

# ABHD4 siRNA (h): sc-92382

## BACKGROUND

The  $\alpha/\beta$  hydrolase superfamily is comprised of diverse members that are involved in important biochemical processes and related to various diseases. They have unrelated sequences, various substrates, and different kinds of catalytic activities, yet they share the same canonical  $\alpha/\beta$  hydrolase fold, which consists of an eight-stranded parallel  $\alpha/\beta$  structure. They are also characterized by a catalytic triad composed of a histidine, an acid and a nucleophile. Members of this superfamily are often drug targets for treating diseases, such as diabetes, Alzheimer's disease, obesity and blood clotting disorders. ABHD1 plays a role in metabolizing smoking xenobiotics. ABHD2 participates in the development of atherosclerosis. ABHD4 is involved in an alternative synthesis pathway of NAE. ABHD4 is a lysophospholipase selective for N-acyl phosphatidylethanolamine (NAPE) which participates in the biosynthesis of N-acyl ethanolamines. Mutations in ABHD5 contribute to Chanarin-Dorfman syndrome. ABHD6 may play a role in nervous system metabolism and signaling. ABHD14A is possibly involved in granule neuron development.

## REFERENCES

- Ollis, D.L., Cheah, E., Cygler, M., Dijkstra, B., Frolow, F., Franken, S.M., Harel, M., Remington, S.J., Silman, I. and Schrag, J. 1992. The  $\alpha/\beta$  hydrolase fold. *Protein Eng.* 5: 197-211.
- Holmquist, M. 2000.  $\alpha/\beta$ -hydrolase fold enzymes: structures, functions and mechanisms. *Curr. Protein Pept. Sci.* 1: 209-235.
- Edgar, A.J. and Polak, J.M. 2002. Cloning and tissue distribution of three murine  $\alpha/\beta$  hydrolase fold protein cDNAs. *Biochem. Biophys. Res. Commun.* 292: 617-625.
- Simon, G.M. and Cravatt, B.F. 2006. Endocannabinoid biosynthesis proceeding through glycerophospho-N-acyl ethanolamine and a role for  $\alpha/\beta$ -hydrolase 4 in this pathway. *J. Biol. Chem.* 281: 26465-26472.
- Miyata, K., Nakayama, M., Mizuta, S., Hokimoto, S., Sugamura, K., Oshima, S., Oike, Y., Sugiyama, S., Ogawa, H. and Yamamura, K. 2008. Elevated mature macrophage expression of human ABHD2 gene in vulnerable plaque. *Biochem. Biophys. Res. Commun.* 365: 207-213.
- Li, F., Fei, X., Xu, J. and Ji, C. 2009. An unannotated  $\alpha/\beta$  hydrolase superfamily member, ABHD6 differentially expressed among cancer cell lines. *Mol. Biol. Rep.* 36: 691-696.

## CHROMOSOMAL LOCATION

Genetic locus: ABHD4 (human) mapping to 14q11.2.

## 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) for detailed protocols and support products.

## PRODUCT

ABHD4 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 ABHD4 shRNA Plasmid (h): sc-92382-SH and ABHD4 shRNA (h) Lentiviral Particles: sc-92382-V as alternate gene silencing products.

For independent verification of ABHD4 (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-92382A, sc-92382B and sc-92382C.

## 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

ABHD4 siRNA (h) is recommended for the inhibition of ABHD4 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.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor ABHD4 gene expression knockdown using RT-PCR Primer: ABHD4 (h)-PR: sc-92382-PR (20  $\mu$ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.