

# SGMS2 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

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Reactome database release: 88

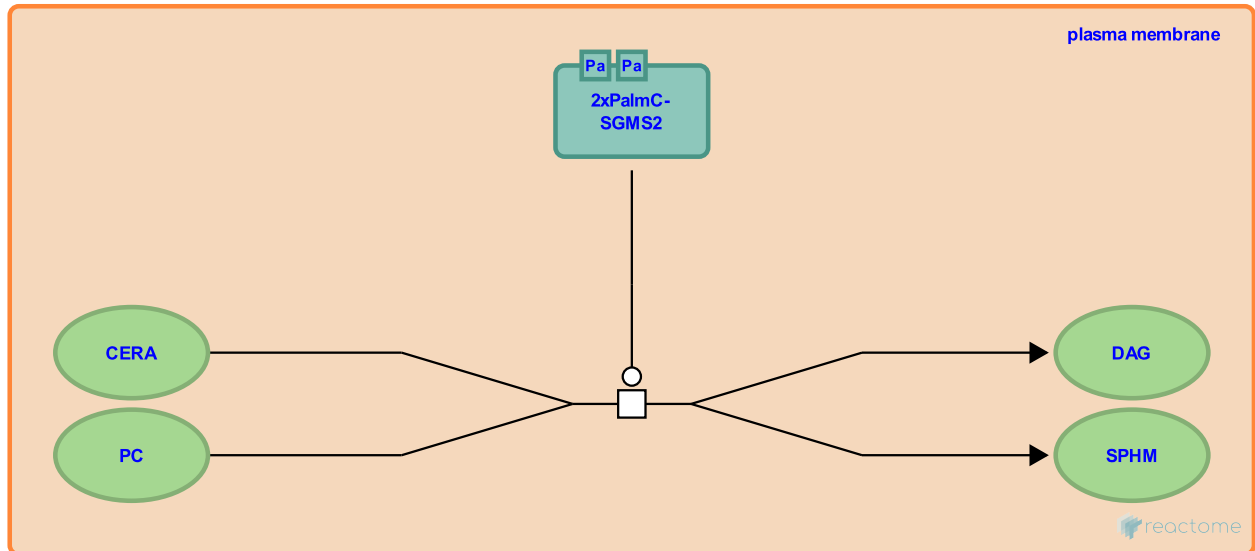
This document contains 1 reaction ([see Table of Contents](#))

## SGMS2 transfers phosphocholine onto ceramide [↗](#)

**Stable identifier:** R-HSA-429786

**Type:** transition

**Compartments:** plasma membrane



SGMS2 (sphingomyelin synthase 2) catalyzes the reversible reaction of phosphatidylcholine and ceramide to form sphingomyelin and diacylglycerol. Most SGMS2 activity is associated with the plasma membrane, although active enzyme is also present in the Golgi apparatus (Tafesse et al. 2007; Villani et al. 2008; Ding et al. 2008). 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). The association of SGMS2 with the plasma membrane appears to require palmitoylation of at least two cysteine residues near the carboxy terminus (Tani and Kuge, 2009). SGMS2 is widely expressed in the body, and while studies of cultured cells indicate that this is a minor source of cellular sphingomyelin, blockage of SGMS2 activity inhibits cell growth. SGMS2 deficiency causes forms of osteoporosis (CDL, MIM:126550; CDLSMD, MIM:126550) (Huitema et al., 2004; Tafesse et al., 2007; reviewed by Chen & Cao, 2017).

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### Editions

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