SANTA CRUZ BIOTECHNOLOGY, INC.

RANKL siRNA (m): sc-37270

BACKGROUND

Members of the tumor necrosis factor (TNF) receptor superfamily interact with signaling molecules of the TNF receptor-associated factor (TRAF) family to activate the NFκB and JNK pathways. RANK (receptor activator of NFκB) is a member of the TNFR family identified on dendritic cells. This type I membrane receptor is expressed in a broad range of tissues. The C-terminus of RANK is required for RANK to bind TRAF2, 5 and 6, and it is also necessary for stimulating NFκB activation. The ligand for this receptor, RANKL (also designated TRANCE, OPGL or ODF), is a type II transmembrane protein expressed primarily in lymphoid tissues and T cell lines. RANKL appears to be an important regulator of T cells and osteoclasts.

REFERENCES

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2. Natoli, G., et al. 1997. Tumor necrosis factor (TNF) receptor 1 signaling downstream of TNF receptor-associated factor 2. Nuclear factor κB (NFκB)-inducing kinase requirement for activation of activating protein 1 and NFκB but not of c-Jun N-terminal kinase/stress-activated protein kinase. J. Biol. Chem. 272: 26079-26082.
3. Shi, C.S., et al. 1997. Activation of stress-activated protein kinase/c-Jun N-terminal kinase, but not NFκB, by the tumor necrosis factor (TNF) receptor 1 through a TNF receptor-associated factor 2 and germinal center kinase related-dependent pathway. J. Biol. Chem. 272: 32102-32107.
4. Anderson, D.M., et al. 1997. A homologue of the TNF receptor and its ligand enhance T cell growth and dendritic cell function. Nature 390: 175-179.
5. Darnay, B.G., et al. 1998. Characterization of the intracellular domain of receptor activator of NFκB (RANK). Interaction with tumor necrosis factor receptor-associated factors and activation of NFκB and c-Jun N-terminal kinase. J. Biol. Chem. 273: 20551-20555.
6. Wong, B.R., et al. 1998. The TRAF family of signal transducers mediates NFκB activation by the TRANCE receptor. J. Biol. Chem. 273: 28355-28359.
7. Kim, N., et al. 2000. Diverse roles of the tumor necrosis factor family member TRANCE in skeletal physiology revealed by TRANCE deficiency and partial rescue by a lymphocyte-expressed TRANCE transgene. Proc. Natl. Acad. Sci. USA 97: 10905-10910.
8. Sezer, O., et al. 2003. RANK ligand and osteoprotegerin in myeloma bone disease. Blood 101: 2094-2098.
9. Loser, K., et al. 2006. Epidermal RANKL controls regulatory T-cell numbers via activation of dendritic cells. Nat. Med. 12:1372-1379.

CHROMOSOMAL LOCATION

Genetic locus: Tnfsf11 (mouse) mapping to 14 D3.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

PRODUCT

RANKL siRNA (m) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see RANKL shRNA Plasmid (m): sc-37270-SH and RANKL shRNA (m) Lentiviral Particles: sc-37270-V as alternate gene silencing products.

For independent verification of RANKL (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-37270A, sc-37270B and sc-37270C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

RANKL siRNA (m) is recommended for the inhibition of RANKL expression in mouse cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

GENE EXPRESSION MONITORING

RANKL (12A668): sc-52950 is recommended as a control antibody for monitoring of RANKL gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor RANKL gene expression knockdown using RT-PCR Primer: RANKL (m)-PR: sc-37270-PR (20 µl, 559 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

For research use only, not for use in diagnostic procedures.