SANTA CRUZ BIOTECHNOLOGY, INC.

BBOX1 siRNA (h): sc-96811

BACKGROUND

BBOX1 (butyrobetaine γ, 2-oxoglutarate dioxygenase 1), also known as BBH, BBOX, G-BBH (γ-butyrobetaine hydroxylase) or γ-BBH, is a member of the γ-BBH/TMLD family of proteins. Localizing to the cytoplasm and predominantly expressed in kidney, BBOX1 plays a role in the biosynthesis of amines, polyamines and carnitines. More specifically, BBOX1 catalyzes the hydroxylation of γ-butyrobetaine to L-carnitine, a reaction that requires iron and ascorbate as cofactors. This is the last of five steps comprising the L-carnitine biosynthesis pathway and it is important for the proper transport of activated fatty acids across the mitochondrial membrane. Coupled to this reaction, BBOX1 simultaneously catalyzes the oxidative decarboxylation of α-ketoglutarate to succinate.

REFERENCES

1. Lindstedt, G., et al. 1982. γ-butyrobetaine hydroxylase in human kidney. Scand. J. Clin. Lab. Invest. 42: 477-485.
2. Lindstedt, S., et al. 1984. Multiple forms of γ-butyrobetaine hydroxylase (EC 1.14.11.1). Biochem. J. 223: 119-127.
3. Vaz, F.M., et al. 1998. Carnitine biosynthesis: identification of the cDNA encoding human γ-butyrobetaine hydroxylase. Biochem. Biophys. Res. Commun. 250: 506-510.
4. Galland, S., et al. 1998. Purification and characterization of the rat liver γ-butyrobetaine hydroxylase. Mol. Cell. Biochem. 178: 163-168.
5. Galland, S., et al. 1999. Molecular cloning and characterization of the cDNA encoding the rat liver γ-butyrobetaine hydroxylase. Biochim. Biophys. Acta 1441: 85-92.
6. Galland, S., et al. 2002. Thyroid hormone controls carnitine status through modifications of γ-butyrobetaine hydroxylase activity and gene expression. Cell. Mol. Life Sci. 59: 540-545.

CHROMOSOMAL LOCATION

Genetic locus: BBOX1 (human) mapping to 11p14.2.

PRODUCT

BBOX1 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 BBOX1 shRNA Plasmid (h): sc-96811-SH and BBOX1 shRNA (h) Lentiviral Particles: sc-96811-V as alternate gene silencing products.

For independent verification of BBOX1 (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-96811A, sc-96811B and sc-96811C.

PROTOCOLS

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

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

BBOX1 siRNA (h) is recommended for the inhibition of BBOX1 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

BBOX1 (E-11): sc-373774 is recommended as a control antibody for monitoring of BBOX1 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 BBOX1 gene expression knockdown using RT-PCR Primer: BBOX1 (h)-PR: sc-96811-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.