

# PE is hydrolyzed to 1-acyl LPE by PLA2[16]

Williams, MG.

European Bioinformatics Institute, New York University Langone Medical Center, Ontario Institute for Cancer Research, Oregon Health and Science University.

The contents of this document may be freely copied and distributed in any media, provided the authors, plus the institutions, are credited, as stated under the terms of [Creative Commons Attribution 4.0 International \(CC BY 4.0\) License](#). For more information see our [license](#).

21/09/2021

## Introduction

Reactome is open-source, open access, manually curated and peer-reviewed pathway database. Pathway annotations are authored by expert biologists, in collaboration with Reactome editorial staff and cross-referenced to many bioinformatics databases. A system of evidence tracking ensures that all assertions are backed up by the primary literature. Reactome is used by clinicians, geneticists, genomics researchers, and molecular biologists to interpret the results of high-throughput experimental studies, by bioinformaticians seeking to develop novel algorithms for mining knowledge from genomic studies, and by systems biologists building predictive models of normal and disease variant pathways.

The development of Reactome is supported by grants from the US National Institutes of Health (P41 HG003751), University of Toronto (CFREF Medicine by Design), European Union (EU STRP, EMI-CD), and the European Molecular Biology Laboratory (EBI Industry program).

## Literature references

- Fabregat, A., Sidiropoulos, K., Viteri, G., Forner, O., Marin-Garcia, P., Arnau, V. et al. (2017). Reactome pathway analysis: a high-performance in-memory approach. *BMC bioinformatics*, 18, 142. [↗](#)
- Sidiropoulos, K., Viteri, G., Sevilla, C., Jupe, S., Webber, M., Orlic-Milacic, M. et al. (2017). Reactome enhanced pathway visualization. *Bioinformatics*, 33, 3461-3467. [↗](#)
- Fabregat, A., Jupe, S., Matthews, L., Sidiropoulos, K., Gillespie, M., Garapati, P. et al. (2018). The Reactome Pathway Knowledgebase. *Nucleic Acids Res*, 46, D649-D655. [↗](#)
- Fabregat, A., Korninger, F., Viteri, G., Sidiropoulos, K., Marin-Garcia, P., Ping, P. et al. (2018). Reactome graph database: Efficient access to complex pathway data. *PLoS computational biology*, 14, e1005968. [↗](#)

Reactome database release: 77

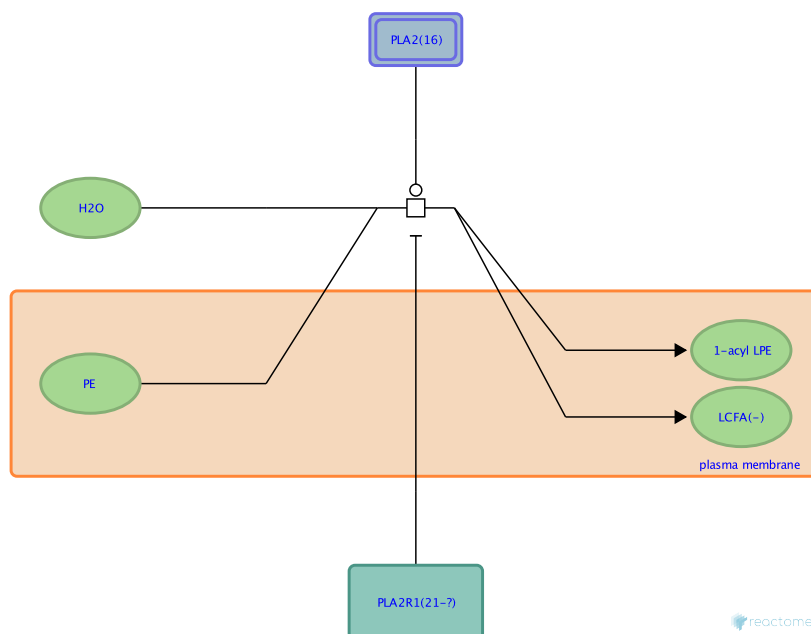
This document contains 1 reaction ([see Table of Contents](#))

## PE is hydrolyzed to 1-acyl LPE by PLA2[16] [↗](#)

**Stable identifier:** R-HSA-1602398

**Type:** transition

**Compartments:** extracellular region, plasma membrane



At the plasma membrane, phosphatidylethanolamine (PE) is hydrolyzed, removing one of its acyl groups, to 1-acyl phosphatidylethanolamine (LPE) by secretory phospholipase A2 proteins (Singer et al. 2002, Ishizaki et al. 1999). These include: Group IB (PLA2G1B) (Grataroli et al. 1982); Group IIA (PLA2G2A) (Seilhamer et al. 1989); Group IID (PLA2G2D) (Ishizaki et al. 1999); Group IIE (PLA2G2E) (Suzuki et al. 2000); Group IIF (PLA2G2F) (Valentin et al. 2000); Group III (PLA2G3) (Murakami et al. 2003, Murakami et al. 2005); Calcium-dependent Group V (PLA2G5) (Chen et al. 1994); Group X (PLA2G10) (Cupillard et al. 1997, Pan et al. 2002); and Group XIIA (PLA2G12A) (Gelb et al. 2000, Murakami et al. 2003).

### Literature references

- Higashino Ki, K., Yokota, Y., Ono, T., Kamitani, S., Arita, H., Hanasaki, K. (2002). Identification of a soluble form phospholipase A2 receptor as a circulating endogenous inhibitor for secretory phospholipase A2. *J. Biol. Chem.*, 277, 13583-8. [↗](#)
- Gelb, MH., Valentin, E., Ghomashchi, F., Lazdunski, M., Lambeau, G. (2000). Cloning and recombinant expression of a structurally novel human secreted phospholipase A2. *J Biol Chem*, 275, 39823-6. [↗](#)
- Chen, J., Engle, SJ., Seilhamer, JJ., Tischfield, JA. (1994). Cloning and recombinant expression of a novel human low molecular weight Ca(2+)-dependent phospholipase A2. *J Biol Chem*, 269, 2365-8. [↗](#)
- Suzuki, N., Ishizaki, J., Yokota, Y., Higashino, K., Ono, T., Ikeda, M. et al. (2000). Structures, enzymatic properties, and expression of novel human and mouse secretory phospholipase A(2)s. *J Biol Chem*, 275, 5785-93. [↗](#)
- Ishizaki, J., Suzuki, N., Higashino, K., Yokota, Y., Ono, T., Kawamoto, K. et al. (1999). Cloning and characterization of novel mouse and human secretory phospholipase A(2)s. *J Biol Chem*, 274, 24973-9. [↗](#)

### Editions

2011-08-12	Edited	Williams, MG.
2011-09-14	Authored	Williams, MG.