

SVCT2 siRNA (m): sc-41009

BACKGROUND

The sodium-dependent vitamin C transporters SVCT1 and SCVT2 are membrane transporters for L-ascorbic acid (vitamin C). Both SVCT proteins mediate high affinity Na⁺-dependent L-ascorbic acid transport and are necessary for the uptake of vitamin C in many tissues. SVCT1 is a 604 amino acid protein that is expressed mainly in epithelial tissues, including intestine, kidney, and liver. SVCT2 is a 592 amino acid protein that shares 65% homology to SVCT1 and has been detected in various metabolically active cells as well as in specialized tissues such as eye and brain. A non-functional splice variant of SVCT1 has been identified in normal human intestine.

REFERENCES

1. Faaland, C.A., Race, J.E., Ricken, G., Warner, F.J., Williams, W.J. and Holtzman, E.J. 1998. Molecular characterization of two novel transporters from human and mouse kidney and from LLC-PK1 cells reveals a novel conserved family that is homologous to bacterial and *Aspergillus* nucleobase transporters. *Biochim. Biophys. Acta* 1442: 353-360.
2. Tsukaguchi, H., Tokui, T., Mackenzie, B., Berger, U.V., Chen, X.Z., Wang, Y., Brubaker, R.F. and Hediger, M.A. 1999. A family of mammalian Na⁺-dependent L-ascorbic acid transporters. *Nature* 399: 70-75.
3. Daruwala, R., Song, J., Koh, W.S., Rumsey, S.C. and Levine, M. 1999. Cloning and functional characterization of the human sodium-dependent vitamin C transporters hSVCT1 and hSVCT2. *FEBS Lett.* 460: 480-484.
4. Rajan, D.P., Huang, W., Dutta, B., Devoe, L.D., Leibach, F.H., Ganapathy, V. and Prasad, P.D. 1999. Human placental sodium-dependent vitamin C transporter (SVCT2): molecular cloning and transport function. *Biochem. Biophys. Res. Commun.* 262: 762-768.
5. Wang, H., Dutta, B., Huang, W., Devoe, L.D., Leibach, F.H., Ganapathy, V. and Prasad, P.D. 1999. Human Na⁺-dependent vitamin C transporter 1 (hSVCT1): primary structure, functional characteristics and evidence for a non-functional splice variant. *Biochim. Biophys. Acta* 1461: 1-9.

CHROMOSOMAL LOCATION

Genetic locus: Slc23a2 (mouse) mapping to 2 F2.

PRODUCT

SVCT2 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 SVCT2 shRNA Plasmid (m): sc-41009-SH and SVCT2 shRNA (m) Lentiviral Particles: sc-41009-V as alternate gene silencing products.

For independent verification of SVCT2 (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-41009A, sc-41009B and sc-41009C.

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

SVCT2 siRNA (m) is recommended for the inhibition of SVCT2 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 SVCT2 gene expression knockdown using RT-PCR Primer: SVCT2 (m)-PR: sc-41009-PR (20 μ l, 419 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Kim, J.H., Kim, W.K., Sung, Y.K., Kwack, M.H., Song, J.S., Park, S.G., Yi, T., Lee, H.J., Kim, D.D., Seo, H.M., Song, S.U. and Sung, J.H. 2014. The molecular mechanism underlying the proliferating and preconditioning effect of vitamin C on adipose-derived stem cells. *Stem Cells Dev.* 23: 1364-1376.
2. Peng, W., Xu, S., Zhang, J. and Zhang, Y. 2018. Vitamin C attenuates sodium fluoride-induced mitochondrial oxidative stress and apoptosis via Sirt1-SOD2 pathway in F9 cells. *Biol. Trace Elem. Res.* 191: 189-198.

RESEARCH USE

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