

## RANKL/TNFSF11/CD254 Protein, Human, Recombinant (hFc)

### General Information

Synonyms:	TRANCE;sOdf;CD254;hRANKL2;TNFSF11;ODF;OPTB2;tumor necrosis factor (ligand) superfamily, member 11;OPGL;RANKL
Protein Construction:	A DNA sequence encoding the human TNFSF11 (AAC51762.1) (Gly64-Asp245) was fused with the Fc region of human IgG1 at the N-terminus. Predicted N terminal: Glu
Species:	Human
Expression Host:	HEK293 Cells
Accession:	AAC51762.1
Molecular Weight:	48.9 kDa (predicted); 52 kDa (reducing condition, due to glycosylation)

### QC Testing

Biological Activity:	<ol style="list-style-type: none"><li>1. Measured by its binding ability in a functional ELISA. Immobilized human TNFRSF11B-His at 10 µg/ml (100 µl/well) can bind human Fc-TNFSF11 with a linear range of 3.125-200 ng/mL.</li><li>2. The bioactivity of hRANKL was determined by measuring the ability of hRANKL to induce TRAP activity in Raw 264.7 cells. The ED50 for this effect is typically 7-35 ng/mL.</li></ol>
Purity:	> 86 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/µg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 µm filter, containing PBS, pH 7.4. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

### Preparation and Storage

Reconstitution:	A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.
Stability & Storage:	<p>It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.</p> <p><small>Actual storage temperature shall be subject to the COA.</small></p>
Shipping:	In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

### Protein Background

Tumor necrosis factor ligand superfamily member 11, also known as Receptor activator of nuclear factor kappa-B

ligand, Osteoprotegerin ligand, TNFSF11, RANKL, TRANCE, OPGL and CD254, is a single-pass type II membrane protein that belongs to the tumor necrosis factor family. The receptor activator of nuclear factor-kappaB ligand (RANKL), its cognate receptor RANK, and its natural decoy receptor osteoprotegerin have been identified as the final effector molecules of osteoclastic bone resorption. RANK and RANKL are key regulators of bone remodeling and regulate T cell/dendritic cell communications, and lymph node formation. Moreover, RANKL and RANK are expressed in mammary gland epithelial cells and control the development of a lactating mammary gland during pregnancy. Genetically, RANKL and RANK are essential for the development and activation of osteoclasts and bone loss in response to virtually all triggers tested. Inhibition of RANKL function via the natural decoy receptor osteoprotegerin (OPG, TNFRSF11B) prevents bone loss in postmenopausal osteoporosis and cancer metastases. Importantly, RANKL appears to be the pathogenetic principle that causes bone and cartilage destruction in arthritis. RANK-RANKL signaling not only activates a variety of downstream signaling pathways required for osteoclast development, but crosstalk with other signaling pathways also fine-tunes bone homeostasis both in normal physiology and disease. In addition, RANKL and RANK have essential roles in lymph node formation, establishment of the thymic microenvironment, and development of a lactating mammary gland during pregnancy. Cancer Immunotherapy Immune Checkpoint Immunotherapy Targeted Therapy

### Reference

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- Schwarz EM, et al. (2007) Clinical development of anti-RANKL therapy. *Arthritis Res Ther.* 9 Suppl 1: S7.
- Leibbrandt A, et al. (2008) RANK/RANKL: regulators of immune responses and bone physiology. *Ann N Y Acad Sci.* 1143: 123-50.

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