SANTA CRUZ BIOTECHNOLOGY, INC.

hDcp1b siRNA (h): sc-105444

BACKGROUND

Cleavage of the 5'-cap structure is involved in the major 5'-to-3' and nonsense-mediated mRNA decay pathways. The protein complex consisting of Dcp1 and Dcp2 has been identified as the species responsible for the decapping reaction in *Saccharomyces cerevisiae*. In nonsense-mediated decay, the human decapping complex, made up of *S. cerevisiae* homologs hDcp1a and hDcp2, may be recruited to mRNAs containing premature termination codons by nonsense-mediated decay factor (Upf) proteins. hDcp1b, also known as DCP1B (mRNA-decapping enzyme 1B), is a 617 amino acid cytoplasmic protein that belongs to the DCP1 family. Binding to hDcp1a, hDcp1b is a member of the complex consisting of Dcp2, LSm1, LSm2 and CNOT6 that is involved in mRNA decay. The gene encoding hDcp1b maps to human chromosome 12p13.33 and mouse chromosome 6 F1.

REFERENCES

1. LaGrandeur, T.E. and Parker, R. 1998. Isolation and characterization of Dcp1p, the yeast mRNA decapping enzyme. EMBO J. 17: 1487-1496.
2. Tucker, M. and Parker, R. 2000. Mechanisms and control of mRNA decapping in *Saccharomyces cerevisiae*. Annu. Rev. Biochem. 69: 571-595.
3. Lykke-Andersen, J. 2002. Identification of a human decapping complex associated with hUpf proteins in nonsense-mediated decay. Mol. Cell. Biol. 22: 8114-8121.
4. Heikkinen, H.L., Llewellyn, S.A. and Barnes, C.A. 2003. Initiation-mediated mRNA decay in yeast affects heat-shock mRNAs, and works through decapping and 5'-to-3' hydrolysis. Nucleic Acids Res. 31: 4006-4016.
5. Cougot, N., Babajko, S. and Seraphin, B. 2004. Cytoplasmic foci are sites of mRNA decay in human cells. J. Cell Biol. 165: 31-40.
6. Fenger-Gron, M., Fillman, C., Norrild, B. and Lykke-Andersen, J. 2005. Multiple processing body factors and the ARE binding protein TTP activate mRNA decapping. Mol. Cell 20: 905-915.
7. Scherer, S.E., Muzny, D.M., Buhay, C.J., Chen, R., Cree, A., Ding, Y., Dugan-Rocha, S., Gill, R., Gunaratne, P., Harris, R.A., Hawes, A.C., Hernandez, J., Hodgson, A.V., Hume, J., Jackson, A., et al. 2006. The finished DNA sequence of human chromosome 12. Nature 440: 346-351.
8. Sowa, M.E., Bennett, E.J., Gygi, S.P. and Harper, J.W. 2009. Defining the human deubiquitinating enzyme interaction landscape. Cell 138: 389-403.
9. Abdelmoity, A.T., Hall, J.J., Bittel, D.C. and Yu, S. 2011. 1.39 Mb inherited interstitial deletion in 12p13.33 associated with developmental delay. Eur. J. Med. Genet. 54: 198-203.

CHROMOSOMAL LOCATION

Genetic locus: DCP1B (human) mapping to 12p13.33.

PROTOCOLS

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

PRODUCT

hDcp1b 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 hDcp1b shRNA Plasmid (h): sc-105444-SH and hDcp1b shRNA (h) Lentiviral Particles: sc-105444-V as alternate gene silencing products.

For independent verification of hDcp1b (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-105444A, sc-105444B and sc-105444C.

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

hDcp1b siRNA (h) is recommended for the inhibition of hDcp1b 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 hDcp1b gene expression knockdown using RT-PCR Primer: hDcp1b (h)-PR: sc-105444-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.