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Product Information

RANK Ligand, mouse
recombinant, expressed in *E. coli*

Catalog Number **R0525**
Storage Temperature –20 °C

Synonyms: Receptor Activator of NF-κB ligand (RANKL), TNF-related activation-induced cytokines (TRANCE), osteoprotegerin ligand (OPGL), osteoclast differentiation factor (ODF)

Product Description
RANK Ligand is a member of the tumor necrosis factor (TNF) superfamily of ligands and receptors that play an important role in the regulation of specific immunity and bone turnover. RANK (receptor) was originally identified as a dendritic cell membrane protein, which by interacting with RANKL augments the ability of dendritic cells to stimulate naive T cell proliferation in a mixed lymphocyte reaction, promote the survival of RANK + T cells, and regulate T cell dependent immune response.

RANKL, which is expressed in a variety of cells including osteoblasts, fibroblasts, activated T cells, and bone marrow stromal cells, is also capable of interacting with a decoy receptor called OPG. Binding of soluble OPG to sRANKL inhibits osteoclastogenesis by interrupting the signaling between stromal cells and osteoclastic progenitor cells, thereby, leading to excess accumulation of bone and cartilage.

The functions of RANK Ligand include induction of activation of the c-jun N-terminal kinase,[1] enhancement of T cell growth and dendritic cell function,[2] induction of osteoclastogenesis,[3] and lymph node organogenesis.[4] The cell surface signaling receptor of RANK Ligand is RANK, which undergoes receptor clustering during signal transduction.

The recombinant, mouse sRANKL, expressed in *E. coli*, is a 19.4 kDa polypeptide comprising the TNF homologous region of RANKL (174 amino acid residues). Mouse and human RANK ligand share ~85% amino acid identity.

The product is lyophilized from a 0.2 μm filtered solution of 5 mM sodium phosphate, pH 7.6, and 75 mM NaCl.

RANK Ligand is measured by its ability to induce NF-κB in RAW264.7 cells in the absence of any crosslinking. The expected ED50 for this effect is 10.0-25.0 ng/ml.

Purity: ≥98% (SDS-PAGE and HPLC)

Endotoxin: <0.1 ng/μg (1 EU/μg)

Precautions and Disclaimer
This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions
Reconstitute the contents of the vial using sterile water to a concentration of 0.1–1.0 mg/mL. This solution can then be diluted into other aqueous buffers.

Storage/Stability
Store the product at –20 °C.

Upon reconstitution; aliquot and store at –20 °C. For extended storage, freeze working in aliquots. Repeated freezing and thawing is not recommended.

References
1. Wong, B.R., *et al*., 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 (1997).
2. Anderson, D.M., *et al*., A homologue of the TNF receptor and its ligand enhance T-cell growth and dendritic-cell function. Nature, **390**, 175-179 (1997).
3. Nakagawa, N., *et al*., RANK is the essential signaling receptor for osteoclast differentiation factor in osteoclastogenesis. Biochem. Biophys. Res. Commun., **253**, 395-400 (1998).
4. Kong, Y.Y., *et al*., OPGL is a key regulator of osteoclastogenesis, lymphocyte development and lymph-node organogenesis, Nature, **397**, 315-323, (1999).