

2-acyl LPC is acylated to PC by LPCAT

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](#).

29/11/2020

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: 74

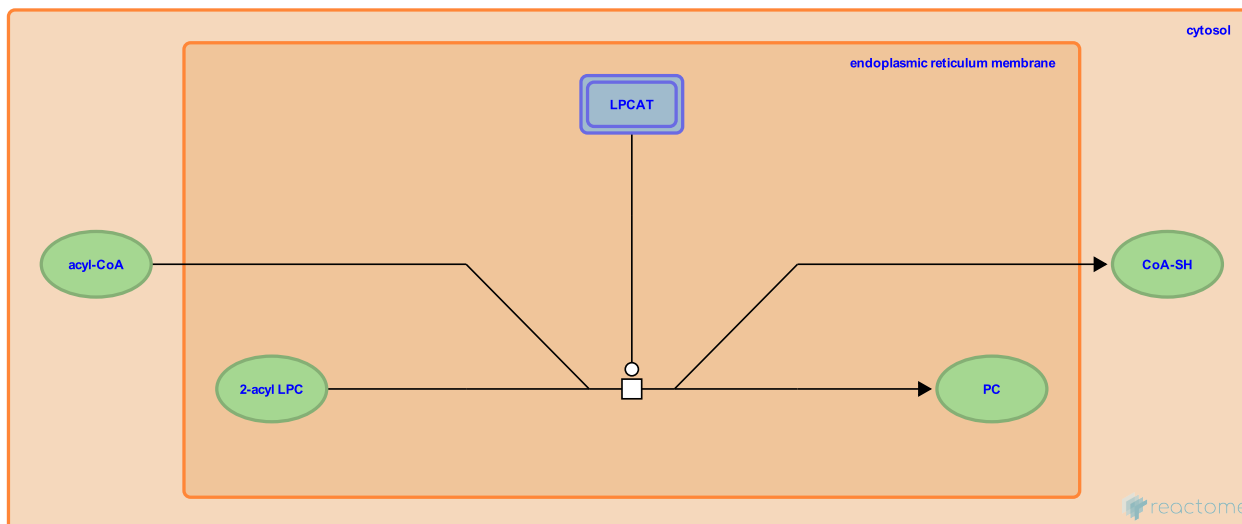
This document contains 1 reaction ([see Table of Contents](#))

2-acyl LPC is acylated to PC by LPCAT ↗

Stable identifier: R-HSA-1482533

Type: transition

Compartments: endoplasmic reticulum membrane, cytosol



At the endoplasmic reticulum (ER) membrane, lysophospholipid acyltransferases acylate 2-acyl lysophosphatidylcholine (LPC) to form phosphatidylcholine (PC). The lysophospholipid acyltransferases involved are: lysophosphatidylcholine acyltransferase 1 (LPCAT1) (Nakanishi et al. 2006, Chen et al. 2006); lysophosphatidylcholine acyltransferase 2 (LPCAT2) (Shindou et al. 2006); lysophospholipid acyltransferase 5 (LPCAT3) (Hishikawa et al. 2008, Zhao et al. 2008, Gijon et al. 2008, Jain et al. 2009, Kazachkov et al. 2008); lysophospholipid acyltransferase LPCAT4 (LPCAT4) aka LPEAT2 (Cao et al. 2008, Ye et al. 2005); or lysophospholipid acyltransferase 2 (MBOAT2) aka LPCAT4 (Hishikawa et al. 2008, Gijon et al. 2008).

Literature references

- Chen, X., Hyatt, BA., Mucenski, ML., Mason, RJ., Shannon, JM. (2006). Identification and characterization of a lysophosphatidylcholine acyltransferase in alveolar type II cells. *Proc Natl Acad Sci U S A*, 103, 11724-9. ↗
- Shindou, H., Hishikawa, D., Nakanishi, H., Harayama, T., Ishii, S., Taguchi, R. et al. (2007). A single enzyme catalyzes both platelet-activating factor production and membrane biogenesis of inflammatory cells. Cloning and characterization of acetyl-CoA:LYSO-PAF acetyltransferase. *J Biol Chem*, 282, 6532-9. ↗
- Cao, J., Shan, D., Revett, T., Li, D., Wu, L., Liu, W. et al. (2008). Molecular identification of a novel mammalian brain isoform of acyl-CoA:lysophospholipid acyltransferase with prominent ethanolamine lysophospholipid acylating activity, LPEAT2. *J Biol Chem*, 283, 19049-57. ↗
- Nakanishi, H., Shindou, H., Hishikawa, D., Harayama, T., Ogasawara, R., Suwabe, A. et al. (2006). Cloning and characterization of mouse lung-type acyl-CoA:lysophosphatidylcholine acyltransferase 1 (LPCAT1). Expression in alveolar type II cells and possible involvement in surfactant production. *J Biol Chem*, 281, 20140-7. ↗
- Zhao, Y., Chen, YQ., Bonacci, TM., Bredt, DS., Li, S., Bensch, WR. et al. (2008). Identification and characterization of a major liver lysophosphatidylcholine acyltransferase. *J Biol Chem*, 283, 8258-65. ↗

Editions

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