SANTA CRUZ BIOTECHNOLOGY, INC.

EPCR siRNA (h): sc-39932

BACKGROUND

Thrombomodulin (TM) is an endothelial specific receptor that forms a complex with Thrombin, a protein with procoagulant, inflammatory and anticoagulant effects. The TM/Thrombin complex activates protein C (PC) to generate activated protein C (APC) and initiate the APC anticoagulant pathway. APC attenuates Thrombin formation through the inactivation, by limited proteolysis, of two significant cofactors of blood clot formation, Factor Va and Factor VIIIa. This process is augmented by the activity of the endothelial cell protein C receptor (EPCR), which binds both PC and APC with high affinity. The EPCR gene maps to human chromosome 20q11.22 and encodes an anticoagulant that is preferentially expressed on large blood vessel endothelium in the heart and lung with some expression in capillaries in the lung and skin. EPCR, also designated CCD41 in mouse, is a member of the major histocompatibility complex and displays significant homology to CD1. Soluble plasma EPCR is thought to inhibit the membrane-bound EPCR activation of the APC pathway.

REFERENCES

1. Fukudome, K., et al. 1995. Molecular cloning and expression of murine and bovine endothelial cell protein C/activated protein C receptor (EPCR). The structural and functional conservation in human, bovine, and murine EPCR. J. Biol. Chem. 270: 5571-5577.
2. Fukudome, K., et al. 1996. The endothelial cell protein C receptor. Cell surface expression and direct ligand binding by the soluble receptor. J. Biol. Chem. 271: 17491-17498.
3. Kurosawa, S., et al. 1997. Identification of functional endothelial Protein C receptor in human plasma. J. Clin. Invest. 100: 411-418.
4. Fukudome, K., et al. 1998. Activation mechanism of anticoagulant protein C in large blood vessels involving the endothelial cell protein C receptor. J. Exp. Med. 187: 1029-1035.
5. Hayashi, T., et al. 1999. Organization and chromosomal localization of the human endothelial protein C receptor gene. Gene 238: 367-373.
6. Ye, X., et al. 1999. The endothelial cell protein C receptor (EPCR) functions as a primary receptor for protein C activation on endothelial cells in arteries, veins and capillaries. Biochem. Biophys. Res. Commun. 259: 671-677.

CHROMOSOMAL LOCATION

Genetic locus: PROCR (human) mapping to 20q11.22.

PRODUCT

EPCR 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see EPCR shRNA Plasmid (h): sc-39932-SH and EPCR shRNA (h) Lentiviral Particles: sc-39932-V as alternate gene silencing products.

For independent verification of EPCR (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-39932A, sc-39932B and sc-39932C.

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

EPCR siRNA (h) is recommended for the inhibition of EPCR 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 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

EPCR (RCR-49): sc-53982 is recommended as a control antibody for monitoring of EPCR 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 EPCR gene expression knockdown using RT-PCR Primer: EPCR (h)-PR: sc-39932-PR (20 µl, 476 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Xue, M., et al. 2014. Endothelial protein C receptor-associated invasiveness of rheumatoid synovial fibroblasts is likely driven by group V secretory phospholipase A2. Arthritis Res. Ther. 16: R44.
2. Xue, M., et al. 2017. The endothelial protein C receptor is a potential stem cell marker for epidermal keratinocytes. Stem Cells 35: 1786-1798.
3. Azasi, Y., et al. 2018. Infected erythrocytes expressing DC13 PfEMP1 differ from recombinant proteins in EPCR-binding function. Proc. Natl. Acad. Sci. USA 115: 1063-1068.

RESEARCH USE

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