



PPAR γ siRNA (m2): sc-43530

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. PPAR γ is implicated in numerous diseases including obesity, diabetes, atherosclerosis and cancer. PPAR γ activators include prostanoids, fatty acids, thiazolidinediones and N-(2-benzoylphenyl) tyrosine analogues. A key component in adipocyte differentiation and fat-specific gene expression, PPAR γ may modulate macrophage functions such as proinflammatory activities, and stimulate oxidized low-density lipoprotein (x-LDL) uptake. A Pro12Ala polymorphism of the PPAR γ_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 γ_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

PPAR γ siRNA (m2) 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see PPAR γ shRNA Plasmid (m2): sc-43530-SH and PPAR γ shRNA (m2) Lentiviral Particles: sc-43530-V as alternate gene silencing products.

For independent verification of PPAR γ (m2) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-43530A, sc-43530B and sc-43530C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

PPAR γ siRNA (m2) is recommended for the inhibition of PPAR γ 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 μ M in 66 μ l. 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

PPAR γ (E-8): sc-7273 is recommended as a control antibody for monitoring of PPAR γ 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).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PPAR γ gene expression knockdown using RT-PCR Primer: PPAR γ (m2)-PR: sc-43530-PR (20 μ l, 580 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Kilroy, G., et al. 2012. The ubiquitin ligase Siah2 regulates PPAR γ activity in adipocytes. *Endocrinology* 153: 1206-1218.
2. Chen, M.J., et al. 2015. The effect of androgens on ovarian follicle maturation: dihydrotestosterone suppress FSH-stimulated granulosa cell proliferation by upregulating PPAR γ -dependent PTEN expression. *Sci. Rep.* 5: 18319.
3. Ganguli, G., et al. 2020. *Mycobacterium tuberculosis* Rv3034c regulates mTORC1 and PPAR γ dependant pexophagy mechanism to control redox levels in macrophages. *Cell. Microbiol.* 22: e13214.
4. Baroi, S., et al. 2024. PPARG in osteocytes controls cell bioenergetics and systemic energy metabolism independently of sclerostin levels in circulation. *Mol. Metab.* 88: 102000.
5. Baroi, S., et al. 2024. PPARG in osteocytes controls cell bioenergetics and systemic energy metabolism independently of sclerostin levels in circulation. *bioRxiv*. E-published.

RESEARCH USE

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