SANTA CRUZ BIOTECHNOLOGY, INC.

GSG1 siRNA (h): sc-96141

BACKGROUND

Polyadenylation of the 3-prime ends of eukaryotic mRNAs is a key event that takes place in the nucleus during maturation of mRNA. The reaction includes endoribonucleolytic cleavage of the pre-RNA at the poly(A) site that leads to synthesis of the poly(A) tail at the 3-prime end of the upstream cleavage product. The adenosine addition reaction depends on poly(A) polymerase (PAP) activity. The testis express PAP-β (TPAP) in the cytoplasm of spermatogenic cells. The adenosine addition function of PAP-β plays a critical role in male germ cell production. PAP-β-deficient transgenic mice display impaired expression of haploid-specific genes that are necessary for spermatogenesis. GSG1 (Germ cell-specific gene 1 protein) is a 349 amino acid endoplasmic reticulum protein that causes the redistribution of PAP-β from the cytosol to the endoplasmic reticulum. There are eight isoforms of GSG1 that are produced as a result of alternative splicing events.

REFERENCES

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2. Kashiwabara, S., et al. 2000. Identification of a novel isoform of poly(A) polymerase, TPAP, specifically present in the cytoplasm of spermatogenic cells. Dev. Biol. 228: 106-115.
3. Lee, Y.J., et al. 2000. An intronless gene encoding a poly(A) polymerase is specifically expressed in testis. FEBS Lett. 487: 287-292.
4. Le, Y.J., et al. 2001. Testis-specific expression of an intronless gene encoding a human poly(A) polymerase. Mol. Cells 11: 379-385.
5. Kashiwabara, S., et al. 2002. Regulation of spermatogenesis by testis-specific, cytoplasmic poly(A) polymerase TPAP. Science 298: 1999-2002.
6. Zhuang, T., et al. 2004. Transgenic expression of testis-specific poly(A) polymerase TPAP in wild-type and TPAP-deficient mice. J. Reprod. Dev. 50: 207-213.
7. Choi, H.S., et al. 2008. Germ cell-specific gene 1 targets testis-specific poly(A) polymerase to the endoplasmic reticulum through protein-protein interactions. FEBS Lett. 582: 1203-1209.

CHROMOSOMAL LOCATION

Genetic locus: GSG1 (human) mapping to 12p13.1.

PRODUCT

GSG1 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 GSG1 shRNA Plasmid (h): sc-96141-SH and GSG1 shRNA (h) Lentiviral Particles: sc-96141-V as alternate gene silencing products.

For independent verification of GSG1 (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-96141A, sc-96141B and sc-96141C.

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

GSG1 siRNA (h) is recommended for the inhibition of GSG1 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 GSG1 gene expression knockdown using RT-PCR Primer: GSG1 (h)-PR: sc-96141-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.

PROTOCOLS

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