

RANKL/TNFSF11 Protein, Human (HEK293)

Cat. No.:	HY-P73386
Synonyms:	Tumor necrosis factor ligand superfamily member 11; RANKL; CD254; ODF; OPGL; TNFSF11; TRANCE
Species:	Human
Source:	HEK293
Accession:	AAC51762.1 (G64-D245)
Gene ID:	8600
Molecular Weight:	Approximately 28.81 kDa

PROPERTIES

AA Sequence	<p> G S Q H I R A E K A M V D G S W L D L A K R S K L E A Q P F A H L T I N A T D I P S G S H K V S L S S W Y H D R G W G K I S N M T F S N G K L I V N Q D G F Y Y L Y A N I C F R H H E T S G D L A T E Y L Q L M V Y V T K T S I K I P S S H T L M K G G S T K Y W S G N S E F H F Y S I N V G G F F K L R S G E E I S I E V S N P S L L D P D Q D A T Y F G A F K V R D I D </p>
Biological Activity	<p>1. Immobilized human TNFSF11 at 2 µg/mL (100 µL/well) can bind human Osteoprotegerin-hFc and the EC₅₀ is 5-40 ng/mL.</p> <p>2. Measured by its ability to induce TRAP activity, inducing osteoclast differentiation of RAW 264.7 mouse monocyte/macrophage cells. The ED₅₀ for this effect is 1.5-19.69 ng/mL, corresponding to a specific activity is > 5.079×10⁴ units/mg.</p>
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 µm filtered solution of PBS, pH 7.4 or 20 mM PB, 150 mM NaCl, pH 7.4.
Endotoxin Level	<1 EU/µg, determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 µg/mL in ddH ₂ O. For long term storage it is recommended to add a carrier protein (0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose).
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	RANKL (TNFSF11) belongs to TNF family. RANKL is a type II transmembrane protein and is a receptor activator of NF-κB (RANK) ligand. RANKL is an activator of NF-κB. RANKL binds to NF-κB and induces the differentiation of
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monocyte/macrophage-lineage cells into osteoclasts and leads to osteoclast precursor maturation. In bone tissue, RANKL is expressed by osteoblasts, osteocytes and immune cells, especially in osteoblasts and osteocytes^[1]. RANKL is also expressed by T cells and increases proliferation and survival of dendritic cells^[2].

Human RANKL shares 82.02% and 84.44% common aa identity with mouse and rat respectively. Human RANKL consists of cytoplasmic domain (1-47), helical domain (48-68), and extracellular domain (69-317). The soluble chain (140-317) is released when cleaved by enzymes such as matrix metalloproteinases (MMP3 or 7) and ADAM^{[1][3]}.

RANKL is critical for osteoclasts maturation, bone modeling, and bone remodeling, as well as the development of lymph nodes (LNs)^[1].

REFERENCES

- [1]. Ono T, et al. RANKL biology: bone metabolism, the immune system, and beyond. *Inflamm Regen*. 2020 Feb 7;40:2.
 - [2]. Li B, et al. Roles of the RANKL-RANK Axis in Immunity-Implications for Pathogenesis and Treatment of Bone Metastasis. *Front Immunol*. 2022 Mar 21;13:824117.
 - [3]. Tobeiha M, et al. RANKL/RANK/OPG Pathway: A Mechanism Involved in Exercise-Induced Bone Remodeling. *Biomed Res Int*. 2020 Feb 19;2020:6910312.
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