SANTA CRUZ BIOTECHNOLOGY, INC.

pan PP1 siRNA (h): sc-43545

BACKGROUND

Several major protein serine/threonine phosphatases have been identified in eukaryotic cells. These include protein phosphatases 1, 2A, 2B, X and Y (PP1, PP2A, PP2B, PP2C, PPX and PPY). These enzymes can be distinguished by their action on phosphorylase kinase and their sensitivity to certain activators and inhibitors. For example, PP1 is potently inhibited by the thermostable protein inhibitors 1 and 2 and dephosphorylates the β subunit of phosphorylase kinase specifically, whereas type 2 protein phosphatases are unaffected by these inhibitor proteins and dephosphorylate the α subunit of phosphorylase kinase preferentially. The best studied member of this family, PP2A, consists of heterotrimeric complex composed of a catalytic subunit (C) and two associated regulatory subunits (A and B). It has been shown that transient expression of SV40 small T antigen in CV-1 cells activated both MAP kinase and MEK-1 activity, and stimulated cell growth in the absence of any effect on upstream Raf-1 activity. This effect was due to the interaction between SV40 small T antigen and PP2A.

REFERENCES

1. Ingebritsen, T.S., et al. 1983. Protein phosphatases: properties and role in cellular regulation. Science 221: 331-338.
2. Cohen, P. 1989. The structure and regulation of protein phosphatases. Annu. Rev. Biochem. 58: 453-508.

PRODUCT

pan PP1 siRNA (h) is a pool of 6 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 pan PP1 shRNA Plasmid (h): sc-43545-SH and pan PP1 shRNA (h) Lentiviral Particles: sc-43545-V as alternate gene silencing products.

For independent verification of pan PP1 (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-43545A, sc-43545B, sc-43545C, sc-43545D, sc-43545E and sc-43545F.

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

pan PP1 siRNA (h) is recommended for the inhibition of pan PP1 expression in human cells.

RESEARCH USE

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

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

PP1 (E-9): sc-7482 is recommended as a control antibody for monitoring of pan PP1 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).

SELECT PRODUCT CITATIONS

1. Caldas, H., et al. 2007. Dissecting the role of endothelial SURVIVIN ΔEx3 in angiogenesis. Blood 109: 1479-1489.
2. Wang, X., et al. 2008. IPP5, a novel protein inhibitor of protein phosphatase 1, promotes G_1/S progression in a Thr-40-dependent manner. J. Biol. Chem. 283: 12076-12084.
3. Aguilar, J.L., et al. 2009. Phosphatase-dependent regulation of epithelial mitogen-activated protein kinase responses to toxin-induced membrane pores. PLoS ONE 4: e8076.
4. Xiao, L., et al. 2011. KIBRA protein phosphorylation is regulated by mitotic kinase aurora and protein phosphatase 1. J. Biol. Chem. 286: 36304-36315.
5. Zhang, L., et al. 2012. KIBRA regulates aurora kinase activity and is required for precise chromosome alignment during mitosis. J. Biol. Chem. 287: 34069-34077.
6. Webster Marketon, J.I. and Corry, J. 2013. Respiratory syncytial virus (RSV) suppression of glucocorticoid receptor phosphorylation does not account for repression of transactivation. FEBS Open Bio 3: 305-309.
7. Amsailale, R., et al. 2014. Protein phosphatase 2A regulates deoxycytidine kinase activity via Ser-74 dephosphorylation. FEBS Lett. 588: 727-732.
8. Lim, J.M., et al. 2015. Control of the pericentrosomal H_2O_2 level by peroxiredoxin I is critical for mitotic progression. J. Cell Biol. 210: 23-33.
9. Pereira, J.M., et al. 2018. Infection reveals a modification of SIRT2 critical for chromatin association. Cell Rep. 23: 1124-1137.
10. Weith, M., et al. 2018. Ubiquitin-independent disassembly by a p97 AAA-ATPase complex drives PP1 holoenzyme formation. Mol. Cell 72: 766-777.e6.

PROTOCOLS

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