SANTA CRUZ BIOTECHNOLOGY, INC.

N-SMase (56-7): sc-100593

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 programmed 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 (TNFα), 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., et al. 2000. Purification and characterization of neutral sphingomyelinase from *Helicobacter pylori*. Biochemistry 39: 4838-4845.
3. Luberto, C., et al. 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., et al. 2002. Bcl-x_L interrupts oxidative activation of neutral sphingomyelinase. FEBS Lett. 530: 104-108.
5. Marchesini, N., et al. 2003. Biochemical properties of mammalian neutral sphingomyelinase 2 and its role in sphingolipid metabolism. J. Biol. Chem. 278: 13775-13783.
6. Chen, S., et al. 2006. Amyloid β peptide increases DP5 expression via activation of neutral sphingomyelinase and JNK in oligodendrocytes. J. Neurochem. 2006. 97: 631-640.
7. Adamy, 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.

CHROMOSOMAL LOCATION

Genetic locus: SMPD2 (human) mapping to 6q21.

SOURCE

N-SMase (56-7) is a mouse monoclonal antibody raised against recombinant N-SMase of human origin.

PRODUCT

Each vial contains 50 µg IgG_3 kappa light chain in 0.5 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

N-SMase (56-7) is recommended for detection of N-SMase of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for N-SMase siRNA (h): sc-106277, N-SMase shRNA Plasmid (h): sc-106277-SH and N-SMase shRNA (h) Lentiviral Particles: sc-106277-V.

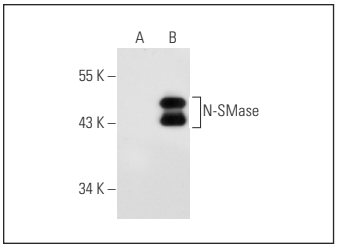
Molecular Weight of N-SMase: 48 kDa.

Positive Controls: N-SMase (h): 293T Lysate: sc-159286 or U-698-M whole cell lysate: sc-364799.

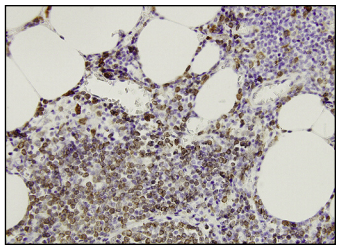
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ 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. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



N-SMase (56-7): sc-100593. Western blot analysis of N-SMase expression in non-transfected: sc-117752 (**A**) and human N-SMase transfected: sc-159286 (**B**) 293T whole cell lysates.



N-SMase (56-7): sc-100593. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human lymph node tissue showing membrane localization.

SELECT PRODUCT CITATIONS

1. Zhao, Z., et al. 2021. Lipid metabolism is a novel and practical source of potential targets for antiviral discovery against porcine parvovirus. Vet. Microbiol. 261: 109177.

RESEARCH USE

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