

# SGMS1 transfers phosphocholine onto cer- amide

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## 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.

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## 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: 88

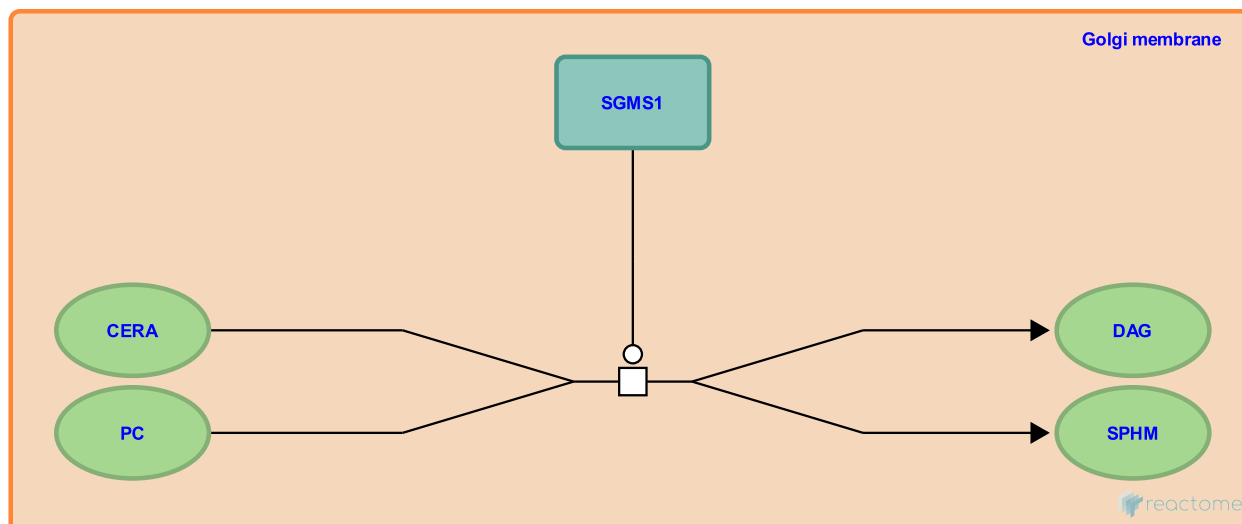
This document contains 1 reaction ([see Table of Contents](#))

## SGMS1 transfers phosphocholine onto ceramide ↗

**Stable identifier:** R-HSA-429798

**Type:** transition

**Compartments:** Golgi membrane



SGMS1 (sphingomyelin synthase 1) associated with the membrane of the Golgi apparatus catalyzes the reversible reaction of phosphatidylcholine and ceramide to form sphingomyelin and diacylglycerol. Phosphatidylcholine was identified as the source of the phosphocholine moiety donated to ceramide in this reaction in studies of the mouse enzyme in the 1970s (Diringer et al. 1972; Ullman and Radin 1974). SGMS1 is widely expressed in the body, and studies of cultured cells indicate that this reaction provides the primary source of cellular sphingomyelin (Yamaoka et al., 2004; Huitema et al., 2004; Tafesse et al., 2007; reviewed by Chen & Cao, 2017).

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### Editions

2009-08-21	Authored, Edited	D'Eustachio, P.
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