SANTA CRUZ BIOTECHNOLOGY, INC.

PID1 siRNA (m): sc-140342

BACKGROUND

NYGGF4, also known as PCLI1 or PID1 (phosphotyrosine interaction domain containing 1), is a 250 amino acid cytoplasmic protein expressed in subcutaneous fat, heart, skeletal muscle, brain, colon, thymus, spleen, kidney, liver, small intestine, placenta, lung and peripheral blood leukocyte. Up-regulated in fat of obese individuals, NYGGF4 increases proliferation of preadipocytes without affecting adipocytic differentiation. NYGGF4 is thought to regulate IRS-1 and Akt activity, decrease Glut4 translocation and reduce glucose uptake in response to Insulin. Overexpression of NYGGF4 is suggested decrease mitochondrial mass, mitochondrial DNA and intracellular ATP synthesis in adipocytes. NYGGF4 consists of one PID domain, exists as four alternatively spliced isoforms and forms a complex with LRP1 and CUBNI.

REFERENCES

1. Wang, B., et al. 2006. Identification and characterization of NYGGF4, a novel gene containing a phosphotyrosine-binding (PTB) domain that stimulates 3T3-L1 preadipocytes proliferation. Gene 379: 132-140.
2. Zhang, C.M., et al. 2009. Over-expression of NYGGF4 inhibits glucose transport in 3T3-L1 adipocytes via attenuated phosphorylation of IRS-1 and Akt. Acta Pharmacol. Sin. 30: 120-124.
3. Zhang, C.M., et al. 2010. Effects of NYGGF4 knockdown on Insulin sensitivity and mitochondrial function in 3T3-L1 adipocytes. J. Bioenerg. Biomembr. 42: 433-439.
4. Wu, W.L., et al. 2010. Over-expression of NYGGF4 (PID1) inhibits glucose transport in skeletal myotubes by blocking the IRS1/PI3K/AKT Insulin pathway. Mol. Genet. Metab. 102: 374-377.
5. Kajiwara, Y., et al. 2010. Extensive proteomic screening identifies the obesity-related NYGGF4 protein as a novel LRP1-interactor, showing reduced expression in early Alzheimer's disease. Mol. Neurodegener. 5: 1.
6. Zhao, Y.P., et al. 2010. NYGGF4 homologous gene expression in 3T3-L1 adipocytes: regulation by FFA and adipokines. Mol. Biol. Rep. 37: 3291-3296.
7. Zhao, Y., et al. 2010. Overexpression of NYGGF4 (PID1) induces mitochondrial impairment in 3T3-L1 adipocytes. Mol. Cell. Biochem. 340: 41-48.
8. Zhao, Y., et al. 2010. Expression of the NYGGF4 gene during human preadipocyte differentiation and the regulative role of tumor necrosis factor-α. Zhonghua Yi Xue Yi Chuan Xue Za Zhi 27: 69-72.
9. Man, C., et al. 2011. Cloning, sequence identification, and tissue expression analysis of novel chicken NYGGF4 gene. Mol. Cell. Biochem. 346: 117-124.

CHROMOSOMAL LOCATION

Genetic locus: Pid1 (mouse) mapping to 1 C5.

PROTOCOLS

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

PRODUCT

PID1 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 PID1 shRNA Plasmid (m): sc-140342-SH and PID1 shRNA (m) Lentiviral Particles: sc-140342-V as alternate gene silencing products.

For independent verification of PID1 (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-140342A, sc-140342B and sc-140342C.

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

PID1 siRNA (m) is recommended for the inhibition of PID1 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 PID1 gene expression knockdown using RT-PCR Primer: PID1 (m)-PR: sc-140342-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.