Revision 1

#3867 Store at -20C

nSMase1 Antibody

Cell Signaling TECHNOLOGY®

Orders: 877-616-CELL (2355) orders@cellsignal.com

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Web: info@cellsignal.com cellsignal.com

3 Trask Lane | Danvers | Massachusetts | 01923 | USA

For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source:	UniProt ID:	Entrez-Gene Id:
WB	H Mk	Endogenous	50	Rabbit	#O60906	6610

Product Usage Information

Application	Dilution
Western Blotting	1:1000

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at –20°C. Do not aliquot the antibody.

Specificity / Sensitivity

nSMAase Antibody detects endogenous levels of total nSMase1 protein.

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Ala200 of human nSMase1.

Background

Sphingomyelinases (SMases) catalyze the hydrolysis of sphingomyelin to produce ceramide and phosphocholine (1). Ceramide is an important bioactive lipid triggering signal transduction involved in cell proliferation, apoptosis and differentiation (1,2). A number of SMases have been described and categorized based on their optimum pH activity, cation dependence, tissue distribution, and subcellular localization (1). These include a lysosomal acid SMase, a Zn++-dependent secreted acid SMase, a membrane-bound Mg++-dependent neutral SMase, a Mg++-independent neutral SMase, and an alkaline SMase.
nSMase1 (also termed SMPD2) is a Mg^{++}-dependent neutral SMase that is widely expressed and predominantly localized to the endoplasmic reticulum (3,4). This protein has also been shown to have lyso-platelet activating factor (PAF) phospholipase C activity (5). A second neutral SMase, nSMase2 (also termed SMPD3) is predominantly expressed in the brain (6). The activity of neutral SMases is regulated by oxidative stress, chemotherapeutic drugs, inflammatory cytokines, and apoptotic stimuli (1). Analysis of single and double knockouts of the SMPD2 and SMPD3 has revealed that loss of both genes leads to complete loss of neutral SMase activity with developmental defects observed with loss of nSMase2 (7,8).

Background References

1. Marchesini, N. and Hannun, Y.A. (2004) *Biochem Cell Biol* 82, 27-44.
2. Ruvolo, P.P. (2001) *Leukemia* 15, 1153-60.
3. Tomiuk, S. et al. (1998) *Proc Natl Acad Sci U S A* 95, 3638-43.
4. Tomiuk, S. et al. (2000) *J Biol Chem* 275, 5710-7.
5. Sawai, H. et al. (1999) *J Biol Chem* 274, 38131-9.
6. Hofmann, K. et al. (2000) *Proc Natl Acad Sci U S A* 97, 5895-900.
7. Zumbansen, M. and Stoffel, W. (2002) *Mol Cell Biol* 22, 3633-8.
8. Stoffel, W. et al. (2005) *Proc Natl Acad Sci U S A* 102, 4554-9.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

WB: Western Blotting

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster
X: Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse
GP: Guinea Pig **Rab:** rabbit **All:** all species expected

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