

DESCRIPTION

Species Reactivity	Mouse
Specificity	Detects mouse Osteoprotegerin/TNFRSF11B in direct ELISAs and Western blots. In Western blots, no cross-reactivity with recombinant mouse (rm) TNF RI, rmTNF RII, rmFas, rmGITR, recombinant human (rh) HVEM, rhNGFR, rhDR6, rhDR3, rh4-1BB,
Source	Monoclonal Rat IgG _{2A} Clone # 110517
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	Mouse myeloma cell line NS0-derived recombinant mouse Osteoprotegerin/TNFRSF11B Glu22-Leu401 Accession # O08712
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.

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

Osteoprotegerin (OPG), also called OCIF (osteoclastogenesis inhibitory factor) is a secreted 55-60 kDa protein that regulates bone density (1-3). As a member of the tumor necrosis factor receptor (TNFR) superfamily of proteins, it is designated TNFRSF11B (1-4). Mouse OPG cDNA encodes 401 amino acids (aa) including a 21 aa signal peptide and a 380 aa mature soluble protein with four TNFR domains, two death domains and a heparin-binding region (4). The cysteine-rich TNFR domains are essential for ligand interaction, while a cysteine at the C-terminus mediates homodimerization (4). Mature mouse OPG shares 86%, 94%, 86%, 86% and 83% amino acid sequence identity with human, rat, equine, canine and bovine OPG, respectively. OPG is widely expressed and constitutively released as a homodimer by mesenchymal stem cells, fibroblasts and endothelial cells (1, 2, 5, 7). Regulation of its expression by estrogen, parathyroid hormone and cytokines is complex and changes with age (2). OPG has been called a decoy receptor for the TNF superfamily ligands, TRANCE (tumor necrosis factor-related activation-induced cytokine), also called RANK L (receptor activator of NFκB ligand), and TRAIL (TNF-related apoptosis-inducing ligand), which also bind TNF family receptors RANK and TRAIL receptors 1-4, respectively (2, 6). TRAIL decreases the release of OPG from cells that express it, while OPG inhibits TRAIL-induced apoptosis (5, 6). Expression of RANK L on the cell surface, and thus its ability to stimulate osteoclastogenesis, is regulated by OPG by intracellular and extracellular mechanisms (7). Within osteoblasts, interaction of the basic domain of OPG with RANK L in the Golgi inhibits RANK L secretion (7). Extracellularly, OPG binding to RANK L results in clathrin-mediated internalization and degradation of both proteins (7, 8). Binding of OPG by syndecan-1 heparin sulfates on multiple myeloma cells also results in OPG internalization and degradation, contributing to bone loss (8, 9). OPG deficiency can cause juvenile Paget's disease in humans, and insufficient OPG to balance with RANK L and RANK can produce osteoporosis and vascular calcification in both mice and humans (2, 10, 11).

PRODUCT SPECIFIC NOTICES

This product is provided under an agreement between Life Technologies Corporation and R&D Systems, Inc, and the manufacture, use, sale or import of this product is subject to one or more US patents and corresponding non-US equivalents, owned by Life Technologies Corporation and its affiliates. The purchase of this product conveys to the buyer the non-transferable right to use the purchased amount of the product and components of the product only in research conducted by the buyer (whether the buyer is an academic or for-profit entity). The sale of this product is expressly conditioned on the buyer not using the product or its components (1) in manufacturing; (2) to provide a service, information, or data to an unaffiliated third party for payment; (3) for therapeutic, diagnostic or prophylactic purposes; (4) to resell, sell, or otherwise transfer this product or its components to any third party, or for any other commercial purpose. Life Technologies Corporation will not assert a claim against the buyer of the infringement of the above patents based on the manufacture, use or sale of a commercial product developed in research by the buyer in which this product or its components was employed, provided that neither this product nor any of its components was used in the manufacture of such product. For information on purchasing a license to this product for purposes other than research, contact Life Technologies Corporation, Cell Analysis Business Unit, Business Development, 29851 Willow Creek Road, Eugene, OR 97402, Tel: (541) 465-8300. Fax: (541) 335-0354.