SANTA CRUZ BIOTECHNOLOGY, INC.

hnRNP Q siRNA (m): sc-72097

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The Power to Question

BACKGROUND

Pre-mRNA splicing is a critical step in the posttranscriptional regulation of gene expression. Heterogeneous nuclear ribonucleoprotein Q (hnRNP Q) is involved in RNA processing and is necessary for efficient pre-mRNA splicing. hnRNP is widely expressed and developmentally regulated. hnRNP Q interacts with survival motor neuron protein (SMN). Loss of function of SMN results in spinal muscular atrophy, a common neurodegenerative disease. The most common deletion in SMN genes disrupts the interaction between SMN and hnRNP Q. hnRNP Q is upregulated after midnight, and this upregulation correlates with an abrupt decline in AANAT, the key enzyme in melatonin synthesis. Rhythmic AANAT mRNA degradation mediated in part by hnRNP Q implicates this enzyme in the regulation of circadian oscillation.

REFERENCES

1. Chou, M.Y., et al. 1999. hnRNP H is a component of alternative exon in neuronal cells. Mol. Cell. Biol. 19: 69-77.
2. Thebault, S., et al. 2000. Two-dimensional electrophoresis and mass spectrometry identification of proteins bound by a murine monoclonal anti-cardiolipin antibody: a powerful technique to characterize the cross-reactivity of a single autoantibody. Electrophoresis 21: 2531-2539.
3. Mourelatos, Z., et al. 2001. SMN interacts with a novel family of hnRNP and spliceosomal proteins. EMBO J. 20: 5443-5452.
4. Carty, S.M., et al. 2002. Hyperphosphorylated C-terminal repeat domain-associating proteins in the nuclear proteome link transcription to DNA/chromatin modification and RNA processing. Mol. Cell. Proteomics 1: 598-610.
5. Rossoll, W., et al. 2002. Specific interaction of SMN, the spinal muscular atrophy determining gene product, with hnRNP-R and gry-RBP/hnRNP-Q: a role for SMN in RNA processing in motor axons? Hum. Mol. Genet. 11: 93-105.
6. Helmken, C., et al. 2003. Evidence for a modifying pathway in SMA discordant families: reduced SMN level decreases the amount of its interacting partners and HtrA2-β1. Hum. Genet. 114: 11-21.

CHROMOSOMAL LOCATION

Genetic locus: Syncrip (mouse) mapping to 9 E3.1.

PRODUCT

hnRNP Q siRNA (m) 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 hnRNP Q shRNA Plasmid (m): sc-72097-SH and hnRNP Q shRNA (m) Lentiviral Particles: sc-72097-V as alternate gene silencing products.

For independent verification of hnRNP Q (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-72097A, sc-72097B and sc-72097C.

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

hnRNP Q siRNA (m) is recommended for the inhibition of hnRNP Q expression in mouse 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.

GENE EXPRESSION MONITORING

hnRNP Q (I8E4): sc-56703 is recommended as a control antibody for monitoring of hnRNP Q gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor hnRNP Q gene expression knockdown using RT-PCR Primer: hnRNP Q (m)-PR: sc-72097-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. Choi, J.H., et al. 2019. hnRNP Q regulates internal ribosome entry site-mediated FMR1 translation in neurons. Mol. Cell. Biol. 39 pii: e00371-18.

RESEARCH USE

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