

# SMS2 (M-18): sc-103883

## BACKGROUND

The SMS (sphingomyelin synthase) family is a group of integral membrane proteins that includes SMS1 (sphingomyelin synthase 1) and SMS2 (sphingomyelin synthase 2). SMS1 is located in the Golgi apparatus, whereas SMS2 resides primarily at the plasma membrane. Both are bidirectional lipid cholinephosphotransferases which convert phosphatidylcholine (PC) and ceramide to sphingomyelin (SM) and diacylglycerol (DAG) and vice versa, the direction of which depends on the relative concentrations of ceramide and diacylglycerol as phosphocholine acceptors. Therefore, sphingomyelin synthases are thought to be involved in both cell death and survival. Tricyclocodecan-9-yl-xanthogenate (D609), a selective tumor cytotoxic agent, inhibits SMS activity, contributing to tumor cell cytotoxicity. SMS proteins are expressed in liver, muscle, heart, brain, stomach and kidney. SMS1 is expressed as four alternatively spliced mRNAs (SMS1 $\alpha$ 1, SMS1 $\alpha$ 2, SMS1 $\beta$  and SMS1 $\gamma$ ) that translate into three different proteins (SMS1 $\alpha$ , SMS1 $\beta$  and SMS1 $\gamma$ ), which differ in their tissue distribution and function.

## REFERENCES

1. Luberto, C. and Hannun, Y.A. 1998. Sphingomyelin synthase, a potential regulator of intracellular levels of ceramide and diacylglycerol during SV40 transformation. Does sphingomyelin synthase account for the putative phosphatidylcholine-specific phospholipase C? *J. Biol. Chem.* 273: 14550-14559.
2. Huitema, K., van den Dikkenberg, J., Brouwers, J.F. and Holthuis, J.C. 2004. Identification of a family of animal sphingomyelin synthases. *EMBO J.* 23: 33-44.
3. Yamaoka, S., Miyaj, M., Kitano, T., Umehara, H. and Okazaki, T. 2004. Expression cloning of a human cDNA restoring sphingomyelin synthesis and cell growth in sphingomyelin synthase-defective lymphoid cells. *J. Biol. Chem.* 279: 18688-18693.
4. Meng, A., Luberto, C., Meier, P., Bai, A., Yang, X., Hannun, Y.A. and Zhou, D. 2004. Sphingomyelin synthase as a potential target for D609-induced apoptosis in U937 human monocytic leukemia cells. *Exp. Cell Res.* 292: 385-392.
5. Yang, Z., Jean-Baptiste, G., Khoury, C. and Greenwood, M.T. 2005. The mouse sphingomyelin synthase 1 (SMS1) gene is alternatively spliced to yield multiple transcripts and proteins. *Gene* 363: 123-132.

## CHROMOSOMAL LOCATION

Genetic locus: SGMS2 (human) mapping to 4q25; Sgms2 (mouse) mapping to 3 G3.

## SOURCE

SMS2 (M-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping within a C-terminal cytoplasmic domain of SMS2 of mouse origin.

## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-103883 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

SMS2 (M-18) is recommended for detection of SMS2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); may cross-react with Nek1.

SMS2 (M-18) is also recommended for detection of SMS2 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for SMS2 siRNA (h): sc-44429, SMS2 siRNA (m): sc-63295, SMS2 shRNA Plasmid (h): sc-44429-SH, SMS2 shRNA Plasmid (m): sc-63295-SH, SMS2 shRNA (h) Lentiviral Particles: sc-44429-V and SMS2 shRNA (m) Lentiviral Particles: sc-63295-V.

Molecular Weight of SMS2: 42 kDa.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## RESEARCH USE

For research use only, not for use in diagnostic procedures.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.



Try **SMS2 (7D10): sc-293384**, our highly recommended monoclonal alternative to SMS2 (M-18).