

# ZnT-3 siRNA (m): sc-45993

## BACKGROUND

Zinc, an essential element required for cell proliferation and differentiation, plays a role in a diverse array of cellular functions, including acting as a co-factor for numerous enzymes and transcription factors and as a neuro-regulator. The zinc transporter (ZnT) family regulates the supply of zinc within cells, and its members are characterized by containing six membrane-spanning domains, a large histidine-rich intracellular loop and a C-terminal tail. ZnT-3 mediates the uptake of zinc into vesicles in brain and testis.

## REFERENCES

1. Palmiter, R.D. and Findley, S.D. 1995. Cloning and functional characterization of a mammalian zinc transporter that confers resistance to zinc. *EMBO J.* 14: 639-649.
2. Palmiter, R.D., Cole, T.B., Quaife, C.J. and Findley, S.D. 1996. ZnT-3, a putative transporter of zinc into synaptic vesicles. *Proc. Natl. Acad. Sci. USA* 93: 14934-14939.
3. Wenzel, H.J., Cole, T.B., Born, D.E., Schwartzkroin, P.A. and Palmiter, R.D. 1997. Ultrastructural localization of zinc transporter-3 (ZnT-3) to synaptic vesicle membranes within mossy fiber boutons in the hippocampus of mouse and monkey. *Proc. Natl. Acad. Sci. USA* 94: 12676-12681.
4. McMahon, R.J. and Cousins, R.J. 1998. Mammalian zinc transporters. *J. Nutr.* 128: 667-670.
5. Lee, J.Y., Cole, T.B., Palmiter, R.D. and Koh, J.Y. 2000. Accumulation of zinc in degenerating hippocampal neurons of ZnT-3-null mice after seizures: evidence against synaptic vesicle origin. *J. Neurosci.* 20: RC79.
6. Beyersmann, D. and Haase, H. 2001. Functions of zinc in signaling, proliferation and differentiation of mammalian cells. *Biometals* 14: 331-341.
7. Sekler, I., Moran, A., Hershfinkel, M., Dori, A., Margulis, A., Birenzweig, N., Nitzan, Y. and Silverman, W.F. 2002. Distribution of the zinc transporter ZnT-1 in comparison with chelatable zinc in the mouse brain. *J. Comp. Neurol.* 447: 201-209.
8. Wang, Z., Danscher, G., Kim, Y.K., Dahlstrom, A. and Mook Jo, S. 2002. Inhibitory zinc-enriched terminals in the mouse cerebellum: double-immunohistochemistry for zinc transporter 3 and glutamate decarboxylase. *Neurosci. Lett.* 321: 37-40.
9. Liguz-Lecznar, M., Nowicka, D., Czupryn, A. and Skangiel-Kramska, J. 2005. Dissociation of synaptic zinc level and zinc transporter 3 expression during postnatal development and after sensory deprivation in the barrel cortex of mice. *Brain Res. Bull.* 66: 106-113.

## CHROMOSOMAL LOCATION

Genetic locus: Slc30a3 (mouse) mapping to 5 B1.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.

## PRODUCT

ZnT-3 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see ZnT-3 shRNA Plasmid (m): sc-45993-SH and ZnT-3 shRNA (m) Lentiviral Particles: sc-45993-V as alternate gene silencing products.

For independent verification of ZnT-3 (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-45993A, sc-45993B and sc-45993C.

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

## APPLICATIONS

ZnT-3 siRNA (m) is recommended for the inhibition of ZnT-3 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  $\mu$ M in 66  $\mu$ 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.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor ZnT-3 gene expression knockdown using RT-PCR Primer: ZnT-3 (m)-PR: sc-45993-PR (20  $\mu$ 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.