SANTA CRUZ BIOTECHNOLOGY, INC.

PPARγ siRNA (m): sc-29456

BACKGROUND

Peroxisome proliferator-activated receptors (PPARs) are members of the nuclear hormone receptor subfamily of transcription factors. PPARs form heterodimers with retinoid X receptors (RXRs). These heterodimers regulate transcription of genes involved in Insulin action, adipocyte differentiation, lipid metabolism and inflammation. PPARγ is implicated in numerous diseases including obesity, diabetes, atherosclerosis and cancer. PPARγ activators include prostanoids, fatty acids, thiazolidinediones and N-(2-benzoylphenyl) tyrosine analogues. A key component in adipocyte differentiation and fat-specific gene expression, PPARγ may modulate macrophage functions such as proinflammatory activities, and stimulate oxidized low-density lipoprotein (x-LDL) uptake. A Pro12Ala polymorphism of the $PPAR\gamma_2$ gene has been reported to reduce transactivation activity *in vitro*. This substitution may affect the immune response to ox-LDL and be associated with type 2 diabetes. In addition, the Pro12Ala variant of the $PPAR\gamma_2$ gene maybe correlated with abdominal obesity in type 2 diabetes.

REFERENCES

1. Brun, R.P., et al. 1996. Differential activation of adipogenesis by multiple PPAR isoforms. Genes Dev. 10: 974-984.
2. Mansen, A., et al. 1996. Expression of the peroxisome proliferator-activated receptor (PPAR) in the mouse colonic mucosa. Biochem. Biophys. Res. Commun. 222: 844-851.

CHROMOSOMAL LOCATION

Genetic locus: Pparg (mouse) mapping to 6 E3.

PRODUCT

PPARγ 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 PPARγ shRNA Plasmid (m): sc-29456-SH and PPARγ shRNA (m) Lentiviral Particles: sc-29456-V as alternate gene silencing products.

For independent verification of PPARγ (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-29456A, sc-29456B and sc-29456C.

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

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

PPARγ (E-8): sc-7273 is recommended as a control antibody for monitoring of PPARγ 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 PPARγ gene expression knockdown using RT-PCR Primer: PPARγ (m)-PR: sc-29456-PR (20 µl, 551 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Mizutani, N., et al. 2007. Dose-dependent differential regulation of cytokine secretion from macrophages by fractalkine. J. Immunol. 179: 7478-7487.
2. Hui, H., et al. 2014. Oroxylin A has therapeutic potential in acute myelogenous leukemia by dual effects targeting PPARγ and RXRα. Int. J. Cancer 134: 1195-1206.
3. Wang, X., et al. 2016. Oroxyloside prevents dextran sulfate sodium-induced experimental colitis in mice by inhibiting NFκB pathway through PPARγ activation. Biochem. Pharmacol. 106: 70-81.
4. Cao, X., et al. 2017. The critical role of ABCG1 and PPARγ/LXRα signaling in TLR4 mediates inflammatory responses and lipid accumulation in vascular smooth muscle cells. Cell Tissue Res. 368: 145-157.
5. Wnuk, A., et al. 2018. Apoptosis induced by the UV filter benzophenone-3 in mouse neuronal cells is mediated via attenuation of Erα/PPARγ and stimulation of Erβ/Gpr30 signaling. Mol. Neurobiol. 55: 2362-2383.
6. Szychowski, K.A. and Gminski, J. 2019. Elastin-derived peptide VGVAPG affects the proliferation of mouse cortical astrocytes with the involvement of aryl hydrocarbon receptor (Ahr), peroxisome proliferator-activated receptor γ (PPARγ), and elastin-binding protein (EBP). Cytokine 126: 154930.
7. Tsukahara, T. 2020. 1-O-alkyl glycerophosphate-induced CD36 expression drives oxidative stress in microglial cells. Cell. Signal. 65: 109459.

RESEARCH USE

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