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SANTA CRUZ BIOTECHNOLOGY, INC.

ZnT-5 siRNA (m): sc-155978

BACKGROUND

Zinc, an essential element required for cell proliferation and differentiation, plays a role in a diverse array of cellular functions (such as neuroregulation) and acts as a cofactor for numerous enzymes and transcription factors. The zinc transporter (ZnT) family regulates the supply of zinc within cells, and its members commonly contain six membrane-spanning domains, a large histidine-rich intracellular loop and a C-terminal tail. ZnT-5 (zinc transporter 5), also known as SLC30A5 (solute carrier family 30 member 5), ZNTL1 or ZTL1, is a 765 amino acid protein that localizes to the membrane of the *trans*-Golgi network. Expressed throughout the body with highest expression in liver, pancreas and kidney, ZnT-5 functions as zinc transporter that regulates zinc homeostasis within vesicular compartments and the Golgi apparatus and may help to form Insulin crystals within pancreatic β cells. ZnT-5 is expressed as two isoforms due to alternative splicing events and its expression is upregulated in response to zinc depletion.

REFERENCES

1. Kambe, T., et al. 2002. Cloning and characterization of a novel mammalian zinc transporter, zinc transporter 5, abundantly expressed in pancreatic β cells. J. Biol. Chem. 277: 19049-19055.
2. Cragg, R.A., et al. 2002. A novel zinc-regulated human zinc transporter, hZTL1, is localized to the enterocyte apical membrane. J. Biol. Chem. 277: 22789-22797.
3. Devergnas, S., et al. 2004. Differential regulation of zinc efflux transporters ZnT-1, ZnT-5 and ZnT-7 gene expression by zinc levels: a real-time RT-PCR study. Biochem. Pharmacol. 68: 699-709.
4. Cragg, R.A., et al. 2005. Homeostatic regulation of zinc transporters in the human small intestine by dietary zinc supplementation. Gut 54: 469-478.
5. Suzuki, T., et al. 2005. Zinc transporters, ZnT5 and ZnT7, are required for the activation of alkaline phosphatases, zinc-requiring enzymes that are glycosylphosphatidylinositol-anchored to the cytoplasmic membrane. J. Biol. Chem. 280: 637-643.
6. Ishihara, K., et al. 2006. Zinc transport complexes contribute to the homeostatic maintenance of secretory pathway function in vertebrate cells. J. Biol. Chem. 281: 17743-17750.

CHROMOSOMAL LOCATION

Genetic locus: Slc30a5 (mouse) mapping to 13 D1.

PRODUCT

ZnT-5 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 ZnT-5 shRNA Plasmid (m): sc-155978-SH and ZnT-5 shRNA (m) Lentiviral Particles: sc-155978-V as alternate gene silencing products.

For independent verification of ZnT-5 (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-155978A, sc-155978B and sc-155978C.

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

ZnT-5 siRNA (m) is recommended for the inhibition of ZnT-5 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 ZnT-5 gene expression knockdown using RT-PCR Primer: ZnT-5 (m)-PR: sc-155978-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.