Mouse DMP-1 Antibody

Antigen Affinity-purified Polyclonal Sheep IgG
Catalog Number: AF4386

DESCRIPTION

Species Reactivity	Mouse
Specificity	Detects mouse DMP-1 in direct ELISAs and Western blots. In direct ELISAs and Western blots, 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
Formulation	Lyophilized from a 0.2 μm filtered solution in PBS with Trehalose. See Certificate of Analysis for details. *Small pack size (-SP) is supplied as a 0.2 μm filtered solution in PBS.

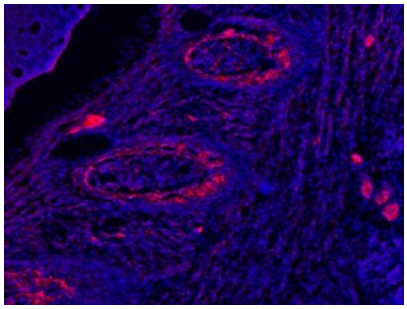
APPLICATIONS

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.*

	Recommended Concentration	Sample
Western Blot	0.1 µg/mL	Recombinant Mouse DMP-1 (Catalog # 4386-DM)
Immunohistochemistry	5-15 µg/mL	See Below

DATA

Immunohistochemistry



DMP-1 in Embryonic Mouse Rib. DMP-1 was detected in immersion fixed frozen sections of embryonic mouse rib (E15.5) using 10 µg/mL Sheep Anti-Mouse DMP-1 Antigen Affinity-purified Polyclonal Antibody (Catalog # AF4386) overnight at 4 °C. Tissue was stained with the NorthernLights™ 557-conjugated Anti-Sheep IgG Secondary Antibody (red; Catalog # NL010) and counterstained with DAPI (blue). View our protocol for Fluorescent IHC Staining of Frozen Tissue Sections.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.2 mg/mL in sterile PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below. *Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** ● 12 months from date of receipt, -20 to -70 °C as supplied. ● 1 month, 2 to 8 °C under sterile conditions after reconstitution. ● 6 months, -20 to -70 °C under sterile conditions after reconstitution.

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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.

References:

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