

Recombinant Mouse TRANCE (RANKL, TNFSF11) (carrier-free)

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| Catalog# / Size | 769402 / 10 µg 769404 / 25 µg 769406 / 100 µg |
| Regulatory Status | RUO |
| Other Names | Tumor necrosis factor ligand superfamily, member 11 (TNFSF11), Osteoprotegerin ligand (OPGL), Receptor activator of NF-kappa-B ligand (RANKL), TNF-related activation-induced cytokine (Trance), Osteoclast differentiation factor (ODF), CD254. |
| Description | RANKL gene encodes a type II membrane protein of 316 amino acids with a predicted molecular mass of 35 kD. RANKL is cleaved to produce a soluble form with biological activity. The shedding of membrane-bound RANKL appears to be mediated by expression of MMP14 and ADAM10. Suppression of MMP14 in primary osteoblasts increases membrane-bound RANKL and promotes osteoclastogenesis in cocultures with macrophages. Therefore, RANKL shedding seems to be an important process that down-regulates local osteoclastogenesis. Alternatively, an increased production of RANKL by osteoblastic cells leads to osteoclast differentiation, activation, and survival, which results in increased bone resorption. Binding of RANKL to its receptor RANK activates TNF receptor-associated factor 6 (TRAF6), which is linked to downstream pathways including NF-κB, c-jun N-terminal kinase (JNK) or Src. TRAF6 has been shown to be necessary for the differentiation of osteoclastic cells by enhancing Src kinase, essential for osteoclast function. |

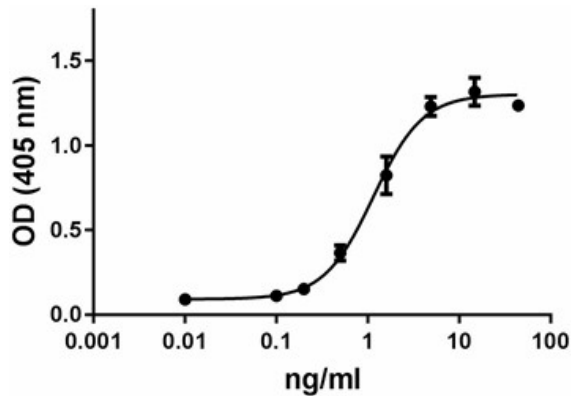
Product Details

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| Source | Mouse RANKL, amino acid Lys158-Asp316 (Accession # O35235) with an N-terminal Met, was expressed in <i>E. coli</i> . |
| Molecular Mass | The 160 amino acid recombinant protein has a predicted molecular mass of approximately 17.9 kD. The DTT-reduced and non-reduced protein migrates at approximately 19 kD respectively by SDS-PAGE. The predicted N-terminal amino acid is Met. |
| Purity | >98%, as determined by Coomassie stained SDS-PAGE. |
| Formulation | Sterile-filtered with 0.2 µm filter, solution comprised of 20 mM sodium phosphate, pH 6.0, 100 mM NaCl, and 2 mM EDTA. |
| Endotoxin Level | < 0.1 EU/µg cytokine as determined by the LAL method. |
| Concentration | 10 and 25 µg sizes are bottled at 200 µg/mL. 100 µg and larger sizes are lot-specific and bottled at the concentration indicated on the vial. To obtain lot-specific concentration, please enter the lot number in our Concentration and Expiration Lookup or Certificate of Analysis online tools. |
| Storage & Handling | Unopened vial can be stored between 2°C and 8°C for up to 2 weeks, at -20°C for up to six months, or at -70°C or colder until the expiration date. For maximum results, quick spin vial prior to opening. The protein can be aliquoted and stored at -20°C or colder. Stock solutions can also be prepared at 50 - 100 µg/mL in appropriate sterile buffer, carrier protein such as 0.2 - 1% BSA or HSA can be added when preparing the stock solution. Aliquots can be stored between 2°C and 8°C for up to one week and stored at -20°C or colder for up to 3 months. Avoid repeated freeze/thaw cycles. |
| Activity | The ED ₅₀ = 0.75-3 ng/ml, as determined by induction of osteoclast differentiation in RAW264.7 mouse macrophage cell line, measured by TRAP reaction. |
| Application | Bioassay |
| Application Notes | BioLegend carrier-free recombinant proteins provided in liquid format are shipped on blue-ice. Our comparison testing data indicates that when handled and stored as recommended, the liquid format has equal or better stability and shelf-life compared to commercially available lyophilized proteins after reconstitution. Our liquid proteins are verified in-house to maintain activity after shipping on blue ice and are backed by our 100% satisfaction guarantee . If you have any concerns, contact us at tech@biolegend.com . |

