SANTA CRUZ BIOTECHNOLOGY, INC.

PEBP-4 siRNA (h): sc-77509

BACKGROUND

PEBP-4 (phosphatidylethanolamine-binding protein 4), also known as Protein cousin-of-RKIP 1 (CORK1), is a 227 amino acid lysosomal protein that is a member of the RAF kinase inhibitory protein (RKIP) family. Unlike other RKIPs, PEBP-4 forms ternary complexes with Raf-1 and MEK and scaffolds this structure, thus resulting in the inhibition of the Raf-1/MEK/ERK signaling pathway. With preferential expression in muscle, PEBP-4 seems to control myocyte differentiation by modulation of MEK and ERK activity. Overexpression of PEBP-4 inhibits TNFα-induced activation of JNK and PE externalization, while reduced expression by siRNA knockdown results in an increase in TNFα-induced apoptosis. This suggests that PEBP-4 promotes cellular resistance to apoptosis and may be implicated in tumorigenesis.

REFERENCES

1. Yeung, K., et al. 1999. Suppression of Raf-1 kinase activity and MAP kinase signalling by RKIP. Nature 401: 173-177.
2. Odabaei, G., et al. 2004. Raf-1 kinase inhibitor protein: structure, function, regulation of cell signaling, and pivotal role in apoptosis. Adv. Cancer Res. 91: 169-200.
3. Wang, X., et al. 2004. A novel human phosphatidylethanolamine-binding protein resists tumor necrosis factor α-induced apoptosis by inhibiting mitogen-activated protein kinase pathway activation and phosphatidylethanolamine externalization. J. Biol. Chem. 279: 45855-45864.
4. Li, P., et al. 2006. Anti-apoptotic hPEBP4 silencing promotes TRAIL-induced apoptosis of human ovarian cancer cells by activating ERK and JNK pathways. Int. J. Mol. Med. 18: 505-510.
5. Zhang, Y., et al. 2007. Promotion of cellular migration and apoptosis resistance by a mouse eye-specific phosphatidylethanolamine-binding protein. Int. J. Mol. Med. 19: 55-63.
6. Li, H., et al. 2007. hPEBP4 resists TRAIL-induced apoptosis of human prostate cancer cells by activating Akt and deactivating ERK1/2 pathways. J. Biol. Chem. 282: 4943-4950.
7. Online Mendelian Inheritance in Man, OMIM™. 2008. Johns Hopkins University, Baltimore, MD. MIM Number: 612473. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/

CHROMOSOMAL LOCATION

Genetic locus: PEBP4 (human) mapping to 8p21.3.

PRODUCT

PEBP-4 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 PEBP-4 shRNA Plasmid (h): sc-77509-SH and PEBP-4 shRNA (h) Lentiviral Particles: sc-77509-V as alternate gene silencing products.

For independent verification of PEBP-4 (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-77509A, sc-77509B and sc-77509C.

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

PEBP-4 siRNA (h) is recommended for the inhibition of PEBP-4 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PEBP-4 gene expression knockdown using RT-PCR Primer: PEBP-4 (h)-PR: sc-77509-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Yu, G.P., et al. 2012. PEBP4 gene expression and its significance in invasion and metastasis of non-small cell lung cancer. Tumour Biol. 33: 223-228.
2. Liu, H., et al. 2012. Expression of PEBP4 protein correlates with the invasion and metastasis of colorectal cancer. Tumour Biol. 33: 267-273.

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.