

# PRODUCT INFORMATION



## PLA<sub>2</sub> (human, recombinant Group XV)

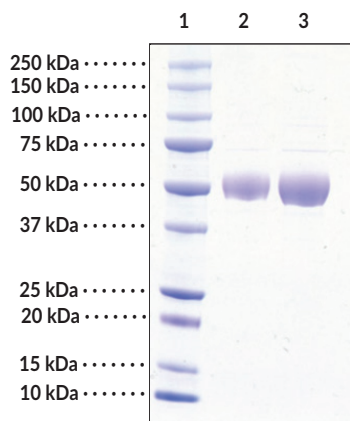
Item No. 43839

### Overview and Properties

<b>Synonyms:</b>	1-O-Acylceramide Synthase, LCAT-Like Lysophospholipase, LLPL, LPLA <sub>2</sub> , LYPLA <sub>3</sub> , Lysophospholipase 3, Lysosomal Phospholipase A and Acyltransferase, Lysosomal Phospholipase A <sub>2</sub> , Phospholipase A <sub>2</sub> Group XV
<b>Source:</b>	Active recombinant human C-terminal His-tagged PLA <sub>2</sub> (Group XV) expressed in mammalian cells
<b>Amino Acids:</b>	34-412 (full length)
<b>Uniprot No.:</b>	Q8NCC3
<b>Molecular Weight:</b>	44.16 kDa
<b>Storage:</b>	-80°C (as supplied)
<b>Stability:</b>	≥6 months
<b>Purity:</b>	≥80% estimated by SDS-PAGE
<b>Supplied in:</b>	50 mM HEPES, pH 7.5, 125 mM sodium chloride
<b>Protein Concentration:</b>	<i>batch specific</i> mg/ml
<b>Activity:</b>	<i>batch specific</i> U/ml
<b>Specific Activity:</b>	<i>batch specific</i> U/mg
<b>Unit Definition:</b>	One unit is defined as the amount of enzyme required to hydrolyze 1 nmol of diheptanoyl thio-PG (Item No. 38436) per minute at 25°C in 25 mM Tris, pH 7.5, 100 mM potassium chloride, 0.3 mM Triton X 100 in the presence of 1 mM DTNB and 1.25 mM diheptanoyl thio-PG.

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

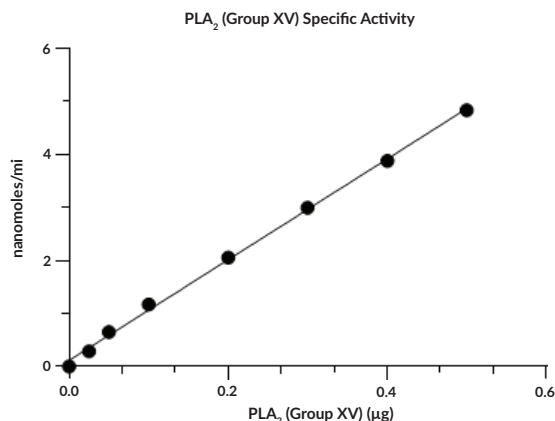
### Images



Lane 1: MW Markers  
Lane 2: 2 µg  
Lane 3: 4 µg

#### SDS-PAGE Analysis of PLA<sub>2</sub>.

*Representative gel image shown; actual purity may vary between each batch. Protein band appears slightly higher due to glycosylation.*



PLA<sub>2</sub> (Group XV) activity was determined by the measuring absorbance at 412 nm wavelength using 1.25 mM diheptanoyl thio-PG (Item No. 38436) substrate in the presence of 1 mM DTNB at 25°C, in 25 mM Tris pH 7.5, 100 mM potassium chloride, and 0.3 mM Triton X 100 buffer.

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

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Phospholipase A<sub>2</sub> (PLA<sub>2</sub>) (Group XV), also known as lysosomal phospholipase A and acetyltransferase, is a calcium-independent and acidic pH-optimum phospholipase encoded by *PLA2G15* in humans.<sup>1,2</sup> It is composed of an  $\alpha/\beta$ -hydrolase domain, a cap domain, and a membrane-binding domain, is ubiquitously expressed, and localizes to lysosomes.<sup>1,3</sup> PLA<sub>2</sub> (Group XV) hydrolyzes *sn*-1 and *sn*-2 fatty acids in phospholipids, contributing to phospholipid degradation in lysosomes.<sup>1</sup> It also functions as a *bis*(monoacylglycerol) phosphate (BMP) hydrolase, hydrolyzing BMP lipid species independent of their saturation or chain length.<sup>4</sup> *Pla2g15* knockdown induces phospholipidosis and enlargement of alveolar macrophages, mimicking a foam cell phenotype, in young mice. In aged mice, *Pla2g15* knockdown induces the development of glomerulonephritis, lymphoid hypertrophy, and abnormal serologies, including positive anti-nuclear antibodies, anti-dsDNA antibodies, and high circulating immunoglobulin levels, indicating an autoimmune phenotype similar to systemic lupus erythematosus (SLE). Similar to *PLA2G15* knockout, pharmacologic inhibition of PLA<sub>2</sub> (Group XV) by cationic amphiphilic drugs, such as amiodarone, induces phospholipidosis in cells, indicating that PLA<sub>2</sub> (Group XV) may be a screening candidate for prediction of drug-induced phospholipidosis during pre-clinical drug development studies.<sup>5</sup> *Pla2g15* knockdown reduces Purkinje cell loss, microgliosis, astrocytosis, and CNS demyelination in a mouse model of Niemann-Pick disease type C1 (NPC1).<sup>4</sup> Cayman's PLA<sub>2</sub> (human, recombinant Group XV) can be used for enzyme activity assay and Western blot (WB) applications.

## References

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1. Shayman, J.A., Kelly, R., Kollmeyer, J., *et al.* Group XV phospholipase A<sub>2</sub>, a lysosomal phospholipase A<sub>2</sub>. *Prog. Lipid Res.* **50(1)**, 1-13 (2010).
2. Murakami, M., Sato, H., S., and Taketomi, Y. Updating Phospholipase A<sub>2</sub> Biology. *Biomolecules* **10(10)**, 1457 (2020).
3. Shayman, J.A. and Tesmer, J.G.J. Lysosomal phospholipase A<sub>2</sub>. *Biochim. Biophys. Acta Mol. Cell Biol. Lipids* **1864(6)**, 932-940 (2019).
4. Nyame, K., Xiong, J., Alsohybe, H.N., *et al.* PLA2G15 is a BMP hydrolase and its targeting ameliorates lysosomal disease. *Nature* **642(8067)**, 474-483 (2025).
5. Shayman, J.A. and Abe, A. Drug induced phospholipidosis: An acquired lysosomal storage disorder. *Biochim. Biophys. Acta* **1831(3)**, 602-611 (2013).

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