

Animal-Free RANK L/TNFSF11 Protein, Human (His)

Cat. No.:	HY-P700147AF
Synonyms:	soluble Receptor Activator of NF- κ B Ligand; TNFSF11; TRANCE (TNF-Related Activation-induced Cytokine); OPGL; ODF (Osteoclast Differentiation Factor); CD254; sRNAK Ligand
Species:	Human
Source:	E. coli
Accession:	O14788 (E143-D317)
Gene ID:	8600
Molecular Weight:	Approximately 20.67 kDa

PROPERTIES

AA Sequence	<pre> MEKAMVDGSW LDLAKRSKLE AQPFAHLTIN ATDIPSGSHK VSLSSWYHDR GWAKISNMTF SNGKLIVNQD GFYYLYANIC FRHHETSGDL ATEYLQLMVY VTKTSIKIPS SHTLMKGGST KYWSGNSEFH FYSINVGGFF KLRSGEEISI EVSNPSLLDP DQDATYFGAF KVRDID </pre>
Biological Activity	Measure by its ability to induce osteoclast differentiation in RAW264.7 cells. The ED ₅₀ for this effect is <10 ng/mL.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a solution containing 1X PBS, pH 8.0.
Endotoxin Level	<0.1 EU per 1 μ g of the protein by the LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 μ g/mL in ddH ₂ O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	RANK L/TNFSF11 protein, a cytokine, binds to TNFRSF11B/OPG and TNFRSF11A/RANK, functioning as a crucial regulator of osteoclast differentiation and activation. Additionally, it serves as a factor that enhances the ability of dendritic cells to stimulate naive T-cell proliferation, suggesting its importance in the regulation of T-cell and dendritic cell interactions, and a potential role in the T-cell-dependent immune response. Moreover, RANK L/TNFSF11 may play a significant role in enhanced bone resorption observed in conditions like humoral hypercalcemia of malignancy. Its induction of osteoclastogenesis involves the activation of multiple signaling pathways in osteoclast precursor cells, with a key
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mechanism being the induction of long-lasting oscillations in intracellular calcium concentration, leading to the activation of NFATC1. This transcription factor translocates to the nucleus and initiates osteoclast-specific gene transcription, facilitating osteoclast differentiation. During this process, RANK L/TNFSF11, in a TMEM64 and ATP2A2-dependent manner, induces CREB1 activation and mitochondrial ROS generation, crucial for proper osteoclast formation. Existing as a homotrimer, RANK L/TNFSF11 interacts with TNFRSF11B, TNFRSF11A, FBN1, and TNFAIP6, highlighting its versatile interactions in diverse cellular contexts.

Caution: Product has not been fully validated for medical applications. For research use only.

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