

## **A Sensitive, High Throughput Pseudovirus-Based Papillomavirus Neutralization Assay for HPV 16 and HPV 18**

### **Summary**

This invention is a research tool for measuring protective antibody responses against Human Papilloma Viruses (HPV). The invention is available for non-exclusive license.

### **NIH Reference Number**

E-137-2004

### **Product Type**

- Research Tools

### **Keywords**

- Human Papilloma Viruses, HPV, hpv, bovine papillomavirus, assay

### **Collaboration Opportunity**

This invention is available for licensing.

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### **Description of Technology**

Human Papilloma Viruses (HPV) is a very common virus; nearly 80 million people—about one in four—are currently infected in the United States. HPV is a group of more than 150 related viruses. Each HPV virus in this large group is given a number which is called its HPV type. HPV is named for the warts (papillomas) some that HPV types can cause. Some other HPV types can lead to cancer, especially cervical cancer. There are more than 40 HPV types that can infect the genital areas of males and females. Each year, about 38,793 new cases of cancer are found in parts of the body where HPV is often found. HPV causes about 30,700 of these cancers. Cervical cancer is the most common HPV-associated cancer among women, and oropharyngeal cancers (cancers of the back of the throat, including the base of the tongue and tonsils) are the most common among men.

Researchers at the National Cancer Institute invented a research tool for measuring protective antibody responses against HPV. Sensitive high-throughput neutralization assays, based upon pseudoviruses carrying a secreted alkaline phosphatase (SEAP)

reporter gene, were developed and validated by the inventors for HPV 16, HPV 18, and bovine papillomavirus 1 (BPV1). In a 96-well plate format, the assay was reproducible and appears to be as sensitive as, but more type-specific than, a standard papillomavirus-like particle (VLP)-based enzyme-linked immunosorbent assay (ELISA). The SEAP pseudovirus-based neutralization assay should be a practical method for quantifying potentially protective antibody responses in HPV natural history and prophylactic vaccine studies. The invention is available for non-exclusive license.

### **Potential Commercial Applications**

- Research tool for measuring protective antibody responses against HPV
- Secreted alkaline phosphatase (SEAP) pseudovirus-based neutralization assay should be a practical method for quantifying potentially protective antibody responses in HPV natural history and prophylactic vaccine studies

### **Competitive Advantages**

- Sensitive high-throughput neutralization assays, based upon pseudoviruses carrying a secreted alkaline phosphatase (SEAP) reporter gene, developed and validated by the inventors for HPV 16, HPV 18, and bovine papillomavirus 1 (BPV1)
- Reproducible assay that appears to be as sensitive as, but more type-specific than, a standard papillomavirus-like particle (VLP)-based enzyme-linked immunosorbent assay (ELISA)

### **Inventor(s)**

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### **Development Stage**

- Prototype

### **Publications**

Pastrana DV, et al. Reactivity of human sera in a sensitive, high-throughput pseudovirus-based papillomavirus neutralization assay for HPV16 and HPV18. [[PMID 15051381](#)]

### **Patent Status**

- **Research Material:** NIH will not pursue patent prosecution for this technology

### **Therapeutic Area**

- Cancer/Neoplasm
- Infectious Diseases

### **Updated**

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