

Immunohistochemical Profile of CD44 and RANK in Ameloblastoma and Keratocystic Odontogenic Tumor

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التعبير المناعي الهستوكيميائي لظهور ال سي دي 44 و رانك في الورم المينائي والأكياس الكيراتينية سنية المنشأ

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List of Abbreviations

<i>Am</i>	: Ameloblastoma
<i>CD44</i>	: Cluster Differentiation 44
<i>CD44-HA</i>	: CD44-Hyaluronic Acid
<i>CD44V</i>	: Cd 44 Variant
<i>CSc</i>	: Cancer Stem Cells
<i>DAB</i>	: Diamino Benzidine
<i>DCs</i>	: Dendritic Cells
<i>ECM</i>	: Extracellular Matrix
<i>EGF</i>	: Epidermal Growth Factor
<i>EMT</i>	: Epithelial-Mesenchymal Transition
<i>ERM</i>	: Ezrin, Radixin and Meosin
<i>FGFR2</i>	: Fibroblast Growth Factor Receptor 2
<i>GEMS</i>	: Glucolipid Enriched Membrane Microdomains
<i>HCAM</i>	: Homing Cell Adhesion Molecule
<i>HNSCC</i>	: Human Head and Neck Carcinoma
<i>KAM</i>	: Keratoameloblastoma
<i>KCOT</i>	: Keratocystic Odontogenic Tumor
<i>LPS</i>	: Lipopolysaccharide
<i>MAM</i>	: Mural Ameloblastoma
<i>MAPK</i>	: Mitogen-Activated Protein Kinase
<i>MAPKs</i>	: Mitogen-Activated Protein Kinase
<i>MMP-2</i>	: Matrix Metalloproteinase
<i>MVD</i>	: Microvessel Density
<i>NBCCS</i>	: Nasal Basal Cell Carcinoma
<i>OKCs</i>	: Odontogenic Keratocysts

<i>OPCs</i>	: Osteoclast Precursor Cells
<i>OPG</i>	: Osteoprotegerin
<i>OPN</i>	: Osteopontin
<i>PAM</i>	: Peripheral Ameloblastoma
<i>PBS</i>	: Phosphate Buffer Saline
<i>RANK</i>	: Receptor Activated of Nuclear factor KAPPA-B
<i>RANK-L</i>	: Receptor Activated Of Nuclear Factor KAPPA-B_Ligand
<i>RAS</i>	: Rat Sarcoma
<i>RHAMM</i>	: Receptor for Hyaluronan Mediated Motility
<i>SHH</i>	: somic hedgehog pathway
<i>TGF-B1</i>	: Transforming Growth Factor B1
<i>TNF</i>	: Tumor Necrosis Factor
<i>TRAF6</i>	: Tumor Necrosis Factor Receptor-Associated Factors
<i>VEGF</i>	: Vascular Endothelial Growth Factor
<i>WHO</i>	: World Health Organization

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INTRODUCTION

Most of odontogenic tumors occur intraosseously within the maxillofacial skeleton, while extra-osseous odontogenic tumors occur nearly always in the tooth-bearing mucosa. The clinical features of most benign odontogenic tumors are non-specific; benign odontogenic tumors show slow expansive growth with no or slight pain. In contrast, pain is the first and most common symptom followed by rapidly developing swelling in nearly all malignant odontogenic tumors. The tumor may erode or break through the gnathic bony cortex specially in pediatric populations^[1].

Ameloblastoma (AM) is a very common odontogenic tumor in the oral cavity whose idiopathic nature manipulates scholars and clinicians. The etiopathogenesis of AM is controversial. The involved cellular changes - including proliferation, differentiation, senescence, tumorigenesis, etc - which are identified through the immuno-histochemical workup contribute significantly to our contemporary nosology of this aggressive benign tumor^[2].

Ameloblastoma usually affects young adults in the fourth and fifth decades of life, causing local discomfort. It is characterized by a benign clinical behavior, possibly leading to local recurrences but distant metastases from AM are exceedingly rare. The involved cellular changes contribute significantly to our contemporary nosology of this aggressive benign tumor^[3].

Keratocystic odontogenic tumor (KCOT), or odontogenic keratocyst, generally originates from the remnant of dental lamina or from basal cells of the oral epithelium. It predominantly develops in the mandible or maxilla, and occasionally on the gingiva as a peripheral type of manifestation^[4]. Either a true cyst or a neoplasm, the scope of this study

does not include the controversial nature of KCOT, either neoplastic or cystic, because it concerns, more importantly, exploring the lesional destructive nature in terms of impressive osteoclastogenesis.

Both ameloblastoma and KCOT are characterized by a benign but locally invasive behavior, with a high risk of recurrence. Both can show an involvement of adjacent soft tissues, infiltration into the cancellous bone, and destructive growth. Read this way, hypothetically implicating, this study postulates that a plausible complex of CD44v6-OPN-RANK may exist, which is ushered toward exacerbating the osteoclastogenesis of ameloblastoma and KCOT ^[3,4].