SANTA CRUZ BIOTECHNOLOGY, INC.

BLVRB siRNA (h): sc-62021

BACKGROUND

BLVRB (biliverdin reductase B or BVR-B), also known as flavin reductase (FR), NADPH-dependent diaphorase, Biliverdin-IX β-reductase or green heme-binding protien (GHBP) is an enzyme involved in fetal heme metabolism. It is dependent on NADPH and is responsible for catalyzing the transfer of electrons to flavins from reduced pyridine nucleotides. BLVRB exists as a monomer, localizes to the cytoplasm and is highly expressed in fetal liver and adult erythrocytes and, to a lesser extent, in heart, lung, cerebrum and adrenal gland. In liver, BLVRB functions to convert biliverdin (isoforms IXβ, IXγ and IXδ) to bilirubin. BLVRB contains one binding site for all of its substrates and predominantly interacts with them through hydrophobic interactions. BLVRB also exhibits ferric reductase activity. In addition, it is commonly used as a reliable marker for NOS.

REFERENCES

1. Shalloe, F., et al. 1996. Evidence that biliverdin-IX β reductase and flavin reductase are identical. Biochem. J. 316: 385-387.
2. Komuro, A., et al. 1997. Molecular cloning and expression of human liver biliverdin-IX β reductase. Biol. Pharm. Bull. 19: 796-804.
3. Cunningham, O., et al. 2000. Studies on the specificity of the tetrapyrrole substrate for human biliverdin-IX α reductase and biliverdin-IX β reductase. Structure-activity relationships define models for both active sites. J. Biol. Chem. 275: 19009-19017.
4. Cunningham, O., et al. 2000. Initial-rate kinetics of the flavin reductase reaction catalysed by human biliverdin-IX β reductase (BVR-B). Biochem. J. 345: 393-399.
5. Pereira, P.J., et al. 2001. Structure of human biliverdin-IX β reductase, an early fetal bilirubin-IX β producing enzyme. Nat. Struct. Biol. 8: 215-220.
6. Mantle, T.J. 2002. Haem degradation in animals and plants. Biochem. Soc. Trans. 30: 630-633.
7. Wang, J., et al. 2003. The binding sites on human heme oxygenase-1 for cytochrome p450 reductase and biliverdin reductase. J. Biol. Chem. 278: 20069-20076.

CHROMOSOMAL LOCATION

Genetic locus: BLVRB (human) mapping to 19q13.2.

PRODUCT

BLVRB 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 BLVRB shRNA Plasmid (h): sc-62021-SH and BLVRB shRNA (h) Lentiviral Particles: sc-62021-V as alternate gene silencing products.

For independent verification of BLVRB (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-62021A, sc-62021B and sc-62021C.

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

BLVRB siRNA (h) is recommended for the inhibition of BLVRB 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

BLVRB (B-9): sc-373692 is recommended as a control antibody for monitoring of BLVRB 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 BLVRB gene expression knockdown using RT-PCR Primer: BLVRB (h)-PR: sc-62021-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.