SANTA CRUZ BIOTECHNOLOGY, INC.

pan PP1 siRNA (m): sc-43533

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 phospho-rylase 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.
3. Cohen, P.T., et al. 1990. Protein serine/threonine phosphatases; an expanding family. FEBS Lett. 268: 355-359.
4. Kamibayashi, C., et al. 1991. Subunit interactions control protein phosphatase 2A. Effects of limited proteolysis, N-ethylmaleimide, and heparin on the interaction of the B subunit. J. Biol. Chem. 266: 13251-13260.
5. Shenolikar, S., et al. 1991. Protein phosphatases: recent progress. Adv. Second Messenger Phosphoprotein Res. 23: 1-121.
6. Ruediger, R., et al. 1992. Identification of binding sites on the regulatory A subunit of protein phosphatase 2A for the catalytic C subunit and for tumor antigens of simian virus 40 and polyomavirus. Mol. Cell. Biol. 12: 4872-4882.
7. Sontag, E., et al. 1993. The interaction of SV40 small tumor antigen with protein phosphatase 2A stimulates the map kinase pathway and induces cell proliferation. Cell 75: 887-897.

PRODUCT

pan PP1 siRNA (m) 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 (m): sc-43533-SH and pan PP1 shRNA (m) Lentiviral Particles: sc-43533-V as alternate gene silencing products.

For independent verification of pan PP1 (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-43533A, sc-43533B, sc-43533C, sc-43533D, sc-43533E and sc-43533F.

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 (m) is recommended for the inhibition of pan PP1 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.

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).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

SELECT PRODUCT CITATIONS

1. Zhu, Q.Y., et al. 2011. C6-ceramide synergistically potentiates the anti-tumor effects of histone deacetylase inhibitors via AKT dephosphorylation and α-Tubulin hyperacetylation both *in vitro* and *in vivo*. Cell Death Dis. 2: e117.

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.