Revision 1

Store at -20C

#3289

5-Lipoxygenase (C49G1) Rabbit mAb

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, IP, IHC-P	H	Endogenous	78	Rabbit	#P09917	240

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:50
Immunohistochemistry (Paraffin)	1:50

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.

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.

Species predicted to react based on 100% sequence homology

Mouse, Rat, Monkey

Source / Purification

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

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).

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. Radmark, 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.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

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

Applications Key

W: Western Blotting **IP:** Immunoprecipitation **IHC-P:** Immunohistochemistry (Paraffin)

Cross-Reactivity Key

H: Human

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