

Journal section: Oral Medicine and Pathology
 Publication Types: Research

doi:10.4317/jced.52801
<http://dx.doi.org/10.4317/jced.52801>

Expression of claudin-5, claudin-7 and occludin in oral squamous cell carcinoma and their clinico-pathological significance

Ekarat Phattaratatip ¹, Kraisorn Sappayatosok ²

¹ DDS, PhD, Assistant Professor. Department of Oral Pathology, Faculty of Dentistry, Chulalongkorn University, Bangkok, Thailand

² DDS, PhD, Assistant Professor. Faculty of Dental Medicine, Rangsit University, Thailand

Correspondence:

Faculty of Dental Medicine
 Rangsit University
 52/347 Muang-Ake
 Phaholyothin Road, Lak-Hok
 Muang, Pathumthani 12000 Thailand
skraisorn@yahoo.com

Phattaratatip E, Sappayatosok K. Expression of claudin-5, claudin-7 and occludin in oral squamous cell carcinoma and their clinico-pathological significance. J Clin Exp Dent. 2016;8(3):e299-306.
<http://www.medicinaoral.com/odo/volumenes/v8i3/jcedv8i3p299.pdf>

Received: 07/10/2015
 Accepted: 10/02/2016

Article Number: 52801 <http://www.medicinaoral.com/odo/indice.htm>
 © Medicina Oral S. L. C.I.F. B 96689336 - eISSN: 1989-5488
 eMail: jced@jced.es
Indexed in:
 Pubmed
 Pubmed Central® (PMC)
 Scopus
 DOI® System

Abstract

Background: Claudin and occludin are the important tight junctions protein in human. The downregulation or upregulation of claudins and occludin might have a role in cancer development. The objective of this study was to investigate the expression of claudin-5, claudin-7 and occludin in oral squamous cell carcinoma (OSCC) and their relationships with the prognostically-related clinico-pathologic features.

Material and Methods: Standard indirect immunohistochemical technique using anti-claudin-5, anti-claudin-7 and anti-occludin was performed in formalin-fixed paraffin-embedded tissue sections of 66 OSCC samples from Faculty of Dentistry, Chulalongkorn University. The positive cases were divided into 2 groups, the low expression group (cases with less than 50% of positive cancer cells) and the high expression group for statistical analysis. Categorical analysis of the clinico-pathologic parameters together with univariate analysis using the Kaplan-Meier method and the log rank test were performed.

Results: There were 22 male and 23 female patients enrolled in this study, with a mean age of 65.82±12.10 years. The claudin-5 immunoreactivity was observed in 26.6% of cases. The positive immunoreactivity of claudin-7 is more noted (93.3%). Only 4 cases showed occludin immunoreactivity (8.9%) and all of them show positivity less than 25% of cancer cells. Only loss of claudin-7 expression was associated with the high pathologic grade, advanced TNM staging, large tumor size, the presence of microscopic perineural, vascular invasions and regional lymph node involvement. There is a tendency towards the association of the higher claudin-7 expression and a longer survival time ($P=0.012$).

Conclusions: The results showed expression of claudin-5, claudin-7 and low expression of occludin in OSCC. Only claudin-7 expression showed impact on clinic-pathological parameter of OSCC.

Key words: Claudin, occludin, oral squamous cell carcinoma, tight junctions, oral cancer.

Introduction

Intercellular junctions are important structures for physiologic functions of the cells. Tight junctions (TJs), one of the intercellular junctions, play a main role for signaling

ling cascades that control cell growth and differentiation (1). TJs are thought to play critical roles in the neoplastic process from their roles in extracellular and intracellular signaling pathways (2).