

# SMPDL3B siRNA (h): sc-76525

## BACKGROUND

SMPDL3B (sphingomyelin phosphodiesterase, acid-like 3B), also known as ASMLPD or ASML3B (acid sphingomyelinase-like phosphodiesterase 3B), is a 455 amino acid secreted protein belonging to the acid sphingomyelinase family. It is expressed in granulosa cells of the ovarian follicle and is a homolog of ASM (acid sphingomyelinase). ASM is a lysosomal protein that hydrolyzes sphingomyelin to ceramide and phosphocholine playing an important role in apoptosis of germ cell lines. Deficiency of ASM is associated with type A and type B Niemann-Pick disease. Type A is a fatal neurodegenerative disorder seen in infancy and resulting in death by age three, whereas type B is a non-neuropathic disease with a later onset.

## REFERENCES

1. Quintern, L.E., et al. 1987. Acid sphingomyelinase from human urine: purification and characterization. *Biochim. Biophys. Acta* 922: 323-336.
2. Schuchman, E.H., et al. 1991. Human acid sphingomyelinase. Isolation, nucleotide sequence and expression of the full-length and alternatively spliced cDNAs. *J. Biol. Chem.* 266: 8531-8539.
3. Levran, O., et al. 1991. Niemann-Pick disease: a frequent missense mutation in the acid sphingomyelinase gene of Ashkenazi Jewish type A and B patients. *Proc. Natl. Acad. Sci. USA* 88: 3748-3752.
4. Takahashi, T., et al. 1992. Identification and expression of five mutations in the human acid sphingomyelinase gene causing types A and B Niemann-Pick disease. Molecular evidence for genetic heterogeneity in the neuropathic and non-neuropathic forms. *J. Biol. Chem.* 267: 12552-12558.
5. Langmann, T., et al. 1999. Transcription factors Sp1 and AP-2 mediate induction of acid sphingomyelinase during monocytic differentiation. *J. Lipid Res.* 40: 870-880.
6. Perosa, F., et al. 2006. Generation of biologically active linear and cyclic peptides has revealed a unique fine specificity of rituximab and its possible cross-reactivity with acid sphingomyelinase-like phosphodiesterase 3 $\beta$  precursor. *Blood* 107: 1070-1077.

## CHROMOSOMAL LOCATION

Genetic locus: SMPDL3B (human) mapping to 1p35.3.

## PRODUCT

SMPDL3B siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see SMPDL3B shRNA Plasmid (h): sc-76525-SH and SMPDL3B shRNA (h) Lentiviral Particles: sc-76525-V as alternate gene silencing products.

For independent verification of SMPDL3B (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-76525A, sc-76525B and sc-76525C.

## RESEARCH USE

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

## STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNases and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

SMPDL3B siRNA (h) is recommended for the inhibition of SMPDL3B expression in human cells.

## SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10  $\mu$ M in 66  $\mu$ l. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

## GENE EXPRESSION MONITORING

SMPDL3B (H-3): sc-137113 is recommended as a control antibody for monitoring of SMPDL3B gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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) Immunofluorescence: use m-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor SMPDL3B gene expression knockdown using RT-PCR Primer: SMPDL3B (h)-PR: sc-76525-PR (20  $\mu$ l, 496 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.