SANTA CRUZ BIOTECHNOLOGY, INC.

ATPGD1 siRNA (m): sc-140954

BACKGROUND

ATPGD1 (ATP-grasp domain-containing protein 1), also known as CARNS1 (carnosine synthase 1) is an 827 amino acid protein that contains a ATP-grasp domain. A member of the ATP-grasp family of ATPases, ATPGD1 catalyzes the formation of carnosine (β-alanyl-L-histidine) and homocarnosine (γ-amino-butyryl-L-histidine), which are found mainly in skeletal muscle and the central nervous system, respectively. ATPGD1 is highly expressed in whole adult and fetal brain as well as in heart and skeletal muscle. The ATPGD1 gene contains 9 coding exons with the first exon only encoding the initiator ATG and exists as three alternatively splice isoforms.The ATPGD1 gene is conserved in chimpanzee, dog and mouse, and maps to human chromosome 11q13.1. With approximately 135 million base pairs and 1,400 genes, chromosome 11 makes up around 4% of human genomic DNA. Jervell and Lange-Nielsen syndrome, Jacobsen syndrome, Niemann-Pick disease, hereditary angioedema and Smith-Lemli-Opitz syndrome are also associated with defects in chromosome 11.

REFERENCES

1. Egeland, J.A., et al. 1987. Bipolar affective disorders linked to DNA markers on chromosome 11. Nature 325: 783-787.
2. Lichter, P., et al. 1990. High-resolution mapping of human chromosome 11 by *in situ* hybridization with cosmid clones. Science 247: 64-69.
3. Nagase, T., et al. 2000. Prediction of the coding sequences of unidentified human genes. XVI. The complete sequences of 150 new cDNA clones from brain which code for large proteins *in vitro*. DNA Res. 7: 65-73.
4. Strausberg, R.L., et al. 2002. Generation and initial analysis of more than 15,000 full-length human and mouse cDNA sequences. Proc. Natl. Acad. Sci. USA 99: 16899-16903.
5. Taylor, T.D., et al. 2006. Human chromosome 11 DNA sequence and analysis including novel gene identification. Nature 440: 497-500.
6. Drozak, J., et al. 2010. Molecular identification of carnosine synthase as ATP-grasp domain-containing protein 1 (ATPGD1). J. Biol. Chem. 285: 9346-9356.

CHROMOSOMAL LOCATION

Genetic locus: Carns1 (mouse) mapping to 19 A.

PRODUCT

ATPGD1 siRNA (m) is a pool of 2 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 ATPGD1 shRNA Plasmid (m): sc-140954-SH and ATPGD1 shRNA (m) Lentiviral Particles: sc-140954-V as alternate gene silencing products.

For independent verification of ATPGD1 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-140954A and sc-140954B.

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

ATPGD1 siRNA (m) is recommended for the inhibition of ATPGD1 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 ATPGD1 gene expression knockdown using RT-PCR Primer: ATPGD1 (m)-PR: sc-140954-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.