SANTA CRUZ BIOTECHNOLOGY, INC.

HscB siRNA (h): sc-75306

BACKGROUND

HscB (HscB iron-sulfur cluster co-chaperone homolog *(E. coli)),* also known as HSC20, JAC1 or DnaJ homolog subfamily C member 20 (DNAJC20), is a 235 amino acid mitochondrial protein that functions as a co-chaperone in iron-sulfur cluster formation. Highly expressed in heart, liver and muscle, and belonging to the HscB family, HscB exists as a L-shaped crystal structure resembling *E. coli* HscB. Human HscB contains an N-terminal mitochondrial targeting signal followed by a J-domain and short loop. The C-terminal domain folds into a compact 3-helix bundle and likely mediates specific interactions with IscU. Containing 6 exons and 5 introns, the gene encoding HscB maps to human chromosome 22q12.1, which houses over 500 genes and is the second smallest human chromosome.

REFERENCES

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3. Chandramouli, K. and Johnson, M.K. 2006. HscA and HscB stimulate [2Fe-2S] cluster transfer from IscU to apoferredoxin in an ATP-dependent reaction. Biochemistry 45: 11087-11095.
4. Qiu, X.B., Shao, Y.M., Miao, S. and Wang, L. 2006. The diversity of the DnaJ/Hsp40 family, the crucial partners for Hsp70 chaperones. Cell. Mol. Life Sci. 63: 2560-2570.
5. Johnson, D.C., Unciuleac, M.C. and Dean, D.R. 2006. Controlled expression and functional analysis of iron-sulfur cluster biosynthetic components within *Azotobacter vinelandii.* J. Bacteriol. 188: 7551-7561.
6. Unciuleac, M.C., Chandramouli, K., Naik, S., Mayer, S., Huynh, B.H., Johnson, M.K. and Dean, D.R. 2007. *In vitro* activation of apo-aconitase using a [4Fe-4S] cluster-loaded form of the IscU [Fe-S] cluster scaffolding protein. Biochemistry 46: 6812-6821.
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8. Bitto, E., Bingman, C.A., Bittova, L., Kondrashov, D.A., Bannen, R.M., Fox, B.G., Markley, J.L. and Phillips, G.N. 2008. Structure of human J-type co-chaperone HscB reveals a tetracysteine metal-binding domain. J. Biol. Chem. 283: 30184-30192.

CHROMOSOMAL LOCATION

Genetic locus: HSCB (human) mapping to 22q12.1.

PROTOCOLS

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

PRODUCT

HscB 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 HscB shRNA Plasmid (h): sc-75306-SH and HscB shRNA (h) Lentiviral Particles: sc-75306-V as alternate gene silencing products.

For independent verification of HscB (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-75306A, sc-75306B and sc-75306C.

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

HscB siRNA (h) is recommended for the inhibition of HscB 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 HscB gene expression knockdown using RT-PCR Primer: HscB (h)-PR: sc-75306-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Liu, G., Hou, Y., Jin, X., Zhang, Y., Sun, Y., Huang, C., Ren, Y., Gao, J., Wang, X. and Jiang, X. 2024. PI3K/HSCB axis facilitates FOG1 nuclear translocation to promote erythropoiesis and megakaryopoiesis. Elife 13: RP95815.

RESEARCH USE

For research use only, not for use in diagnostic procedures.