Mouse DMP-1 Alexa Fluor® 488-conjugated Antibody

Antigen Affinity-purified Polyclonal Sheep IgG
Catalog Number: AF4386G
100 µg

DESCRIPTION

Species Reactivity	Mouse
Specificity	Detects mouse DMP-1 in direct ELISAs and Western blots. In direct ELISAs, approximately 25% cross-reactivity with recombinant human DMP-1 is observed.
Source	Polyclonal Sheep IgG
Purification	Antigen Affinity-purified
Immunogen	Mouse myeloma cell line NS0-derived recombinant mouse DMP-1 Leu17-Tyr503 Accession # Q2HJ09
Conjugate	Alexa Fluor 488 Excitation Wavelength: 488 nm Emission Wavelength: 515-545 nm
Formulation	Supplied 0.2mg/ml in 1X PBS with RDF1 and 0.09% Sodium Azide *Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions.

APPLICATIONS

Please Note: *Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.*

Western Blot	Optimal dilution of this antibody should be experimentally determined.
Immunohistochemistry	Optimal dilution of this antibody should be experimentally determined.

PREPARATION AND STORAGE

Shipping	The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	Protect from light. Do not freeze. 12 months from date of receipt, 2 to 8 °C as supplied

BACKGROUND

Dentin matrix protein 1 (DMP-1) is a member of the SIBLING family of proteins that includes bone sialoprotein, dentin sialophosphoprotein, MEPE, and osteopontin. These are highly phosphorylated integrin-binding proteins that are rich in acidic amino acids and function in the formation of calcified bone and tooth matrix (1, 2). Its phosphate content, spacing of acidic residues, and calcium-dependent dimerization of DMP-1 contribute to its ability to sequester calcium phosphate clusters and promote hydroxyapatite (HA) crystal formation (3-5). Mature mouse DMP-1 is 487 amino acids (aa) in length. It contains a poly-Pro segment (aa 41-44) and an RGD binding motif (aa 350-352). DMP-1 may be cleaved by BMP-1 family proteases at a single site which is conserved in human, generating a 37 kDa N-terminal (aa 17-212) and a 57 kDa C-terminal (aa 213-503) fragment (6). The N-terminal fragment in rat carries chondroitin sulfate (7). The C-terminal fragment alone can nucleate HA crystals, while crystal growth into a needle-like morphology is inhibited by the N-terminal fragment (3, 4). Crystal maturation is dependent on the presence of type I collagen (4). DMP-1 is required for odontoblast differentiation as well as dentin formation (8). Unphosphorylated DMP-1 is retained intracellularly where it is targeted to the nucleus. Here, it activates the transcription of odontoblast and osteoblast specific genes (9, 10). Early in osteoblast maturation, nuclear DMP-1 is extensively phosphorylated by casein kinase II, triggering its secretion (9). DMP-1 mutations in humans are associated with hypophosphatemia and FGF-23 over-expression (11, 12). DMP-1 induces the activation of pro-MMP-9 and displaces mature MMP-9 from TIMP1 (13). DMP-1 tethers MMP-9 to the cell surface *via* CD44 and integrins αVβ3 and αVβ5, promoting tumor cell invasiveness *in vitro* (14). Full length DMP-1 circulates in human serum in a tight complex with complement factor H (13, 14). When first bound to CD44 or integrin αVβ3, DMP-1 can anchor factor H to the cell surface and protect the cell from complement-mediated lysis (15). Mature mouse DMP-1 shares 63%, 61%, and 87% aa sequence identity with bovine, human, and rat DMP-1, respectively.

PRODUCT SPECIFIC NOTICES

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