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c-Src siRNA (r): sc-270199

BACKGROUND

The major translational products of the Src gene family are membrane-associated tyrosine protein kinases that lack transmembrane and external amino acid sequences. By virtue of their common structural motifs, the Src family is composed of nine members in vertebrates, including c-Src, c-Yes, Fgr, Yrk, Fyn, Lyn, Hck, Lck and Blk. Src family kinases, which contain an amino-terminal cell membrane anchor followed by SH3 and SH2 domains, transduce signals that are involved in the control of a variety of cellular processes, including proliferation, differentiation, motility and adhesion. Src family members are normally maintained in an inactive state and can be activated transiently during cellular events such as mitosis. Different subcellular locations of Src family kinases may be important for the regulation of specific cellular processes, such as mitogenesis, cytoskeletal organization and membrane trafficking. c-Src (also designated pp60Src, Src p60 and proto-oncogene tyrosine protein kinase Src) is expressed in a broad range of tissue and cell types, although the highest levels of c-Src are detected in neuronal tissues and platelets. c-Src may play a role in events associated with both neuronal differentiation and maintenance of mature neuronal cell functions.

REFERENCES

1. Sakaguchi, A.Y., et al. 1982. Organization of human proto-oncogenes. *Am. J. Hum. Genet.* 34: 175.
2. Brugge, J.S., et al. 1985. Neurons express high levels of structurally modified, activated form of pp60c-src. *Nature* 316: 554-557.
3. Golden, A., et al. 1986. Blood platelets express high levels of the pp60^{c-src}-specific tyrosine kinase activity. *Proc. Natl. Acad. Sci. USA* 83: 852-856.

CHROMOSOMAL LOCATION

Genetic locus: Src (rat) mapping to 3q42.

PRODUCT

c-Src siRNA (r) is a pool of 2 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 c-Src shRNA Plasmid (r): sc-270199-SH and c-Src shRNA (r) Lentiviral Particles: sc-270199-V as alternate gene silencing products.

For independent verification of c-Src (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-270199A and sc-270199B.

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

c-Src siRNA (r) is recommended for the inhibition of c-Src 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 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

c-Src (H-12): sc-5266 is recommended as a control antibody for monitoring of c-Src 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 c-Src gene expression knockdown using RT-PCR Primer: c-Src (r)-PR: sc-270199-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Sandoval, Y.H., et al. 2011. Transactivation of epidermal growth factor receptor by enhanced levels of endogenous Angiotensin II contributes to the overexpression of G_i α proteins in vascular smooth muscle cells from SHR. *Cell. Signal.* 23: 1716-1726.
2. Igwe, O.J. 2013. Prooxidant-induced c-Src/nuclear factor κ B-coupled signalling in sensory ganglia mediates cutaneous hyperalgesia. *Eur. J. Pain* 17: 1027-1038.
3. Rathor, N., et al. 2014. Src-mediated caveolin-1 phosphorylation regulates intestinal epithelial restitution by altering Ca²⁺ influx after wounding. *Am. J. Physiol. Gastrointest. Liver Physiol.* 306: G650-G658.
4. Ge, H., et al. 2015. Mitochondrial Src tyrosine kinase plays a role in the cardioprotective effect of ischemic preconditioning by modulating complex I activity and mitochondrial ROS generation. *Free Radic. Res.* 49: 1210-1217.
5. Atef, M.E. and Anand-Srivastava, M.B. 2016. Oxidative stress contributes to the enhanced expression of G_q α /PLC β 1 proteins and hypertrophy of VSMC from SHR: role of growth factor receptor transactivation. *Am. J. Physiol. Heart Circ. Physiol.* 310: H608-H618.

RESEARCH USE

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