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Nova-1 siRNA (h): sc-42142

BACKGROUND

Nova-1 and Nova-2 are members of a superfamily of protein regulators of RNA metabolism in neurons. Both are nuclear RNA binding proteins with K homology motifs, conserved protein sequences which bind to RNA. Nova proteins, normally sequestered in the central nervous system, are expressed by systemic tumors in patients with the autoimmune disorder paraneoplastic opsoclonus-myoclonus ataxia (POMA). Nova-1 is expressed in the hindbrain and ventral spinal cord and Nova-2 is expressed in the neocortex and hippocampus. Nova-1 is necessary for regulating neuron-specific alternative splicing of the glycine receptor $\alpha 2$ pre-mRNA.

REFERENCES

1. Burd, C.G. and Dreyfuss, G. 1994. Conserved structures and diversity of functions of RNA-binding proteins. *Science* 265: 615-621.
2. Darnell, R.B. 1996. Onconeural antigens and the paraneoplastic neurologic disorders: at the intersection of cancer, immunity, and the brain. *Proc. Natl. Acad. Sci. USA* 93: 4529-4536.
3. Yang, Y.Y., et al. 1998. The neuronal RNA-binding protein Nova-2 is implicated as the autoantigen targeted in POMA patients with dementia. *Proc. Natl. Acad. Sci. USA* 95: 13254-13259.
4. Lewis, H.A., et al. 1999. Crystal structures of Nova-1 and Nova-2 K-homology RNA-binding domains. *Structure* 7: 191-203.
5. Jensen, K.B., et al. 2000. Nova-1 regulates neuron-specific alternative splicing and is essential for neuronal variability. *Neuron* 25: 359-371.

CHROMOSOMAL LOCATION

Genetic locus: NOVA1 (human) mapping to 14q12.

PRODUCT

Nova-1 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Nova-1 shRNA Plasmid (h): sc-42142-SH and Nova-1 shRNA (h) Lentiviral Particles: sc-42142-V as alternate gene silencing products.

For independent verification of Nova-1 (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-42142A, sc-42142B and sc-42142C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

Nova-1 siRNA (h) is recommended for the inhibition of Nova-1 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 μ M in 66 μ l. 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

Nova-1 (512Y): sc-100334 is recommended as a control antibody for monitoring of Nova-1 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-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 Nova-1 gene expression knockdown using RT-PCR Primer: Nova-1 (h)-PR: sc-42142-PR (20 μ l). Annealing temperature for the primers should be $55-60^{\circ}$ C and the extension temperature should be $68-72^{\circ}$ C.

SELECT PRODUCT CITATIONS

1. Ludlow, A.T., et al. 2018. Nova1 regulates hTERT splicing and cell growth in non-small cell lung cancer. *Nat. Commun.* 9: 3112.

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.