

PRODUCT INFORMATION



Spingomyelin Synthase 2 (human, recombinant; aa 1-79)

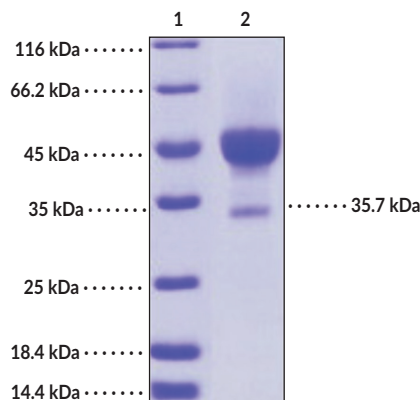
Item No. 41070

Overview and Properties

Synonyms: Phosphatidylcholine:ceramide Cholinephosphotransferase 2, SMS2
Source: Recombinant N-terminal mouse IgG1 Fc-tagged human SMS2 expressed in HEK293 cells
Amino Acids: 1-79
Uniprot No.: Q8NHU3
Molecular Weight: 35.7 kDa
Storage: -80°C (as supplied)
Stability: ≥1 year
Purity: ≥95% estimated by SDS-PAGE
Supplied in: Lyophilized from sterile PBS, pH 7.4
Endotoxin Testing: < 1.0 EU/μg, determined by the LAL endotoxin assay
Protein Concentration: *batch specific* mg/ml

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

Image



Lane 1: MW Markers
Lane 2: Fc-tagged Spingomyelin Synthase 2 (human, recombinant; aa 1-79)

SDS-PAGE Analysis of Spingomyelin Synthase 2 (human, recombinant; aa 1-79). This protein has a calculated molecular weight of 35.7 kDa. As a result of glycosylation, the monomer migrates at approximately 45 kDa by SDS-PAGE under reducing conditions.

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

Sphingomyelin synthases (SMSs) are the final enzymes required for the *de novo* synthesis of sphingomyelin.^{1,2} There are three isoforms of sphingomyelin synthase: SMS1, SMS2, and SMSr, which are localized to the Golgi, Golgi and plasma membrane, and endoplasmic reticulum, respectively. All SMSs are composed of six transmembrane domains, with N- and C-terminal cytoplasmic tails. SMS2 also contains four C-terminal palmitoylation sites which are essential to its plasma membrane localization.¹ It is a bifunctional enzyme responsible for the synthesis of both sphingomyelin and ceramide phosphoethanolamine, with sphingomyelin synthesis being its primary function.² SMS2 catalyzes the transfer of a phosphocholine headgroup from phosphatidylcholine to ceramide in the Golgi to produce sphingomyelin. Knockdown of *Sgms2*, the gene encoding *Sms2*, decreases M2-like macrophage polarization *in vitro* and reduces tumor weight and lung metastasis in a 4T1 murine mammary carcinoma model.³ *Sgms2* knockdown also inhibits steatosis but increases fibrosis in a mouse model of non-alcoholic steatohepatitis (NASH) induced by a choline-deficient and high-fat diet (CDAHFD).⁴ Cayman's Sphingomyelin Synthase 2 (human, recombinant; aa 1-79) is a disulfide-linked homodimer. The reduced monomer, composed of SMS2 (amino acids 1-79) fused to mouse IgG1 Fc at its N-terminus, consists of 315 amino acids and has a calculated molecular weight of 35.7 kDa. As a result of glycosylation, the monomer migrates at approximately 45 kDa by SDS-PAGE under reducing conditions.

References

1. Yeang, C., Ding, T., Chirico, W.J., *et al.* Subcellular targeting domains of sphingomyelin synthase 1 and 2. *Nutr. Metab. (Lond)* **8**, 89 (2011).
2. Chen, Y. and Cao, Y. The sphingomyelin synthase family: Proteins, diseases, and inhibitors. *Biol. Chem.* **398(12)**, 1319-1325 (2017).
3. Deng, Y., Hu, J.-C., He, S.-H., *et al.* Sphingomyelin synthase 2 facilitates M2-like macrophage polarization and tumor progression in a mouse model of triple-negative breast cancer. *Acta. Pharmacol. Sin.* **42(1)**, 149-159 (2021).
4. Sugimoto, M., Hamada, T., Wakabayashi, M., *et al.* Sphingomyelin synthase 2 loss suppresses steatosis but exacerbates fibrosis in the liver of mice fed with choline-deficient, L-amino acid-defined, high-fat diet. *Biochem. Biophys. Res. Commun.* **533(4)**, 1269-1275 (2020).

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