The UAB Comprehensive Cancer Center has won an $11.5-million grant from the National Cancer Institute (NCI) to explore groundbreaking cervical cancer research, prevention and treatment. UAB's new Specialized Program of Research Excellence (SPORE) in cervical cancer from NCI is a partnership between the Cancer Center, Johns Hopkins University and the University of Colorado at Boulder.

"The SPORE grant is another significant milestone for research at UAB, and it says that NCI recognizes our ability to do great translational research," said UAB Cancer Center Director Edward Partridge, M.D. "Translational research means moving laboratory discoveries into the human condition, always after rigorous testing."

The grant will focus on next-generation human papillomavirus (HPV) vaccines for the prevention of cervical cancer and test more therapeutic agents that have shown promise in preventing, slowing or effectively treating the disease. HPV is responsible for virtually all cases of cervical cancer.

Three of the project's four experimental HPV vaccines will be tested at UAB, said Warner Huh, M.D., an associate scientist in the UAB Comprehensive Cancer Center and cervical SPORE co-leader.

The partnership grant will fund these four primary projects:

--L1 capsomere HPV vaccine. A Phase I clinical trial in humans will examine the use of an experimental vaccine that potentially can be produced at low cost and stored at room temperature to see if it is as effective as HPV vaccines that must be refrigerated, such as Gardasil. The experimental vaccine is based on HPV cell structures called L1 capsomeres. Worldwide HPV-vaccine programs are hampered by the limited availability of refrigeration in under-developed regions. Principal investigators are Huh, Richard Roden, Ph.D., of the Johns Hopkins University and Robert Garcea, M.D., of the University of Colorado at Boulder.

--L2 prophylactic HPV vaccine. Testing continues for an agent that targets an HPV protein called L2 and is designed to generate antibodies capable of preventing infection by a diverse number of HPV strains. There are more than 100 strains of the virus. Researchers hope to one day produce a broad-spectrum vaccine that covers all cancer-causing types, reduces or eliminates the need for Pap testing and costs less than commercially available vaccines. Principal investigators are Roden and Huh.

--Genetic HPV vaccine. Testing continues for a vaccine that triggers an immune response against HPV through delivery of genetic information contained in the cell. The genetic DNA-based vaccine targets some of the cell changes happening during HPV infection. It holds promise for neutralizing biological alterations that may put women at greater risk of cervical cancer. Principal investigators are Cornelia Trimble, M.D., Drew Pardoll, M.D., Ph.D., and T. C. Wu, M.D. Ph.D., all of Johns Hopkins University.

--Genetic HPV vaccine delivered by gene gun. A Phase I clinical trial in humans will examine using an experimental injector gun to administer the genetic HPV vaccine under review in this project. The gene-gun method is a needle-free alternative to vaccine shots. Delivering vaccine to the dermal layer has shown increased immune responses; it could boost the vaccine's anti-HPV effect. Principal investigators are Trimble, Wu and Ronald Alvarez, M.D., director of the UAB Division of Gynecologic Oncology.

In addition to these research projects, the SPORE grant includes a career-development program to recruit and train the next generation of cervical cancer researchers.

The NCI SPORE program started in 1992 as a way to promote interdisciplinary research and speed the transition of basic science findings to the clinical testing arena with the hope of reducing cancer-death rates and improving survival. The cervical cancer partnership project is the fifth SPORE UAB has been awarded in the program's history, an honor that puts the Cancer Center in an elite group of NCI-designated comprehensive cancer centers that lead multiple specialized projects.

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