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DMP1 Rabbit pAb

Catalog # AP98644

Product Information

Application	WB, IHC-P, IHC-F, IF
Primary Accession	Q13316
Other Accession	Q13316
Reactivity	Mouse
Predicted	Rat, Human, Horse, Sheep
Host	Rabbit
Clonality	Polyclonal
Calculated MW	55782
Physical State	Liquid
Immunogen	KLH conjugated synthetic peptide derived from human DMP1
Epitope Specificity	441-513/513
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS(pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SUBUNIT	Interacts with importin alpha.
Post-translational modifications	Phosphorylated in the cytosol and extracellular matrix and unphosphorylated in the nucleus. Phosphorylation is necessary for nucleocytoplasmic transport and may be catalyzed by a nuclear isoform of CK2 and can be augmented by calcium. Phosphorylated (in vitro) by FAM20C in the extracellular medium at sites within the S-x-E/pS motif.
DISEASE	Defects in DMP1 are the cause of rickets hypophosphatemic autosomal recessive type 1 (ARHR1) [MIM:241520]. A hereditary form of hypophosphatemic rickets, a disorder of proximal renal tubule function that causes phosphate loss, hypophosphatemia and skeletal deformities, including rickets and osteomalacia unresponsive to vitamin D. Symptoms are bone pain, fractures and growth abnormalities.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	DMP-1 is a member of the small integrin ligand N-linked glycoprotein family. It is important for the mineralization of bone and dentin. DMP-1 is expressed in bone, tooth and hypertrophic cartilage. It is synthesized by preosteoblasts and contains a large number of acidic domains. DMP-1 localizes to the nucleus of undifferentiated osteoblasts where it functions as a transcriptional regulator for osteoblast-specific gene activation and induces osteoblast differentiation. During osteoblast maturation, DMP-1 undergoes a conformational change and becomes phosphorylated by casein kinase II in response to an influx of calcium ions to the nucleus. DMP-1 is then exported to the extracellular matrix (ECM) where it regulates the nucleation of hydroxyapatite and the formation of calcified tissue. DMP-1 is proteolytically processed into N- and C-terminal fragments in the ECM of bone and dentin. The protein has also been identified in bone as a high molecular weight proteoglycan comprised of the N-terminal DMP-1 fragment and chondroitin sulfate.The loss of DMP-1 can result in hypomineralized bone.

Additional Information

Gene ID	1758
Other Names	DMP1_HUMAN; DMP1; DMP-1; Dentin matrix protein 1; DMP1_MOUSE; AG1; Dmp; dentin matrix acidic phosphoprotein 1; dentin matrix acidic phosphoprotein
Dilution	IHC-P=1:100-500,WB=1:500-2000,IF=1:100-500,IHC-F=1:100-500
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

Protein Information

Name	DMP1
Function	May have a dual function during osteoblast differentiation. In the nucleus of undifferentiated osteoblasts, unphosphorylated form acts as a transcriptional component for activation of osteoblast- specific genes like osteocalcin. During the osteoblast to osteocyte transition phase it is phosphorylated and exported into the extracellular matrix, where it regulates nucleation of hydroxyapatite.
Cellular Location	Nucleus. Cytoplasm. Secreted, extracellular space, extracellular matrix. Note=In proliferating preosteoblasts it is nuclear, during early maturation stage is cytoplasmic and in mature osteoblast localizes in the mineralized matrix. Export from the nucleus of differentiating osteoblast is triggered by the release of calcium from intracellular stores followed by a massive influx of this pool of calcium into the nucleus
Tissue Location	Expressed in tooth particularly in odontoblast, ameloblast and cementoblast

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