SANTA CRUZ BIOTECHNOLOGY, INC.

LTC_4 synthase siRNA (m): sc-40728

BACKGROUND

Leukotrienes (LT) constitute a family of bioactive compounds mainly involved in inflammatory and immunological responses. LTs are produced via an unstable intermediate, LTA_4 which is synthesized by the action of arachidonate 5-lipoxygenase, a calcium-dependent enzyme. LTA_4 is converted to either LTB_4 by cytosolic LTA_4 hydrolase or to LTC_4 by LTC_4 synthase present in the microsomal fraction. Certain immunocompetent myeloid cells, such as eosinophils, basophils and mast cells, have a large capacity to synthesize the potent proinflammatory and spasmogenic mediator LTC_4 via a specific microsomal glutathione S-transferase termed LTC_4 synthase. LTC_4 synthase is the rate-limiting enzyme in the cysteinyl LT synthesis and is responsible for the biosynthesis of cysteinyl leukotrienes that participate in allergic and asthmatic inflammation. Enhanced expression of the LTC_4 synthase is due to overactive transcription of an allelic variant associated with aspirin-intolerant asthma.

REFERENCES

1. Shimizu, T. 1988. Enzymes functional in the syntheses of leukotrienes and related compounds. Int. J. Biochem. 20: 661-666.
2. Surapureddi, S., et al. 2000. Colocalization of leukotriene C synthase and microsomal glutathione S-transferase elucidated by indirect immunofluorescence analysis. FEBS Lett. 480: 239-243.
3. Babu, K.S., et al. 2000. Aspirin and asthma. Chest 118: 1470-1476.
4. Zhao, J.L., et al. 2000. Cell-specific transcription of leukotriene C_4 synthase involves a Krüppel-like transcription factor and Sp1. J. Biol. Chem. 275: 8903-8910.
5. Sanak, M., et al. 2000. Enhanced expression of the leukotriene C_4 synthase due to overactive transcription of an allelic variant associated with aspirin-intolerant asthma. Am. J. Respir. Cell Mol. Biol. 23: 290-296.
6. Sjostrom, M., et al. 2001. Human umbilical vein endothelial cells generate leukotriene C_4 via microsomal glutathione S-transferase type 2 and express the $CysLT_1$ receptor. Eur. J. Biochem. 268: 2578-2586.

CHROMOSOMAL LOCATION

Genetic locus: Ltc4s (mouse) mapping to 11 B1.3.

PRODUCT

LTC_4 synthase 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 LTC_4 synthase shRNA Plasmid (m): sc-40728-SH and LTC_4 synthase shRNA (m) Lentiviral Particles: sc-40728-V as alternate gene silencing products.

For independent verification of LTC_4 synthase (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-40728A, sc-40728B and sc-40728C.

RESEARCH USE

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

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

LTC_4 synthase siRNA (m) is recommended for the inhibition of LTC_4 synthase 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 LTC4 synthase gene expression knockdown using RT-PCR Primer: LTC4 synthase (m)-PR: sc-40728-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.