SANTA CRUZ BIOTECHNOLOGY, INC.

Tie-2 siRNA (h): sc-36677

BACKGROUND

Receptor tyrosine kinases play key roles in signal transduction across cell surfaces in biological systems, including the vascular system. These receptors comprise a large and diverse family of catalytically related proteins that, on the basis of sequence and structural similarities, can be divided into several different evolutionary subfamilies. The cloning and characterization of Tie-1 (also designated Tie), a novel human endothelial cell surface receptor tyrosine kinase, has been reported. The extracellular domain of the predicted Tie-1 protein product has an unusual multidomain structure consisting of a cluster of three epidermal growth factor homology motifs localized between two immunoglobulin-like loops, which are followed by three Fibronectin type III repeats next to the transmembrane region. An additional member of this family has been identified as Tie-2 (also designated Tek). Tie-1 and Tie-2 have been shown to be encoded by distinct genes and to represent members of a new class of receptor tyrosine kinases.

REFERENCES

1. Pawson, T., et al. 1991. Receptor tyrosine kinases: genetic evidence for their role in *Drosophila* and mouse development. Trends Genet. 6: 350-356.
2. Partanen, J., et al. 1992. A novel endothelial cell surface receptor tyrosine kinase with extracellular epidermal growth factor homology domains. Mol. Cell. Biol. 12: 1698-1707.

CHROMOSOMAL LOCATION

Genetic locus: TEK (human) mapping to 9p21.2.

PRODUCT

Tie-2 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 Tie-2 shRNA Plasmid (h): sc-36677-SH and Tie-2 shRNA (h) Lentiviral Particles: sc-36677-V as alternate gene silencing products.

For independent verification of Tie-2 (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-36677A, sc-36677B and sc-36677C.

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

Tie-2 siRNA (h) is recommended for the inhibition of Tie-2 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

Tie-2 (3A5): sc-293414 is recommended as a control antibody for monitoring of Tie-2 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 Tie-2 gene expression knockdown using RT-PCR Primer: Tie-2 (h)-PR: sc-36677-PR (20 µl, 536 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Lee, O.H., et al. 2006. Expression of the receptor tyrosine kinase Tie-2 in neoplastic glial cells is associated with Integrin β1-dependent adhesion to the extracellular matrix. Mol. Cancer Res. 4: 915-926.
2. Kugathasan, L., et al. 2009. The angiopietin-1-Tie-2 pathway prevents rather than promotes pulmonary arterial hypertension in transgenic mice. J. Exp. Med. 206: 2221-2234.
3. Minhas, N., et al. 2010. Activated protein C utilizes the angiopoietin/Tie-2 axis to promote endothelial barrier function. FASEB J. 24: 873-881.
4. Xue, M., et al. 2011. Activated protein C enhances human keratinocyte barrier integrity via sequential activation of epidermal growth factor receptor and Tie-2. J. Biol. Chem. 286: 6742-6750.
5. Zeng, K., et al. 2014. Taurine prevents high glucose-induced angiopoietin-2/Tie-2 system alterations and apoptosis in retinal microvascular pericytes. Mol. Cell. Biochem. 396: 239-248.
6. Chen, L., et al. 2016. Paracrine effect of GTP cyclohydrolase and angiopoietin-1 interaction in stromal fibroblasts on tumor Tie2 activation and breast cancer growth. Oncotarget 7: 9353-9367.
7. Yun, J.H., et al. 2019. Angiopoietin 1 attenuates interleukin-6-induced endothelial cell permeability through SHP-1. Biochem. Biophys. Res. Commun. 518: 286-293.

RESEARCH USE

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