SANTA CRUZ BIOTECHNOLOGY, INC.

# CAT-4 siRNA (m): sc-142027

## BACKGROUND

As a member of the APC family of transporters, CAT-4 (cationic amino acid transporter 4), also known as Solute carrier family 7 member 4, is a 635 amino acid multi-pass membrane protein that is involved in the transport of the cationic amino acids, arginine, lysine and ornithine. This uptake of cationic amino acids is designated "system $y^+$", which is pH insensitive, stereoselective, $Na^+$ independent and inhibitable by neural amino acids in the presence of $Na^+$. CAT-4 displays high sequence similarity with CAT-1 and CAT-2 and is expressed in testis, placenta and brain. A microdeletion of the chromosomal band near the location of the gene encoding CAT-4 causes velocardiofacial syndrome (also known as DiGeorge syndrome), a disease that is characterized by several clinical findings, including conotruncal cardiac defects, prominent tubular nose and a hypernasal voice. This suggests that CAT-4 may play a role in determining the velocardiofacial phenotype.

## REFERENCES


1. Sperandeo, M.P., et al. 1998. The gene encoding a cationic amino acid transporter (SLC7A4) maps to the region deleted in the velocardiofacial syndrome. Genomics 49: 230-236.
2. Hammermann, R., et al. 2001. Analysis of the genomic organization of the human cationic amino acid transporters CAT-1, CAT-2 and CAT-4. Amino Acids. 21: 211-219.
3. Wolf, S., et al. 2002. Expression of solute carrier 7A4 (SLC7A4) in the plasma membrane is not sufficient to mediate amino acid transport activity. Biochem. J. 364: 767-775.
4. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 192430. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
5. Rotoli, B.M., et al. 2005. The transport of cationic amino acids in human airway cells: expression of system $y^+L$ activity and transepithelial delivery of NOS inhibitors. FASEB J. 19: 810-812.


## CHROMOSOMAL LOCATION

Genetic locus: Slc7a4 (mouse) mapping to 16 A3.

## PRODUCT

CAT-4 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. Suit-able for 50-100 transfections. Also see CAT-4 shRNA Plasmid (m): sc-142027-SH and CAT-4 shRNA (m) Lentiviral Particles: sc-142027-V as alternate gene silencing products.

For independent verification of CAT-4 (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-142027A, sc-142027B and sc-142027C.

## 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-4 siRNA (m) is recommended for the inhibition of CAT-4 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.

## GENE EXPRESSION MONITORING

CAT-4 (B-2): sc-376557 is recommended as a control antibody for monitoring of CAT-4 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 CAT-4 gene expression knockdown using RT-PCR Primer: CAT-4 (m)-PR: sc-142027-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.