

## Differential expression of collagen IV alpha 1 to alpha 6 chains in basement membranes of benign and malignant odontogenic tumors

Type:

Article

Abstract:

Type IV collagen, the major component of basement membrane (BM), demonstrates a stage- and position-specific distribution of its isoforms during tooth development. To determine its localization in BM of odontogenic neoplasms, immunohistochemistry using six anti- $\alpha$ (IV) chain-specific monoclonal antibodies was performed. Results disclosed that BM demonstrated an irregular  $\alpha$ (IV) chain profile in malignant odontogenic tumors as compared to benign odontogenic neoplasms. No  $\alpha$ 3(IV) chains were detected. Expression of  $\alpha$ 1(IV)/ $\alpha$ 2(IV) and  $\alpha$ 5(IV)/ $\alpha$ 6(IV) chains was stronger in desmoplastic (n=3) than in ordinary (n=5) ameloblastomas. The adenomatoid odontogenic tumor (n=2) distinctly expressed these chains in BM of cribriform areas and hyaline materials (which was also  $\alpha$ 4(IV)-positive), but weakly around epithelial whorls/rosettes/nests and mineralized foci. These five chains also stained BM and tumor cells of ameloblastic fibroma (n=3) and ameloblastic fibro-odontosarcoma (n=1), but not the inductive hard tissues. Ameloblastic carcinoma (n=2) showed specific  $\alpha$ 1(IV)/ $\alpha$ 2(IV) chain loss, while primary intraosseous carcinoma (n=1) demonstrated a discontinuous  $\alpha$ 1(IV)/ $\alpha$ 2(IV) and  $\alpha$ 5(IV)/ $\alpha$ 6(IV) staining pattern. The present results suggest that modification and remodeling of BM collagen IV  $\alpha$  chains occur during odontogenic neoplasms' progression.

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