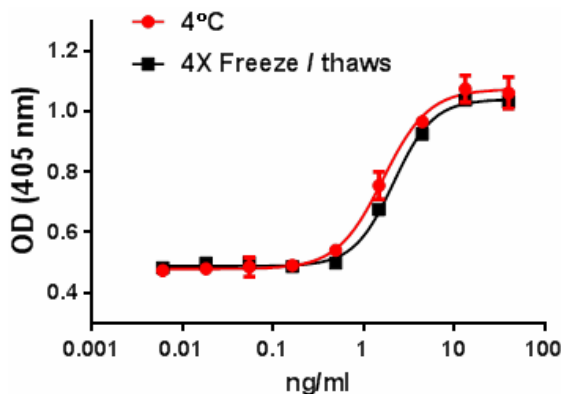
Antigen Details

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| Structure | Cytokine |
| Distribution | Predominantly expressed in monocytes, macrophages, polymorphonuclear cells, B cells. Detected in microglial cells and Treg cells. Inducible in keratinocytes and endothelial cells. |
| Function | Potent stimulator of osteoclast formation from precursor cells and bone-resorbing activity in mature osteoclasts. Augments the ability of dendritic cells to stimulate naive T-cell proliferation. Activates JNK and NF- κ B and induces the expression of IL-1, IL-6, IL-12, and IL-15 in dendritic cells. Crucial factor in lymphocyte development and lymph node organogenesis. Stimulates proliferation, adhesion, and IL-7 expression of thymic epithelial cells. RANKL expression, in human and murine osteoblastic cells, is stimulated by various cytokines (IL-1, TNF- α and IL-11) and calciotropic hormones including PTH, 1, 25-dihydroxyvitamin D3 (1,25D3), and prostaglandin E2. |
| Interaction | T cells, dendritic cells, bone marrow derived macrophages, osteoclast precursors and mature osteoclasts. |
| Ligand/Receptor | TNFRSF11A (Tumor necrosis factor receptor superfamily, member 11A) also called RANK and TNFRSF11B (OPG) which acts as a decoy receptor for RANKL and as a potent inhibitor of osteoclast formation. |
| Cell Type | Embryonic Stem Cells |
| Biology Area | Immunology, Stem Cells |
| Molecular Family | Growth Factors, Cytokines/Chemokines |
| Antigen References | <ol style="list-style-type: none">1. Dehm SM, <i>et al.</i> 2004. <i>Biochem. Cell Biol.</i> 82:263.2. Hikita A, <i>et al.</i> 2006. <i>J. Biol. Chem.</i> 281:36846.3. Kim NS, <i>et al.</i> 2006. <i>Mol. Cell. Biol.</i> 26:1002.4. Wada T, <i>et al.</i> 2006. <i>TRENDS Mol. Med.</i> 12:17.5. Lee HW, <i>et al.</i> 2008. <i>Exp. Mol. Med.</i> 40:59.6. Ha J, <i>et al.</i> 2010. <i>J. Immunol.</i> 184:4717. |
| Gene ID | 21943 |

Product Data



Mouse TRANCE (RANKL) induces osteoclast differentiation in mouse RAW.264.7 cells.



Stability testing for Mouse TRANCE (RANKL, TNFSF11): Mouse TRANCE was aliquoted in 20 mM sodium phosphate, pH 6.0, 100 mM NaCl, and 2 mM EDTA at 0.2 mg/ml and one aliquot was kept at 4°C (control), and another was freeze/thawed four times (4x freeze/thaws). After this procedure, the samples were tested for their ability to induce osteoclast differentiation in mouse RAW.264.7 cells.

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