SANTA CRUZ BIOTECHNOLOGY, INC.

GNS siRNA (m): sc-145660

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

GNS (glucosamine (N-acetyl)-6-sulfatase), also known as G6S (glucosamine-6-sulfatase), is a 552 amino acid lysosomal enzyme that hydrolyzes the 6-sulfate groups of the N-acetyl-D-glucosamine 6-sulfate units of keratan sulfate and heparan sulfate. A member of the sulfatase family, GNS assists in the catabolism of heparin, and binds calcium as a cofactor. GNS deficiency results in an autosomal recessive lysosomal storage disorder known as mucopolysaccharidosis type IIID (Sanfilippo D syndrome), which is characterized by mild somatic disease and severe degeneration of the central nervous system. Subject to post-translational internal peptidase cleavage, GNS is encoded by a gene mapping to human chromosome 12q14.2 and mouse chromosome 10 D2.

REFERENCES

1. Robertson, D.A., Freeman, C., Nelson, P.V., Morris, C.P. and Hopwood, J.J. 1988. Human glucosamine-6-sulfatase cDNA reveals homology with steroid sulfatase. Biochem. Biophys. Res. Commun. 157: 218-224.
2. Robertson, D.A., Callen, D.F., Baker, E.G., Morris, C.P. and Hopwood, J.J. 1988. Chromosomal localization of the gene for human glucosamine-6-sulphatase to 12q14. Hum. Genet. 79: 175-178.
3. Tomatsu, S., Fukuda, S., Masue, M., Sukegawa, K., Fukao, T., Yamagishi, A., Hori, T., Iwata, H., Ogawa, T. and Nakashima, Y. 1991. Morquio disease: isolation, characterization and expression of full-length cDNA for human N-acetylgalactosamine-6-sulfate sulfatase. Biochem. Biophys. Res. Commun. 181: 677-683.
4. Robertson, D.A., Freeman, C., Morris, C.P. and Hopwood, J.J. 1992. A cDNA clone for human glucosamine-6-sulphatase reveals differences between arylsulphatases and non-arylsulphatases. Biochem. J. 288: 539-544.
5. Beesley, C.E., Burke, D., Jackson, M., Vellodi, A., Winchester, B.G. and Young, E.P. 2003. Sanfilippo syndrome type D: identification of the first mutation in the N-acetylglucosamine-6-sulphatase gene. J. Med. Genet. 40: 192-194.
6. Jansen, A.C., Cao, H., Kaplan, P., Silver, K., Leonard, G., De Meirleir, L., Lissens, W., Liebaers, I., Veilleux, M., Andermann, F., Hegele, R.A. and Andermann, E. 2007. Sanfilippo syndrome type D: natural history and identification of 3 novel mutations in the GNS Gene. Arch. Neurol. 64: 1629-1634.
7. Elçioglu, N.H., Pawlik, B., Colak, B., Beck, M. and Wollnik, B. 2009. A novel loss-of-function mutation in the GNS gene causes Sanfilippo syndrome type D. Genet. Couns. 20: 133-139.

CHROMOSOMAL LOCATION

Genetic locus: Gns (mouse) mapping to 10 D2.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

PRODUCT

GNS siRNA (m) is a target-specific 19-25 nt siRNA 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 GNS shRNA Plasmid (m): sc-145660-SH and GNS shRNA (m) Lentiviral Particles: sc-145660-V as alternate gene silencing products.

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

GNS siRNA (m) is recommended for the inhibition of GNS expression in mouse 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 GNS gene expression knockdown using RT-PCR Primer: GNS (m)-PR: sc-145660-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.