SANTA CRUZ BIOTECHNOLOGY, INC.

TWEAK siRNA (h): sc-37522

BACKGROUND

Proteins belonging to the tumor necrosis factor (TNF) superfamily are potent mediators of inflammation and of the immune system. Members of the TNF superfamily include TNFβ, lymphotoxin β (LTβ), CD154 (CD40L), CD30L, CD27L, OX40L, 4-1BBL, FAS-L (APO-1) and TRAIL. Most TNF family members are type II transmembrane proteins that are proteolytically processed at their carboxy-terminal extracellular domain to form a soluble homotrimeric molecule. TWEAK (also designated Apo-3L) has been identified as a secreted ligand belonging to the TNF superfamily. TWEAK seems to induce apoptosis weakly, and it may be involved in cell differentiation *in vivo*.

REFERENCES

1. Smith, C.A., et al. 1994. The TNF receptor superfamily of cellular and viral proteins: activation, costimulation, and death. Cell 76: 959-962.
2. Cosman, D. 1994. A family of ligands for the TNF receptor superfamily. Stem Cells 12: 440-455.
3. Cleveland, J.L., et al. 1995. Contenders in FasL/TNF death signaling. Cell 81: 479-482.
4. Wiley, S.R., et al. 1995. Identification and characterization of a new member of the TNF family that induces apoptosis. Immunity 3: 673-682.
5. Baker, S.J., et al. 1996. Transducers of life and death: TNF receptors superfamily and associated proteins. Oncogene 12: 1-9.
6. Pitti, R.M., et al. 1996. Induction of apoptosis by Apo-2 ligand, a new member of the tumor necrosis factor cytokine family. J. Biol. Chem. 271: 12687-12690.
7. Chicheportiche, Y., et al. 1997. TWEAK, a new secreted ligand in the tumor necrosis factor family that weakly induces apoptosis. J. Biol. Chem. 272: 32401-32410.
8. Kaplan, M.J., et al. 2000. TRAIL (Apo2 ligand) and TWEAK (Apo3 ligand) mediate $CD4^+$ T cell killing of antigen-presenting macrophages. J. Immunol. 164: 2897-2904.
9. Dogra, C., et al. 2007. TNF-related weak inducer of apoptosis (TWEAK) is a potent skeletal muscle-wasting cytokine. FASEB J. 21: 1857-1869.

CHROMOSOMAL LOCATION

Genetic locus: TNFSF12 (human) mapping to 17p13.1.

PRODUCT

TWEAK siRNA (h) 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 TWEAK shRNA Plasmid (h): sc-37522-SH and TWEAK shRNA (h) Lentiviral Particles: sc-37522-V as alternate gene silencing products.

For independent verification of TWEAK (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-37522A, sc-37522B and sc-37522C.

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

TWEAK siRNA (h) is recommended for the inhibition of TWEAK expression in human 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

TWEAK (CARL-1): sc-56248 is recommended as a control antibody for monitoring of TWEAK 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 TWEAK gene expression knockdown using RT-PCR Primer: TWEAK (h)-PR: sc-37522-PR (20 µl, 418 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Pettersen, I., et al. 2013. Expression of TWEAK/Fn14 in neuroblastoma: implications in tumorigenesis. Int. J. Oncol. 42: 1239-1248.
2. Zhang, H., et al. 2023. TWEAK knockdown alleviates post-cardiac arrest brain injury via the p38 MAPK/NFκB pathway. Discov. Med. 35: 503-516.

RESEARCH USE

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

PROTOCOLS

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