

# Development of an Optimized Detection Test for Human Papilloma Virus (HPV) Associated Head and Neck Squamous Cell Carcinomas

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## BACKGROUND

Head and neck squamous cell carcinoma (HNSCC) is a highly lethal cancer that annually affects over 60,000 people in the United States (US) and has been traditionally associated with tobacco and ethanol exposure. Recently, the incidence of HPV-induced oropharyngeal squamous cell carcinomas (OPSCC) has seen a rapid increase, especially in the US and other Western countries. Early oral HPV infections do not typically cause any clinical signs or symptoms. Currently, there is no standard screening test to reliably identify High Risk HP-related oral tumors, most of the current tests have been validated for cervical tumor samples and not for saliva or blood. Furthermore, the tests presently in use usually require some sort of confirmatory secondary test.

## TECHNOLOGY DESCRIPTION

Performing tests for oral HPV should allow the detection of early-stage, HPV-related oral cancer recurrence as well as determine prognosis and overcome some of above issues. Researchers at UC San Diego have developed a DNA PCR-based assay for the detection of the HPV-16 subtype that is associated with approximately ~95% of all HPV-HNSCC.

## APPLICATIONS

The test will be useful for detecting HPV in a patient's sample that can be from the blood, saliva, plasma or tumor.

## ADVANTAGES

The highly sensitive HPV test is designed to detect HPV in HNSCC and related cancers. The test can also be used to monitor disease progression in a cancer patient in remission from an HPV-related cancer.

## STATE OF DEVELOPMENT

The test has been tested on tumor samples from a cohort of 72 patients with HPV-related oropharyngeal squamous cell carcinoma as well as normal oropharynx tissue from surgical specimens obtained from 25 cancer unaffected controls.

## INTELLECTUAL PROPERTY INFO

A provisional patent has been submitted and the technology is available to license.

## RELATED MATERIALS

- Saito Y, Favorov AV, Forman M, Ren S, Sakai A, Fukusumi T, Liu C, Sadat S, Ando M, Xu G, Khan Z, Pang J, Valsamakis A, Fisch KM, Califano JA. Rational genomic optimization of DNA detection for human papillomavirus type 16 in head and neck squamous cell carcinoma. Head Neck. 2019 Dec 18. doi: 10.1002/hed.26041. [Epub ahead of print] - 12/18/2019

## PATENT STATUS

Country	Type	Number	Dated	Case
Patent Cooperation Treaty	Published Application	2019/173280	09/12/2019	2018-222

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## OTHER INFORMATION

### KEYWORDS

oral cancer, cancer diagnostics,  
cancer detection, human papilloma  
virus, squamous cell carcinoma, HPV  
16, high-risk HPV

### CATEGORIZED AS

- Medical
  - Diagnostics
  - Disease: Cancer

### RELATED CASES

2018-222-0

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