



# Diagnostic Markers to Distinguish Between Squamous Cell Carcinoma and Pseudoepitheliomatous Hyperplasia

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## SUMMARY

UCLA scientists have developed a novel diagnostic kit to reliably distinguish squamous cell carcinoma (SCC) from pseudoepitheliomatous hyperplasia (PEH). This fast diagnostic test can replace the non-quantitative and subjective diagnostic methods currently used in hospitals.

## BACKGROUND

Squamous cell carcinoma (SCC) is one of the most commonly diagnosed cutaneous cancers and affects over 250,000 people each year. The current diagnostic standard uses hematoxylin-eosin (HE) staining of tissue sections; however, this approach does not reliably distinguish SCC from other skin conditions, including pseudoepitheliomatous hyperplasia (PEH). Even though the pathogenesis of these skin conditions is dissimilar, SCC and PEH can look virtually identical upon clinical and histological examination. Small tissue sample sizes, dense inflammation, and poor orientation add to the difficulty of distinguishing between these conditions with histological examination alone. Thus, a robust genetic test for accurately distinguishing between SCC and PEH will provide improved diagnoses and treatment for patients.

## INNOVATION

UCLA scientists in the laboratory of Drs. Xinmin Li and Scott Binder of UCLA's Department of Pathology & Laboratory Medicine have developed a novel multiplex PCR-based test to distinguish between squamous cell carcinoma and pseudoepitheliomatous hyperplasia. The invention utilizes markers that have been identified through gene expression profile analysis of squamous cell carcinoma and pseudoepitheliomatous hyperplasia. This diagnostic test is rapid, cost-effective, and can replace the non-quantitative and subjective diagnostic methods currently used.

## APPLICATIONS

- Provides the scientific basis for a diagnostic kit that differentiates cutaneous squamous cell carcinoma from pseudoepitheliomatous hyperplasia in clinical samples.
- Provides methods for identifying specific genes as prognostic markers for cutaneous squamous cell carcinoma.
- Provides methods of using molecular pathways as targets for the treatment of cutaneous squamous cell carcinoma.

## ADVANTAGES

- Rapid: PCR based approach allows fast turnaround.
- Low-cost: Can be performed with standard clinical laboratory equipment.
- Accurate 96 percent of the time for predicting Squamous Cell Carcinoma & 90% for predicting Pseudoepitheliomatous Hyperplasia.

## STATE OF DEVELOPMENT

The researchers have identified unique gene signatures to SCC and PEH. These signatures have been converted into a PCR-based assay and have been validated using 60 human specimens. A greater number of specimens is being tested to validate and refine the diagnostic power.

## PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	9,926,604	03/27/2018	2012-063

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## INVENTORS

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## OTHER INFORMATION

### KEYWORDS

Squamous cell carcinoma, and  
pseudoepitheliomatous hyperplasia,  
skin cancer, diagnostics, microarrays

### CATEGORIZED AS

- Medical
  - Diagnostics
  - Disease: Dermatology
  - Therapeutics

### RELATED CASES

2012-063-0

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