-risk HPV in the nuclei of [breast cancer](#) epithelial cells in five (39 per cent) of 13 ductal carcinoma in situ and three (21 per cent) of 14 invasive ductal carcinoma (IDC) breast cancer specimens. Non-invasive or in situ cancers are those confined to the milk-making glands and do not spread to other parts of the breast or body. Invasive cancers such as IDC are more serious and account for 70-80 percent of all breast cancers.

"The finding that high risk HPV is present in a significant number of breast cancers indicates they may have a causal role in many breast cancers," says UNSW researcher, Dr Noel Whitaker, a co-author of the new report. "Confirming a cancer-causing role for HPV in some breast cancers establishes the possibility of preventing some breast cancers by

vaccination against HPV," he says.

The idea that HPV has an involvement in breast cancer is controversial. Scientific reports from 15 countries around the world have identified the presence of high-risk types of HPV in breast tissue and breast cancer specimens.

But those studies have also showed widely varying results, with the prevalence of HPV-positive breast cancer in ranging from as low as four per cent to as high as 86 per cent, and have been clouded by difficulties in detecting the virus in breast specimens.

As well, the genetic probe technique used - polymerase chain reaction (PCR) - has been criticized for its propensity for contamination.

The technique is based on taking small genetic samples and rapidly copying them to provide a large enough sample to study.

The UNSW researchers addressed these issues by using a technique (in situ PCR) that avoids cross-contamination and that provides evidence about whether HPV genetic material is present in the nuclei of human breast cancer specimens. They validated their findings by looking for "telltale" changes linked to HPV such as enlarged nucleus surrounded by a characteristic "halo". The researchers are working on a new method that will make testing even quicker, cheaper and simpler.

Globally 1.1 million [women](#) were diagnosed with breast cancer and more than 500,000 women lost their life to the disease in 2004. Australia data reveals that 12,265 women were diagnosed with breast cancer in 2005, and 2,618 women died from breast cancer in 2006. During the past quarter century 213,658 Australian women were diagnosed with breast cancer (1982 - 2005) and 63,632 died from the disease (1981 - 2006).

Source: University of New South Wales ([news](#) : [web](#))

Citation: HPV vaccine could prevent breast cancer: research (2009, September 3) retrieved 17 April 2024 from <https://medicalxpress.com/news/2009-09-hpv-vaccine-breast-cancer.html>

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