

PRODUCT INFORMATION



sPLA₂ (human, recombinant type IIE)

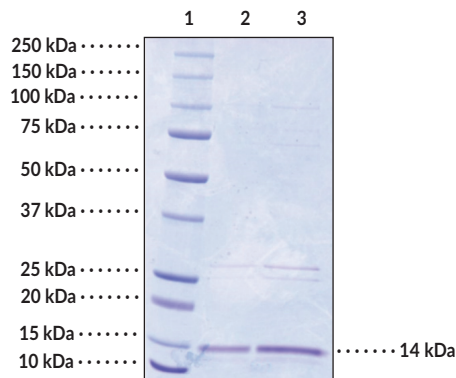
Item No. 37955

Overview and Properties

Synonyms:	GIIE sPLA ₂ , Group IIE Secretory Phospholipase A ₂ , Phosphatidylcholine 2-Acylhydrolase 2E, Phospholipase A ₂ Group IIE, sPLA ₂ -IIE
Source:	Active recombinant human sPLA ₂ (Type IIE) expressed in <i>E. coli</i>
Amino Acids:	32-154
Uniprot No.:	Q9NZK7
Molecular Weight:	14 kDa
Storage:	-80°C (as supplied)
Stability:	≥2 years
Purity:	≥80% estimated by SDS-PAGE
Supplied in:	25 mM Tris, pH 7.5, with 100 mM potassium chloride and 10 mM calcium chloride
Protein Concentration:	<i>batch specific</i> mg/ml
Activity:	<i>batch specific</i> U/ml
Specific Activity:	<i>batch specific</i> U/mg
Unit Definition:	One unit is defined as the amount of enzyme required to hydrolyze 1 μmol of diheptanoyl thio-PC per minute at 25°C in 25 mM Tris-HCl, pH 7.5, containing 10 mM calcium chloride, 100 mM potassium chloride, 0.3 mM Triton X-100, 0.44 mM DTNB, and 1.48 mM diheptanoyl thio-PC

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

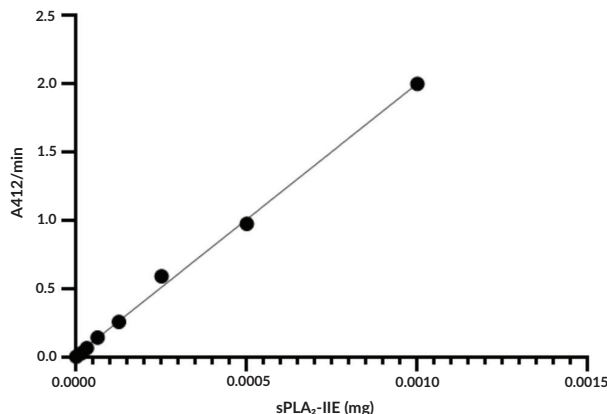
Images



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

SDS-PAGE Analysis of sPLA₂ (human, recombinant type IIE).

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



sPLA₂ Type IIE activity was determined using Cayman's sPLA₂ Assay Kit (Item No. 765001) with 1.48 mM 1,2-bis(heptanoylthio) glycerophosphocholine (diheptanoyl thio-PC; Item No. 62235) as the substrate.

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.

WARRANTY AND LIMITATION OF REMEDY
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Description

Secretory phospholipase A₂ (sPLA₂) (Type IIE) is a calcium-dependent PLA₂ superfamily member encoded by PLA2G2E in humans.¹ It is composed of a highly conserved calcium-binding loop, a catalytic domain, and a Type II-specific disulfide-containing C-terminal extension but lacks the N-terminal signal peptide found in sPLA₂ (Type IB) and sPLA₂ (Type X). It also contains a second calcium-binding site that is essential for its catalytic activity.^{2,3} sPLA₂ (Type IIE) is expressed in the brain, heart, lung, and placenta, as well as in hair follicles.⁴ It catalyzes the hydrolysis of phospholipids at the *sn*-2 position, preferentially releasing oleic acid (Item Nos. 90260 | 24659) from phosphatidylglycerol (PG) but also linoleic acid (Item Nos. 90150 | 90150.1 | 21909) or oleic acid from phosphatidylethanolamine (PE). It is involved in lipid metabolism, inflammatory processes, and regulation of lipolysis in adipocytes.^{2,4,5} sPLA₂ (Type IIE) protein is upregulated in the kidney, small intestine, and lung following LPS administration in mice.⁴ Cayman's sPLA₂ (human, recombinant type IIE) protein can be used for enzyme activity assays.

References

1. Murakami, M., Taketomi, Y., Sato, H., *et al.* Secreted phospholipase A₂ revisited. *J. Biochem.* **150**(3), 233-255 (2011).
2. Hou, S., Xu, T., Xu, J., *et al.* Structural basis for functional selectivity and ligand recognition revealed by crystal structures of human secreted phospholipase A₂ group IIE. *Sci. Rep.* **7**(1), 10815 (2017).
3. Hou, S., Bai, J., Chen, C., *et al.* The atypical binding mechanism of second calcium on phospholipase A2 group IIE. *Biochem. Biophys. Res. Commun.* **557**, 267-272 (2021).
4. Suzuki, N., Ishizaki, J., Yokota, Y., *et al.* Structures, enzymatic properties, and expression of novel human and mouse secretory phospholipase A₂s. *J. Biol. Chem.* **275**(8), 5785-5793 (2000).
5. Zhi, H., Qu, L., Wu, F., *et al.* Group IIE secretory phospholipase A₂ regulates lipolysis in adipocytes. *Obesity (Silver Spring)* **23**(4), 760-768 (2015).