SANTA CRUZ BIOTECHNOLOGY, INC.

TACE siRNA (h): sc-36604

BACKGROUND

Tumor necrosis factor β (TNFβ), also known as lymphotoxin, is a pleiotropic cytokine. TNFα, also known as cachetin, is a cytokine that binds to the same receptors, producing an array of effects similar to those of TNFβ. TNFβ and TNFα share 30% amino acid homology and have similar biological activities. TNFβ is produced by activated lymphocytes, including $CD4^+$ T helper cell type 1 lymphocytes, $CD8^+$ lymphocytes and certain B lymphoblastoid cell lines. TNFα is produced by several different cell types, including lymphocytes, neutrophils and macrophages. TNFβ and TNFα can modulate many immune and inflammatory functions while having the ability to inhibit tumor growth. TACE (for TNFα converting enzyme) is a metalloproteinase that cleaves the membrane-bound TNFα precursor to release soluble TNFα.

CHROMOSOMAL LOCATION

Genetic locus: ADAM17 (human) mapping to 2p25.1.

PRODUCT

TACE 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 TACE shRNA Plasmid (h): sc-36604-SH and TACE shRNA (h) Lentiviral Particles: sc-36604-V as alternate gene silencing products.

For independent verification of TACE (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-36604A, sc-36604B and sc-36604C.

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

TACE siRNA (h) is recommended for the inhibition of TACE 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.

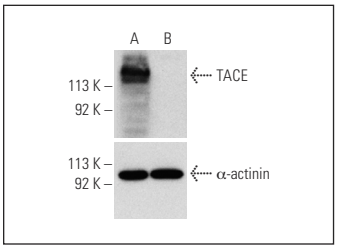
GENE EXPRESSION MONITORING

TACE (B-6): sc-390859 is recommended as a control antibody for monitoring of TACE 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 TACE gene expression knockdown using RT-PCR Primer: TACE (h)-PR: sc-36604-PR (20 µl, 448 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

DATA



TACE siRNA (h): sc-36604. Western blot analysis of TACE expression in non-transfected control (**A**) and TACE siRNA transfected (**B**) HeLa cells. Blot probed with TACE (H-300): sc-13973. α-actinin (H-2): sc-17829 used as specificity and loading control.

SELECT PRODUCT CITATIONS

1. Zheng, X., et al. 2007. Inhibition of ADAM17 reduces hypoxia-induced brain tumor cell invasiveness. Cancer Sci. 98: 674-684.
2. Yu, H., et al. 2011. Regulation of cigarette smoke-induced mucin expression by neuregulin1/ErbB3 signalling in human airway epithelial cells. Basic Clin. Pharmacol. Toxicol. 109: 63-72.
3. Chen, Y.J., et al. 2014. Taiwan cobra phospholipase A_2 suppresses ERK-mediated ADAM17 maturation, thus reducing secreted TNF-α production in human leukemia U937 cells. Toxicon 86: 79-88.
4. Post, S., et al. 2015. ADAM10 mediates the house dust mite-induced release of chemokine ligand CCL20 by airway epithelium. Allergy 70: 1545-1552.
5. Hirayama, A., et al. 2017. ADAM17 regulates TNF-α expression upon lipopolysaccharide stimulation in oral keratinocytes. Biomed. Res. 38: 157-165.
6. Oikonomidi, I., et al. 2018. iTAP, a novel iRhom interactor, controls TNF secretion by policing the stability of iRhom/TACE. Elife 7 pii: e35032.
7. Yoon, J., et al. 2020. A Jun N-terminal kinase inhibitor induces ectodomain shedding of the cancerassociated membrane protease Prss14/epithin via protein kinase Cβll. J. Biol. Chem. 295: 7168-7177.

RESEARCH USE

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