



# CD71 siRNA (h): sc-37070

## BACKGROUND

CD71, also known as the transferrin receptor (TFR), is a type II membrane glycoprotein that exists as a disulfide-linked homodimer of two identical subunits. CD71 binds to two molecules of transferrin and a serum iron-transport protein, and directs the cellular uptake of iron via receptor-mediated endocytosis. CD71 is expressed, typically at high levels, on all proliferating cells, reticulocytes and erythroid precursors. It is not expressed on resting leukocytes, but is upregulated upon activation of lymphocytes, monocytes and macrophages. CD71 is also found on most dividing cells and on brain endothelium. A second transferrin receptor, TFR2, also mediates the uptake of transferrin-bound iron. TFR2 is a two-subunit homodimer and is highly expressed in liver as well as in hepatocytes and erythroid precursors. Mutations in the TFR2 gene result in hereditary hemochromatosis type III (HFE3), an iron overloading disorder predominant in Caucasians.

## REFERENCES

1. Lesley, J., et al. 1984. Expression of transferrin receptor on murine hemopoietic progenitors. *Cell. Immunol.* 83: 14-25.
2. McClelland, A., et al. 1984. The human transferrin receptor gene: genomic organization, and the complete primary structure of the receptor deduced from a cDNA sequence. *Cell* 39: 267-274.
3. Lesley, J.F., et al. 1985. Inhibition of cell growth by monoclonal anti-transferrin receptor antibodies. *Mol. Cell. Biol.* 5: 1814-1821.

## CHROMOSOMAL LOCATION

Genetic locus: TFR (human) mapping to 3q29.

## PRODUCT

CD71 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see CD71 shRNA Plasmid (h): sc-37070-SH and CD71 shRNA (h) Lentiviral Particles: sc-37070-V as alternate gene silencing products.

For independent verification of CD71 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3 nmol of lyophilized siRNA. These include: sc-37070A, sc-37070B and sc-37070C.

## 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

CD71 siRNA (h) is recommended for the inhibition of CD71 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  $\mu$ 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.

## GENE EXPRESSION MONITORING

CD71 (3B8 2A1): sc-32272 is recommended as a control antibody for monitoring of CD71 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 $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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 $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  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 CD71 gene expression knockdown using RT-PCR Primer: CD71 (h)-PR: sc-37070-PR (20  $\mu$ l, 523 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

1. Jiang, X., et al. 2014. Hyperinsulinemia induces hepatic iron overload by increasing liver TFR1 via the PI3K/IRP2 pathway. *J Mol Endocrinol.* 53: 381-92. PMID: 25385842
2. Jeong, D.E., et al. 2015. Repurposing the anti-malarial drug artesunate as a novel therapeutic agent for metastatic renal cell carcinoma due to its attenuation of tumor growth, metastasis, and angiogenesis. *Oncotarget* 6: 33046-33064.
3. Bishayee, K., et al. 2019. Targeting the difficult-to-drug CD71 and MYCN with gambogic acid and vorinostat in a class of neuroblastomas. *Cell. Physiol. Biochem.* 53: 258-280.
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.