SANTA CRUZ BIOTECHNOLOGY, INC.

CD77 synthase siRNA (h): sc-72831

BACKGROUND

Expression of CD77, also called Gb3, sensitizes a cell to verotoxins, causing cellular injury that can lead to disease. Therefore, the complex regulation of CD77 biosynthesis and the activity of the enzymes involved, such as CD77 synthase, can be studied by compared gene expression between toxin-sensitive and insensitive tissues and cell lines. The highest tissue expression of CD77 synthase occurs in the kidney, mesenteric lymph node, spleen, and brain. Burkitt leukemia cells express very high levels of CD77 as well as CD77 synthase, and are sensitive to verotoxin induced apoptosis. These megakaryoblasts then never mature, leading to the arrest of platelet generation in the bone marrow, which may cause thrombocytopenia, a symptom associated with various hemorrhagic conditions.

REFERENCES

1. Kojima, Y., et al. 2000. Molecular cloning of globotriaosylceramide/CD77 synthase, a glycosyltransferase that initiates the synthesis of globo series glycosphingolipids. J. Biol. Chem. 275: 15152-15156.
2. Keusch, J.J., et al. 2000. Cloning of Gb3 synthase, the key enzyme in globo-series glycosphingolipid synthesis, predicts a family of α 1, 4-glycosyltransferases conserved in plants, insects, and mammals. J. Biol. Chem. 275: 25315-25321.
3. Okajima, T., et al. 2000. Expression cloning of human globoside synthase cDNAs. Identification of β 3Gal-T3 as UDP-N-acetylgalactosamine:globotriaosylceramide β 1,3-N-acetylgalactosaminyltransferase. J. Biol. Chem. 275: 40498-40503.
4. Hughes, A.K., et al. 2002. Molecular basis for high renal cell sensitivity to the cytotoxic effects of shigatoxin-1: upregulation of globotriaosylceramide expression. J. Am. Soc. Nephrol. 13: 2239-2245.
5. Furukawa, K., et al. 2002. Expression of the Gb3/CD77 synthase gene in megakaryoblastic leukemia cells: implication in the sensitivity to verotoxins. J. Biol. Chem. 277: 11247-11254.
6. Iwamura, K., et al. 2003. The blood group P1 synthase gene is identical to the Gb3/CD77 synthase gene. A clue to the solution of the P1/P2/p puzzle. J. Biol. Chem. 278: 44429-44438.

CHROMOSOMAL LOCATION

Genetic locus: A4GALT (human) mapping to 22q13.2.

PRODUCT

CD77 synthase 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 CD77 synthase shRNA Plasmid (h): sc-72831-SH and CD77 synthase shRNA (h) Lentiviral Particles: sc-72831-V as alternate gene silencing products.

For independent verification of CD77 synthase (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-72831A, sc-72831B and sc-72831C.

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

CD77 synthase siRNA (h) is recommended for the inhibition of CD77 synthase 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 CD77 synthase gene expression knockdown using RT-PCR Primer: CD77 synthase (h)-PR: sc-72831-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. Liu, Y.Y., et al. 2010. Glucosylceramide synthase upregulates MDR1 expression in the regulation of cancer drug resistance through cSrc and β-catenin signaling. Mol. Cancer 9: 145.
2. Uddin, M.B., et al. 2019. An N^6-methyladenosine at the transited codon 273 of p53 pre-mRNA promotes the expression of R273H mutant protein and drug resistance of cancer cells. Biochem. Pharmacol. 160: 134-145.

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.