SANTA CRUZ BIOTECHNOLOGY, INC.

ADAM10 siRNA (h): sc-41410

BACKGROUND

ADAM (a disintegrin and metalloprotease) proteins are a family of over 30 membrane-anchored, glycosylated, Zn^{2+} dependent proteases that are involved in cell-cell, cell-matrix interface related processes including fertilization, muscle fusion, secretion of TNFα (tumor necrosis factor α), and modulation of the neurogenic function of Notch and Delta. ADAM proteins possess a signal-domain, a pro-domain, a metalloprotease domain, a disintegrin domain (integrin ligand) a cysteine-rich region, an epidermal growth factor-like domain, a transmembrane domain and a cytoplasmic tail. ADAMs are expressed in brain, testis, epididymis, ovary, breast, placenta, liver, heart, lung, bone and muscle, and catalyze proteolysis, adhesion, fusion and intracellular signaling. ADAM10 is a TNF-processing enzyme that cleaves pro-TNF, a membrane-bound precusor protein, at Ala 76-Val 77, which causes membrane shedding of soluble TNF.

CHROMOSOMAL LOCATION

Genetic locus: ADAM10 (human) mapping to 15q21.3.

PRODUCT

ADAM10 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 ADAM10 shRNA Plasmid (h): sc-41410-SH and ADAM10 shRNA (h) Lentiviral Particles: sc-41410-V as alternate gene silencing products.

For independent verification of ADAM10 (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-41410A, sc-41410B and sc-41410C.

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

ADAM10 siRNA (h) is recommended for the inhibition of ADAM10 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

ADAM10 (B-3): sc-28358 is recommended as a control antibody for monitoring of ADAM10 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 ADAM10 gene expression knockdown using RT-PCR Primer: ADAM10 (h)-PR: sc-41410-PR (20 µl, 563 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Tole, S., et al. 2010. Thromboxane prostanoid receptor stimulation induces shedding of the transmembrane chemokine CX3CL1 yet enhances CX3CL1-dependent leukocyte adhesion. Am. J. Physiol. Cell Physiol. 298: C1469-C1480.
2. Zhao, Y., et al. 2011. Docosahexaenoic acid-derived neuroprotectin D1 induces neuronal survival via secretase- and PPARγ-mediated mechanisms in Alzheimer's disease models. PLoS ONE 6: e15816.
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4. Zhu, L.B., et al. 2014. Tumor necrosis factor-α-induced a disintegrin and metalloprotease 10 increases apoptosis resistance in prostate cancer cells. Oncol. Lett. 7: 897-901.
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6. Woods, N., et al. 2015. Fendiline inhibits proliferation and invasion of pancreatic cancer cells by interfering with ADAM10 activation and β-catenin signaling. Oncotarget 6: 35931-35948.
7. Yoneyama, T., et al. 2017. Modification of proteolytic activity matrix analysis (PrAMA) to measure ADAM10 and ADAM17 sheddase activities in cell and tissue lysates. J. Cancer 8: 3916-3932.
8. Ge, X., et al. 2017. miR-320a modulates cell growth and chemosensitivity via regulating ADAM10 in gastric cancer. Mol. Med. Rep. 16: 9664-9670.
9. Hiroshima, K., et al. 2019. Tspan15 plays a crucial role in metastasis in oral squamous cell carcinoma. Exp. Cell Res. 384: 111622.
10. Sriranganathan, S., et al. 2021. Mapping and functional characterization of murine kidney injury molecule-1 proteolytic cleavage site. Mol. Cell. Biochem. 476: 1093-1108.
11. Cheng, Y., et al. 2021. ADAM10 is involved in the oncogenic process and chemo-resistance of triple-negative breast cancer via regulating Notch1 signaling pathway, CD44 and PrPc. Cancer Cell Int. 21: 32.

RESEARCH USE

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