SANTA CRUZ BIOTECHNOLOGY, INC.

PFKFB3 siRNA (m): sc-39026

BACKGROUND

Phosphofructosekinase-2 (PFK-2) belongs to the phosphoglycerate mutase family and is required for the activation of cellular glycolysis. Within the glycolysis pathway, PFK-2 regulates the synthesis and degradation of fructose 2,6-bisphosphate (F2,6BP) by enzymatically catalyzing the phosphorylation of fructose-6-phosphate to form F2,6BP. F2,6BP functions as a potent activator for 6-phosphofructo-1-kinase that can then activate the glycolysis pathway. Various tissue-specific isoforms of PFK-2 are expressed, including the PFK-2 specific to the brain (br), the liver (liv) and the placenta (pl), and they are also differentially regulated and function as homodimers. A unique isoform, iPFK-2, is induced following proinflammatory stimuli, and it is also constituitively expressed in a variety of carcinoma cell lines, where it leads to an accumation of intracellular F2,6BP. In addition, the expression of iPFK-2 correlates to increases in DNA sysnthesis, suggesting that iPFK-2 may contribute to cellular transformation of cells and enhanced cellular proliferation.

REFERENCES

1. Bruni, P., et al. 1983. Increase of the glycolytic rate in human resting fibroblasts following serum stimulation. The possible role of the fructose-2,6-bisphosphate. FEBS Lett. 159: 39-42.
2. Algaier, J., et al. 1988. Molecular cloning, sequence analysis, and expression of a human liver cDNA coding for fructose-6-P,2-kinase:fructose-2,6-bisphosphatase. Biochem. Biophys. Res. Commun. 153: 328-333.
3. Cifuentes, M.E., et al. 1991. Hormonal control of 6-phosphofructo-2-kinase/fructose-2,6-bisphosphatase gene expression in rat hepatoma cells. J. Biol. Chem. 266: 1557-1563.
4. Hirata, T., et al. 1998. Expression of human placental-type 6-phosphofructo-2-kinase/fructose 2,6-bisphosphatase in various cells and cell lines. Biochem. Biophys. Res. Commun. 242: 680-684.
5. Bruni, P., et al. 1999. Expression and regulation of 6-phosphofructo-2-kinase/fructose-2,6-bisphosphatase isozymes in white adipose tissue. Eur. J. Biochem. 259: 756-761.
6. Watanabe, F., et al. 1999. Tissue-specific alternative splicing of rat brain fructose 6-phosphate 2-kinase/fructose 2,6-bisphosphatase. FEBS Lett. 458: 304-308.

CHROMOSOMAL LOCATION

Genetic locus: Pfkfb3 (mouse) mapping to 2 A1.

PRODUCT

PFKFB3 siRNA (m) 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 PFKFB3 shRNA Plasmid (m): sc-39026-SH and PFKFB3 shRNA (m) Lentiviral Particles: sc-39026-V as alternate gene silencing products.

For independent verification of PFKFB3 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-39026A, sc-39026B and sc-39026C.

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

PFKFB3 siRNA (m) is recommended for the inhibition of PFKFB3 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PFKFB3 gene expression knockdown using RT-PCR Primer: PFKFB3 (m)-PR: sc-39026-PR (20 µl, 423 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Izikki, M., et al. 2009. Endothelial-derived FGF2 contributes to the progression of pulmonary hypertension in humans and rodents. J. Clin. Invest. 119: 512-523.

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.