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Douglas R. Lowy, M.D. and John T. Schiller, Ph.D., Receive Dermatology Foundation's Discovery Award

The Dermatology Foundation (DF) recently recognized the profound impact Drs. Douglas R. Lowy and John T. Schiller have had on the specialty of dermatology and beyond at their recent annual membership meeting. The DF's prestigious Discovery Award was jointly awarded to Lowy and Schiller for the landmark collaborative research illuminating the human papillomaviruses (HPV) and the development of the vaccine that will drastically reduce the incidence of cervical cancer in women.

Dermatologist Douglas Lowy and virologist John Schiller, whose partnership at the National Cancer Institute (NCI) began 25 years ago, developed the groundbreaking first-generation HPV vaccine that was approved by the FDA after 10 years in the making. It holds the potential to prevent at least 200,000 deaths a year from cervical cancer, the second deadliest cancer in women worldwide. Their success was called "one of the most remarkable public health achievements in cancer research history."

When Drs. Lowy and Schiller first joined forces in 1983 in the Laboratory of Cellular Oncology (LCO) at the NCI to study the human papillomavirus, developing a vaccine was not on their agenda. The connection between HPV and cervical cancer was yet to be identified. Dr. Lowy was Deputy Chief of the Dermatology Branch of the NCI. Studying papillomaviruses at the NCI enabled him to integrate his abiding research interest in viruses with his clinical background in dermatology.

Also fascinated with viruses, Dr. Schiller sought a post-doc fellowship in Dr. Lowy's lab after completing his Ph.D. in Microbiology. When Dr. Schiller arrived, Dr. Lowy had just been named Chief of the LCO—a position he still holds. The two scientists rapidly discovered an exceptional personal and intellectual affinity and complementary expertise that blossomed into an enormously stimulating and satisfying partnership.

Their initial intent was simply to probe the biology and behavior of human papillomaviruses. They worked together for close to 10 years before ever considering development of a vaccine. During this time, scientists elsewhere had identified HPV-6 and HPV-11 as the cause of anogenital warts, and HPV-16 and HPV -18 as the cause of 50% of external genital cancers and 70% of cervical cancers.

Two of Dr. Lowy and Dr. Schiller's initial breakthrough observations became the basis for their first-generation vaccine. First, the papillomavirus L1 major structural protein could self-assemble into noninfectious VLPs (virus-like particles). Second, these VLPs induce high-titer antibodies that neutralize their ability to infect. Next, they solved the problem of VLP production for HPV - 16, the type found in the majority of HPV-associated cancers. After showing proof of principle in two animal models, they conducted the first clinical trial.

Drs. Schiller and Lowy continue to balance basic science and translational research. Their current translational efforts are directed primarily to developing a second-generation vaccine based on the L2 minor structural protein that has the potential to be a true pan-HPV vaccine.

Kim B. Yancey, M.D. presented the DF Discovery Award to Drs. Lowy and Schiller. He praised their exceptional accomplishment and their work to make it available to people throughout the world. “They are recognized tonight for their longstanding research achievements in HPV research and for their selfless commitment to public health. They are thought leaders in promoting discussion of global public health issues related to HPV vaccine implementation, and have played a major role in facilitating technology transfer to vaccine manufacturers in developing countries.”

The Dermatology Foundation was created in 1964 and is the leading private funding source for skin disease research. It provides funding that helps develop and retain tomorrow’s teachers and researchers in dermatology and enables advancements in patient care.

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