SANTA CRUZ BIOTECHNOLOGY, INC.

CLCA4 siRNA (h): sc-105212

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The Power to Question

BACKGROUND

The calcium-activated chloride channel (CLCA) protein family, which includes the human homologs CLCA1 and CLCA2, display distinct tissue distribution patterns. CLCA1 is expressed as a precursor protein that is processed into two cell surface associated subunits. CLCA1 is upregulated by interleukin-9 and regulates the expression of mucins. CLCA1 may provide a therapeutic target to control mucus overproduction in airway disease patients with cystic fibrosis. CLCA2 expression is downregulated in breast cancer and, therefore, is thought to act as a tumor suppressor in normal cells. CLCA3 is a structurally divergent member of the CLCA family that does not function as a channel protein. CLCA4 is a CLCA member that is expressed in human rectal mucosa, CLCA5 shows strong expression in eye and spleen, and CLCA6 is primarily expressed in intestine and stomach. CLCA4 consists of 919 amino acids and is thought to play a role in calcium-activated chloride conductance.

REFERENCES

1. Gandhi, R., et al. 1998. Molecular and functional characterization of a calcium-sensitive chloride channel from mouse lung. J. Biol. Chem. 273: 32096-32101.
2. Gruber, A.D., et al. 1999. Molecular cloning and transmembrane structure of hCLCA2 from human lung, trachea, and mammary gland. Am. J. Physiol. 276: C1261-C1270.
3. Gruber, A.D., et al. 1999. Genomic cloning, molecular characterization, and functional analysis of human CLCA1, the first human member of the family of Ca^{2+}-activated Cl^- channel proteins. Genomics 54: 200-214.
4. Hauber, H.P., et al. 2003. Increased expression of interleukin-9, interleukin-9 receptor, chloride channel hCLCA1 in the upper airways of patients with cystic fibrosis. Laryngoscope 113: 1037-1042.
5. Li, X., et al. 2004. CLCA2 tumour suppressor gene in 1p31 is epigene cancer. Oncogene 23: 1474-1480.

CHROMOSOMAL LOCATION

Genetic locus: CLCA4 (human) mapping to 1p22.3.

PRODUCT

CLCA4 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 CLCA4 shRNA Plasmid (h): sc-105212-SH and CLCA4 shRNA (h) Lentiviral Particles: sc-105212-V as alternate gene silencing products.

For independent verification of CLCA4 (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-105212A, sc-105212B and sc-105212C.

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

CLCA4 siRNA (h) is recommended for the inhibition of CLCA4 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor CLCA4 gene expression knockdown using RT-PCR Primer: CLCA4 (h)-PR: sc-105212-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.