

SLC7A6 siRNA (m): sc-153581

BACKGROUND

SLC7A6 (solute carrier family 7 member 6), also known as LAT3, LAT-2 or y+LAT-2 (Y+L amino acid transporter 2), is a 515 amino acid multi-pass membrane protein belonging to the amino acid-polyamine-organocation (APC) superfamily and the L-type amino acid transporter (LAT) family. Expressed in normal fibroblasts, HUVECs (human umbilical vein endothelial cells), monocytes, RPE (retinal pigment epithelial) cells and various carcinoma cell lines, SLC7A6 is involved in the sodium-independent uptake of dibasic amino acids and sodium-dependent uptake of some neutral amino acids. SLC7A6 also acts as an arginine/glutamine exchanger, following an antiport mechanism for amino acid transport, influencing arginine release in exchange for extracellular amino acids. SLC7A6 may exist as a disulfide-linked heterodimer with the amino acid transport protein CD98. SLC7A6 plays a role in nitric oxide synthesis in HUVECs via transport of L-arginine, and is involved in the transport of L-arginine in monocytes and reduces uptake of ornithine in RPE cells.

REFERENCES

- Dall'Asta, V., Bussolati, O., Sala, R., Rotoli, B.M., Sebastio, G., Sperandeo, M.P., Andria, G. and Gazzola, G.C. 2000. Arginine transport through system y+L in cultured human fibroblasts: normal phenotype of cells from LPI subjects. *Am. J. Physiol., Cell Physiol.* 279: C1829-C1837.
- Bröer, A., Wagner, C.A., Lang, F. and Bröer, S. 2000. The heterodimeric amino acid transporter 4F2hc/y+LAT2 mediates arginine efflux in exchange with glutamine. *Biochem. J.* 349Pt3: 787-795.
- Bröer, A., Friedrich, B., Wagner, C.A., Fillon, S., Ganapathy, V., Lang, F. and Bröer, S. 2001. Association of 4F2hc with light chains LAT1, LAT2 or y+LAT2 requires different domains. *Biochem. J.* 355: 725-731.
- Arancibia-Garavilla, Y., Toledo, F., Casanello, P. and Sobrevia, L. 2003. Nitric oxide synthesis requires activity of the cationic and neutral amino acid transport system y+L in human umbilical vein endothelium. *Exp. Physiol.* 88: 699-710.
- Rotoli, B.M., Bussolati, O., Sala, R., Barilli, A., Talarico, E., Gazzola, G.C. and Dall'Asta, V. 2004. INF γ stimulates arginine transport through system y+L in human monocytes. *FEBS Lett.* 571: 177-181.
- Sperandeo, M.P., Paladino, S., Maiuri, L., Maroupoulos, G.D., Zurzolo, C., Tagliatela, M., Andria, G. and Sebastio, G. 2005. A y+LAT-1 mutant protein interferes with y+LAT-2 activity: implications for the molecular pathogenesis of lysinuric protein intolerance. *Eur. J. Hum. Genet.* 13: 628-634.
- Chubb, S., Kingsland, A.L., Bröer, A. and Bröer, S. 2006. Mutation of the 4F2 heavy-chain carboxy terminus causes y+LAT2 light-chain dysfunction. *Mol. Membr. Biol.* 23: 255-267.
- Rotmann, A., Simon, A., Martine, U., Habermeier, A. and Closs, E.I. 2007. Activation of classical protein kinase C decreases transport via systems y+ and y+L. *Am. J. Physiol., Cell Physiol.* 292: C2259-C2268.
- Kaneko, S., Ando, A., Okuda-Ashitaka, E., Maeda, M., Furuta, K., Suzuki, M., Matsumura, M. and Ito, S. 2007. Ornithine transport via cationic amino acid transporter-1 is involved in ornithine cytotoxicity in retinal pigment epithelial cells. *Invest. Ophthalmol. Vis. Sci.* 48: 464-471.

CHROMOSOMAL LOCATION

Genetic locus: Slc7a6 (mouse) mapping to 8 D3.

PRODUCT

SLC7A6 siRNA (m) 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see SLC7A6 shRNA Plasmid (m): sc-153581-SH and SLC7A6 shRNA (m) Lentiviral Particles: sc-153581-V as alternate gene silencing products.

For independent verification of SLC7A6 (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-153581A, sc-153581B and sc-153581C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

SLC7A6 siRNA (m) is recommended for the inhibition of SLC7A6 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 μ M in 66 μ l. 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 SLC7A6 gene expression knockdown using RT-PCR Primer: SLC7A6 (m)-PR: sc-153581-PR (20 μ l). 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.