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SZABO-SCANDIC HandelsgmbH

Quellenstraße 110, A-1100 Wien

T. +43(0)1 489 3961-0

F. +43(0)1 489 3961-7

mail@szabo-scandic.com

www.szabo-scandic.com

[linkedin.com/company/szaboscandic](https://www.linkedin.com/company/szaboscandic) 

5-LO (B-3): sc-518174

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.

CHROMOSOMAL LOCATION

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

SOURCE

5-LO (B-3) 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 IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

5-LO (B-3) is available conjugated to agarose (sc-518174 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-518174 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-518174 PE), fluorescein (sc-518174 FITC), Alexa Fluor® 488 (sc-518174 AF488), Alexa Fluor® 546 (sc-518174 AF546), Alexa Fluor® 594 (sc-518174 AF594) or Alexa Fluor® 647 (sc-518174 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-518174 AF680) or Alexa Fluor® 790 (sc-518174 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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APPLICATIONS

5-LO (B-3) 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) 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.

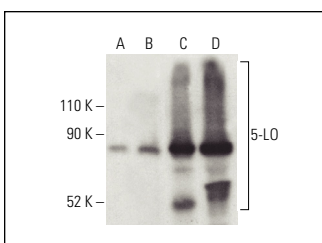
Positive Controls: MCF7 whole cell lysate: sc-2206, Daudi cell lysate: sc-2415 or human lymph node extract: sc-363768.

RECOMMENDED SUPPORT REAGENTS

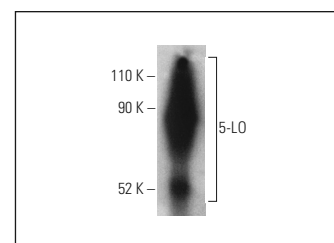
To ensure optimal results, the following support reagents are recommended:

- 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.

DATA



5-LO (B-3): sc-518174. Western blot analysis of 5-LO expression in MCF7 (A) and Daudi (B) whole cell lysates and human spleen (C) and human lymph node (D) tissue extracts. Detection reagent used: m-IgGκ BP-HRP: sc-516102.



5-LO (B-3): sc-518174. Western blot analysis of human recombinant 5-LO. Detection reagent used: m-IgGκ BP-HRP: sc-516102.

STORAGE

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

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.