SANTA CRUZ BIOTECHNOLOGY, INC.

EpoR siRNA (h): sc-37092



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.
- 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.
- 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.

CHROMOSOMAL LOCATION

Genetic locus: EPOR (human) mapping to 19p13.2.

PRODUCT

EpoR 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 EpoR shRNA Plasmid (h): sc-37092-SH and EpoR shRNA (h) Lentiviral Particles: sc-37092-V as alternate gene silencing products.

For independent verification of EpoR (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-37092A, sc-37092B and sc-37092C.

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

 $\mathsf{EpoR}\xspace$ siRNA (h) is recommended for the inhibition of $\mathsf{EpoR}\xspace$ 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-44221. 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

EpoR (D-5): sc-365662 is recommended as a control antibody for monitoring of EpoR 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 MarkerTM 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 EpoR gene expression knockdown using RT-PCR Primer: EpoR (h)-PR: sc-37092-PR (20 μ I, 482 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

- 1. Belda-Iniesta, C., et al. 2007. Human recombinant erythropoietin does not promote cancer growth in presence of functional receptors expressed in cancer cells. Cancer Biol. Ther. 6: 1600-1605.
- Yamaza, T., et al. 2009. Mesenchymal stem cell-mediated ectopic hematopoiesis alleviates aging-related phenotype in immunocompromised mice. Blood 113: 2595-2604.
- Lopez, T.V., et al. 2011. Autocrine/paracrine erythropoietin signalling promotes JAK/Stat-dependent proliferation of human cervical cancer cells. Int. J. Cancer 129: 2566-2576.
- Maltaneri, R.E., et al. 2024. Erythropoietin enhances iron bioavailability in HepG2 cells by downregulating hepcidin through mTOR, C/EBPα and HIF-1α. Biochim. Biophys. Acta Mol. Cell Res. 1871: 119800.

RESEARCH USE

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