SANTA CRUZ BIOTECHNOLOGY, INC.

CAT-1 siRNA (m): sc-44924

BACKGROUND

The cationic amino acid transporter (CAT) family of proteins are part of a larger superfamily, the amino acid-polyamine-organocation (APC) superfamily. High-affinity cationic amino acid transporter-1 (CAT-1), also designated ecotropic retroviral leukemia receptor homolog, ATRC1 or REC1L, is a ubiquitously expressed integral membrane protein. In non-hepatic tissues, CAT-1 acts as a high-affinity, low capacity permease that is important in cationic amino acid transport. CAT-1 is also a potential ecotropic retroviral leukemia receptor. SLC7A1, the gene encoding for the CAT-1 protein, maps to chromosome 13q12.3.

REFERENCES

1. Yoshimoto, T., Yoshimoto, E. and Meruelo, D. 1991. Molecular cloning and characterization of a novel human gene homologous to the murine ecotropic retroviral receptor. Virology 185: 10-17.
2. Albritton, L.M., Bowcock, A.M., Eddy, R.L., Morton, C.C., Tseng, L., Farrer, L.A,. Cavalli-Sforza, L.L., Shows, T.B. and Cunningham, J.M. 1992. The human cationic amino acid transporter (ATRC1): physical and genetic mapping to 13q12-q14. Genomics 12: 430-434.
3. Kamath, S.G., Furesz, T.C., Way, B.A. and Smith, C.H. 1999. Identification of three cationic amino acid transporters in placental trophoblast: cloning, expression and characterization of hCAT-1. J. Membr. Biol. 171: 55-62.
4. Zani, B.G. and Bohlen, H.G. 2005. Transport of extracellular L-arginine via cationic amino acid transporter is required during *in vivo* endothelial nitric oxide production. Am. J. Physiol. Heart Circ. Physiol. 289: H1381-H1390.
5. Li, C., Huang, W., Harris, M.B., Goolsby, J.M. and Venema, R.C. 2005. Interaction of the endothelial nitric oxide synthase with the CAT-1 arginine transporter enhances NO release by a mechanism not involving arginine transport. Biochem. J. 386: 567-574.
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CHROMOSOMAL LOCATION

Genetic locus: Slc7a1 (mouse) mapping to 5 G3.

PRODUCT

CAT-1 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see CAT-1 shRNA Plasmid (m): sc-44924-SH and CAT-1 shRNA (m) Lentiviral Particles: sc-44924-V as alternate gene silencing products.

For independent verification of CAT-1 (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-44924A, sc-44924B and sc-44924C.

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 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

CAT-1 siRNA (m) is recommended for the inhibition of CAT-1 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 CAT-1 gene expression knockdown using RT-PCR Primer: CAT-1 (m)-PR: sc-44924-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.