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Y+LAT1 siRNA (h): sc-45427

BACKGROUND

Y+L amino acid transporter 1 (Y+LAT1), also designated monocyte amino acid permease 2 (MOP-2), is an integral membrane protein. Y+LAT1 is an L-type amino acid transporter (LAT) and belongs to the amino acid-polyamine-organocation (APC) superfamily of proteins. The gene encoding for the Y+LAT1 protein, SLC7A7, which maps to chromosome 14q11.2, has 11 exons and 10 introns spanning 18 kb of genomic DNA. Y+LAT1 shows dibasic amino-acid transport activity. Lysinuric protein intolerance (LPI) is an autosomal recessive multisystem disorder caused by defects in the cationic amino acid (CAA) transport at the basolateral membrane of epithelial cells in intestines and kidney. The gene SLC7A7 is mutated in LPI, which is characterized by vomiting, poor feeding, diarrhea and, occasionally, episodes of hyperammonaemic coma. Y+LAT1 is expressed in kidney, lung, peripheral blood leukocytes, placenta, spleen and small intestine.

REFERENCES

1. Torrents, D., et al. 1998. Identification and characterization of a membrane protein (Y+L amino acid transporter-1) that associates with 4F2hc to encode the amino acid transport activity Y+L. A candidate gene for lysinuric protein intolerance. *J. Biol. Chem.* 273: 32437-32445.
2. Torrents, D., et al. 1999. Identification of SLC7A7, encoding Y+LAT-1, as the lysinuric protein intolerance gene. *Nat. Genet.* 21: 293-296.
3. Borsani, G., et al. 1999. SLC7A7, encoding a putative permease-related protein, is mutated in patients with lysinuric protein intolerance. *Nat. Genet.* 21: 297-301.
4. Segawa, H., et al. 1999. Identification and functional characterization of a Na⁺-independent neutral amino acid transporter with broad substrate selectivity. *J. Biol. Chem.* 274: 19745-19751.
5. Mykkanen, J., et al. 2000. Functional analysis of novel mutations in Y+LAT-1 amino acid transporter gene causing lysinuric protein intolerance (LPI). *Hum. Mol. Genet.* 9: 431-438.

CHROMOSOMAL LOCATION

Genetic locus: SLC7A7 (human) mapping to 14q11.2.

PRODUCT

Y+LAT1 siRNA (h) 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Y+LAT1 shRNA Plasmid (h): sc-45427-SH and Y+LAT1 shRNA (h) Lentiviral Particles: sc-45427-V as alternate gene silencing products.

For independent verification of Y+LAT1 (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-45427A and sc-45427B.

PROTOCOLS

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

Y+LAT1 siRNA (h) is recommended for the inhibition of Y+LAT1 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 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 Y+LAT1 gene expression knockdown using RT-PCR Primer: Y+LAT1 (h)-PR: sc-45427-PR (20 μ l, 508 bp). 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.