

**#3748** Store at -20°C

# Phospho-5-Lipoxygenase (Ser271) Antibody



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**For Research Use Only. Not For Use In Diagnostic Procedures.**

Applications	Species Cross-Reactivity*	Molecular Wt.	Source
W Transfected	H	78, 80 kDa	Rabbit**

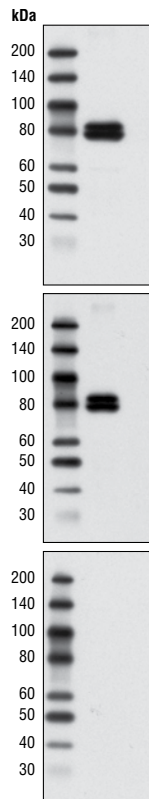
**Background:** 5-Lipoxygenase (5-LO, ALOX5) is an important catalytic enzyme responsible for the biosynthesis of leukotriene LTA<sub>4</sub> from arachidonic acid (1,2). Leukotriene synthesis also requires 5-lipoxygenase-activating protein (FLAP, ALOX5AP), a nuclear membrane-bound protein that binds arachidonic acid and is thought to activate 5-LO. A number of related leukotrienes (i.e. B<sub>4</sub>, C<sub>4</sub>, D<sub>4</sub>) are derived from LTA<sub>4</sub> 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 prognosis (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<sub>4</sub> 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).

**Specificity/Sensitivity:** Phospho-5-Lipoxygenase (Ser271) Antibody detects transfected levels of 5-lipoxygenase protein only when phosphorylated at Ser271.

**Source/Purification:** Polyclonal antibody is produced by immunizing animals with a synthetic phosphopeptide derived from residues surrounding Ser271 of human 5-lipoxygenase protein.

**Background References:**

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



Western blot analysis of extracts from COS cells, transfected with 5-LO wild type or 5-LO (Ser271Ala), using Phospho-5-Lipoxygenase (Ser271) Antibody. The phospho-specificity of the antibody was verified by preincubating the antibody with no peptide (upper), with 5-LO (Ser271) non-phosphopeptide (middle) or 5-LO (Ser271) phosphopeptide (lower) prior to incubating the membrane.

**Entrez-Gene ID** #240  
**Swiss-Prot Acc.** #P09917

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

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

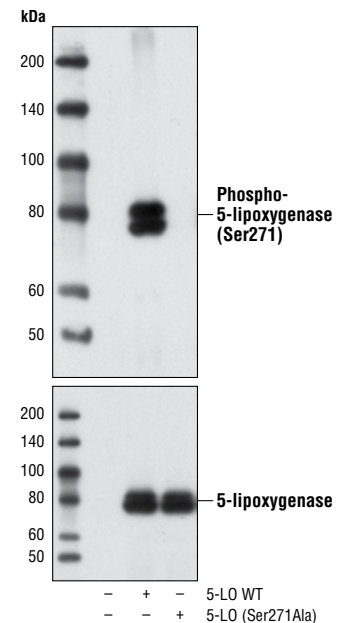
**\*\*Anti-rabbit secondary antibodies must be used to detect this antibody.**

**Recommended Antibody Dilutions:**

Western blotting 1:1000

**For application specific protocols please see the web page for this product at [www.cellsignal.com](http://www.cellsignal.com).**

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Western blot analysis of extracts from COS cells, untransfected or transfected with 5-LO wild type or 5-LO (Ser271Ala), using Phospho-5-Lipoxygenase (Ser271) Antibody (upper) and 5-Lipoxygenase (49G1) Rabbit mAb #3289 (lower). (We are thankful to Dr. Flamand from University of Michigan for providing the overexpression constructs and for his help with the antibody characterization).

**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.

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