**SPORE in Cervical Cancer**

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**Abstract**

Every year 604,000 women are diagnosed with cervical cancer and 342,000 die from it worldwide. Our cervical cancer SPORE serves to protect the next generation of women from oncogenic HPV infection and to develop novel vaccines to improve treatment outcomes of patients with persistent HPV infection, HPV-associated precancer, and cervical cancer.

Vaccines represent the most cost-effective and successful public health intervention. We include four vaccine projects in our SPORE based upon the success of prophylactic HPV vaccination for primary prevention of cervical cancer. The power of secondary prevention is evident from the success of population-based cytologic screening programs and ablative treatment of high-grade cervical intraepithelial neoplasia. Simultaneously, we recognize the continued need and cost of cervical screening even in vaccinated patients and disadvantaged populations for the next decades. The licensure of several screening tests for oncogenic HPV infection and genotyping is revolutionizing screening, and HPV testing will likely be used for upfront screening. This will provide an opportunity to eliminate persistent oncogenic HPV infections prior to progression to dysplasia and for personalized cancer treatment by therapeutic HPV vaccination. It is clear that successful prevention and treatment, and indeed eradication of cervical cancer, can be a reality by improving access to prophylactic HPV vaccination, extending the breadth of coverage to all oncogenic HPV, and combining current screening and treatment modalities with novel therapeutic HPV vaccine-based approaches.

There are three overarching goals in this SPORE: 1) PRIMARY PREVENTION to reduce the global incidence of cervical cancer by improving access to prophylactic vaccination through the development of a low-cost, thermostable RG1-VLP formulation that needs to be administered only once to effectively prevent infection by all oncogenic HPV types (**Project 1**), 2) SECONDARY PREVENTION by eliminating persistent HPV infection (**Project 2**) and associated precancer lesions (**Project 3**) using innovative therapeutic HPV vaccines, and 3) Improving CANCER TREATMENT of advanced cervical cancer to adjuvant standard of care by targeting minimal residual disease with an innovative therapeutic HPV vaccination after chemoradiation (**Project 4**). Our program will expand options for the control of HPV-associated disease at multiple critical points during cervical carcinogenesis to improve outcomes.