

Scientists identify how virus triggers cervical and mouth cancer

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University of Manchester scientists have discovered for the first time an important new way in which the human papilloma virus (HPV) triggers cancer in what could lead to new treatments for cervical and mouth cancer.

HPV infection is known to increase the risk of developing cancers of the cervix and mouth with the two high-risk forms of the virus accounting for approximately 70% of all cervical cancer cases.

Vaccinations against these high-risk forms of HPV should reduce the incidence of [cervical cancer](#) but the frequency of mouth cancer actually increased in the UK by about 50% between 1989 and 2007, a trend that seems to be accelerating.

If the current vaccines prove effective at preventing oral HPV infection, the authors claim their findings provide additional justification for the current programme of vaccinating young girls and may also lend support to extending the programme to young boys too.

"Scientists have known for some years about the link between HPV and certain cancers but the biological processes involved are not fully understood," said Dr Ian Hampson, who with wife Dr Lynne Hampson headed the research. "Our latest results shed new light on this.

"Our study has shown that a protein in [cells](#) called Cdc42, which is already known to be implicated in a number of cancers as well as in

tumour spread, is inappropriately activated by the [human papilloma virus](#)

"The findings are important since it is essential to increase our understanding of how the virus causes the disease if we are to design new approaches for the prevention or treatment of HPV-related cancers. Mouth cancer, in particular, is notoriously difficult to treat and often leads to long-term disability.

"If the vaccination programme is shown to reduce the incidence of oral HPV infection then this study would appear to support its continued use as a way to prevent HPV-related mouth cancer and perhaps consideration should be given to extending the programme to boys."

The research, published in the *British Journal of Cancer*, was carried out in the Gynaecological Oncology Laboratories at St Mary's Hospital, Manchester, by one of the Hampsons' PhD students, Dr Anthony Oliver.

Dr Oliver said: "There are literally hundreds of publications describing the potential role of Cdc42 in malignant disease but our work is the first to show that [HPV](#) can activate this protein.

"There is already a drive towards developing drugs that target activated Cdc42 and our findings now indicate that these agents may be useful for the treatment of HPV-related cancers too."

More information: 'The HPV16 E6 binding protein Tip-1 interacts with ARHGEF16 which activates Cdc42,' *British Journal of Cancer*.

Provided by University of Manchester

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