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5-Lipoxygenase (C49G1) Rabbit mAb

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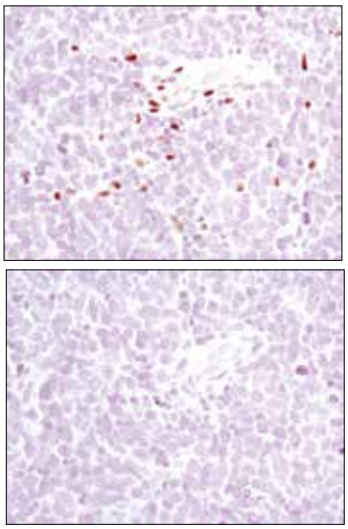
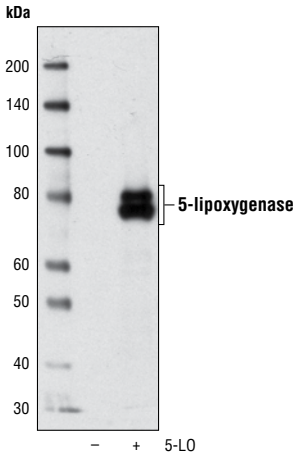
Entrez-Gene ID #240
UniProt ID #P09917

Applications	Species Cross-Reactivity*	Molecular Wt.	Isotype
W, IP, IHC-P Endogenous	H, (M, R, Mk)	78 kDa	Rabbit IgG**

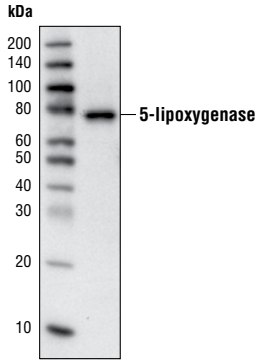
Background: 5-Lipoxygenase (5-LO, ALOX5) is an important catalytic enzyme responsible for the biosynthesis of leukotriene LTA_4 from arachidonic acid (1,2). Leukotriene synthesis also requires 5-lipoxygenase-activating protein (FLAP, ALOX5AP), a nuclear membrane-bound protein that binds arachidonic acid and is thought to activate 5-LO. A number of related leukotrienes (i.e. B_4, C_4, D_4) are derived from LTA_4 and together these lipid mediators function in immune reaction regulation. 5-LO is primarily expressed in polymorphonuclear leukocytes, peripheral blood monocytes, macrophages, and mast cells (1,3). Overexpression of 5-LO protein is seen in certain cancer cells and is associated with poor diagnosis (1,4). Depending upon the cell type, 5-LO is localized to either the cytosol or the nucleus of quiescent cells (5). Following stimulation, 5-LO translocates to the nucleus and associates with FLAP to catalyze LTA_4 synthesis (2,3). Phosphorylation of specific residues can regulate 5-LO enzymatic activity. Phosphorylation of 5-LO at Ser523 by PKA family kinases inhibits oxygenase activity (6,7) while MAPKAP2 and ERK family kinase phosphorylation at Ser271 and Ser663 stimulates 5-LO enzymatic activity *in vivo* (8,9).



Immunohistochemical analysis of paraffin-embedded non-Hodgkin's lymphoma, using 5-Lipoxygenase (C49G1) Rabbit mAb in the presence of control peptide (upper) or antigen specific peptide (lower).



Western blot analysis of extracts from COS cells transfected with 5-LO using 5-Lipoxygenase (49G1) Rabbit mAb.



Western blot analysis of extracts from human RL cells using 5-Lipoxygenase (49G1) Rabbit mAb.

Specificity/Sensitivity: 5-Lipoxygenase (C49G1) Rabbit mAb detects endogenous levels of total 5-lipoxygenase protein. Expression of 5-Lipoxygenasae is very low in most tissues and cell lines, except in whole blood, bone marrow, lung and macrophage cell lines.

Source/Purification: Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Ile168 of human 5-lipoxygenase protein.

Storage: Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. *Do not aliquot the antibody.*

***Species cross-reactivity is determined by western blot.**

****Anti-rabbit secondary antibodies must be used to detect this antibody.**

Recommended Antibody Dilutions:

Western blotting	1:1000
Immunoprecipitation	1:50
Immunohistochemistry (Paraffin)	1:50†
Unmasking buffer:	Citrate
Antibody diluent:	SignalStain® Antibody Diluent #8112
Detection reagent:	SignalStain® Boost (HRP, Rabbit) #8114

†*Optimal IHC dilutions determined using SignalStain® Boost IHC Detection Reagent.*

For application specific protocols please see the web page for this product at www.cellsignal.com.

Please visit www.cellsignal.com for a complete listing of recommended companion products.

Background References:

(1) Woods, J.W. et al. (1995) *J Clin Invest* 95, 2035–46.
(2) Evans, J.F. et al. (2008) *Trends Pharmacol Sci* 29, 72–8.
(3) Rådmark, O. et al. (2007) *Trends Biochem Sci* 32, 332–41.
(4) Chen, X. et al. (2006) *Curr Cancer Drug Targets* 6, 613–22.
(5) Werz, O. (2002) *Curr Drug Targets Inflamm Allergy* 1, 23–44.
(6) Luo, M. et al. (2004) *J Biol Chem* 279, 41512–20.
(7) Luo, M. et al. (2005) *J Biol Chem* 280, 40609–16.
(8) Werz, O. et al. (2002) *FASEB J* 16, 1441–3.
(9) Werz, O. et al. (2002) *J Biol Chem* 277, 14793–800.

U.S. Patent No. 5,675,063

IMPORTANT: For western blots, incubate membrane with diluted antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key: **W**—Western **IP**—Immunoprecipitation **IHC**—Immunohistochemistry **ChIP**—Chromatin Immunoprecipitation **IF**—Immunofluorescence **F**—Flow cytometry **E-P**—ELISA-Peptide
Species Cross-Reactivity Key: **H**—human **M**—mouse **R**—rat **Hm**—hamster **Mk**—monkey **Mi**—mink **C**—chicken **Dm**—D. melanogaster **X**—Xenopus **Z**—zebrafish **B**—bovine **Dg**—dog **Pg**—pig **Sc**—S. cerevisiae **Ce**—C. elegans **Hr**—horse **All**—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.