

# OPG (E-10): sc-390518



The Power to Question

## 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 osteoclast differentiation factor (ODF), also known as TRANCE/RANKL, a membrane-bound protein belonging to the TNF ligand family. Both TNF $\alpha$  and TNF $\beta$  upregulate OPG expression, while the bone resorbing agent prostaglandin E2 downregulates OPG.

## CHROMOSOMAL LOCATION

Genetic locus: TNFRSF11B (human) mapping to 8q24.12; Tnfrsf11b (mouse) mapping to 15 D1.

## SOURCE

OPG (E-10) is a mouse monoclonal antibody raised against amino acids 153-401 of OPG of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available as TransCruz reagent for ChIP application, sc-390518 X, 200  $\mu$ g/0.1 ml.

OPG (E-10) is available conjugated to agarose (sc-390518 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-390518 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-390518 PE), fluorescein (sc-390518 FITC), Alexa Fluor<sup>®</sup> 488 (sc-390518 AF488), Alexa Fluor<sup>®</sup> 546 (sc-390518 AF546), Alexa Fluor<sup>®</sup> 594 (sc-390518 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-390518 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-390518 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-390518 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

## APPLICATIONS

OPG (E-10) is recommended for detection of OPG of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for OPG siRNA (h): sc-40152, OPG siRNA (m): sc-40153, OPG shRNA Plasmid (h): sc-40152-SH, OPG shRNA Plasmid (m): sc-40153-SH, OPG shRNA (h) Lentiviral Particles: sc-40152-V and OPG shRNA (m) Lentiviral Particles: sc-40153-V.

OPG (E-10) X TransCruz antibody is recommended for ChIP assays.

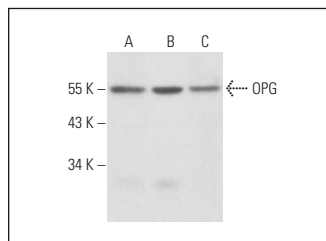
Molecular Weight of OPG monomer/homodimer: 60/120 kDa.

Positive Controls: OPG (h): 293T Lysate: sc-159871, Neuro-2A whole cell lysate: sc-364185 or HeLa whole cell lysate: sc-2200.

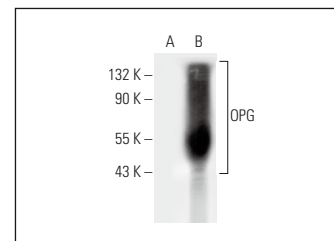
## STORAGE

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

## DATA



OPG (E-10): sc-390518. Western blot analysis of OPG expression in HeLa (A), Neuro-2A (B) and C6 (C) whole cell lysates.



OPG (E-10): sc-390518. Western blot analysis of OPG expression in non-transfected: sc-117752 (A) and human OPG transfected: sc-159871 (B) 293T whole cell lysates.

## SELECT PRODUCT CITATIONS

- Xu, L., et al. 2017. Glycosylation status of bone sialoprotein and its role in mineralization. *Exp. Cell Res.* 360: 413-420.
- Zaniboni, E., et al. 2019. Do electrical current and laser therapies improve bone remodeling during an orthodontic treatment with corticotomy? *Clin. Oral Investig.* 23: 4083-4097.
- Chen, Y.J., et al. 2020. An herbal formula inhibits STAT3 signaling and attenuates bone erosion in collagen-induced arthritis rats. *Phytomedicine* 76: 153254.
- Lv, W., et al. 2021. Total flavonoids of *Rhizoma drynariae* ameliorate steroid-induced avascular necrosis of the femoral head via the PI3K/Akt pathway. *Mol. Med. Rep.* 23: 345.
- Yuan, Y., et al. 2022. The effect of QiangGuYin on osteoporosis through the AKT/mTOR/autophagy signaling pathway mediated by CKIP-1. *Aging* 14: 892-906.
- Cao, Z., et al. 2022. Isoorientin ameliorates osteoporosis and oxidative stress in postmenopausal rats. *Pharm. Biol.* 60: 2219-2228.
- Xiong, J., et al. 2022. A TrkB agonist prodrug prevents bone loss via inhibiting asparagine endopeptidase and increasing osteoprotegerin. *Nat. Commun.* 13: 4820.
- Keitoku, M., et al. 2022. Differential recovery patterns of the maxilla and mandible after eliminating nasal obstruction in growing rats. *J. Clin. Med.* 11: 7359.
- Wu, S., et al. 2023. Osteoprotegerin deficiency aggravates methionine-choline-deficient diet-induced nonalcoholic steatohepatitis in mice. *Sci. Rep.* 13: 3194.

## RESEARCH USE

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

Alexa Fluor<sup>®</sup> is a trademark of Molecular Probes, Inc., Oregon, USA