SANTA CRUZ BIOTECHNOLOGY, INC.

WIBG siRNA (h): sc-96076

BACKGROUND

The exon junction complex (EJC) is a multi-protein complex that associates upstream of the exon-exon junction on mRNAs. The EJC serves as a positional indicator for the intron-exon structure of genes and directs post-transcriptional processes in the cytoplasm such as mRNA export, nonsense-mediated mRNA decay (NMD) or translation. WIBG (within bgcn homolog *(Drosophila)),* also known as PYM (partner of 14 and mago), is a 204 amino acid cytoplasmic and nuclear protein that acts as a key regulator of the EJC. Belonging to the WIBG family, WIBG functions as a EJC disassembly factor as it disrupts mature EJC from spliced mRNAs, thereby enabling translation-dependent EJC removal and recycling. As an antagonist of EJC activity, WIBG interferes with NMD and enhances translation of mRNAs. WIBG interaction with the 40S ribosomal subunit likely prevents translation-independent disassembly of the EJC from spliced mRNAs and restricts its activity from translated mRNAs. WIBG exists as two alternatively spliced isoforms and is encoded by a gene located on human chromosome 12q13.2.

REFERENCES

1. Le Hir, H., Gatfield, D., Braun, I.C., Forler, D. and Izaurralde, E. 2001. The protein Mago provides a link between splicing and mRNA localization. EMBO Rep. 2: 1119-1124.
2. Kim, V.N. and Dreyfuss, G. 2001. Nuclear mRNA binding proteins couple pre-mRNA splicing and post-splicing events. Mol. Cells 12: 1-10.
3. Palacios, I.M. 2002. RNA processing: splicing and the cytoplasmic localisation of mRNA. Curr. Biol. 12: R50-R52.
4. Gatfield, D. and Izaurralde, E. 2002. REF1/Aly and the additional exon junction complex proteins are dispensable for nuclear mRNA export. J. Cell Biol. 159: 579-588.
5. Bono, F., Ebert, J., Unterholzner, L., Güttler, T., Izaurralde, E. and Conti, E. 2004. Molecular insights into the interaction of PYM with the Mago-Y14 core of the exon junction complex. EMBO Rep. 5: 304-310.
6. Diem, M.D., Chan, C.C., Younis, I. and Dreyfuss, G. 2007. PYM binds the cytoplasmic exon-junction complex and ribosomes to enhance translation of spliced mRNAs. Nat. Struct. Mol. Biol. 14: 1173-1179.
7. Park, N.I. and Muench, D.G. 2007. Biochemical and cellular characterization of the plant ortholog of PYM, a protein that interacts with the exon junction complex core proteins Mago and Y14. Planta. 225: 625-639.
8. Gehring, N.H., Lamprinaki, S., Kulozik, A.E. and Hentze, M.W. 2009. Disassembly of exon junction complexes by PYM. Cell 137: 536-548.
9. Bono, F., Cook, A.G., Grünwald, M., Ebert, J. and Conti, E. 2010. Nuclear import mechanism of the EJC component Mago-Y14 revealed by structural studies of importin 13. Mol. Cell 37: 211-222.

CHROMOSOMAL LOCATION

Genetic locus: PYM1 (human) mapping to 12q13.2.

PROTOCOLS

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

PRODUCT

WIBG 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 WIBG shRNA Plasmid (h): sc-96076-SH and WIBG shRNA (h) Lentiviral Particles: sc-96076-V as alternate gene silencing products.

For independent verification of WIBG (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-96076A, sc-96076B and sc-96076C.

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

WIBG siRNA (h) is recommended for the inhibition of WIBG 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 WIBG gene expression knockdown using RT-PCR Primer: WIBG (h)-PR: sc-96076-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. Saayman, S.M., Ackley, A., Burdach, J., Clemson, M., Gruenert, D.C., Tachikawa, K., Chivukula, P., Weinberg, M.S. and Morris, K.V. 2016. Long non-coding RNA BGas regulates the cystic fibrosis transmembrane conductance regulator. Mol. Ther. 24: 1351-1357.

RESEARCH USE

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