SANTA CRUZ BIOTECHNOLOGY, INC.

Cosmc siRNA (m): sc-62149

BACKGROUND

Cosmc, or C1GALT1-specific chaperone 1, is a 318 amino acid protein encoded by the human gene C1GALT1C1. Cosmc is believed to be a chaperone required for the generation of 1 O-glycan Gal-β1-3GalNAc-α1-Ser/Thr (Tn antigen), which is a precursor for many extended O-glycans in glycoproteins. Cosmc may also function as a specific molecular chaperone assisting the folding/stability of core 1 β-3-galactosyltransferase (C1GALT1). Cosmc is a single-pass type II membrane protein. Cosmc is ubiquitously expressed in all tissue types. It is most abundantly expressed in small intestine, stomach, salivary gland, kidney and testis, and at intermediate levels in whole brain, cerebellum, spinal cord, thymus, spleen, trachea, lung, pancreas, ovary and uterus. Defects in C1GALT1C1 are the cause of Tn syndrome, a rare autoimmune disease caused by somatic mutation in the C1GALT1C1 gene in which subpopulations of blood cells of all lineages carry an incompletely glycosylated Tn antigen, effecting red cells and platelets and leading to anemia, leukopenia and thrombocytopenia. Tn-polyagglutinability is sometimes associated with leukemia or is a preleukemic state.

REFERENCES

1. Zhang, Q.H., et al. 2000. Cloning and functional analysis of cDNAs with open reading frames for 300 previously undefined genes expressed in $CD34^+$ hematopoietic stem/progenitor cells. Genome Res. 10: 1546-1560.
2. Kudo, T., et al. 2002. Molecular cloning and characterization of a novel UDP-Gal:GalNAcα peptide β 1,3-galactosyltransferase (C1Gal-T2), an enzyme synthesizing a core 1 structure of O-glycan. J. Biol. Chem. 277: 47724-47731.
3. Ju, T., et al. 2002. A unique molecular chaperone Cosmc required for activity of the mammalian core 1 β 3-galactosyltransferase. Proc. Natl. Acad. Sci. USA 99: 16613-16618.
4. Ju, T., et al. 2005. Protein glycosylation: chaperone mutation in Tn syndrome. Nature 437: 1252-1252.
5. Qin, W., et al. 2005. Peripheral B lymphocyte β 1,3-galactosyltransferase and chaperone expression in immunoglobulin A nephropathy. J. Intern. Med. 258: 467-477.

CHROMOSOMAL LOCATION

Genetic locus: C1galt1c1 (mouse) mapping to X A3.3.

PRODUCT

Cosmc siRNA (m) 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 Cosmc shRNA Plasmid (m): sc-62149-SH and Cosmc shRNA (m) Lentiviral Particles: sc-62149-V as alternate gene silencing products.

For independent verification of Cosmc (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-62149A, sc-62149B and sc-62149C.

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

Cosmc siRNA (m) is recommended for the inhibition of Cosmc expression in mouse 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 Cosmc gene expression knockdown using RT-PCR Primer: Cosmc (m)-PR: sc-62149-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

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.