SANTA CRUZ BIOTECHNOLOGY, INC.

LTC_4 synthase (H-66): sc-20108

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 C4 synthase involves a Kruppel-like transcription factor and Sp1. J. Biol. Chem. 275: 8903-8910.
5. Sanak, M., et al. 2000. Enhanced expression of the Leukotriene C4 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 C4 via microsomal glutathione S-transferase type 2 and express the $CysLT_1$ Receptor. Eur. J. Biochem. 268: 2578-2586.

CHROMOSOMAL LOCATION

Genetic locus: LTC4S (human) mapping to 5q35.3; Ltc4s (mouse) mapping to 11 B1.3.

SOURCE

LTC_4 synthase (H-66) is a rabbit polyclonal antibody raised against amino acids 51-150 of LTC4 synthase of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

LTC_4 synthase (H-66) is recommended for detection of LTC_4 synthase of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1–2 µg per 100–500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for LTC_4 synthase siRNA (h): sc-40727, LTC_4 synthase siRNA (m): sc-40728, LTC_4 synthase shRNA Plasmid (h): sc-40727-SH, LTC_4 synthase shRNA Plasmid (m): sc-40728-SH, LTC_4 synthase shRNA (h) Lentiviral Particles: sc-40727-V and LTC_4 synthase shRNA (m) Lentiviral Particles: sc-40728-V.

Molecular Weight of LTC_4 synthase: 17 kDa.

Positive Controls: U-87 MG cell lysate: sc-2411

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

1. Yang, S.L., et al. 2007. Increased Leukotriene C4 synthesis accompanied enhanced Leukotriene C4 synthase expression and activities of ischemia-reperfusion-injured liver in rats. J. Surg. Res. 140: 36-44.
2. Yang, SL., et al. 2007. Sodium nitroprusside decreased Leukotriene C4 generation by inhibiting Leukotriene C4 synthase expression and activity in hepatic ischemia-reperfusion injured rats. Biochem. Pharmacol. 73: 724-735.
3. Ma, K., et al. 2009. Protective effects of asiatic acid against D-galactosamine/lipopolysaccharide-induced hepatotoxicity in hepatocytes and kupffer cells co-cultured system via redox-regulated leukotriene C4 synthase expression pathway. Eur. J. Pharmacol. 603: 98-107.
4. Korzekwa, A.J., et al. 2011. Characterization of bovine immortalized luteal endothelial cells: action of cytokines on production and content of arachidonic acid metabolites. Reprod. Biol. Endocrinol. 9: 27.

RESEARCH USE

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

PROTOCOLS

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