

group IVB sPLA₂ (T-15): sc-162907

BACKGROUND

Phospholipase A₂s (PLA₂s) 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, PLA₂s 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 PLA₂ family, group IVB sPLA₂, also known as cPLA₂-β (cytosolic phospholipase A₂ β) or PLA2G4B (phospholipase A₂ group IVB), is a 781 amino acid cytoplasmic protein that is widely expressed, with high levels found in brain, liver, heart, cerebellum and pancreas. Containing one C2 domain, which participates in calcium and lipid binding, and a PLA₂c domain, group IVB sPLA₂ modulates enzyme activity upon stimulation by cytosolic Ca²⁺.

REFERENCES

1. Henrikson, R.L., et al. 1977. Amino acid sequence of phospholipase A₂-α from the venom of *Crotalus adamanteus*. A new classification of phospholipases A₂ based upon structural determinants. *J. Biol. Chem.* 252: 4913-4921.
2. Henrikson, R.L., et al. 1990. A novel bifunctional mechanism of surface recognition by phospholipase A₂. *Adv. Exp. Med. Biol.* 279: 37-47.
3. Sharp, J.D., et al. 1991. Molecular cloning and expression of human Ca²⁺-sensitive cytosolic phospholipase A₂. *J. Biol. Chem.* 266: 14850-14853.
4. Mukherjee, A.B., et al. 1992. Regulation of extracellular phospholipase A₂ activity: implications for inflammatory diseases. *DNA Cell Biol.* 11: 233-243.
5. Pickard, R.T., et al. 1999. Molecular cloning of two new human paralogs of 85-kDa cytosolic phospholipase A₂. *J. Biol. Chem.* 274: 8823-8831.
6. Song, C., et al. 1999. Molecular characterization of cytosolic phospholipase A₂-β. *J. Biol. Chem.* 274: 17063-17067.
7. Wooton-Kee, C.R., et al. 2004. Group V sPLA₂ hydrolysis of low-density lipoprotein results in spontaneous particle aggregation and promotes macrophage foam cell formation. *Arterioscler. Thromb. Vasc. Biol.* 24: 762-767.
8. Ghosh, M., et al. 2006. Identification of the expressed form of human cytosolic phospholipase A₂β (cPLA₂β): cPLA₂β3 is a novel variant localized to mitochondria and early endosomes. *J. Biol. Chem.* 281: 16615-16624.

CHROMOSOMAL LOCATION

Genetic locus: PLA2G4B (human) mapping to 15q14, JMJD7-PLA2G4B (human) mapping to 15q15.1.

SOURCE

group IVB sPLA₂ (T-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of group IVB sPLA₂ of human origin.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

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-162907 P, (100 μg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

group IVB sPLA₂ (T-15) is recommended for detection of group IVB sPLA₂ and JMJD7-PLA2G4B of 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 IVB sPLA₂ (T-15) is also recommended for detection of group IVB sPLA₂ and JMJD7-PLA2G4B in additional species, including equine, bovine and porcine.

Molecular Weight of group IVB sPLA₂ isoforms 1-5: 88/101/100/55/114 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.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.