SANTA CRUZ BIOTECHNOLOGY, INC.

PP4R2 siRNA (h): sc-78526

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 protein phosphatases. PP4R2 (serine/threonine-protein phosphatase 4 regulatory subunit 2) is a 417 amino acid centrosomal protein that regulates PPX, a phosphatase that is involved in many intracellular events. Specifically, PP4R2 regulates PPX at centrosomal microtubule organizing centers, where it targets PPX to this location. PP4R2 interacts with the SMN complex, which leads to the enhancement of temporal localization of small nuclear ribonucleoproteins (snRNPs), suggesting that PP4R2 is involved in the maturation of spliceosomal snRNPs. A complex formed by PPX, PP4R3A and PP4R2 dephosphorylates Histone H2A.X on Ser140. There are three isoforms of PP4R2 that are produced as a result of alternative splicing events.

REFERENCES

1. Kloeker, S., et al. 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. 347: 845-855.
3. Carnegie, G.K., et al. 2003. Protein phosphatase 4 interacts with the survival of motor neurons complex and enhances the temporal localisation of snRNPs. J. Cell Sci. 116: 1905-1913.
4. Petek, E., et al. 2003. Molecular characterisation of a 15 Mb constitutional *de novo* interstitial deletion of chromosome 3p in a boy with developmental delay and congenital anomalies. J. Hum. Genet. 48: 283-287.
5. Gingras, A.C., et al. 2005. A novel, evolutionarily conserved protein phosphatase complex involved in cisplatin sensitivity. Mol. Cell. Proteomics 4: 1725-1740.
6. Mendoza, M.C., et al. 2007. MEK1 and protein phosphatase 4 coordinate *Dictyostelium* development and chemotaxis. Mol. Cell. Biol. 27: 3817-3827.
7. Chen, G.I., et al. 2008. PP4R4/KIAA1622 forms a novel stable cytosolic complex with phosphoprotein phosphatase 4. J. Biol. Chem. 283: 29273-29284.

CHROMOSOMAL LOCATION

Genetic locus: PPP4R2 (human) mapping to 3p13.

PRODUCT

PP4R2 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 PP4R2 shRNA Plasmid (h): sc-78526-SH and PP4R2 shRNA (h) Lentiviral Particles: sc-78526-V as alternate gene silencing products.

For independent verification of PP4R2 (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-78526A, sc-78526B and sc-78526C.

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

PP4R2 siRNA (h) is recommended for the inhibition of PP4R2 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 PP4R2 gene expression knockdown using RT-PCR Primer: PP4R2 (h)-PR: sc-78526-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. Ho, M.Y., et al. 2016. PATZ1 induces PP4R2 to form a negative feedback loop on IKK/NFκB signaling in lung cancer. Oncotarget 7: 52255-52269.
2. Parua, P.K., et al. 2020. Distinct Cdk9-phosphatase switches act at the beginning and end of elongation by RNA polymerase II. Nat. Commun. 11: 4338.

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.