

OPG (4H219): sc-71747

BACKGROUND

Bone morphogenesis and remodeling involve the formation of bone from osteoblasts and the resorption of bone by osteoclasts. The cytokine osteoprotegerin (OPG), also designated osteoclastogenesis inhibitory factor (OCIF), is known to inhibit osteoclast formation. A secreted glycoprotein, OPG is a member of the TNF receptor family that increases bone density and volume. OPG is thought to inhibit osteoclastogenesis by disrupting the cell-to-cell signaling between osteoblastic stromal cells and osteoclast progenitors. OPG is known to bind to TRAIL, a death domain-containing protein, and to inhibit TRAIL apoptosis in Jurkat cells. OPG also binds to RANKL, also known as osteoclast differentiation factor (ODF) and TRANCE, a membrane-bound protein belonging to the TNF ligand family. Both TNF α and TNF β upregulate OPG expression, while the bone resorbing agent prostaglandin E2 down-regulates OPG.

REFERENCES

1. Simonet, W.S., et al. 1997. Osteoprotegerin: a novel secreted protein involved in the regulation of bone density. *Cell* 89: 309-319.
2. Hill, P.A. 1998. Bone remodeling. *Br. J. Orthod.* 25: 101-107.
3. Yasuda, H., et al. 1998. Identity of osteoclastogenesis inhibitory factor (OCIF) and osteoprotegerin (OPG): a mechanism by which OPG/OCIF inhibits osteoclastogenesis *in vitro*. *Endocrinology* 139: 1329-1337.
4. Emery, J.G., et al. 1998. Osteoprotegerin is a receptor for the cytotoxic ligand TRAIL. *J. Biol. Chem.* 273: 14363-14367.
5. Yasuda, H., et al. 1998. Osteoclast differentiation is a ligand for osteoprotegerin/osteoclastogenesis-inhibitory factor and is identical to TRANCE/RANKL. *Proc. Natl. Acad. Sci. USA* 95: 3597-3602.
6. Brandstrom, H., et al. 1998. Regulation of osteoprotegerin mRNA levels by prostaglandin E2 in human bone marrow stroma cells. *Biochem. Biophys. Res. Commun.* 247: 338-341.
7. Brandstrom, H., et al. 1998. Tumor necrosis factor α and β upregulate the levels of osteoprotegerin mRNA in human osteosarcoma MG-63 cells. *Biochem. Biophys. Res. Commun.* 248: 454-457.

CHROMOSOMAL LOCATION

Genetic locus: TNFRSF11B (human) mapping to 8q24.12.

SOURCE

OPG (4H219) is a mouse monoclonal antibody raised against amino acids 20-37 of OPG of human origin.

PRODUCT

Each vial contains 50 μ g IgG₁ in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

OPG (4H219) is recommended for detection of OPG of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)].

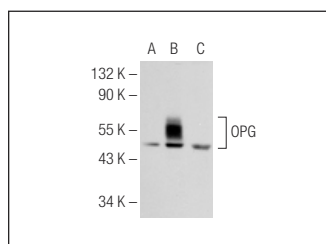
Suitable for use as control antibody for OPG siRNA (h): sc-40152, OPG shRNA Plasmid (h): sc-40152-SH and OPG shRNA (h) Lentiviral Particles: sc-40152-V.

Molecular Weight of OPG monomer: 60 kDa.

Molecular Weight of OPG homodimer: 120 kDa.

Positive Controls: OPG (h): 293T Lysate: sc-159871 or HeLa whole cell lysate: sc-2200.

DATA



OPG (4H219): sc-71747. Western blot analysis of OPG expression in non-transfected 293T: sc-117752 (A), human OPG transfected 293T: sc-159871 (B) and HeLa (C) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Loei, H., et al. 2012. Mining the gastric cancer secretome: identification of GRN as a potential diagnostic marker for early gastric cancer. *J. Proteome Res.* 11: 1759-1772.
2. Jia, J., et al. 2017. Estrogen stimulates osteoprotegerin expression via the suppression of miR-145 expression in MG-63 cells. *Mol. Med. Rep.* 15: 1539-1546.
3. Park, J., et al. 2019. CCL28-induced RAR β expression inhibits oral squamous cell carcinoma bone invasion. *J. Clin. Invest.* 129: 5381-5399.
4. Kim, H., et al. 2020. Chemerin treatment inhibits the growth and bone invasion of breast cancer cells. *Int. J. Mol. Sci.* 21: 2871.

RESEARCH USE

For research use only, not for use in diagnostic procedures.



See **OPG (E-10): sc-390518** for OPG antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.