

Product Information

RANK/Fc Chimera

human, recombinant, expressed in mouse NSO cells

Product Number **R0400**

Product Description

The DNA sequence encoding the extracellular domain of human RANK¹ is fused to the signal peptide of CD33 at the amino-terminus and also fused the carboxy-terminal 6X histidine-tagged Fc region of human IgG₁, via a polypeptide linker. The chimeric protein is expressed in a mouse myeloma cell line, NSO.

Recombinant human RANK/Fc Chimera, generated after removal of amino acid residues (Met 1 – Ala 16) of the CD33 signal peptide, is a disulfide-linked homodimer. Each monomer contains 430 amino acid residues with a calculated molecular mass of ~48 kDa. As a result of glycosylation, monomeric human RANK/Fc migrates as a 60 kDa protein in SDS-PAGE under reducing conditions.

RANK, receptor activator of NF- κ B, also known as TRANCE receptor and osteoclast differentiation factor (ODFR), is a member of the tumor necrosis factor receptor (TNFR) family. The full-length human RANK cDNA encodes a type I transmembrane protein with an extracellular and a cytoplasmic domain. The extracellular domain contains two potential N-linked glycosylation sites. RANK shares significant amino acid homology with other members of the TNFR family in its extracellular four cysteine-rich repeats. Human and murine RANK share 81% amino acid identity in their extracellular domains.

RANK is widely expressed, with highest levels in skeletal muscle, thymus, liver, colon, small intestine and adrenal gland. It is also expressed in dendritic cells. RANK (receptor activator of NF- κ B) and RANK ligand (RANKL) are important regulators of interactions between T cells and dendritic cells.¹ RANK is the essential signaling receptor for osteoclast differentiation factor in osteoclastogenesis.² Multiple tumor necrosis factor receptor-associated factors (TRAFs) are involved in the signaling of RANK. TRANCE, TNF-related activation-induced cytokines, also known as RANK ligand (RANKL), osteoprotegerin ligand (OPGL) and osteoclast differentiation factor (ODF) is the ligand for RANK. The biological functions mediated by RANK include activation of NF- κ B and c-jun N-terminal kinase,

enhancement of T cell growth and dendritic cell function, induction of osteoclastogenesis and lymph node organogenesis. The soluble form of RANK is able to block TRANCE induced biological activity.

Reagent

Supplied lyophilized from a 0.2 μ m filtered solution in phosphate buffered saline.

Preparation Instructions

Reconstitute the contents of the vial using sterile phosphate buffered saline containing at least 0.1% human serum albumin or bovine serum albumin. Prepare a stock solution of no less than 10 μ g/mL.

Storage/Stability

Store at -20 °C. Upon reconstitution, the product may be stored at 2-8°C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended.

Product Profile

RANK/Fc chimera is measured by its ability to inhibit TRANCE-induced osteoclast differentiation on mouse splenocytes. The ED₅₀ for this effect is typically 4-10 ng/ml in the presence of 12 ng/ml of rmTRANCE and 2.5 μ g/ml of a cross-linking antibody (mouse anti-6X-histidine). The ED₅₀ is defined as the effective concentration of growth factor that elicits a 50% increase in cell growth in a cell based bioassay.

Purity: >95% as determined by SDS-PAGE, visualized by silver stain.

Endotoxin: < 1.0 EU (endotoxin units) per 1 μ g of the cytokine as determined by the LAL method

References

1. 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).
2. Nakagawa, N., et al., RANK is the essential signaling receptor for osteoclast differentiation factor in osteoclastogenesis, *Biochem. Biophys. Res. Commun.*, **253**, 395-400 (1998).

KAA 07/06

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