

ZnT-8 siRNA (h): sc-77630

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-8 (zinc transporter 8), also known as SLC30A8 (solute carrier family 30 member 8), is a 369 amino acid multi-pass membrane protein that belongs to the ZnT family and is a major autoantigen in type 1 diabetes. Expressed specifically in pancreas islet cells, ZnT-8 functions as a zinc-efflux transporter that facilitates the accumulation of zinc in intracellular vesicles and is essential for the zinc-dependent maturation of Insulin within pancreatic cells. Multiple isoforms of ZnT-8 exist due to alternative splicing events.

REFERENCES

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- Chimienti, F., et al. 2004. Identification and cloning of a β -cell-specific zinc transporter, ZnT-8, localized into Insulin secretory granules. *Diabetes* 53: 2330-2337.
- Chimienti, F., et al. 2005. ZnT-8, a pancreatic β -cell-specific zinc transporter. *Biometals* 18: 313-317.
- Borowiec, M., et al. 2007. Mutations in the SLC30A8 gene are not a major cause of MODY or other forms of early-onset, autosomal dominant type 2 diabetes. *Diabetologia* 50: 2224-2226.
- Wenzlau, J.M., et al. 2007. The cation efflux transporter ZnT-8 (SLC30A8) is a major autoantigen in human type 1 diabetes. *Proc. Natl. Acad. Sci. USA* 104: 17040-17045.

CHROMOSOMAL LOCATION

Genetic locus: SLC30A8 (human) mapping to 8q24.11.

PRODUCT

ZnT-8 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see ZnT-8 shRNA Plasmid (h): sc-77630-SH and ZnT-8 shRNA (h) Lentiviral Particles: sc-77630-V as alternate gene silencing products.

For independent verification of ZnT-8 (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-77630A, sc-77630B and sc-77630C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

ZnT-8 siRNA (h) is recommended for the inhibition of ZnT-8 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 μ M in 66 μ l. 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

ZnT-8 (B-9): sc-514715 is recommended as a control antibody for monitoring of ZnT-8 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).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor ZnT-8 gene expression knockdown using RT-PCR Primer: ZnT-8 (h)-PR: sc-77630-PR (20 μ l). 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.