

PEBP-4 siRNA (m): sc-152153

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 TNF α -induced activation of JNK and PE externalization, while reduced expression by siRNA knockdown results in an increase in TNF α -induced apoptosis. This suggests that PEBP-4 promotes cellular resistance to apoptosis and may be implicated in tumorigenesis.

REFERENCES

1. Yeung, K., Seitz, T., Li, S., Janosch, P., McFerran, B., Kaiser, C., Fee, F., Katsanakis, K.D., Rose, D.W., Mischak, H., Sedivy, J.M. and Kolch, W. 1999. Suppression of Raf-1 kinase activity and MAP kinase signalling by RKIP. *Nature* 401: 173-177.
2. Odabaei, G., Chatterjee, D., Jazirehi, A.R., Goodglick, L., Yeung, K. and Bonavida, B. 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., Li, N., Liu, B., Sun, H., Chen, T., Li, H., Qiu, J., Zhang, L., Wan, T. and Cao, X. 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., Wang, X., Li, N., Kong, H., Guo, Z., Liu, S. and Cao, X. 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., Wang, X., Xiang, Z., Li, H., Qiu, J., Sun, Q., Wan, T., Li, N., Cao, X. and Wang, J. 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., Wang, X., Li, N., Qiu, J., Zhang, Y. and Cao, X. 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/>
8. Garcia, R., Grindlay, J., Rath, O., Fee, F. and Kolch, W. 2009. Regulation of human myoblast differentiation by PEBP4. *EMBO Rep.* 10: 278-284.

CHROMOSOMAL LOCATION

Genetic locus: *Pebp4* (mouse) mapping to 14 D2.

RESEARCH USE

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

PRODUCT

PEBP-4 siRNA (m) is a target-specific 19-25 nt siRNA 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 PEBP-4 shRNA Plasmid (m): sc-152153-SH and PEBP-4 shRNA (m) Lentiviral Particles: sc-152153-V as alternate gene silencing products.

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

PEBP-4 siRNA (m) is recommended for the inhibition of PEBP-4 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 PEBP-4 gene expression knockdown using RT-PCR Primer: PEBP-4 (m)-PR: sc-152153-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.