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SANTA CRUZ BIOTECHNOLOGY, INC.

NRSF siRNA (r): sc-270179

BACKGROUND

NRSF (neuron-restrictive silencer factor, also designated XBR and REST for RE1-silencing factor) is a silencer protein that binds the DNA sequence element NRSE (neuron-restrictive silencer element). The binding of NRSF to the NRSE represses neuronal gene transcription in non-neuronal cells. Although NRSF is most highly expressed in non-neural tissues, it is also expressed in developing neurons and at low levels in the brain. NRSF contains nine zinc-finger domains, but also exists as a C-terminally truncated form produced by alternative splicing. This variant, REST4, contains five of the zinc-finger domains and weakly binds DNA, yet is transported to the nucleus. NRSF associates with mSin3 and HDAC in ventricular myocytes, suggesting a role for NRSF outside the nervous system. Down-regulation of NRSF, which normally occurs upon neural differentiation, is necessary for the proper development of certain classes of neurons. NRSF is required to repress neuronal gene expression *in vivo,* in both extra-neural and undifferentiated neural tissue.

REFERENCES

1. Schoenherr, C.J., et al. 1995. The neuron-restrictive silencer factor (NRSF): a coordinate repressor of multiple neuron-specific genes. Science 267: 1360-1363.
2. Chen, Z.F., et al. 1998. NRSF/REST is required *in vivo* for repression of mulitple neuronal target genes during embryogenesis. Nat. Genet. 20: 136-142.
3. Huang, Y., et al. 1999. Transcriptional repression by REST: recruitment of Sin3A and histone deacetylase to neuronal genes. Nat. Neurosci. 2: 867-872.
4. Paquette, A.J., et al. 2000. Constitutive expression of the neuron-restrictive silencer factor (NRSF)/REST in differentiating neurons disrupts neuronal gene expression and causes axon pathfinding errors *in vivo.* Proc. Natl. Acad. Sci. USA 97: 12318-12323.
5. Lee, J.H., et al. 2000. Studies on the interaction of REST4 with the cholinergic repressor element-1/neuron restrictive silencer element. Brain Res. Mol. Brain Res. 80: 88-98.

CHROMOSOMAL LOCATION

Genetic locus: Rest (rat) mapping to 14p11.

PRODUCT

NRSF siRNA (r) 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 NRSF shRNA Plasmid (r): sc-270179-SH and NRSF shRNA (r) Lentiviral Particles: sc-270179-V as alternate gene silencing products.

For independent verification of NRSF (r) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-270179A, sc-270179B and sc-270179C.

RESEARCH USE

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

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

NRSF siRNA (r) is recommended for the inhibition of NRSF expression in rat 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 NRSF gene expression knockdown using RT-PCR Primer: NRSF (r)-PR: sc-270179-PR (20 µl, 600 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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