SANTA CRUZ BIOTECHNOLOGY, INC.

ZIP10 siRNA (h): sc-94302

BACKGROUND

ZIP10 (zinc transporter ZIP10, Solute carrier family 39 member 10) is a multi-pass (seven transmembrane regions) membrane protein that belongs to the ZIP transporter (TC 2.A.5) family. Zinc transporters all have transmembrane domains, and are encoded by two SLC (solute-linked carrier) gene families: ZnT (SLC30) and Zip (SLC39). There are at least 9 ZnT and 15 Zip transporters in human cells. Zip transporters are believed to increase intracellular zinc by promoting zinc uptake. This may be facilitated by vesicles within the cell that release release into the cytoplasm. Zip and ZnT transporter families exhibit tissue-specific expression and respond differently to zinc deficiency and excess. High expression levels of ZIP10 can be correlated with invasiveness of several metastatic breast cancers.

REFERENCES

1. Liuzzi, J.P. and Cousins, R.J. 2004. Mammalian zinc transporters. Annu. Rev. Nutr. 24: 151-172.
2. Kaler, P. and Prasad, R. 2007. Molecular cloning and functional characterization of novel zinc transporter rZIP10 (Slc39a10) involved in zinc uptake across rat renal brush-border membrane. Am. J. Physiol. Renal Physiol. 292: F217-F229.
3. Pawan, K., et al. 2007. Upregulation of Slc39a10 gene expression in response to thyroid hormones in intestine and kidney. Biochim. Biophys. Acta 1769: 117-123.
4. Kagara, N., et al. 2007. Zinc and its transporter ZIP10 are involved in invasive behavior of breast cancer cells. Cancer Sci. 98: 692-697.
5. Valentine, R.A., et al. 2007. ZnT5 variant B is a bidirectional zinc transporter and mediates zinc uptake in human intestinal Caco-2 cells. J. Biol. Chem. 282: 14389-14393.
6. Ryu, M.S., et al. 2008. Zinc transporters ZnT1 (Slc30a1), Zip8 (Slc39a8), and Zip10 (Slc39a10) in mouse red blood cells are differentially regulated during erythroid development and by dietary zinc deficiency. J. Nutr. 138: 2076-2083.

CHROMOSOMAL LOCATION

Genetic locus: SLC39A10 (human) mapping to 2q32.3.

PRODUCT

ZIP10 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 ZIP10 shRNA Plasmid (h): sc-94302-SH and ZIP10 shRNA (h) Lentiviral Particles: sc-94302-V as alternate gene silencing products.

For independent verification of ZIP10 (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-94302A, sc-94302B and sc-94302C.

RESEARCH USE

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

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

ZIP10 siRNA (h) is recommended for the inhibition of ZIP10 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.

GENE EXPRESSION MONITORING

ZIP10 (1F6): sc-517167 is recommended as a control antibody for monitoring of ZIP10 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 ZIP10 gene expression knockdown using RT-PCR Primer: ZIP10 (h)-PR: sc-94302-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.