SANTA CRUZ BIOTECHNOLOGY, INC.

SPCA2 siRNA (h): sc-61605

BACKGROUND

The family of P-type Ca^{2+}-transport ATPases is made up of three subfamilies: sarco(endo)plasmic-reticulum Ca^{2+} ATPases (SERCA), plasma-membrane Ca^{2+} ATPases (PMCA), and secretory-pathway Ca^{2+} ATPases (SPCA). The SPCA1 protein (encoded for by the ATP2C1 gene) is a Ca^{2+}/Mn^{2+}-transport ATPase. It localizes to the Golgi apparatus and, together with SERCA2, it is responsible for the ionic milieu in the Golgi lumen. SPCA2 (encoded by the ATP2C2 gene) also localizes to the Golgi apparatus and has a higher enzymatic turnover rate than that of SPCA1 while having a high affinity for cytosolic Ca^{2+}. The enzymatic properties of the human SPCA2 enzyme and the restriction of its tissue expression to the gastrointestinal and respiratory tracts, prostate, thyroid, salivary, and mammary glands may, in principle, define a Ca^{2+}-ATPase pump with a specific physiological role in secretory cells.

REFERENCES

1. Xiang, M., Mohamalawari, D. and Rao, R. 2005. A novel isoform of the secretory pathway Ca^{2+},Mn^{2+}-ATPase, hSPCA2, has unusual properties and is expressed in the brain. J. Biol. Chem. 280: 11608-11614.
2. Vanoevelen, J., Dode, L., Van Baelen, K., Fairclough, R.J., Missiaen, L., Raeymaekers, L. and Wuytack, F. 2005. The secretory pathway Ca^{2+}/Mn^{2+}-ATPase 2 is a Golgi-localized pump with high affinity for Ca^{2+} ions. J. Biol. Chem. 280: 22800-22808.
3. Dode, L., Andersen, J.P., Vanoevelen, J., Raeymaekers, L., Missiaen, L., Vilsen, B. and Wuytack, F. 2006. Dissection of the functional differences between human secretory pathway Ca^{2+}/Mn^{2+}-ATPase (SPCA) 1 and 2 isoenzymes by steady-state and transient kinetic analyses. J. Biol. Chem. 281: 3182-3189.

CHROMOSOMAL LOCATION

Genetic locus: ATP2C2 (human) mapping to 16q24.1.

PRODUCT

SPCA2 siRNA (h) 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 SPCA2 shRNA Plasmid (h): sc-61605-SH and SPCA2 shRNA (h) Lentiviral Particles: sc-61605-V as alternate gene silencing products.

For independent verification of SPCA2 (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-61605A, sc-61605B and sc-61605C.

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

SPCA2 siRNA (h) is recommended for the inhibition of SPCA2 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 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

SPCA2 (B-5): sc-398330 is recommended as a control antibody for monitoring of SPCA2 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor SPCA2 gene expression knockdown using RT-PCR Primer: SPCA2 (h)-PR: sc-61605-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.

PROTOCOLS

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