SANTA CRUZ BIOTECHNOLOGY, INC.

RANKL (12A668): sc-52950

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Members of the tumor necrosis factor (TNF) receptor superfamily interact with signaling molecules of the TNF receptor-associated factor (TRAF) family to activate the NFκB and JNK pathways. RANK (receptor activator of NFκB) is a member of the TNFR family identified on dendritic cells. This type I membrane receptor is expressed in a broad range of tissues. The C-terminus of RANK is required for RANK to bind TRAF2, 5 and 6, and it is also necessary for stimulating NFκB activation. The ligand for this receptor, RANKL (also designated TRANCE, OPGL or ODF), is a type II transmembrane protein expressed primarily in lymphoid tissues and T cell lines. RANKL appears to be an important regulator of T cells and osteoclasts.

REFERENCES

1. Wong, B.R., et al. 1997. TRANCE is a novel ligand of the tumor necrosis factor receptor family that activates c-Jun N-terminal kinase in T cells. J. Biol. Chem. 272: 25190-25194.
2. Natoli, G., et al. 1997. Tumor necrosis factor (TNF) receptor 1 signaling downstream of TNF receptor-associated factor 2. Nuclear factor κB (NFκB)-inducing kinase requirement for activation of activating protein 1 and NFκB but not of c-Jun N-terminal kinase/stress-activated protein kinase. J. Biol. Chem. 272: 26079-26082.

CHROMOSOMAL LOCATION

Genetic locus: TNFSF11 (human) mapping to 13q14.11; Tnfsf11 (mouse) mapping to 14 D3.

SOURCE

RANKL (12A668) is a mouse monoclonal antibody raised against amino acids 1-317 of RANKL of mouse origin.

PRODUCT

Each vial contains 50 µg IgG_1 in 0.5 ml of PBS with < 0.1% sodium azide, 0.1% gelatin and < 0.1% stabilizer protein.

APPLICATIONS

RANKL (12A668) is recommended for detection of RANKL of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for RANKL siRNA (h): sc-29464, RANKL siRNA (m): sc-37270, RANKL shRNA Plasmid (h): sc-29464-SH, RANKL shRNA Plasmid (m): sc-37270-SH, RANKL shRNA (h) Lentiviral Particles: sc-29464-V and RANKL shRNA (m) Lentiviral Particles: sc-37270-V.

Molecular Weight of RANKL full length: 35-40 kDa.

Molecular Weight of membrane bound RANKL: 35-40 kDa.

Molecular Weight of soluble RANKL: 20-30 kDa.

Positive Controls: BYDP whole cell lysate: sc-364368.

STORAGE

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

SELECT PRODUCT CITATIONS

1. Fong, J.E., et al. 2010. Tumor-supportive and osteoclastogenic changes induced by breast cancer-derived factors are reversed by inhibition of γ-secretase. J. Biol. Chem. 285: 31427-31434.
2. Guo, T., et al. 2015. Manganese superoxide dismutase is required to maintain osteoclast differentiation and function under static force. Sci. Rep. 5: 8016.
3. Canullo, L., et al. 2016. Alveolar socket preservation technique: effect of biomaterial on bone regenerative pattern. Ann. Anat. 206: 73-79.
4. Zhang, L., et al. 2016. Mechanical stress regulates osteogenic differentiation and RANKL/OPG ratio in periodontal ligament stem cells by the Wnt/β-catenin pathway. Biochim. Biophys. Acta 1860: 2211-2219.
5. Liu, W., et al. 2018. Alkaline phosphatase controls lineage switching of mesenchymal stem cells by regulating the LRP6/GSK3β complex in hypophosphatasia. Theranostics 8: 5575-5592.
6. Zhu, D.L., et al. 2018. Multiple functional variants at 13q14 risk locus for osteoporosis regulate RANKL expression through long-range super-enhancer. J. Bone Miner. Res. 33: 1335-1346.
7. Al Alawy, R., et al. 2020. The effects of intraperitoneal metoprolol administration on healing of bone defects in rat tibia: a pilot study. Clin. Oral Investig. 24: 1239-1247.
8. Xia, L., et al. 2020. The expression of extracellular matrix metalloproteinase inducer (EMMPRIN) in the compression area during orthodontic relapse. Eur. J. Orthod. 42: 347-354.
9. Lan, T., et al. 2021. Xenoextracellular matrix-rosiglitazone complex-mediated immune evasion promotes xenogenic bioengineered root regeneration by altering M1/M2 macrophage polarization. Biomaterials 276: 121066.
10. Wei, T., et al. 2022. Dynamic alternations of RANKL/OPG ratio expressed by cementocytes in response to orthodontic-induced external apical root resorption in a rat model. Mol. Med. Rep. 26: 228.
11. Huang, Y., et al. 2021. FAM20C plays a critical role in the development of mouse vertebra. Spine J. 22: 337-348.
12. Cao, Z., et al. 2022. Isoorientin ameliorates osteoporosis and oxidative stress in postmenopausal rats. Pharm. Biol. 60: 2219-2228.

RESEARCH USE

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

CONJUGATES

See **RANKL (G-1): sc-377079** for RANKL antibody conjugates, including AC, HRP, FITC, PE, Alexa Fluor® 488, 546, 594, 647, 680 and 790.