Immunohistochemical Evaluation of Type IV Collagen Alpha Chains in Oral Malignant Melanoma

Rosario Santos Rivera1, Hitoshi Nagatsuka1, You-Jin Lee1, Ryo Tamamura1, Naoki Katase1, Liu Yue-Heng2, and Noriyuki Nagai1

1Okayama University, Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, 2Beijing University, Shenzhen Hospital, China

Introduction
The basement membrane (BM) is mainly composed of type IV collagen composed of triple combinations of 6 distinct α chains (α1-α6). Invasive and metastatic melanoma cells form cluster surrounded by BM-like structures. The objective of the study was to determine the immunohistochemical pattern of type IV collagen α chain at the BM-like structures surrounding melanoma clusters.

Materials and methods
Paraffin blocks of human tissues of 1 in situ OMM, 1 invasive OMM, 6 invasive with in situ OMM, 5 metastatic OMM to lymph nodes were sectioned. Type IV collagen α chain specific rat monoclonal antibodies (provided by Dr. Naito and Dr. Sado) were used according to their specific dilutions. AEC chromogen was used to reveal the antigenic sites.

Results
α1, 2, 5 and 6 were constantly detected at the BM of the oral epithelium (Fig.1). α1, 2, 5 and 6 were intermittently detected at the BM of normal oral epithelium.

Discussion
The gradual loss of type IV collagen α chains at the BM of the oral epithelium is associated with the progression of OMM. Type IV collagen α1 and 2 are more stable compared to α5 and 6. BMs are dynamic structures that are not only degraded but also deposited around melanoma cell clusters and the distribution pattern of type IV collagen α chains varies depending on the architecture of the nest. These suggest that type IV collagen α chains can be significant markers of oral melanocytic progression.

Table. Summary of IHC of oral epithelium in different OMM and melanoma nests in invasive and metastatic OMM.