Recombinant Human sRANK Ligand (Receptor activator of nuclear factor kappa-B ligand)

Human recombinant protein expressed in *Nicotiana benthamiana*

RF0038
Alternative Names: TNFSF11, OPGL, TRANCE
Molecular Formula: C952H1414N262O276S5
UniProtKB: O14788
p.I: 6.82

Available sizes: 1 µg, 10 µg, 50 µg, 100 µg
Ext. Coeff. Abs (280nm) 0.1% (=1g/l) =1.678
Purity > 97% by SDS-PAGE gel
Endotoxin Level : < 0.04 EU / µg protein (LAL method)

Molecular Weight:

rhuman sRANKL is a glycosilated polypeptide chain containing 175 amino acids (70 – 244 aa of O14788 TNF11_HUMAN) and a His-tag at the N-terminal end. It has a predicted molecular mass of 21.1 kDa, however as result of glycosilation, the recombinant protein could migrate as two bands with an apparent molecular mass of 21-23 kDa in SDSPAGE.

Sequence:

HHHHHHHHHHEKAMVDGSWLDLAKRSKLEAQPFAHLTINA
TDIPSGSHKVSLSSWYHDRGWAKISNMTFSNGKLIVNQDG
FYYLYANICFRHHETSGDLATEYLQLMVYVTKTSIKIPSSHTL
MKGGSTKYWSGNSEFHFYSINVGGFFKLRSGEEISIEVSNP
SLLDPDQDATYFGAFKVRDID

Formulation:

Recombinant human RANKL is lyophilized from 10mM Phosphate Potasium buffer pH 8 and 0.2M NaCl.

Description:

Recombinant human RANKL is a member of TNF super family, a cytokine that play a central role in bone remodeling and disorders of mineral metabolism. It was shown to be a dendritic cell survival factor, T-cell activator and osteoclast regulator because RANKL mediates the osteoclast differentiation, survival and activation. Native RANKL is a type II trans-membrane protein with an extracellular binding domain that interacts with RANK and OPG receptors. OPG protects the skeleton from excessive bone resorption by binding to RANKL and preventing it from binding to its receptor, RANK. Thus, RANKL/OPG ratio became an important determinant of bone mass and skeletal integrity. In addition, this protein was shown to activate anti-apoptotic kinase AKT/PKB through a signaling complex involving SRC kinase and tumor necrosis factor receptor-associated factor (TREAF). Recent findings shown that OPG/RANK/RANKL system has been identifies as a possible mediator of arterial calcification suggesting common links between osteoporosis and vascular diseases.

Source:

Human recombinant protein expressed in *Nicotiana benthamiana*. It is produced by transient expression in non-transgenic plants and is purified by sequential chromatography (FPLC). This product contains no animal–derived components or impurities. Animal Free product.

Reconstitution Recommendation:

Lyophilized protein should be reconstituted in water following instructions of batch Quality Control sheet. At higher concentration the solubility may be reduced and multimers generated. Optimal concentration should be determined for specific application and cell lines.

Storage and Stability:

This lyophilized preparation is stable at 2-8º C for short term, long storage it should be kept at -20ºC. Reconstituted protein should be stored in working aliquots at –20°C. Repeated freezing and thawing is not recommended.

References:

-Anderson, D. et al.,1997. A homologue of the TNF receptor and its ligand enhance T-cell growth and dendritic-cell function. Nature 390: 175-179
-Takahashi, N. et al., 1999. A new member of tumor necrosis factor ligand family, ODF/OPGL/TRANCE/RANKL, regulates osteoclast differentiation and function. Biochem Biophys. Res. Common. Mar 24; 256(3):449-55.
-Yasuda, H. et al., 1998. Osteoclast differentiation factor is a ligand for osteoprotegerin/osteoclastogenesis-inhibitory factor and is identical to TRANCE/RANKL. Proc. Natl. Acad. Sci. USA 95:3597-3602.
-D'Amelio, P. et al., 2009. The osteoprotegerin/RANK/RANKL system: a bone key to vascular disease.J Endocrinol Invest. 32(4 Suppl):6-9.
-Suda, T. et al., 1999. Modulation of osteoclast differentiation and function by de the new members of the tumor necrosis factor receptor and ligand family. Endocr. Rev.20:345-350.

Upon this protein has not been tested in a particular technique this not necessarily excludes its use in such procedures.
For R+D purposes only. Purchaser must determine the suitability of the product(s) for their particular use.
Product expressed in a transient plant system and intrinsically are Animal-free

Applications:

Western Blot, Immunogen.

Purity Confirmation:

The protein was resolved by SDS polyacrylamide gel electrophoresis and the gel was stained with coomassie blue. Fig. 1.

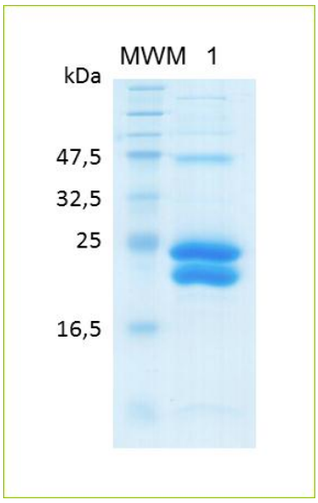

Figure 1.- SDS-PAGE analysis of recombinant sRANKL. Samples were loaded in 15% SDS-polyacrylamide gel and stained with Coomassie blue. Lane MWM: Molecular weight marker (kDa); lane 1 contains 1 ug of rhuman sRANKL. All bands have been identified by MALDI-TOFF as human RANKL.

Serological Identification:

The protein was electrophoresed under reducing condition on a 15% SDS-polyacrylamide gel, transferred by electro blotting to a NC membrane and visualized by immune-detection with specific RANKL antibody. Fig. 2.

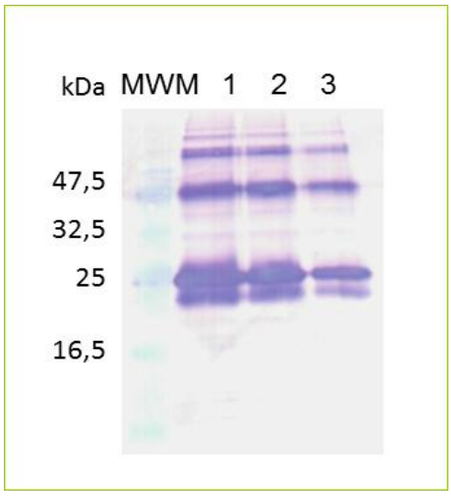

Figure 2.- Analysis of rhuman sRANKL with specific antibody by Western Blot; Lane MWM: Molecular weight marker (kDa); lane 1 contains 1 ug; lane 2 contains 0.5 ug and lane 3 contains 0.1 ug of rhuman sRANKL . All bands have been identified by MALDI-TOFF as human RANKL.

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