SANTA CRUZ BIOTECHNOLOGY, INC.

CYBRD1 siRNA (h): sc-94877

BACKGROUND

CYBRD1 (cytochrome b reductase 1), also known as DCYTB (duodenal cytochrome b) or FRRS3 (ferric-chelate reductase 3), is a 286 amino acid ferric-chelate reductase and multi-pass membrane protein that reduces Fe^{3+} to Fe^{2+}. A member of the cytochrome b561 family, CYBRD1 is expressed in respiratory epithelium and duodenal brush border membrane, where it is suggested to assist in the transport of dietary iron into mucosal cells. CYBRD1 is also hypothesized to function as a ferrireductase in airway epithelial cells and may participate in erythrocyte membrane ascorbate recycling. CYBRD1 is encoded by a gene located on human chromosome 2q31.1, variations of which may contribute to modifications in iron overload expression.

REFERENCES

1. Zoller, H., et al. 2003. Duodenal cytochrome b and hephaestin expression in patients with iron deficiency and hemochromatosis. Gastroenterology 125: 746-754.
2. Zaahl, M.G., et al. 2004. Analysis of genes implicated in iron regulation in individuals presenting with primary iron overload. Hum. Genet. 115: 409-417.
3. Gunshin, H., et al. 2005. CYBRD1 (duodenal cytochrome B) is not necessary for dietary iron absorption in mice. Blood 106: 2879-2883.
4. Zaahl, M.G., et al. 2005. Gene symbol: DCYTB/CYBRD1. Disease: primary iron overload. Hum. Genet. 118: 546.
5. Turi, J.L., et al. 2006. Duodenal cytochrome b: a novel ferrireductase in airway epithelial cells. Am. J. Physiol. Lung Cell. Mol. Physiol. 291: L272-L280.
6. Li, A.C., et al. 2006. Immunolocalization of duodenal cytochrome B: a relationship with circulating markers of iron status. Eur. J. Clin. Invest. 36: 890-898.
7. Su, D., et al. 2006. Human erythrocyte membranes contain a cytochrome b561 that may be involved in extracellular ascorbate recycling. J. Biol. Chem. 281: 39852-39859.
8. Constantine, C.C., et al. 2009. A novel association between a SNP in CYBRD1 and serum ferritin levels in a cohort study of HFE hereditary haemochromatosis. Br. J. Haematol. 147: 140-149.

CHROMOSOMAL LOCATION

Genetic locus: CYBRD1 (human) mapping to 2q31.1.

PRODUCT

CYBRD1 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 CYBRD1 shRNA Plasmid (h): sc-94877-SH and CYBRD1 shRNA (h) Lentiviral Particles: sc-94877-V as alternate gene silencing products.

For independent verification of CYBRD1 (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-94877A, sc-94877B and sc-94877C.

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

CYBRD1 siRNA (h) is recommended for the inhibition of CYBRD1 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor CYBRD1 gene expression knockdown using RT-PCR Primer: CYBRD1 (h)-PR: sc-94877-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.