

Researchers find cutaneous human papillomavirus infection a risk factor for skin cancer

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Researchers at Moffitt Cancer Center and colleagues at the University of South Florida, the German Cancer Research Center in Heidelberg, and the International Agency for Research on Cancer in Lyon, France, conducted a case control study and found associations between having antibodies to certain types of cutaneous human papillomavirus (HPV) and a kind of skin cancer called squamous cell carcinoma (SCC).

Their study, the first case-control study to investigate the association between SCC and cutaneous HPV types belonging to five different genera, appeared in a recent issue of [Cancer Epidemiology, Biomarkers & Prevention](#), a journal published by the American Association for [Cancer](#) Research. The research was supported by a grant from the James and Esther King New Investigator grant through the Florida Department of Health and by the Miles for Moffitt Foundation Funds.

"[Squamous cell carcinoma](#) of the skin is the second most frequently occurring cancer among Caucasians in the United States, and the numbers of cases continue to rise," said study lead author Dana E. Rollison, Ph.D., Moffitt associate member, vice president and chief health information officer. "Risk factors for SCC include ultraviolet radiation exposure via the sun, older age, light skin and suppressed immune system."

According to the researchers, evidence has been emerging that cutaneous

[human papillomavirus](#) infection (not the mucosal HPV infection that is associated with cervical cancers) may be an additional risk factor for SCC. Their study investigated antibodies to cutaneous HPV types in five different genera - alpha, beta, gamma, mu and nu - in blood samples from patients with SCC and a control group that did not have SCC.

The study was conducted using 173 SCC cases from a university dermatology clinic and 300 controls who screened negative for [skin cancer](#). Tumor tissue from 159 SCC cases was tested for the presence of cutaneous HPV infection.

The researchers found that SCC was significantly associated with antibodies to HPV 10 in genus alpha and HPV types 8 and 17 in genus beta. Additional associations were found between antibodies to beta HPV types 5 and 24 when SCC cases with those same HPV types in their tumors were compared to controls.

"While our current study provides evidence for an association between genus-beta HPV and SCC, the exact mechanism by which the association exists is still unclear," explained Rollison.

Some researchers hypothesize that infection with the genus-beta HPV has an effect on the repair of DNA in sun-damaged skin, an effect that subsequently leads to an accumulation of mutations that could predispose people to SCC formation.

The study, Rollison said, was unique in that it measured cutaneous HPV types in five different genera and investigated correlations between cutaneous HPV [antibodies](#) in the blood and HPV infection in the tumor.

"We hope that this study, aimed at identifying the role of cutaneous HPV infection in SCC, will lead to improved knowledge about who is at risk for SCC and the development of new means of prevention,"

concluded Rollison and the researchers.

Provided by H. Lee Moffitt Cancer Center & Research Institute

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