

N-SMase2 (m): 293T Lysate: sc-121910

BACKGROUND

N-SMase2 (neutral sphingomyelinase 2), also known as NSMASE2 or SMPD3 (sphingomyelin phosphodiesterase 3), is a ubiquitously expressed 655 amino acid member of the magnesium-dependent phosphohydrolase protein family. Localized to the membrane of the Golgi apparatus, N-SMase2 functions to catalyze the hydrolysis of sphingomyelin to form ceramide and phosphocholine—two proteins that mediate cell growth arrest and apoptosis. N-SMase2 is enzymatically activated by unsaturated fatty acids and phosphatidylserine and, through regulation of ceramide synthesis, is involved in growth suppression and postnatal development. Expression of N-SMase2 is upregulated during the G₀/G₁ phases of the cell cycle and optimal N-SMase2 activity occurs at a slightly basic pH of 7.5. N-SMase2 deficiency is the cause of chondrodysplasia, a genetic disorder characterized by impaired bone growth that leads to short stature, bowlegs and underdeveloped joints.

REFERENCES

- Hofmann, K., et al. 2000. Cloning and characterization of the mammalian brain-specific, Mg²⁺-dependent neutral sphingomyelinase. *Proc. Natl. Acad. Sci. USA* 97: 5895-5900.
- Marchesini, N., et al. 2003. Biochemical properties of mammalian neutral sphingomyelinase 2 and its role in sphingolipid metabolism. *J. Biol. Chem.* 278: 13775-13783.
- Stoffel, W., et al. 2005. Neutral sphingomyelinase 2 (Smpd3) in the control of postnatal growth and development. *Proc. Natl. Acad. Sci. USA* 102: 4554-4559.
- Aubin, I., et al. 2005. A deletion in the gene encoding Sphingomyelin phosphodiesterase 3 (Smpd3) results in osteogenesis and dentinogenesis imperfecta in the mouse. *Nat. Genet.* 37: 803-805.
- De Palma, C., et al. 2006. Endothelial nitric oxide synthase activation by tumor necrosis factor α through neutral sphingomyelinase 2, sphingosine kinase 1, and sphingosine 1 phosphate receptors: a novel pathway relevant to the pathophysiology of endothelium. *Arterioscler. Thromb. Vasc. Biol.* 26: 99-105.
- Krut, O., et al. 2006. Novel tumor necrosis factor-responsive mammalian neutral sphingomyelinase-3 is a C-tail-anchored protein. *J. Biol. Chem.* 281: 13784-13793.

CHROMOSOMAL LOCATION

Genetic locus: Smpd3 (mouse) mapping to 8 D3.

PRODUCT

N-SMase2 (m): 293T Lysate represents a lysate of mouse N-SMase2 transfected 293T cells and is provided as 100 μ g protein in 200 μ l SDS-PAGE buffer.

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.

APPLICATIONS

N-SMase2 (m): 293T Lysate is suitable as a Western Blotting positive control for mouse reactive N-SMase2 antibodies. Recommended use: 10-20 μ l per lane.

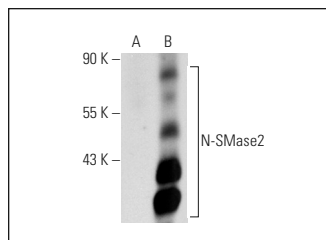
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

N-SMase2 (G-6): sc-166637 is recommended as a positive control antibody for Western Blot analysis of enhanced mouse N-SMase2 expression in N-SMase2 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-SMase2 (G-6): sc-166637. Western blot analysis of N-SMase2 expression in non-transfected: sc-117752 (A) and mouse N-SMase2 transfected: sc-121910 (B) 293T whole cell lysates.

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.