SANTA CRUZ BIOTECHNOLOGY, INC.

SAMHD1 siRNA (h): sc-76442

BACKGROUND

SAMHD1 (SAM domain and HD domain 1) is a 626 amino acid protein that belongs to the SAMHD1 family. SAMHD1 functions as a putative nuclease involved in innate immune response by acting as a negative regulator of the cell-intrinsic antiviral response. SAMHD1 may also play a role in mediating proinflammatory responses to TNF-α signaling. Expressed in heart, skeletal muscle, spleen, liver, small intestine, placenta, lung and peripheral blood leukocytes, SAMHD1 expression is not seen in brain and thymus. Defects in SAMHD1 are the cause of chilblain lupus type 2 (CHBL2), a rare cutaneous form of lupus erythematosus. Affected individuals present with painful bluish-red papular or nodular lesions of the skin in acral locations precipitated by cold and wet exposure at temperatures less than ten degrees centigrade. SAMHD1 is 72% identical to mouse Mg11, contains several phosphorylation and N-myristoylation sites, an N-glycosylation site and an amidation site. Existing as two alternatively spliced isoforms, the SAMHD1 gene is conserved in chimpanzee, canine, bovine, mouse, rat, chicken, zebrafish, *C. elegans* and *A. thaliana,* and maps to human chromosome 20q11.23.

REFERENCES

1. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 606754. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
2. Rice, G.I., et al. 2009. Mutations involved in Aicardi-Goutières syndrome implicate SAMHD1 as regulator of the innate immune response. Nat. Genet. 41: 829-832.
3. Thiele, H., et al. 2010. Cerebral arterial stenoses and stroke: novel features of Aicardi-Goutières syndrome caused by the Arg164X mutation in SAMHD1 are associated with altered cytokine expression. Hum. Mutat. 31: E1836-E1850.
4. Ravenscroft, J.C., et al. 2011. Autosomal dominant inheritance of a heterozygous mutation in SAMHD1 causing familial chilblain lupus. Am. J. Med. Genet. A 155A: 235-237.
5. Leshinsky-Silver, E., et al. 2011. A large homozygous deletion in the SAMHD1 gene causes atypical Aicardi-Goutiéres syndrome associated with mtDNA deletions. Eur. J. Hum. Genet. 19: 287-292.

CHROMOSOMAL LOCATION

Genetic locus: SAMHD1 (human) mapping to 20q11.23.

PRODUCT

SAMHD1 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see SAMHD1 shRNA Plasmid (h): sc-76442-SH and SAMHD1 shRNA (h) Lentiviral Particles: sc-76442-V as alternate gene silencing products.

For independent verification of SAMHD1 (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-76442A, sc-76442B and sc-76442C.

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 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

SAMHD1 siRNA (h) is recommended for the inhibition of SAMHD1 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 µM in 66 µl. 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 SAMHD1 gene expression knockdown using RT-PCR Primer: SAMHD1 (h)-PR: sc-76442-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. De Meo, S., et al. 2020. SAMHD1 phosphorylation and cytoplasmic relocalization after human cytomegalovirus infection limits its antiviral activity. PLoS Pathog. 16: e1008855.

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.