SANTA CRUZ BIOTECHNOLOGY, INC.

SIAE siRNA (h): sc-96456

BACKGROUND

SIAE (sialic acid acetylesterase) is a 523 amino acid secreted protein that is widely expressed with high expression in the testis, prostate and colon. Sialic acids are acidic 9-carbon sugars typically found at the nonreducing end of sugar chains. They are frequently modified by 9-O-acetylation, and this modification is removed by sialic acid acetylesterases. The SIAE protein catalyzes the removal of O-acetyl ester groups from position 9 of the parent sialic acid, N-acetylneuraminic acid. Defects in SIAE are a cause of autoimmune disease type 6 (AIS6). Individuals manifesting susceptibility to AIS6 can suffer from juvenile idiopathic arthritis, rheumatoid arthritis, multiple sclerosis, Sjogren syndrome, systemic lupus erythematosus, type 1 diabetes, ulcerative colitis and Crohn disease. Existing as two alternatively spliced isoforms, the SIAE gene is conserved in chimpanzee, canine, bovine, mouse and zebrafish, and maps to human chromosome 11q24.2.

REFERENCES

1. Takematsu, H., Diaz, S., Stoddart, A., Zhang, Y. and Varki, A. 1999. Lysosomal and cytosolic sialic acid 9-O-acetylesterase activities can be encoded by one gene via differential usage of a signal peptide-encoding exon at the N terminus. J. Biol. Chem. 274: 25623-25631.
2. Zhu, H., Chan, H.C., Zhou, Z., Li, J., Zhu, H., Yin, L., Xu, M., Cheng, L. and Sha, J. 2004. A gene encoding sialic-acid-specific 9-O-acetylesterase found in human adult testis. J. Biomed. Biotechnol. 2004: 130-136.
3. Taylor, T.D., Noguchi, H., Totoki, Y., Toyoda, A., Kuroki, Y., Dewar, K., Lloyd, C., Itoh, T., Takeda, T., Kim, D.W., She, X., Barlow, K.F., Bloom, T., Bruford, E., Chang, J.L., Cuomo, C.A., Eichler, E., FitzGerald, M.G., Jaffe, D.B., et al. 2006. Human chromosome 11 DNA sequence and analysis including novel gene identification. Nature 440: 497-500.
4. Online Mendelian Inheritance in Man, OMIM™. 2006. Johns Hopkins University, Baltimore, MD. MIM Number: 610079. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
5. Cariappa, A., Takematsu, H., Liu, H., Diaz, S., Haider, K., Boboila, C., Kalloo, G., Connole, M., Shi, H.N., Varki, N., Varki, A. and Pillai, S. 2009. B cell antigen receptor signal strength and peripheral B cell development are regulated by a 9-O-acetyl sialic acid esterase. J. Exp. Med. 206: 125-138.

CHROMOSOMAL LOCATION

Genetic locus: SIAE (human) mapping to 11q24.2.

PRODUCT

SIAE 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 SIAE shRNA Plasmid (h): sc-96456-SH and SIAE shRNA (h) Lentiviral Particles: sc-96456-V as alternate gene silencing products.

For independent verification of SIAE (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-96456A, sc-96456B and sc-96456C.

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

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

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor SIAE gene expression knockdown using RT-PCR Primer: SIAE (h)-PR: sc-96456-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Manna, P. and Jain, S.K. 2013. L-cysteine and hydrogen sulfide increase PIP3 and AMPK/PPARγ expression and decrease Ros and vascular inflammation markers in high glucose treated human U937 monocytes. J. Cell. Biochem. 114: 2334-2345.

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.