

Egr-2 siRNA (h): sc-37827

BACKGROUND

Egr proteins function in transcription regulatory activities surrounding cellular growth, differentiation and function. The deduced amino acid sequences of human Egr-2 and mouse Egr-1 are 92% identical in the zinc finger region but show no homology elsewhere. Egr-2 is a sequence-specific DNA-binding transcription factor that binds two specific DNA sites located in the promoter region of HoxA4 and localizes to the nucleus. Defects in the Egr-2 protein are a cause of congenital hypomyelination neuropathy (CHN). CHN is characterized clinically by early onset of hypotonia, areflexia, distal muscle weakness, and very slow nerve conduction velocities. Mutations in the gene that encodes Egr-2 (EGR2) also cause Dejerine-Sottas syndrome (DSS), which is also known as Dejerine-Sottas neuropathy (DSN) or hereditary motor and sensory neuropathy III (HMSN3). DSS patients exhibit severe early onset motor and sensory neuropathy with very slow nerve conduction velocities and elevated cerebrospinal fluid protein concentrations.

REFERENCES

1. Joseph, L.J., et al. 1988. Molecular cloning, sequencing, and mapping of EGR2, a human early growth response gene encoding a protein with "zinc-binding finger" structure. *Proc. Natl. Acad. Sci. USA* 85: 7164-7168.
2. Chavrier, P., et al. 1989. Structure, chromosome location, and expression of the mouse zinc finger gene Krox-20: multiple gene products and coregulation with the proto-oncogene c-Fos. *Mol. Cell. Biol.* 9: 787-797.
3. Timmerman, V., et al. 1999. Novel missense mutation in the early growth response 2 gene associated with Dejerine-Sottas syndrome phenotype. *Neurology* 52: 1827-1832.

CHROMOSOMAL LOCATION

Genetic locus: EGR2 (human) mapping to 10q21.3.

PRODUCT

Egr-2 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 Egr-2 shRNA Plasmid (h): sc-37827-SH and Egr-2 shRNA (h) Lentiviral Particles: sc-37827-V as alternate gene silencing products.

For independent verification of Egr-2 (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-37827A, sc-37827B and sc-37827C.

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

Egr-2 siRNA (h) is recommended for the inhibition of Egr-2 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

Egr-2 (G-9): sc-518117 is recommended as a control antibody for monitoring of Egr-2 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 Egr-2 gene expression knockdown using RT-PCR Primer: Egr-2 (h)-PR: sc-37827-PR (20 μ l, 607 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Hinz, A.V., et al. 2012. Adenosine A₃ receptor-induced proliferation of primary human coronary smooth muscle cells involving the induction of early growth response genes. *J. Mol. Cell. Cardiol.* 53: 639-645.
2. To, S.Q., et al. 2013. Involvement of early growth response factors in TNF α -induced aromatase expression in breast adipose. *Breast Cancer Res. Treat.* 138: 193-203.
3. Liu, X., et al. 2015. miR-330-3p controls cell proliferation by targeting early growth response 2 in non-small-cell lung cancer. *Acta Biochim. Biophys. Sin.* 47: 431-440.

RESEARCH USE

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