

# group IVE sPLA<sub>2</sub> (K-15): sc-247087

## BACKGROUND

Phospholipase A<sub>2</sub>s (PLA<sub>2</sub>s) constitute a family of esterases that hydrolyze the sn-2-acyl ester bond in glycerophospholipid molecules. These enzymes are generally calcium-dependent and have been found both intra- and extracellularly. By hydrolyzing the sn-2 bond in glycerophospholipids, PLA<sub>2</sub>s release fatty acids. One such fatty acid, arachidonic acid, generates substrates for the initiation of the arachidonic acid cascade that produces various eicosanoids, many of which are potent mediators of inflammation. As a member of the PLA<sub>2</sub> family, group IVE sPLA<sub>2</sub>, also known as cPLA<sub>2</sub>-ε (cytosolic phospholipase A<sub>2</sub> ε) or PLA<sub>2</sub>G4E (phospholipase A<sub>2</sub> group IVE), is an 856 amino acid cytosolic protein that contains one C2 domain, which assists with calcium and lipid binding, and a PLA<sub>2</sub>c domain. Upon stimulation by Ca<sup>2+</sup>, group IVE sPLA<sub>2</sub> selectively hydrolyzes glycerophospholipids and exists as two isoforms due to alternative splicing events.

## REFERENCES

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2. Henrikson, R.L. and Keszdy, F.J. 1990. A novel bifunctional mechanism of surface recognition by phospholipase A<sub>2</sub>. *Adv. Exp. Med. Biol.* 279: 37-47.
3. Sharp, J.D., et al. 1991. Molecular cloning and expression of human Ca<sup>2+</sup>-sensitive cytosolic phospholipase A<sub>2</sub>. *J. Biol. Chem.* 266: 14850-14853.
4. Mukherjee, A.B., et al. 1992. Regulation of extracellular phospholipase A<sub>2</sub> activity: implications for inflammatory diseases. *DNA Cell Biol.* 11: 233-243.
5. Wootton-Kee, C.R., et al. 2004. Group V sPLA<sub>2</sub> hydrolysis of low-density lipoprotein results in spontaneous particle aggregation and promotes macrophage foam cell formation. *Arterioscler. Thromb. Vasc. Biol.* 24: 762-767.
6. Ohto, T., et al. 2005. Identification of novel cytosolic phospholipase A<sub>2</sub>s, murine cPLA<sub>2</sub>δ, ε, and ζ, which form a gene cluster with cPLA<sub>2</sub>β. *J. Biol. Chem.* 280: 24576-24583.
7. Ghosh, M., et al. 2006. Identification of the expressed form of human cytosolic phospholipase A<sub>2</sub>β (cPLA<sub>2</sub>β): cPLA<sub>2</sub>β3 is a novel variant localized to mitochondria and early endosomes. *J. Biol. Chem.* 281: 16615-16624.
8. Zody, M.C., et al. 2006. Analysis of the DNA sequence and duplication history of human chromosome 15. *Nature* 440: 671-675.

## CHROMOSOMAL LOCATION

Genetic locus: PLA2G4E (human) mapping to 15q15.1; Pla2g4e (mouse) mapping to 2 E5.

## SOURCE

group IVE sPLA<sub>2</sub> (K-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of group IVE sPLA<sub>2</sub> of human origin.

## PRODUCT

Each vial contains 200 μg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-247087 P, (100 μg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

group IVE sPLA<sub>2</sub> (K-15) is recommended for detection of group IVE sPLA<sub>2</sub> of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

group IVE sPLA<sub>2</sub> (K-15) is also recommended for detection of group IVE sPLA<sub>2</sub> in additional species, including canine and porcine.

Suitable for use as control antibody for group IVE sPLA<sub>2</sub> siRNA (h): sc-90083, group IVE sPLA<sub>2</sub> siRNA (m): sc-145777, group IVE sPLA<sub>2</sub> shRNA Plasmid (h): sc-90083-SH, group IVE sPLA<sub>2</sub> shRNA Plasmid (m): sc-145777-SH, group IVE sPLA<sub>2</sub> shRNA (h) Lentiviral Particles: sc-90083-V and group IVE sPLA<sub>2</sub> shRNA (m) Lentiviral Particles: sc-145777-V.

Molecular Weight of group IVE sPLA<sub>2</sub> isoforms 1/2: 98/57 kDa.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## 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](http://www.scbt.com) or our catalog for detailed protocols and support products.