

N-SMase (m): 293T Lysate: sc-121909

BACKGROUND

Sphingomyelin and its metabolic products are now known to have second messenger functions in a variety of cellular signaling pathways. At the epicenter of the sphingomyelin cell signaling pathway is a family of phospholipases called sphingomyelinases. These enzymes cleave sphingomyelin to produce ceramide and phosphocholine. Ceramide in turn serves as a lipid second messenger that induces a variety of cell regulatory phenomenon such as program-med cell death (apoptosis), cell differentiation, cell proliferation, and sterol homeostasis. Neutral sphingomyelinase (N-SMase) is a Mg^{2+} sensitive enzyme that can be activated by a host of physiologically relevant and structurally diverse molecules like tumor necrosis factor α (TNF α), oxidized human low density lipoproteins (Ox-LDL) and several growth factors.

REFERENCES

1. Chatterjee, S. 1999. Neutral sphingomyelinase: past, present and future. *Chem. Phys. Lipids* 102: 79-96.
2. Chan, E.C., Chang, C.C., Li, Y.S., Chang, C.A., Chiou, C.C. and Wu, T.Z. 2000. Purification and characterization of neutral sphingomyelinase from *Helicobacter pylori*. *Biochemistry* 39: 4838-4845.
3. Luberto, C., Hassler, D.F., Signorelli, P., Okamoto, Y., Sawai, H., Boros, E., Hazen-Martin, D.J., Obeid, L.M., Hannun, Y.A. and Smith, G.K. 2002. Inhibition of tumor necrosis factor-induced cell death in MCF7 by a novel inhibitor of neutral sphingomyelinase. *J. Biol. Chem.* 277: 41128-41139.
4. Okamoto, Y., Obeid, L.M. and Hannun, Y.A. 2002. Bcl-x_L interrupts oxidative activation of neutral sphingomyelinase. *FEBS Lett.* 530: 104-108.
5. Marchesini, N., Luberto, C. and Hannun, Y.A. 2003. Biochemical properties of mammalian neutral sphingomyelinase 2 and its role in sphingolipid metabolism. *J. Biol. Chem.* 278: 13775-13783.
6. Chen, S., Lee, J.M., Zeng, C., Chen, H., Hsu, C.Y. and Xu, J. 2006. Amyloid beta peptide increases DP5 expression via activation of neutral sphingomyelinase and JNK in oligodendrocytes. *J. Neurochem.* 2006. 97: 631-640.
7. Adamy, C., Mulder, P., Khouzami, L., Andrieu-abadie, N., Defer, N., Candiani, G., Pavoine, C., Caramelle, P., Souktani, R., Le Corvoisier, P., Perier, M., Kirsch, M., Damy, T., Berdeaux, A., Levade, T., Thuillez, C., et al. 2007. Neutral sphingomyelinase inhibition participates to the benefits of N-acetylcysteine treatment in post-myocardial infarction failing heart rats. *J. Mol. Cell. Cardiol.* 43: 344-533.
8. Yabu, T., Imamura, S., Yamashita, M. and Okazaki, T. 2008. Identification of Mg^{2+} -dependent neutral sphingomyelinase 1 as a mediator of heat stress-induced ceramide generation and apoptosis. *J. Biol. Chem.* 283: 29971-29982.

CHROMOSOMAL LOCATION

Genetic locus: Smpd2 (mouse) mapping to 10 B2.

PRODUCT

N-SMase (m): 293T Lysate represents a lysate of mouse N-SMase transfected 293T cells and is provided as 100 μ g protein in 200 μ l SDS-PAGE buffer.

APPLICATIONS

N-SMase (m): 293T Lysate is suitable as a Western Blotting positive control for mouse reactive N-SMase antibodies. Recommended use: 10-20 μ l per lane.

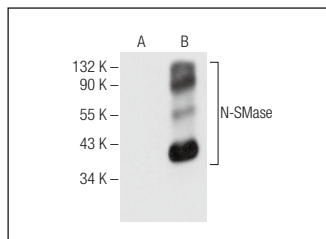
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

N-SMase (B-1): sc-377135 is recommended as a positive control antibody for Western Blot analysis of enhanced mouse N-SMase expression in N-SMase transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended:
1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048.

DATA



N-SMase (B-1): sc-377135. Western blot analysis of N-SMase expression in non-transfected: sc-117752 (A) and mouse N-SMase transfected: sc-121909 (B) 293T whole cell lysates.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.