Mouse Osteoprotegerin/TNFRSF11B Antibody

Monoclonal Rat IgG_{2A} Clone # 110517

Catalog Number: MAB459

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, rmCD27, rmCD30, rmCD40, rhOPG, or rmRANK is observed.
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
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 either lyophilized or 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	1 µg/mL	Recombinant Mouse Osteoprotegerin/TNFRSF11B Fc Chimera (Catalog # 459-MO) under non-reducing conditions only

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.5 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.

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).

References:

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Global bio-techne.com info@bio-techne.com techsupport@bio-techne.com TEL +1 612 379 2956
USA TEL 800 343 7475 Canada TEL 855 668 8722 China TEL +86 (21) 52380373
Europe | Middle East | Africa TEL +44 (0)1235 529449