

EpoR siRNA (m): sc-39959

BACKGROUND

Erythropoiesis is regulated through the interaction of erythropoietin (Epo) with its receptor, EpoR, a member of the cytokine superfamily of receptors. The human EpoR is a 507 amino acid transmembrane protein that forms homodimers following erythropoietin activation and is related to the interleukin 2 (IL-2) receptor β -chain subunit (IL-2R β). EpoR and IL-2R β share 45% amino acid identity within the box 1 and box 2 domains of their cytoplasmic regions while their remaining cytoplasmic sequences are highly divergent. These conserved domains are both required and sufficient for mitogenesis and for coupling ligand binding to the induction of tyrosine phosphorylation. The membrane proximal region is also required for the association of JAK2 with EpoR. The existence of multiple cross-linked complexes and differential ligand affinities suggests that EpoR may exist as a multireceptor complex.

REFERENCES

1. Bazan, J.F. 1990. Structural design and molecular evolution of a cytokine receptor superfamily. *Proc. Natl. Acad. Sci. USA* 87: 6934-6938.
2. D'Andrea, A.D., et al. 1991. The cytoplasmic region of the erythropoietin receptor contains nonoverlapping positive and negative growth-regulatory domains. *Mol. Cell. Biol.* 11: 1980-1987.
3. Murakami, M., et al. 1991. Critical cytoplasmic region of the interleukin 6 signal transducer gp130 is conserved in the cytokine receptor family. *Proc. Natl. Acad. Sci. USA* 88: 11349-11353.
4. Youssoufian, H., et al. 1993. Structure, function, and activation of the erythropoietin receptor. *Blood* 81: 2223-2236.
5. Miura, O., et al. 1993. Inactivation of erythropoietin receptor function by point mutations in a region having homology with other cytokine receptors. *Mol. Cell. Biol.* 13: 1788-1795.
6. Watowich, S.S., et al. 1994. Activation and inhibition of erythropoietin receptor function: role of receptor dimerization. *Mol. Cell. Biol.* 14: 3535-3549.
7. Takahashi, T., et al. 1995. Characterization of three erythropoietin (Epo)-binding proteins with various human Epo-responsive cell lines and in cells transfected with human Epo-receptor cDNA. *Blood* 85: 106-114.

CHROMOSOMAL LOCATION

Genetic locus: *Epor* (mouse) mapping to 9 A3.

PRODUCT

EpoR siRNA (m) 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 EpoR shRNA Plasmid (m): sc-39959-SH and EpoR shRNA (m) Lentiviral Particles: sc-39959-V as alternate gene silencing products.

For independent verification of EpoR (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-39959A, sc-39959B and sc-39959C.

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

EpoR siRNA (m) is recommended for the inhibition of EpoR expression in mouse 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor EpoR gene expression knockdown using RT-PCR Primer: EpoR (m)-PR: sc-39959-PR (20 μ l, 428 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Su, K.H., et al. 2011. β common receptor integrates the erythropoietin signaling in activation of endothelial nitric oxide synthase. *J. Cell. Physiol.* 226: 3330-3339.

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.