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- Trockeneiszuschlag
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PRODUCT INFORMATION

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

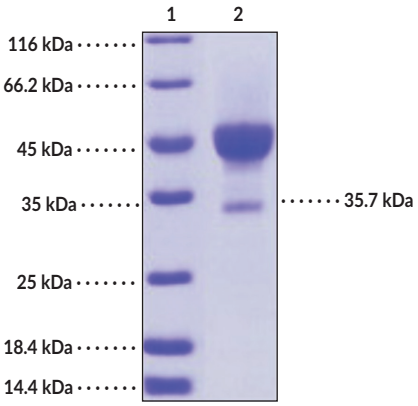
Item No. 41070

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

SDS-PAGE Analysis of Sphingomyelin 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.

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PRODUCT INFORMATION

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., Wakabayasi, 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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