

# Detection of CD46 in Tumor Tissue and Saliva from Head and Neck Squamous Cell Carcinoma Patients

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## Introduction

Membrane-bound complement restriction proteins (mCRPs) CD46, CD55, and CD59 enable cells to be spared from complement dependent cytotoxicity (CDC). mCRPs are expressed in normal tissue but are also often overexpressed in tumor cells allowing them to evade immune surveillance. Prior studies have found evidence of CD46 overexpression in renal, skin, colorectal, gastric, ovarian, and cervical carcinomas.

In this study, we use immunofluorescence to observe CD46 expression in normal mucosa and head and neck squamous cell carcinoma (HNSCC) tumor tissue. In addition, we use enzyme-linked immuno assay (ELISA) to measure the concentration of CD46 in saliva. The goal of this study is to identify CD46 in early tumor stages and saliva providing a method for early detection of HNSCC.

## Methods

We performed immunofluorescent microscopy of tumor tissue and normal mucosa of HNSCC patients (n=14) stained with antibodies against E-cadherin, DAPI, and CD46. Saliva was collected from a subset of the patients (n=6) as well as healthy controls (n=6). The concentration of CD46 in the saliva samples was measured using ELISA.

## Results

11 of the 14 tumor samples stained positive for CD46 and none of the normal tissue stained positive for CD46 (figure 1). The six control subjects and the two CD46 negative HNSCC patients had undetectable levels of CD46 in saliva. Of the four CD46 positive HNSCC patients, two had detectable levels of CD46 in their saliva at 562.11 pg/ml and 133.94 pg/ml respectively.

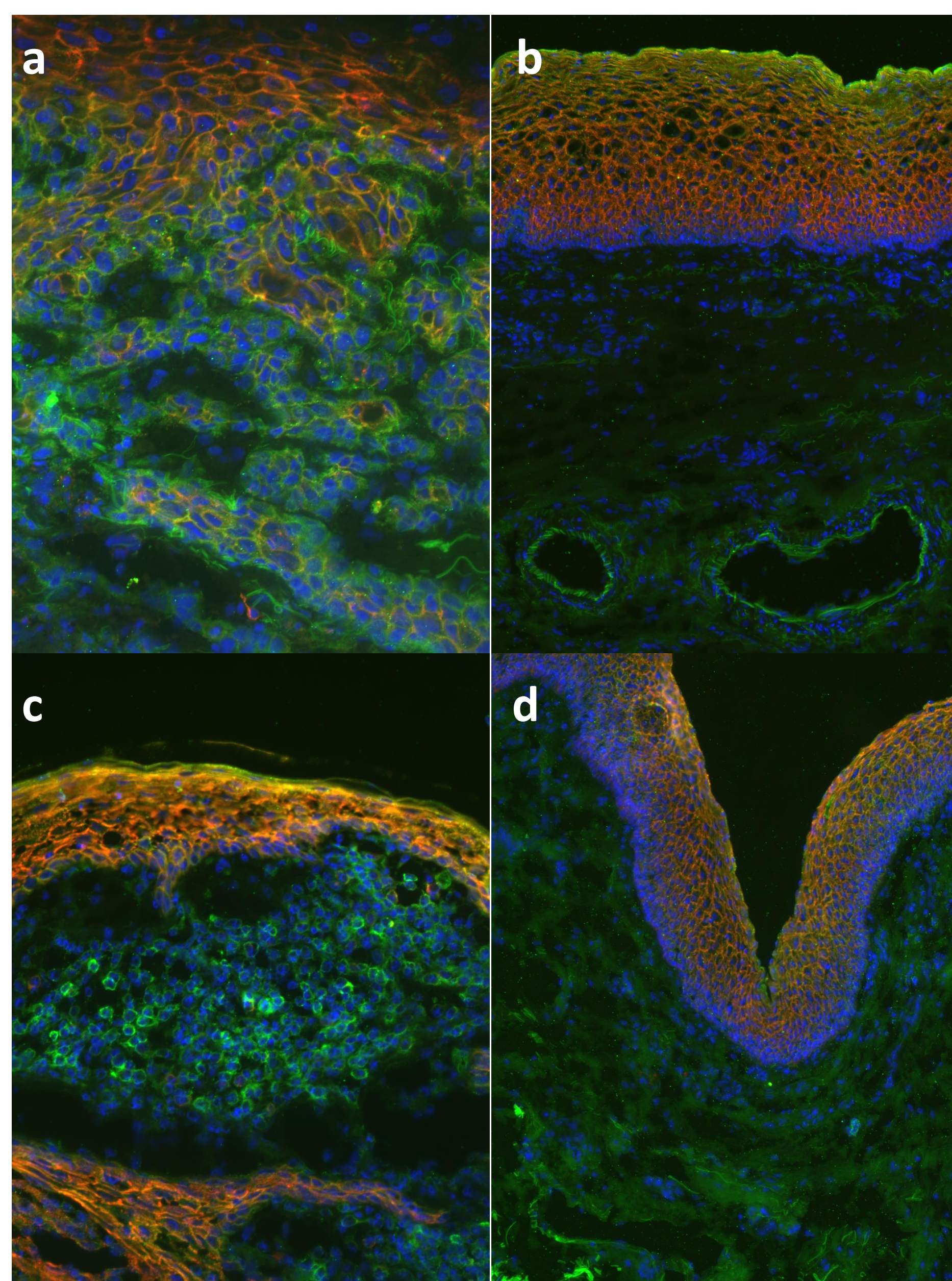


Figure 1. Immunofluorescent images of tissues stained with antibodies against E-cadherin (red), DAPI (blue), and CD46 (green). (a) Neoplastic squamous epithelia from the larynx. (b) Normal mucosa of the larynx taken from the same patient. (c) Neoplastic squamous epithelia from the oropharynx. (d) Normal mucosa of the oropharynx taken from the same patient.

Table 1. Patient and Tumor Characteristics

Patients	14
Male Pts.	9 (64.3%)
Mean age	60
pT 1, 2, 3, 4	3, 9, 2, 0
pN 0,1, 2	7, 3, 4
Tongue, Oral Cavity, Pharynx	7(50%), 3(21%), 4 (29%)

## Discussion

The majority of HNSCC tumors stain positive for CD46 at early tumor stages. CD46 is detectable in saliva providing a possible mechanism for early screening of HNSCC.

Future staining experiments should involve brush biopsies and subsequent cytological staining to reflect the type of pathology done in the outpatient screening setting. In addition, more saliva samples from HNSCC patients and healthy controls should be collected and analyzed for mCRP protein levels to see if a testing saliva for elevated mCRP protein levels can be an effective part of an HNSCC screening program.

## References

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