SANTA CRUZ BIOTECHNOLOGY, INC.

claudin-12 siRNA (h): sc-72915

BACKGROUND

The claudin superfamily consists of many structurally related proteins that are important structural and functional components of tight junctions. Claudin-12, also known as CLDN12, is a 244 amino acid multi-pass membrane protein that is expressed in the brain, duodenum, jejunum, ileum, and colon. Claudin-12 localizes to cell junctions and may be involved in tight junction integrity by regulating hyperammonemia. Ammonia can alter brain capillary endothelial cell gene expression and transporter function. Claudin-12 is upregulated in enterocytes through vitamin D receptors which strongly suggest that claudin-12 forms paracellular Ca^{2+} channels in intestinal epithelia and may be critical for vitamin D-dependent calcium homeostasis.

REFERENCES

1. Acharya, P., et al. 2004. Distribution of the tight junction proteins ZO-1, occludin, and claudin-4, -8, and -12 in bladder epithelium. Am. J. Physiol. Renal Physiol. 287: F305-F318.
2. Fujita, H., et al. 2006. Differential expression and subcellular localization of claudin-7, -8, -12, -13, and -15 along the mouse intestine. J. Histochem. Cytochem. 54: 933-944.
3. Gröne, J., et al. 2007. Differential expression of genes encoding tight junction proteins in colorectal cancer: frequent dysregulation of claudin-1, -8 and -12. Int. J. Colorectal Dis. 22: 651-659.
4. Ohtsuki, S., et al. 2007. Exogenous expression of claudin-5 induces barrier properties in cultured rat brain capillary endothelial cells. J. Cell. Physiol. 210: 81-86.
5. Bélanger, M., et al. 2007. Hyperammonemia induces transport of taurine and creatine and suppresses claudin-12 gene expression in brain capillary endothelial cells *in vitro*. Neurochem. Int. 50: 95-101.
6. Shimizu, F., et al. 2008. Peripheral nerve pericytes originating from the blood-nerve barrier expresses tight junctional molecules and transporters as barrier-forming cells. J. Cell. Physiol. 217: 388-399.

CHROMOSOMAL LOCATION

Genetic locus: CLDN12 (human) mapping to 7q21.13.

PRODUCT

claudin-12 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 claudin-12 shRNA Plasmid (h): sc-72915-SH and claudin-12 shRNA (h) Lentiviral Particles: sc-72915-V as alternate gene silencing products.

For independent verification of claudin-12 (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-72915A, sc-72915B and sc-72915C.

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

claudin-12 siRNA (h) is recommended for the inhibition of claudin-12 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 claudin-12 gene expression knockdown using RT-PCR Primer: claudin-12 (h)-PR: sc-72915-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.