SANTA CRUZ BIOTECHNOLOGY, INC.

PPARγ siRNA (h): sc-29455

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 PPARγ2 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 PPARγ2 gene may be correlated with abdominal obesity in type 2 diabetes.

CHROMOSOMAL LOCATION

Genetic locus: PPARG (human) mapping to 3p25.2.

PRODUCT

PPARγ siRNA (h) is a target-specific 19-25 nt siRNA 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 (h): sc-29455-SH and PPARγ shRNA (h) Lentiviral Particles: sc-29455-V as alternate gene silencing products.

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 (h) is recommended for the inhibition of PPARγ 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

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 (h)-PR: sc-29455-PR (20 µl, 596 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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2. Lee, M.W., et al. 2012. Cell death is induced by ciglitazone, a peroxisome proliferator-activated receptor γ (PPARγ) agonist, independently of PPARγ in human glioma cells. Biochem. Biophys. Res. Commun. 417: 552-557.
3. Voloshyna, I., et al. 2013. Resveratrol mediates anti-atherogenic effects on cholesterol flux in human macrophages and endothelium via PPARγ and adenosine. Eur. J. Pharmacol. 698: 299-309.
4. Briganti, S., et al. 2014. Modulation of PPARγ provides new insights in a stress induced premature senescence model. PLoS ONE 9: e104045.
5. Wang, J.M., et al. 2015. Pioglitazone reduces lipid droplets in cholesterolosis of the gallbladder by increasing ABCA1 and NCEH1 expression. Mol. Cell. Biochem. 399: 7-15.
6. He, X.W., et al. 2016. Anti-atherosclerotic potential of baicalin mediated by promoting cholesterol efflux from macrophages via the PPARγ-LXRα-ABCA1/ABCG1 pathway. Biomed. Pharmacother. 83: 257-264.
7. Morgado, M. and Carson, D.D. 2017. PPARγ modulation of cytokine-stimulated MUC16 (CA125) expression in breast and ovarian cancer-derived cells. J. Cell. Biochem. 118: 163-171.
8. Tsukahara, T., et al. 2018. Alkyl-glycerophosphate-mediated C-C motif chemokine 2 secretion induces oxidative stress via increased PPARγ activation in human umbilical vein endothelial cells. Biomed. Pharmacother. 106: 686-691.
9. Du, Y., et al. 2019. Physcion 8-O-β-Glucopyranoside exerts anti-tumor activity against non-small cell lung cancer by targeting PPARγ. Anat. Rec. 302: 785-793.
10. Kim, T.W., et al. 2020. A novel PPARγ ligand, PPZ023, overcomes radioresistance via ER stress and cell death in human non-small-cell lung cancer cells. Exp. Mol. Med. 52: 1730-1743.

RESEARCH USE

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