SANTA CRUZ BIOTECHNOLOGY, INC.

PAP-2b siRNA (h): sc-106783

BACKGROUND

PAP-2 (phosphatidic acid phosphatase 2), also known as lipid phosphate phosphohydrolase (LPP), is a family of integral membrane glycoproteins that dephosphorylate a variety of lipid phosphates and play a role in signal transduction via the phospholipase D pathway. PAP-2 proteins function independently of Mg^{2+} and are insensitive to NEM (N-ethylmaleimide) inhibition. The lipid phosphates degraded by this family include ceramide 1-phosphate (C1P), sphingosine 1-phosphate (S1P), phosphatidic acid (PA) and lysophosphatidic acid (LPA). There are three PAP-2 isozymes: PAP-2a, PAP-2b and PAP-2c (also known as LPP1, LPP3 and LPP2 respectively). PAP-2a and PAP-2b are ubiquitously expressed and most effectively hydrolyze PA and LPA. PAP-2c is predominantly expressed in human brain, placenta and pancreas, and in mouse liver, lung and kidney. PAP-2c most effectively hydrolyzes LPA and S1P and may function as a cell cycle regulator.

REFERENCES

1. Roberts, R., et al. 1998. Human type 2 phosphatidic acid phosphohydrolases. Substrate specificity of the type 2a, 2b, and 2c enzymes and cell surface activity of the 2a isoform. J. Biol. Chem. 273: 22059-22067.
2. Nanjundan, M. and Possmayer, F. 2000. Characterization of the pulmonary N-ethylmaleimide-insensitive phosphatidate phosphohydrolase. Exp. Lung Res. 26: 361-381.
3. Pasquare, S.J., et al. 2001. Aging promotes a different phosphatidic acid utilization in cytosolic and microsomal fractions from brain and liver. Exp. Gerontol. 36: 1387-1401.
4. Simon, M.F., et al. 2002. Expression of ectolipid phosphate phosphohydrolases in 3T3F442A preadipocytes and adipocytes. Involvement in the control of lysophosphatidic acid production. J. Biol. Chem. 277: 23131-23136.
5. Jia, Y.J., et al. 2003. Differential localization of lipid phosphate phosphatases 1 and 3 to cell surface subdomains in polarized MDCK cells. FEBS Lett. 552: 240-246.
6. Smyth, S.S., et al. 2003. Lipid phosphate phosphatases regulate lysophosphatidic acid production and signaling in platelets: studies using chemical inhibitors of lipid phosphate phosphatase activity. J. Biol. Chem. 278: 43214-43223.

CHROMOSOMAL LOCATION

Genetic locus: PPAP2B (human) mapping to 1p32.2.

PRODUCT

PAP-2b 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 PAP-2b shRNA Plasmid (h): sc-106783-SH and PAP-2b shRNA (h) Lentiviral Particles: sc-106783-V as alternate gene silencing products.

For independent verification of PAP-2b (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-106783A, sc-106783B and sc-106783C.

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

PAP-2b siRNA (h) is recommended for the inhibition of PAP-2b 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

PAP-2b (7H7D3): sc-517462 is recommended as a control antibody for monitoring of PAP-2b 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PAP-2b gene expression knockdown using RT-PCR Primer: PAP-2b (h)-PR: sc-106783-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.