# Human Osteoprotegerin/TNFRSF11B Alexa Fluor® 488-conjugated Antibody

Monoclonal Mouse $IgG_1$ Clone # 155321

Catalog Number: FAB8052G

100 µg

## DESCRIPTION

| | |
|---|---|
| **Species Reactivity** | Human |
| **Specificity** | Detects human Osteoprotegerin/TNFRSF11B in direct ELISAs. |
| **Source** | Monoclonal Mouse $IgG_1$ Clone # 155321 |
| **Purification** | Protein A or G purified from ascites |
| **Immunogen** | Mouse myeloma cell line, NS0-derived human Osteoprotegerin/TNFRSF11B<br>Glu22-Leu401<br>Accession # AAB53709.1 |
| **Conjugate** | Alexa Fluor 488<br>Excitation Wavelength: 488 nm<br>Emission Wavelength: 515-545 nm |
| **Formulation** | Supplied 0.2 mg/mL in a saline solution containing BSA and Sodium Azide.<br><br>*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.*

| | Recommended Concentration | Sample |
|---|---|---|
| **Flow Cytometry** | 0.25-1 µg/$10^6$ cells | HEK293 Human Cell Line Transfected with Human Osteoprotegerin/TNFRSF11B |

## PREPARATION AND STORAGE

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| **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.**<br>• 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). Human 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 human OPG shares 86%, 87%, 92%, 92% and 88% amino acid sequence identity with mouse, 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:**


1. Simonet, W.S. *et al.* (1997) Cell **89**:309.
2. Trouvin, A-P. and V. Goeb 2010) Clin. Interv. Aging **5**:345.
3. Yasuda, H. *et al.* (1998) Proc. Natl. Acad. Sci. USA **95**:3597.
4. Yamaguchi, K. *et al.* (1998) J. Biol. Chem. **273**:5117.
5. Corallini, F. *et al.* (2010) J. Cell. Physiol. Dec. 6 [Epub ahead of print].
6. Emery, J.G. *et al.* (1998) J. Biol. Chem. **273**:14363.
7. Aoki, S. *et al.* (2010) J. Bone Miner. Res. **25**:1907.
8. Tat, S.K. *et al.* (2006) Bone **39**:706.
9. Standal, T. *et al.* (2002) Blood **100**:3002.
10. Whyte, M.P. *et al.* (2002) N. Engl. J. Med. **347**:175.
11. Van Campenhout, A. and J. Golledge (2009) Atherosclerosis **204**:321.




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## PRODUCT SPECIFIC NOTICES

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