SANTA CRUZ BIOTECHNOLOGY, INC.

ISYNA1 siRNA (m): sc-146305

BACKGROUND

Myo-inositol is an important constituent of membrane phospholipids and is a precursor for the phosphoinositide signaling pathway. ISYNA1 (inositol-3-phosphate synthase 1), also known as IPS, INO1 or INOS, is a 558 amino acid enzyme belonging to the Myo-inositol-1-phosphate synthase family. Highly expressed in testis, ovary, heart, placenta and pancreas, with weak expression in blood leukocytes, thymus, skeletal muscle and colon, SYNA1 is the key enzyme myo-inositol biosynthesis, as it catalyzes the conversion of glucose 6-phosphate to 1-Myo-inositol 1-phosphate in a NAD-dependent manner. ISYNA1 is the rate-limiting enzyme in the synthesis of all inositol-containing compounds. ISYNA1 may be upregulated by E2F-1, and is inhibited by valproate (VPA) and lithium, which are mood-stabilizing drugs.

REFERENCES

1. Hegeman, C.E., et al. 2001. Expression of D-Myo-inositol-3-phosphate synthase in soybean. Implications for phytic acid biosynthesis. Plant Physiol. 125: 1941-1948.
2. Agam, G., et al. 2002. Myo-inositol-1-phosphate (MIP) synthase: a possible new target for antibipolar drugs. Bipolar Disord. 4: 15-20.
3. Seelan, R.S., et al. 2004. E2F1 regulation of the human Myo-inositol 1-phosphate synthase (ISYNA1) gene promoter. Arch. Biochem. Biophys. 431: 95-106.
4. Chauvin, T.R., et al. 2004. Characterization of the expression and regulation of genes necessary for Myo-inositol biosynthesis and transport in the seminiferous epithelium. Biol. Reprod. 70: 744-751.
5. Ju, S., et al. 2004. Human 1-D-Myo-inositol-3-phosphate synthase is functional in yeast. J. Biol. Chem. 279: 21759-21765.
7. Shaltiel, G., et al. 2007. Effect of valproate derivatives on human brain Myo-inositol-1-phosphate (MIP) synthase activity and amphetamine-induced rearing. Pharmacol. Rep. 59: 402-407.
8. Einat, H., et al. 2008. Myo-inositol-1-phosphate (MIP) synthase inhibition: in-vivo study in rats. J. Neural. Transm. 115: 55-58.
9. Seelan, R.S., et al. 2009. Identification of Myo-inositol-3-phosphate synthase isoforms: characterization, expression, and putative role of a 16-kDa γ_c isoform. J. Biol. Chem. 284: 9443-9457.

CHROMOSOMAL LOCATION

Genetic locus: Isyna1 (mouse) mapping to 8 B3.3.

PRODUCT

ISYNA1 siRNA (m) is a target-specific 19-25 nt siRNA 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 ISYNA1 shRNA Plasmid (m): sc-146305-SH and ISYNA1 shRNA (m) Lentiviral Particles: sc-146305-V as alternate gene silencing products.

RESEARCH USE

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

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

ISYNA1 siRNA (m) is recommended for the inhibition of ISYNA1 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

ISYNA1 (C-8): sc-377245 is recommended as a control antibody for monitoring of ISYNA1 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 ISYNA1 gene expression knockdown using RT-PCR Primer: ISYNA1 (m)-PR: sc-146305-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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