



claudin-12 siRNA (m): sc-72916

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* (mouse) mapping to 5 A1.

PRODUCT

claudin-12 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. Suitable for 50-100 transfections. Also see claudin-12 shRNA Plasmid (m): sc-72916-SH and claudin-12 shRNA (m) Lentiviral Particles: sc-72916-V as alternate gene silencing products.

For independent verification of claudin-12 (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-72916A, sc-72916B and sc-72916C.

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 (m) is recommended for the inhibition of claudin-12 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor claudin-12 gene expression knockdown using RT-PCR Primer: claudin-12 (m)-PR: sc-72916-PR (20 μl). Annealing temperature for the primers should be $55-60^{\circ}\text{C}$ and the extension temperature should be $68-72^{\circ}\text{C}$.

RESEARCH USE

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