

IMMUNOHISTOCHEMICAL STUDY OF EXTRACELLULAR MATRIX PROTEINS IN MAXILLARY BONES OF HUMAN FETUSES

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In bone tissue, extracellular matrix plays an important function in differentiating and activating bone cells, as well as contributing to the mineralization. This study aims to analyze the expression of extracellular matrix proteins in fragments of palate and mandible obtained from seven human fetuses aged 16 to 24 weeks. Immunohistochemical technique was performed to the following antibodies: osteonectin (ONC), osteopontin (OPN), bone sialoprotein (BSP), and osteocalcin (OCC). Results show that osteoid, fibrous matrix, and osteoblasts showed positive immunostaining for ONC. OPN was strongly detected on mineralized bone trabeculae, and weakly observed in osteoid and osteoblasts. Immunoreaction for BSP was found in osteoblasts, osteocytes, and osteoid; however, it was also detected in a weaker pattern in mineralized matrix, fibrous matrix, and osteoclasts. OCC was strongly detected in osteoblasts and osteoclasts, and weakly detected in osteoid, fibrous matrix, and osteocytes. The presence of ONC in mineralized areas suggests its participation in both bone remodeling and bone growth, since it functions as a mineral nucleator, a role also played by OPN. BSP regulates the first stage of the matrix mineralization process, while OCC defines the ultimate osteoblastic differentiation and recruits osteoclasts to initiate the remodeling process.

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