SANTA CRUZ BIOTECHNOLOGY, INC.

PP4R1 siRNA (m): sc-62849

BACKGROUND

In eukaryotes, the phosphorylation and dephosphorylation of proteins on serine and threonine residues is an essential means of regulating a broad range of cellular functions, including division, homeostasis and apoptosis. A group of proteins that are intimately involved in this process are the serine/threonine protein phosphatases. In general, the protein phosphatase (PP) holoenzyme is a trimeric complex composed of a regulatory subunit, a variable subunit and a catalytic subunit. Protein phosphatase 4 (PP4) is comprised of different regulatory subunits that exhibit mutually exclusive interactions with the PP4 catalytic subunit, PPX. PP4R1, also known as PPP4R1 or PP4(Rmeg), is regulatory subunit 1 of protein phosphatase 4. It is ubiquitously expressed and can form a binary complex with PPX that negatively regulates the activity of HDAC3. PP4 is required for cell growth, nucleation and the stabilization of microtubules during cell division. This suggests that PP4R1 participates in the regulation of mitosis.

REFERENCES

1. Kloeker, S. and Wadzinski, B.E. 1999. Purification and identification of a novel subunit of protein serine/threonine phosphatase 4. J. Biol. Chem. 274: 5339-5347.
2. Hastie, C.J., et al. 2000. A novel 50 kDa protein forms complexes with protein phosphatase 4 and is located at centrosomal microtubule organizing centres. Biochem. J. 3: 845-855.
3. Wada, T., et al. 2001. Cloning and characterization of a novel subunit of protein serine/threonine phosphatase 4 from mesangial cells. J. Am. Soc. Nephrol. 12: 2601-2608.
4. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 604908. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
5. Yeh, P.Y., et al. 2004. Suppression of MEK/ERK signaling pathway enhances cisplatin-induced NFκB activation by protein phosphatase 4-mediated NFκB p65 Thr dephosphorylation. J. Biol. Chem. 279: 26143-26148.
6. Gingras, A.C., et al. 2005. A novel, evolutionarily conserved protein phosphatase complex involved in cisplatin sensitivity. Mol. Cell. Proteomics 4: 1725-1740.
7. Zhang, X., et al. 2005. Histone deacetylase 3 (HDAC3) activity is regulated by interaction with protein serine/threonine phosphatase 4. Genes Dev. 19: 827-839.
8. Mendoza, M.C., et al. 2007. MEK1 and protein phosphatase 4 coordinate Dictyostelium development and chemotaxis. Mol. Cell. Biol. 27: 3817-3827.

CHROMOSOMAL LOCATION

Genetic locus: Ppp4r1 (mouse) mapping to 17 E1.1.

PROTOCOLS

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

PRODUCT

PP4R1 siRNA (m) 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 PP4R1 shRNA Plasmid (m): sc-62849-SH and PP4R1 shRNA (m) Lentiviral Particles: sc-62849-V as alternate gene silencing products.

For independent verification of PP4R1 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-62849A, sc-62849B and sc-62849C.

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

PP4R1 siRNA (m) is recommended for the inhibition of PP4R1 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 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 PP4R1 gene expression knockdown using RT-PCR Primer: PP4R1 (m)-PR: sc-62849-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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