SANTA CRUZ BIOTECHNOLOGY, INC.

Fn14 siRNA (h): sc-43764

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Fn14, the TWEAK receptor, is a recently identified member of the TNF receptor superfamily and is expressed on smooth muscle cells and endothelial cells. It is a weak inducer of apoptosis and promotes angiogenesis. Fn14 is a type 1 membrane protein. It associates with TRAF1 and TRAF2, and may modulate cellular adhesion to matrix proteins. Fn14 is highly expressed in heart, placenta and kidney, and moderately expressed in lung, skeletal muscle and pancreas. It is the smallest member of the TNF receptor (TNFR) superfamily described to date, and signals via recruitment of several different TNFR-associated factors.

REFERENCES

1. Tran, N.L., et al. 2003. The human Fn14 receptor gene is up-regulated in migrating glioma cells *in vitro* and overexpressed in advanced glial tumors. Am. J. Pathol. 162: 1313-1321.
2. Han, S., et al. 2003. TNF-related weak inducer of apoptosis receptor, a TNF receptor superfamily member, activates NFκB through TNF receptor-associated factors. Biochem. Biophys. Res. Commun. 305: 789-796.
3. Wiley S.R. and Winkles, J.A. 2003. TWEAK, a member of the TNF superfamily, is a multifunctional cytokine that binds the TWEAKR/Fn14 receptor. Cytokine Growth Factor Rev. 14: 241-249.
4. Campbell, S., et al. 2004. The role of TWEAK/Fn14 in the pathogenesis of inflammation and systemic autoimmunity. Front. Biosci. 9: 2273-2284.

CHROMOSOMAL LOCATION

Genetic locus: TNFRSF12A (human) mapping to 16p13.3.

PRODUCT

Fn14 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 Fn14 shRNA Plasmid (h): sc-43764-SH and Fn14 shRNA (h) Lentiviral Particles: sc-43764-V as alternate gene silencing products.

For independent verification of Fn14 (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-43764A, sc-43764B and sc-43764C.

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

Fn14 siRNA (h) is recommended for the inhibition of Fn14 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

Fn14 (ITEM-4): sc-56250 is recommended as a control antibody for monitoring of Fn14 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).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Fn14 gene expression knockdown using RT-PCR Primer: Fn14 (h)-PR: sc-43764-PR (20 µl, 526 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Muñoz-García, B., et al. 2011. TWEAK-Fn14 interaction enhances plasminogen activator inhibitor 1 and tissue factor expression in atherosclerotic plaques and in cultured vascular smooth muscle cells. Cardiovasc. Res. 89: 225-233.
2. Pettersen, I., et al. 2013. Expression of TWEAK/Fn14 in neuroblastoma: implications in tumorigenesis. Int. J. Oncol. 42: 1239-1248.
3. Winer, H., et al. 2018. Autophagy differentially regulates TNF receptor Fn14 by distinct mammalian Atg8 proteins. Nat. Commun. 9: 3744.
4. Fukuda, T., et al. 2021. BMP2-induction of Fn14 promotes protumorigenic signaling in gynecologic cancer cells. Cell. Signal. 87: 110146.
5. Zhang, Y., et al. 2023. TWEAK/Fn14 signaling may function as a reactive compensatory mechanism against extracellular matrix accumulation in keloid fibroblasts. Eur. J. Cell Biol. 102: 151290.

RESEARCH USE

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