SANTA CRUZ BIOTECHNOLOGY, INC.

ITPase siRNA (h): sc-75348

BACKGROUND

ITPase (inosine triphosphate pyrophosphatase) is also known as putative oncogene protein hlc14-06-p or ITPA (inosine triphosphatase (nucleoside triphosphate pyrophosphatase)) and is a 194 amino acid protein. ITPase is abundantly expressed in heart, liver, sex glands, thyroid and adrenal gland, and is localized to the cytoplasm in the cell. ITPase catalyzes the pyrophosphohydrolysis of both ITP (inosine triphosphate) and dITP (deoxyinosine triphosphate) to IMP (inosine monophosphate) and diphosphate. IMP can be used as a substrate for purine nucleotide pathways. IMP can be phosphorylated to ITP, and ITPase can regulate the concentration of ITP in the cell by converting ITP back to IMP. Defects in ITPase result in ITPase deficiency which is thought to be inherited and is characterized by an over-accumulation of ITP in erythocytes, leukocytes and fibroblasts.

REFERENCES

1. Verhoef, V.L., et al. 1980. Individual variation of nucleoside triphosphate pyrophosphohydrolase activity in human erythrocytes, granulocytes, lymphocytes, and platelets. Biochem. Genet. 18: 235-245.
2. online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 147520. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
3. Breen, D.P., et al. 2005. Pharmacogenetic association with adverse drug reactions to azathioprine immunosuppressive therapy following liver transplantation. Liver Transpl. 11: 826-833.
4. Savchenko, A., et al. 2007. Molecular basis of the antimutagenic activity of the house-cleaning inosine triphosphate pyrophosphatase RdgB from *Escherichia coli*. J. Mol. Biol. 374: 1091-1103.
5. Bierau, J., et al. 2007. Pharmacogenetic significance of inosine triphosphatase. Pharmacogenomics 8: 1221-1228.
6. Tomkova, J., et al. 2008. ITPase activity in dry blood spots is comparable with that in fresh erythrocytes. Nucleosides Nucleotides Nucleic Acids 27: 656-660.

CHROMOSOMAL LOCATION

Genetic locus: ITPA (human) mapping to 20p13.

PRODUCT

ITPase 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 ITPase shRNA Plasmid (h): sc-75348-SH and ITPase shRNA (h) Lentiviral Particles: sc-75348-V as alternate gene silencing products.

For independent verification of ITPase (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-75348A, sc-75348B and sc-75348C.

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

ITPase siRNA (h) is recommended for the inhibition of ITPase 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

ITPase (A-4): sc-514409 is recommended as a control antibody for monitoring of ITPase 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 ITPase gene expression knockdown using RT-PCR Primer: ITPase (h)-PR: sc-75348-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.