



# Alk-SMase (H-155): sc-134737

## BACKGROUND

Sphingomyelin (SM) is a lipid that is found in the membranous myelin sheath surrounding nerve cell axons. Sphingomyelin is made up of sphingosine and fatty acids and potentially plays a role in signal transduction. SM hydrolysis is involved in colonic tumorigenesis and cholesterol absorption, and it is also a source of various lipid messengers. It is triggered in a bile salt-dependent manner by intestinal alkaline sphingomyelinase (Alk-SMase), which is expressed in the intestinal mucosa and human bile. Alk-SMase is an ectoenzyme related to the NPP (nucleotide phosphodiesterase) family with five potential N-glycosylation sites and integral membrane domains at each terminus. Trypsin cleaves Alk-SMase at its C-terminus, thereby releasing it from the mucosa and enhancing its activity. In the colon, Alk-SMase displays anti-proliferative and anti-inflammatory properties by generating ceramide, reducing the formation of lysophosphatidic acid and inactivating platelet-activating factor. Alk-SMase is downregulated in human long-standing ulcerative colitis and colonic adenocarcinoma, and mutations in the Alk-SMase gene may lead to colon cancer.

## REFERENCES

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- Wu, J., et al. 2004. Pancreatic trypsin cleaves intestinal alkaline sphingomyelinase from mucosa and enhances the sphingomyelinase activity. *Am. J. Physiol. Gastrointest. Liver Physiol.* 287: G967-973.
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- Wu, J., et al. 2005. Functional studies of human intestinal alkaline sphingomyelinase by deglycosylation and mutagenesis. *Biochem. J.* 386: 153-160.
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- Wu, J., et al. 2005. Cloning of alkaline sphingomyelinase from rat intestinal mucosa and adjusting of the hypothetical protein XP\_221184 in GenBank. *Biochim. Biophys. Acta* 1687: 94-102.
- Di Marzio, L., et al. 2005. Detection of alkaline sphingomyelinase activity in human stool: proposed role as a new diagnostic and prognostic marker of colorectal cancer. *Cancer Epidemiol. Biomarkers Prev.* 14: 856-862.
- Duan, R.D. 2006. Alkaline sphingomyelinase: an old enzyme with novel implications. *Biochim. Biophys. Acta* 1761: 281-291.
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## STORAGE

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

## CHROMOSOMAL LOCATION

Genetic locus: ENPP7 (human) mapping to 17q25.3; Enpp7 (mouse) mapping to 11 E2.

## SOURCE

Alk-SMase (H-155) is a rabbit polyclonal antibody raised against amino acids 86-240 mapping within an internal region of Alk-SMase of human origin.

## PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

Alk-SMase (H-155) is recommended for detection of Alk-SMase of mouse, rat and 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Alk-SMase siRNA (h): sc-60151, Alk-SMase siRNA (m): sc-60152, Alk-SMase shRNA Plasmid (h): sc-60151-SH, Alk-SMase shRNA Plasmid (m): sc-60152-SH, Alk-SMase shRNA (h) Lentiviral Particles: sc-60151-V and Alk-SMase shRNA (m) Lentiviral Particles: sc-60152-V.

Molecular Weight of Alk-SMase: 51 kDa.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (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.