

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human DMP-1 in ELISAs. In sandwich immunoassays, no cross-reactivity with recombinant mouse DMP-1, recombinant human (rh) CD44, and rhComplement Factor H is observed.
Source	Monoclonal Mouse IgG ₁ Clone # 560716
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	Mouse myeloma cell line NS0-derived recombinant human DMP-1 isoform 2 Leu17-Tyr497 Accession # NP_001073380
Conjugate	Alexa Fluor 647 Excitation Wavelength: 650 nm Emission Wavelength: 668 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.

ELISA Capture (Matched Antibody Pair)	Optimal dilution of this antibody should be experimentally determined.
ELISA Detection (Matched Antibody Pair)	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 that also includes bone sialoprotein, dentin sialophosphoprotein, MEPE, and osteopontin. These highly phosphorylated integrin-binding proteins are rich in acidic amino acids and function in the formation of calcified bone and tooth matrix (1, 2). The 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). Rodent DMP-1 is cleaved by BMP-1 family proteases at a single site which is conserved in human, generating a 37 kDa N-terminal and a 57 kDa C-terminal 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). Nonphosphorylated DMP-1 is targeted to the nucleus, where 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 FGF23 overexpression (11, 12). DMP-1 induces the activation of proMMP-9 and displaces mature MMP-9 from TIMP1 (13). DMP-1 tethering of MMP-9 to the cell surface via CD44 and integrins αvβ3 and αvβ5 promotes 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 human DMP-1 shares 61%-67% amino acid sequence identity with bovine, mouse, and rat DMP-1.

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