Spotlight

By M.O.

Vaccines as Treatment for Cervical Cancer

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Nearly all cervical cancers are caused by human papillomaviruses (HPV), which are sexually transmitted viruses that can cause genital warts, precancerous lesions and cancer. Recently, prophylactic vaccines against the most harmful subtypes of HPV have become available to prevent colonization of the genital mucosa by HPV in preteen girls and boys. While these vaccines efficiently induce the production of neutralizing antibodies and prevent infection with "high-risk" subtypes of HPV, they have no therapeutic effect on already established HPV infection or associated lesions. The control of established lesions requires induction of cell-mediated immune responses and the production of highly cytotoxic effector T cells.

Decrausaz and colleagues describe the successful development of a therapeutic vaccine strategy directed against the E7 oncogene expressed by HPV 16, one of the HPV subtypes most often associated with cancer. Immunized mice produced a strong cytotoxic T cell response both in the blood and in the genital mucosa. The authors tried several routes for vaccine administration: through the nose, through the vaginal mucosa and via injection under the skin. Interestingly, only subcutaneous administration was successful in inducing regression of existing genital tumors while the intranasal and subcutaneous routes were both effective in preventing subsequent tumor engraftment. These studies raise interesting new questions about cytotoxic T cell function and homing to the genital tract; they also provide important new insight into what route of administration to choose for potential future therapeutic vaccination studies in women with precancerous or cancerous cervical lesions.