SANTA CRUZ BIOTECHNOLOGY, INC.

PPARα siRNA (m): sc-36308

BACKGROUND

Peroxisome proliferator-activated receptors (PPARs) are nuclear hormone receptors that can be activated by a variety of compounds including fibratus, thiazolidinediones, prostaglandins and fatty acids. Three PPAR subtypes, designated PPARα, PPARβ (also designated PPARδ) and PPARγ, have been described. PPARs promote transcription by forming heterodimers with members of the retinoid X receptor (RXR) family of steroid receptors and binding to specific DNA motifs termed PPAR-response elements (PPREs). PPARα is abundant in primary hepatocytes where it regulates the expression of proteins involved in fatty acid metabolism. Interestingly, both the orphan nuclear hormone receptor LXRα and thyroid receptor (TR) have been shown to act as antagonists of PPARα/RXRα binding to PPREs.

CHROMOSOMAL LOCATION

Genetic locus: Ppara (mouse) mapping to 15 E2.

PRODUCT

PPARα 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 PPARα shRNA Plasmid (m): sc-36308-SH and PPARα shRNA (m) Lentiviral Particles: sc-36308-V as alternate gene silencing products.

For independent verification of PPARα (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-36308A, sc-36308B and sc-36308C.

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

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

PPARα (H-2): sc-398394 is recommended as a control antibody for monitoring of PPARα 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 PPARα gene expression knockdown using RT-PCR Primer: PPARα (m)-PR: sc-36308-PR (20 µl, 513 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

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3. Chen, H.H., et al. 2009. Peroxisome proliferator-activated receptor α plays a crucial role in L-carnitine anti-apoptosis effect in renal tubular cells. Nephrol. Dial. Transplant. 24: 3042-3049.
4. Zhang, H., et al. 2013. Nordihydroguaiaretic acid improves metabolic dysregulation and aberrant hepatic lipid metabolism in mice by both PPARα-dependent and -independent pathways. Am. J. Physiol. Gastrointest. Liver Physiol. 304: G72-G86.
5. Chen, J.H., et al. 2013. Anti-atherosclerotic potential of gossypetin via inhibiting LDL oxidation and foam cell formation. Toxicol. Appl. Pharmacol. 272: 313-324.
6. Ming, G.F., et al. 2014. JAZF1 regulates visfatin expression in adipocytes via PPARα and PPARβ/δ signaling. Metab. Clin. Exp. 63: 1012-1021.
7. Jung, T.W., et al. 2017. Protectin DX ameliorates palmitate- or high-fat diet-induced Insulin resistance and inflammation through an AMPK-PPARα-dependent pathway in mice. Sci. Rep. 7: 1397.
8. Li, D., et al. 2017. Hepatic hypoxia-inducible factors inhibit PPARα expression to exacerbate acetaminophen induced oxidative stress and hepatotoxicity. Free Radic. Biol. Med. 110: 102-116.
9. Yang, W., et al. 2017. N-3 polyunsaturated fatty acids increase hepatic fibroblast growth factor 21 sensitivity via a PPAR-γ-β-klotho pathway. Mol. Nutr. Food Res. E-published.
10. Kim, Y.H., et al. 2019. Fenofibrate induces PPARα and BMP2 expression to stimulate osteoblast differentiation. Biochem. Biophys. Res. Commun. 520: 459-465.

RESEARCH USE

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