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BLVRA siRNA (h): sc-44650

BACKGROUND

In human liver cytosolic fractions, four forms of biliverdin reductase have been identified, including two biliverdin-IX β reductases and two biliverdin-IX α reductases, designated isozymes I and II and isozymes III and IV, respectively. Biliverdin reductase A (BLVRA), also designated biliverdin-IX α -reductase, belongs to the GFO/iIDH/MocA family and the biliverdin reductase subfamily. The gene that encodes this cytoplasmic protein maps to chromosome 7p13. BLVRA reduces biliverdin IX α (the γ -methene bridge of the open tetrapyrrole) to bilirubin with the concomitant oxidation of an NADH or NADPH cofactor (bilirubin + NADP⁺ = biliverdin + NADPH). BLVRA is expressed primarily in liver.

REFERENCES

1. Bonkovsky, H.L., et al. 1990. Purification and characterization of heme oxygenase from chick liver. Comparison of the avian and mammalian enzymes. *Eur. J. Biochem.* 189: 155-166.
2. Frydman, J., et al. 1990. Identification of the amino acid residues essential for the activity and the interconversion of the molecular forms of biliverdin reductase. *Biochim. Biophys. Acta* 1040: 119-129.
3. Maines, M.D., et al. 1993. Purification and characterization of human biliverdin reductase. *Arch. Biochem. Biophys.* 300: 320-326.
4. Yamaguchi, T., et al. 1994. Biliverdin-IX α -reductase and biliverdin-IX β -reductase from human liver. Purification and characterization. *J. Biol. Chem.* 269: 24343-24348.
5. SWISS-PROT/TrEMBL (P53004). World Wide Web URL: <http://www.expasy.ch/sprot/sprot-top.html>

CHROMOSOMAL LOCATION

Genetic locus: BLVRA (human) mapping to 7p13.

PRODUCT

BLVRA 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see BLVRA shRNA Plasmid (h): sc-44650-SH and BLVRA shRNA (h) Lentiviral Particles: sc-44650-V as alternate gene silencing products.

For independent verification of BLVRA (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-44650A, sc-44650B and sc-44650C.

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

APPLICATIONS

BLVRA siRNA (h) is recommended for the inhibition of BLVRA 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 μ M in 66 μ 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

BLVRA (F-1): sc-393385 is recommended as a control antibody for monitoring of BLVRA 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 κ BP-HRP: sc-516102 or m-IgG κ 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 κ BP-FITC: sc-516140 or m-IgG κ 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 BLVRA gene expression knockdown using RT-PCR Primer: BLVRA (h)-PR: sc-44650-PR (20 μ l, 422 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Zhu, Z., et al. 2010. Biliverdin inhibits hepatitis C virus nonstructural 3/4A protease activity: mechanism for the antiviral effects of heme oxygenase? *Hepatology* 52: 1897-1905.
2. Miralem, T., et al. 2016. Interaction of human biliverdin reductase with Akt/protein kinase B and phosphatidylinositol-dependent kinase 1 regulates glycogen synthase kinase 3 activity: a novel mechanism of Akt activation. *FASEB J.* 30: 2926-2944.

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.