SANTA CRUZ BIOTECHNOLOGY, INC.

p-5-LO (Ser 523): sc-135685

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

5-lipoxygenase (5-LO) is expressed primarily in polymorphonuclear leukocytes, macrophages and mast cells. 5-LO performs the first two catalytic reactions in the biosynthesis of leukotrienes, lipid metabolites that induce contractions of airway smooth muscle and increase vascular permeability during anaphylaxis. The cellular localization of 5-LO varies between cell types. In activated blood polymorphonuclear leukocytes 5-LO undergoes calcium dependent translocation from the cytosol to the nuclear envelope. In alveolar macrophages, the majority of 5-LO is localized in the nucleus and, upon activation of these cells, intranuclear 5-LO binds to the nuclear membrane. This intracellular shuttling of 5-LO is dependent on the association with various signaling molecules, phosphorylation and the presence of a distinct nuclear localization signal, which is encoded at the amino terminus of 5-LO. Human and rat 5-LO are phosphorylated on Ser 523 by PKA which has an inhibitory effect on 5-LO.

REFERENCES

1. Matsumoto, T., et al. 1988. Molecular cloning and amino acid sequence of human 5-lipoxygenase. Proc. Natl. Acad. Sci. USA 85: 26-30.
2. Winkler, J.D., et al. 1993. Influence of arachidonic acid on indices of phospholipase A2 activity in the human neutrophil. Biochem. J. 291: 825-831.
3. Woods, J.W., et al. 1995. 5-Lipoxygenase is located in the euchromatin of the nucleus in resting human alveolar macrophages and translocates to the nuclear envelope upon cell activation. J. Clin. Invest. 95: 2035-2046.
4. Pouliot, M., et al. 1996. Colocalization of cytosolic phospholipase A_2, 5-lipoxygenase, and 5-lipoxygenase activating protein at the nuclear membrane of A23187-stimulated human neutrophils. Eur. J. Biochem. 238: 250-258.
5. Lepley, R.A., et al. 1996. Tyrosine kinase activity modulates catalysis and translocation of cellular 5-lipoxygenase. J. Biol. Chem. 271: 6179-6184.
6. Chen, X.S., et al. 1998. Determinants of 5-lipoxygenase nuclear localization using green fluorescent protein/5-lipoxygenase fusion proteins. J. Biol. Chem. 273: 31237-31244.
7. Healy, A.M., et al. 1999. Identification of a bipartite nuclear localization sequence necessary for nuclear import of 5-lipoxygenase J. Biol. Chem. 274: 29812-29818.

CHROMOSOMAL LOCATION

Genetic locus: ALOX5 (human) mapping to 10q11.21.

SOURCE

p-5-LO (Ser 523) is a rabbit polyclonal antibody raised against a short amino acid sequence containing Ser 523 phosphorylated 5-LO of human origin.

PRODUCT

Each vial contains IgG in 100 µl of 10 mM HEPES with 150 mM NaCl, 50% glycerol and < 0.1% BSA.

RESEARCH USE

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

APPLICATIONS

p-5-LO (Ser 523) is recommended for detection of Ser 523 phosphorylated 5-LO of human and rat origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:100-1:5000) and immunoprecipitation [1-2 µl per 100-500 µg of total protein (1 ml of cell lysate)].

Suitable for use as control antibody for 5-LO siRNA (h): sc-29596, 5-LO shRNA Plasmid (h): sc-29596-SH and 5-LO shRNA (h) Lentiviral Particles: sc-29596-V.

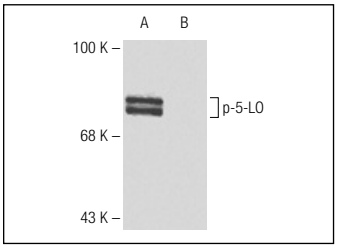
Molecular Weight of p-5-LO: 78 kDa.

Positive Controls: rat prefrontal cortex tissue extract.

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 B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Western Blotting Luminol Reagent: sc-2048 and Lambda Phosphatase: sc-200312A. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



p-5-LO (Ser 523): sc-135685. Western blot analysis of 5-LO phosphorylation in untreated (**A**) and lambda protein phosphatase (sc-200312A) treated (**B**) rat prefrontal cortex tissue extracts.

STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.

PROTOCOLS

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