SANTA CRUZ BIOTECHNOLOGY, INC.

PPA1 siRNA (h): sc-62850

BACKGROUND

PPA1 (pyrophosphate phosphohydrolase 1), also known as IOPPP (inorganic pyrophosphatase), PP1, PP or PPase, belongs to the PPase family of inorganic pyrophosphatases. Inorganic pyrophosphatases catalyze the intracellular conversion of pyrophosphate to inorganic phosphate, a key reaction for phosphate metabolism in cells. PPA1 is a ubiquitously expressed protein that localizes to the cytoplasm and is required for cell growth. It exists as a homodimer exhibiting magnesium dependent activity. The binding of two magnesium ions is required to stimulate PPA1 activity; however, both subunits in the homodimer are capable of binding four magnesium ions. The additional ions are useful in forming complexes with substrates and products. In addition, the activity of PPA1 can be inhibited by calcium.

REFERENCES

1. Fisher, R.A., et al. 1974. Studies on human erythrocyte inorganic pyrophosphatase. Ann. Hum. Genet. 37: 341-353.
2. Fisher, R.A., et al. 1974. Further studies on erythrocyte inorganic pyrophosphatase: an examination of different mammalian species and human-Chinese hamster hybrid cells. Ann. Hum. Genet. 38: 171-178.
3. McAlpine, P.J., et al. 1976. Assignment of the inorganic pyrophosphatase gene locus (PP) to chromosome 10 in man. Cytogenet. Cell Genet. 16: 201-203.
4. Chern, C.J. 1976. Localization of the structural genes for hexokinase-1 and inorganic pyrophosphatase on region (pter→q24) of human chromosome 10. Cytogenet. Cell Genet. 17: 338-342.
5. Vihinen, M., et al. 1992. Computer modeling of two inorganic pyrophosphatases. Biochem. Biophys. Res. Commun. 186: 122-128.
6. Fairchild, T.A. and Patejunas, G. 1999. Cloning and expression profile of human inorganic pyrophosphatase. Biochim. Biophys. Acta 1447: 133-136.
7. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 179030. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
8. Thoma, I., et al. 2003. Cyclopentenone isoprostanes induced by reactive oxygen species trigger defense gene activation and phytoalexin accumulation in plants. Plant J. 34: 363-375.

CHROMOSOMAL LOCATION

Genetic locus: PPA1 (human) mapping to 10q22.1.

PRODUCT

PPA1 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 PPA1 shRNA Plasmid (h): sc-62850-SH and PPA1 shRNA (h) Lentiviral Particles: sc-62850-V as alternate gene silencing products.

For independent verification of PPA1 (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-62850A, sc-62850B and sc-62850C.

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

PPA1 siRNA (h) is recommended for the inhibition of PPA1 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.

GENE EXPRESSION MONITORING

PPA1 (B-8): sc-377081 is recommended as a control antibody for monitoring of PPA1 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PPA1 gene expression knockdown using RT-PCR Primer: PPA1 (h)-PR: sc-62850-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.

PROTOCOLS

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