SANTA CRUZ BIOTECHNOLOGY, INC.

Ferroportin-1 siRNA (h): sc-60633

BACKGROUND

Ferroportin-1, also designated solute carrier family 40 member 1 or iron-regulated transporter 1, is a multi-pass membrane protein that belongs to the SLC40A transporter protein family and localizes to the cell membrane on various cells, especially hepatocytes, endothelial cells and enterocytes. It plays a role in iron transfer between maternal and fetal circulation and acts as a mediator of iron efflux in the presence of ferroxidases, such as ceruloplasmin or hephaestin. The Ferroportin-1 protein may be involved in iron export from duodenal epithelial cells. Ferroportin-1 is expressed at highest levels in intestine, muscle, spleen and placenta. Mutations in the gene encoding for Ferroportin-1, SLC40A, cause hemochromatosis type 4 (HFE4), an autosomal dominant disorder characterized by excess storage of iron in reticuloendothelial cells and an increase in serum ferritin before elevation of the transferrin saturation.

REFERENCES

1. Liu, X.B., et al. 2005. Regulation of Hepcidin and Ferroportin expression by lipopolysaccharide in splenic macrophages. Blood Cells Mol. Dis. 35: 47-56.
2. Morris, T.J., et al. 2005. A novel Ferroportin mutation in a Canadian family with autosomal dominant hemochromatosis. Blood Cells Mol. Dis. 35: 309-314.

CHROMOSOMAL LOCATION

Genetic locus: SLC40A1 (human) mapping to 2q32.2.

PRODUCT

Ferroportin-1 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 Ferroportin-1 shRNA Plasmid (h): sc-60633-SH and Ferroportin-1 shRNA (h) Lentiviral Particles: sc-60633-V as alternate gene silencing products.

For independent verification of Ferroportin-1 (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-60633A, sc-60633B and sc-60633C.

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.

PROTOCOLS

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

APPLICATIONS

Ferroportin-1 siRNA (h) is recommended for the inhibition of Ferroportin-1 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

Ferroportin-1 (B-4): sc-518125 is recommended as a control antibody for monitoring of Ferroportin-1 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 Ferroportin-1 gene expression knockdown using RT-PCR Primer: Ferroportin-1 (h)-PR: sc-60633-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Harned, J., et al. 2014. Hypoxia controls iron metabolism and glutamate secretion in retinal pigmented epithelial cells. Biochim. Biophys. Acta 1840: 3138-3144.
2. Ma, S., et al. 2016. Ferroptosis is induced following siramesine and lapatinib treatment of breast cancer cells. Cell Death Dis. 7: e2307.
3. Geng, N., et al. 2018. Knockdown of Ferroportin accelerates erastin-induced ferroptosis in neuroblastoma cells. Eur. Rev. Med. Pharmacol. Sci. 22: 3826-3836.
4. Ma, S., et al. 2021. Iron-dependent autophagic cell death induced by radiation in MDA-MB-231 breast cancer cells. Front. Cell Dev. Biol. 9: 723801.

RESEARCH USE

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