SANTA CRUZ BIOTECHNOLOGY, INC.

PPA2 siRNA (h): sc-106435

BACKGROUND

PPA2 (pyrophosphatase (inorganic) 2), also known as PPase 2 (pyrophosphate phospho-hydrolase 2) or pyrophosphatase SID6-306, is a 334 amino acid protein that exists as four alternatively spliced isoforms and belongs to the inorganic pyrophosphatase (PPase) family. Although PPA2 shares 60% amino acid identity with PPA1, PPA2 contains a 31-amino acid N-terminal extension not found in PPA1 that functions as a mitochondrial import signal. Localizing to mitochondrion, PPA2 is expressed in heart, kidney, liver, brain, gastric carcinoma, lung, ovary, skeletal muscle and umbilical cord blood. Similar to the other members of the PPase family, PPA2 contains the signature sequence essential for catalytic activity and catalyzes the hydrolysis of pyrophosphate to inorganic phosphate, which is important for the phosphate metabolism of cells. The gene that encodes 4q24 contains 12 exons and maps to human chromosome 4q24.

REFERENCES

1. Lundin, M., et al. 1991. Yeast PPA2 gene encodes a mitochondrial inorganic pyrophosphatase that is essential for mitochondrial function. J. Biol. Chem. 266: 12168-12172.
2. Lundin, M., et al. 1992. Characterization of a mitochondrial inorganic pyrophosphatase in *Saccharomyces cerevisiae*. Biochim. Biophys. Acta 1098: 217-223.
3. Yanagida, M., et al. 1992. Protein phosphatases and cell division cycle control. Ciba Found. Symp. 170: 130-140.
4. Masuda, M., et al. 2000. Genetic studies with the fission yeast *Schizosaccharomyces pombe* suggest involvement of wee1, ppa2, and rad24 in induction of cell cycle arrest by human immunodeficiency virus type 1 Vpr. J. Virol. 74: 2636-2646.
5. Curbo, S., et al. 2006. Human mitochondrial pyrophosphatase: cDNA cloning and analysis of the gene in patients with mtDNA depletion syndromes. Genomics 87: 410-416.
6. Jankowska, A.M., et al. 2009. Loss of heterozygosity 4q24 and TET2 mutations associated with myelodysplastic/myeloproliferative neoplasms. Blood 113: 6403-6410.

CHROMOSOMAL LOCATION

Genetic locus: PPA2 (human) mapping to 4q24.

PRODUCT

PPA2 siRNA (h) is a pool of 2 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 PPA2 shRNA Plasmid (h): sc-106435-SH and PPA2 shRNA (h) Lentiviral Particles: sc-106435-V as alternate gene silencing products.

For independent verification of PPA2 (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-106435A and sc-106435B.

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

PPA2 siRNA (h) is recommended for the inhibition of PPA2 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 PPA2 gene expression knockdown using RT-PCR Primer: PPA2 (h)-PR: sc-106435-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.