

PRODUCT INFORMATION



sPLA₂ (human, recombinant Type V)

Item No. 10009563

Overview and Properties

Synonyms: gVPLA₂, Phosphatidylcholine 2-acylhydrolase 5, PLA₂G5, Secretory Phospholipase A₂ (Group V)
Source: Recombinant protein expressed in *E. coli*
Uniprot No.: P39877
Molecular Weight: 13.72 kDa
Storage: -80°C (as supplied); avoid freeze/thaw cycles by aliquoting protein
Stability: ≥1 year
Purity: ≥95% estimated by SDS-PAGE
Supplied in: 50 mM Tris-HCl, pH 8.0, containing 100 mM sodium chloride, 50 mM calcium chloride, and 20% glycerol

Protein

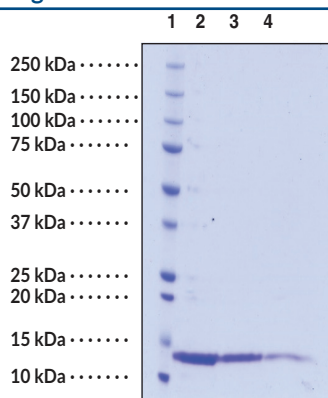
Concentration: *batch specific* mg/ml

Activity: *batch specific* U/ml

Specific Activity: *batch specific* U/mg

Unit Definition: One unit is defined as the amount of enzyme required to release 1 μmol of TNB per minute under the following condition: 25 mM Tris-HCl, pH 7.5, containing 10 mM CaCl₂, 100 mM KCl, 0.3 mM Triton X-100, 1 mg/ml BSA, 500 μM 1,2-bis(heptanoylthio) Glycerophosphocholine (Item No. 62235), and 0.5 mM DTNB at 37°C.

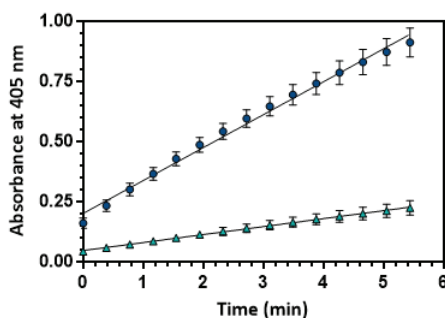
Images



Lane 1: MW Markers
Lane 2: sPLA₂ Type V (4 μg)
Lane 3: sPLA₂ Type V (2 μg)
Lane 4: sPLA₂ Type V (1 μg)

Representative gel image shown; actual purity may vary between each batch.

sPLA₂ Type V Activity



● 500 μM 2-bis(heptanoylthio) Glycerophosphocholine
▲ 500 μM 2-bis(heptanoylthio) Glycerophosphocholine + 20 μM Thioetheramide-PC

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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Description

Phospholipase A₂ (PLA₂) catalyzes the hydrolysis of fatty acids at the sn-2 position of glycerophospholipids. PLA₂ (Type V) is a secretory PLA₂ (sPLA₂) of approximately 14 kDa and is one of the isoforms in the growing list of the PLA₂ enzyme family.¹ This enzyme, rather than the sPLA₂ (Type II), is responsible for arachidonic acid mobilization leading to prostaglandin production in macrophages and mast cells.²⁻⁴ Consistent with this role, sPLA₂ (Type V) is associated with the golgi apparatus, nuclear envelope, and plasma membrane in mouse bone marrow-derived mast cells.⁵ sPLA₂ (Type V) has been cloned from a variety of species including human, mouse, and rat.⁶⁻⁸ The enzyme is expressed in heart, lung, placenta, and spleen, as well as P388D1 macrophages and mast cells.^{2,3,8}

The specific activity of Cayman's sPLA₂ (human, recombinant Type V) was established using 1,2-bis(heptanoylthio) Glycerophosphocholine (Item No. 62235) as the substrate. The reaction was inhibited by Thioetheramide-PC (Item No. 62750).

References

1. Balsinde, J., Winstead, M.V., and Dennis, E.A. Phospholipase A₂ regulation of arachidonic acid mobilization. *FEBS Lett.* **531(1)**, 2-6 (2002).
2. Balboa, M.A., Balsinde, J., Winstead, M.V., *et al.* Novel group V phospholipase A₂ involved in arachidonic acid mobilization in murine P388D₁ macrophages. *J. Biol. Chem.* **271(50)**, 32381-32384 (1996).
3. Reddy, S.T., Winstead, M.V., Tischfield, J.A., *et al.* Analysis of the secretory phospholipase A₂ that mediates prostaglandin production in mast cells. *J. Biol. Chem.* **272(21)**, 13591-13596 (1997).
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