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SANTA CRUZ BIOTECHNOLOGY, INC.

Egr-1 siRNA (r): sc-270177

BACKGROUND

Egr-1, Egr-2, Egr-3 and Egr-4 are nuclear transcription factors belonging to the Egr C_2H_2-type zinc-finger protein family and containing three C_2H_2-type zinc fingers. As immediate early proteins, Egr transcription factors are rapidly induced by diverse extracellular stimuli. They are subject to tight differential control through diverse mechanisms at several levels of regulation: transcriptional; translational and posttranslational (including glycosylation, phosphorylation and redox) mechanisms; and protein-protein interaction. Egr-1 binds to the DNA sequence 5'-CGCCCCCGC-3' (Egr-site), thereby activating transcription of target genes whose products are required for mitogenesis and differentiation. Egr-2 binds specific DNA sites located in the promoter region of HoxA4. Egr-2 defects cause congenital hypo-myelination neuropathy (also designated Charcot-Marie-Tooth disease) and Dejerine-Sottas neuropathology (also designated hereditary motor and sensory neuropathy III). Egr-3 is involved in muscle spindle development and is expressed in T cells 20 minutes following activation. Egr-4 binds to the Egr consensus motif GCGTGGGCG, functions as a transcriptional repressor, and displays autoregulatory activities, down-regulating its own gene promoter in a dose dependent manner.

REFERENCES

1. Beckmann, A.M. and Wilce, P.A. 1997. Egr transcription factors in the nervous system. Neurochem. Int. 31: 477-510.
2. Zipfel, P.F., et al. 1997. The human zinc finger protein Egr-4 acts as autoregulatory transcriptional repressor. Biochim. Biophys. Acta 1354: 134-144.

CHROMOSOMAL LOCATION

Genetic locus: Egr1 (rat) mapping to 18p12.

PRODUCT

Egr-1 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 Egr-1 shRNA Plasmid (r): sc-270177-SH and Egr-1 shRNA (r) Lentiviral Particles: sc-270177-V as alternate gene silencing products.

For independent verification of Egr-1 (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-270177A, sc-270177B and sc-270177C.

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

Egr-1 siRNA (r) is recommended for the inhibition of Egr-1 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.

GENE EXPRESSION MONITORING

Egr-1 (S-25): sc-101033 is recommended as a control antibody for monitoring of Egr-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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Egr-1 gene expression knockdown using RT-PCR Primer: Egr-1 (r)-PR: sc-270177-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. Heldsinger, A., et al. 2012. Cocaine- and amphetamine-regulated transcript is the neurotransmitter regulating the action of cholecystokinin and leptin on short-term satiety in rats. Am. J. Physiol. Gastrointest. Liver Physiol. 303: G1042-G1051.
2. Ha, Y.M., et al. 2013. High glucose induces connective tissue growth factor expression and extracellular matrix accumulation in rat aorta vascular smooth muscle cells via extracellular signal-regulated kinase 1/2. Korean J. Physiol. Pharmacol. 17: 307-314.
3. Hayakawa, K., et al. 2014. Reactive astrocytes promote adhesive interactions between brain endothelium and endothelial progenitor cells via HMGB1 and β2 integrin signaling. Stem Cell Res. 12: 531-538.
4. Chen, M.J., et al. 2015. The effect of androgens on ovarian follicle maturation: dihydrotestosterone suppress FSH-stimulated granulosa cell proliferation by upregulating PPARγ-dependent PTEN expression. Sci. Rep. 5: 18319.
5. Hwang, A.R., et al. 2018. Fluvastatin inhibits advanced glycation end products-induced proliferation, migration, and extracellular matrix accumulation in vascular smooth muscle cells by targeting connective tissue growth factor. Korean J. Physiol. Pharmacol. 22: 193-201.

RESEARCH USE

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