SANTA CRUZ BIOTECHNOLOGY, INC.

BGT-1 siRNA (h): sc-95904

BACKGROUND

BGT-1, also known as sodium- and chloride-dependent betaine transporter, SLC6A12 (solute carrier family 6 member 12) or Na^+/Cl^- betaine/GABA transporter, is a 614 amino acid protein. As a multi-pass membrane protein, BGT-1 localizes to liver, heart, skeletal muscle and placenta and is widely distributed in brain. BGT-1 has the typical structure of neurotransmitter transporters, with twelve transmembrane domains and a large extracellular loop between the third and fourth transmembrane domains. BGT-1 transports betaine and GABA, and may have a role in regulation of GABAergic transmission in the brain through the reuptake of GABA into presynaptic terminals, as well as in osmotic regulation. BGT-1 is associated with mucus production in asthma, and could affect reversibility of lung function abnormalities in aspirin-intolerant asthma patients. BGT-1 displays significant functional differences from the other members of the GABA transporter family.

REFERENCES

1. Borden, L.A., et al. 1995. Cloning and expression of a betaine/GABA transporter from human brain. J. Neurochem. 64: 977-984.
2. Borden, L.A., et al. 1995. Re-evaluation of GABA transport in neuronal and glial cell cultures: correlation of pharmacology and mRNA localization. Receptors Channels 3: 129-146.
3. Denkert, C., et al. 1998. Osmolyte strategy in human monocytes and macrophages: involvement of p38MAPK in hyperosmotic induction of betaine and myoinositol transporters. Arch. Biochem. Biophys. 354: 172-180.
4. Online Mendelian Inheritance in Man, OMIM™. 1998. Johns Hopkins University, Baltimore, MD. MIM Number: 603080. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
5. Matskevitch, I., et al. 1999. Functional characterization of the Betaine/γ-aminobutyric acid transporter BGT-1 expressed in *Xenopus* oocytes. J. Biol. Chem. 274: 16709-16716.
6. Petronini, P.G., et al. 2000. Induction of BGT-1 and amino acid system A transport activities in endothelial cells exposed to hyperosmolarity. Am. J. Physiol. Regul. Integr. Comp. Physiol. 279: R1580-R1589.

CHROMOSOMAL LOCATION

Genetic locus: SLC6A12 (human) mapping to 12p13.33.

PRODUCT

BGT-1 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 BGT-1 shRNA Plasmid (h): sc-95904-SH and BGT-1 shRNA (h) Lentiviral Particles: sc-95904-V as alternate gene silencing products.

For independent verification of BGT-1 (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-95904A, sc-95904B and sc-95904C.

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

BGT-1 siRNA (h) is recommended for the inhibition of BGT-1 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.

GENE EXPRESSION MONITORING

BGT-1 (D-5): sc-514024 is recommended as a control antibody for monitoring of BGT-1 gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor BGT-1 gene expression knockdown using RT-PCR Primer: BGT-1 (h)-PR: sc-95904-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 Paepe, B., et al. 2018. Induction of osmolyte pathways in skeletal muscle inflammation: novel biomarkers for myositis. Front. Neurol. 9: 846.

RESEARCH USE

For research use only, not for use in diagnostic procedures.