

5-LO (A-9): sc-518175

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.

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 A₂, 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

5-LO (A-9) is a mouse monoclonal antibody raised against amino acids 106-225 mapping near the N-terminus of 5-LO of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain 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

5-LO (A-9) is recommended for detection of 5-LO of human origin by Western Blotting (starting dilution 1:100, 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), immunohistochemistry (including paraffin-embedded sections) (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 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 5-LO: 78 kDa.

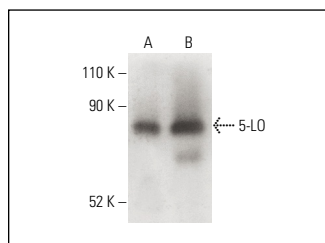
Positive Controls: human spleen extract: sc-363779 or human lymph node extract: sc-363768.

RECOMMENDED SUPPORT REAGENTS

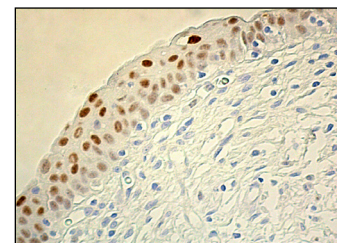
To ensure optimal results, the following support reagents are recommended:

- 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 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 m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.
- 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



5-LO (A-9): sc-518175. Western blot analysis of 5-LO expression in human spleen (A) and human lymph node (B) tissue extracts. Detection reagent used: m-IgGκ BP-HRP: sc-516102.



5-LO Antibody (A-9): sc-518175. Immunoperoxidase staining of formalin fixed, paraffin-embedded human urinary bladder tissue showing nuclear staining of urothelial cells. Blocked with 0.25X UltraCruz® Blocking Reagent: sc-516214. Detected with m-IgG Fc BP-B: sc-533652 and ImmunoCruz® ABC Kit: sc-516216.

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.