SANTA CRUZ BIOTECHNOLOGY, INC.

DDX19B siRNA (h): sc-77097

BACKGROUND

DEAD box proteins, characterized by the conserved motif Asp-Glu-Ala-Asp (DEAD), are putative RNA helicases. DEAD box proteins contain two conserved RecA-like domains that adopt different open structures in the absence of nucleic acid and closed structure when bound to RNA and ATP. They also exhibit RNA-dependent ATPase and ATP-dependent RNA-unwinding activities. DEAD box RNA helicase DEAD5 (Dbp5), also known as DEAD box protein 19B (DDX19B), is a 479 amino acid protein belonging to the DEAD box family. Localized to the cytoplasm and nuclear envelope, Dbp5 participates in the export of mRNA from the nucleus to the cytoplasm. Dbp5 is activated by interactions mediated by Gle1 and is inhibited by Nup214. Two named isoforms of Dbp5 exist as a result of alternative splicing events.

REFERENCES

1. Tseng, S.S., Weaver, P.L., Liu, Y., Hitomi, M., Tartakoff, A.M. and Chang, T.H. 1998. Dbp5p, a cytosolic RNA Helicase, is required for polyA+ RNA export. EMBO J. 17: 2651-2662.
2. Schmitt, C., von Kobbe, C., Bachi, A., Pantε, N., Rodrigues, J.P., Boscheron, C., Rigaut, G., Wilm, M., Sεraphin, B., Carmo-Fonseca, M. and Izaurralde, E. 1999. Dbp5, a DEAD-box protein required for mRNA export, is recruited to the cytoplasmic fibrils of nuclear pore complex via a conserved interaction with CAN/Nup159p. EMBO J. 18: 4332-4347.
3. Zhao, J., Jin, S.B., Björkroth, B., Wieslander, L. and Daneholt, B. 2002. The mRNA export factor Dbp5 is associated with Balbiani ring mRNP from gene to cytoplasm. EMBO J. 21: 1177-1187.
4. Rollenhagen, C., Hodge, C.A. and Cole, C.N. 2004. The nuclear pore complex and the DEAD box protein Rat8p/Dbp5p have nonessential features which appear to facilitate mRNA export following heat shock. Mol. Cell. Biol. 24: 4869-4879.
5. Weirich, C.S., Erzberger, J.P., Flick, J.S., Berger, J.M., Thorner, J. and Weis, K. 2006. Activation of the DExD/H-box protein Dbp5 by the nuclear-pore protein Gle1 and its coactivator InsP6 is required for mRNA export. Nat. Cell Biol. 8: 668-676.
6. Alcázar-Román, A.R., Tran, E.J., Guo, S. and Wente, S.R. 2006. Inositol hexakisphosphate and Gle1 activate the DEAD-box protein Dbp5 for nuclear mRNA export. Nat. Cell Biol. 8: 711-716.
7. Tran, E.J., Zhou, Y., Corbett, A.H. and Wente, S.R. 2007. The DEAD-box protein Dbp5 controls mRNA export by triggering specific RNA:protein remodeling events. Mol. Cell 28: 850-859.
8. LeBlanc, J.J., Uddowla, S., Abraham, B., Clatterbuck, S. and Beemon, K.L. 2007. Tap and Dbp5, but not Gag, are involved in DR-mediated nuclear export of unspliced Rous sarcoma virus RNA. Virology 363: 376-386.
9. von Moeller, H., Basquin, C. and Conti, E. 2009. The mRNA export protein DBP5 binds RNA and the cytoplasmic nucleoporin NUP214 in a mutually exclusive manner. Nat. Struct. Mol. Biol. 16: 247-254.

PROTOCOLS

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

CHROMOSOMAL LOCATION

Genetic locus: DDX19B (human) mapping to 16q22.1.

PRODUCT

DDX19B 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 DDX19B shRNA Plasmid (h): sc-77097-SH and DDX19B shRNA (h) Lentiviral Particles: sc-77097-V as alternate gene silencing products.

For independent verification of DDX19B (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-77097A, sc-77097B and sc-77097C.

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

DDX19B siRNA (h) is recommended for the inhibition of DDX19B 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 DDX19B gene expression knockdown using RT-PCR Primer: DDX19B (h)-PR: sc-77097-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.