SANTA CRUZ BIOTECHNOLOGY, INC.

GAPDH siRNA (h): sc-35448

BACKGROUND

Glyceraldehyde-3-phosphate dehydrogenase (GAPDH), also called uracil DNA glycosylase, catalyzes the reversible oxidative phosphorylation of glyceraldehyde-3-phosphate in the presence of inorganic phosphate and nicotinamide adenine dinucleotide (NAD), an important energy-yielding step in carbohydrate metabolism. While GAPDH has long been recognized as playing an integral role in glycolysis, additional functions of GAPDH include acting as a uracil DNA glycosylase, activating transcription, binding RNA and involvement in nuclear RNA export, DNA replication and DNA repair. Expression of GAPDH is upregulated in liver, lung and prostate cancers. GAPDH translocates to the nucleus during apoptosis. GAPDH complexes with neuronal proteins implicated in human neuro-degenerative disorders, including the β-Amyloid precursor, Huntingtin and other triplet-repeat neuronal disorder proteins.

CHROMOSOMAL LOCATION

Genetic locus: GAPDH (human) mapping to 12p13.31.

PRODUCT

GAPDH 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 GAPDH shRNA Plasmid (h): sc-35448-SH and GAPDH shRNA (h) Lentiviral Particles: sc-35448-V as alternate gene silencing products.

For independent verification of GAPDH (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-35448A, sc-35448B and sc-35448C.

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

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

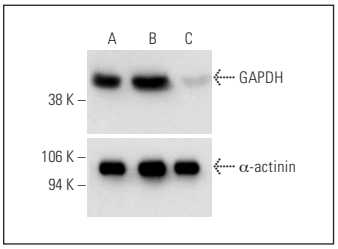
GENE EXPRESSION MONITORING

GAPDH (0411): sc-47724 is recommended as a control antibody for monitoring of GAPDH 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 GAPDH gene expression knockdown using RT-PCR Primer: GAPDH (h)-PR: sc-35448-PR (20 µl, 532 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

DATA



GAPDH siRNA (h): sc-35448. Western blot analysis of GAPDH expression in non-transfected (**A**), control siRNA-A transfected: sc-37007 (**B**) and GAPDH siRNA transfected: sc-35448 (**C**) HeLa cells. Blot probed with GAPDH (V-18): sc-20357. α-actinin (H-2): sc-17829 used as specificity and loading control.

SELECT PRODUCT CITATIONS

1. Warne, K.E., et al. 2009. Lessons in living and dying from my first patient: an autoethnography. Can. J. Occup. Ther. 76: 309-316.
2. Das, A., et al. 2012. Inhibition of ROS-induced apoptosis in endothelial cells by nitrone spin traps via induction of phase II enzymes and suppression of mitochondria-dependent pro-apoptotic signaling. Biochem. Pharmacol. 84: 486-497.
3. Karthikeyan, K., et al. 2015. Fabrication of electrospun zein nanofibers for the sustained delivery of siRNA. J. Mater. Sci. Mater. Med. 26: 101.
4. Zhou, C.C., et al. 2017. AFF1 and AFF4 differentially regulate the osteogenic differentiation of human MSCs. Bone Res. 5: 17044.
5. Wu, W.S., et al. 2022. Suppressing of Src-Hic-5-JNK-AKT signaling reduced GAPDH expression for preventing the progression of HuCCT1 cholangiocarcinoma. Pharmaceutics 14: 2698.
6. Urrutia, A.A., et al. 2024. HIF1α-dependent uncoupling of glycolysis suppresses tumor cell proliferation. Cell Rep. 43: 114103.

RESEARCH USE

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