SANTA CRUZ BIOTECHNOLOGY, INC.

HIAT1 siRNA (h): sc-88182

BACKGROUND

The major facilitator superfamily consists of presumed carbohydrate transporters with 10-12 membrane-spanning domains. Belonging to the facilitator superfamily, HIAT1 (hippocampus abundant transcript 1), also known as tetracycline transporter-like protein, is a 490 amino acid multi-pass membrane protein that may function as a sugar transporter and is expressed in adult and embryonic brain. The HIAT1 gene was first observed while analyzing for active genes in neonatal mouse hippocampus. The gene encoding HIAT1 maps to human chromosome 1p21.2, the largest human chromosome spanning about 260 million base pairs and making up 8% of the human genome. There are about 3,000 genes on chromosome 1, and considering the great number of genes there are also a large number of diseases associated with chromosome 1. Notably, the rare aging disease Hutchinson-Gilford progeria is associated with the LMNA gene which encodes Lamin A. Stickler syndrome, Parkinsons, schizophrenia, familial adenomatous polyposis, Gaucher disease and Usher syndrome are also associated with chromosome 1.

REFERENCES

1. Watson, M.L., Kingsmore, S.F., Johnston, G.I., Siegelman, M.H., Le Beau, M.M., Lemons, R.S., Bora, N.S., Howard, T.A., Weissman, I.L., McEver, R.P., et al. 1990. Genomic organization of the selectin family of leukocyte adhesion molecules on human and mouse chromosome 1. J. Exp. Med. 172: 263-272.
2. Matsuo, N., Kawamoto, S., Matsubara, K. and Okubo, K. 1997. Cloning of a cDNA encoding a novel sugar transporter expressed in the neonatal mouse hippocampus. Biochem. Biophys. Res. Commun. 238: 126-129.
3. Blackwood, D.H., Fordyce, A., Walker, M.T., St Clair, D.M., Porteous, D.J. and Muir, W.J. 2001. Schizophrenia and affective disorders—cosegregation with a translocation at chromosome 1q42 that directly disrupts brain-expressed genes: clinical and P300 findings in a family. Am. J. Hum. Genet. 69: 428-433.
4. Weise, A., Starke, H., Mrasek, K., Claussen, U. and Liehr, T. 2005. New insights into the evolution of chromosome 1. Cytogenet. Genome Res. 108: 217-222.
5. Lans, H. and Hoeijmakers, J.H. 2006. Cell biology: aging nucleus gets out of shape. Nature 440: 32-34.
6. Gregory, S.G., Barlow, K.F., McLay, K.E., Kaul, R., Swarbreck, D., Dunham, A., Scott, C.E., Howe, K.L., Woodfine, K.C., Spencer, C.A., Jones, M.C., Gillson, C., Searle, S., Zhou, Y., Kokocinski, F., McDonald, L., et al. 2006. The DNA sequence and biological annotation of human chromosome 1. Nature 441: 315-321.
7. Hennah, W., Thomson, P., Peltonen, L. and Porteous, D. 2006. Genes and schizophrenia: beyond schizophrenia: the role of DISC-1 in major mental illness. Schizophr. Bull. 32: 409-416.
8. Sreedharan, S., Stephansson, O., Schiöth, H.B. and Fredriksson, R. 2010. Long evolutionary conservation and considerable tissue specificity of several atypical solute carrier transporters. Gene 478: 11-18.

CHROMOSOMAL LOCATION

Genetic locus: HIAT1 (human) mapping to 1p21.2.

PRODUCT

HIAT1 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 HIAT1 shRNA Plasmid (h): sc-88182-SH and HIAT1 shRNA (h) Lentiviral Particles: sc-88182-V as alternate gene silencing products.

For independent verification of HIAT1 (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-88182A, sc-88182B and sc-88182C.

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

HIAT1 siRNA (h) is recommended for the inhibition of HIAT1 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 HIAT1 gene expression knockdown using RT-PCR Primer: HIAT1 (h)-PR: sc-88182-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

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.