

Cyclophilin F siRNA (h): sc-77071

BACKGROUND

Cyclophilins are conserved, ubiquitous and abundant cytosolic peptidyl-prolyl *cis-trans* isomerases that accelerate the isomerization of XaaPro peptide bonds and the refolding of proteins. Human cyclophilin A (CyPA), an intracellular protein of 165 amino acids, is the target of cyclosporin A (CsA) and is encoded by a single unique gene conserved between yeast to humans. Cyclophilin B (CyPB) is secreted in biological fluids such as blood or milk, and binds to a specific receptor present on human peripheral blood lymphocytes and expressed in Jurkat cells, a line of human lymphoblasts. Cyclophilin D (CyPD) is a widely expressed cytoplasmic protein that catalyzes the *cis-trans* isomerization of proline imidic peptide bonds in oligopeptides. Cyclophilin F (CyPF), is also known as PPIF, Cyp-D or Rotamase F, is a 207 amino acid mitochondrial matrix protein involved in the induction of necrotic and apoptotic cell death through the activation of the mitochondrial permeability transition (mPT) pore.

REFERENCES

1. Bowles, K.R., et al. 1999. Genomic characterization of the human peptidyl-prolyl-*cis-trans*-isomerase, mitochondrial precursor gene: assessment of its role in familial dilated cardiomyopathy. *Hum. Genet.* 105: 582-586.
2. Basso, E., et al. 2005. Properties of the permeability transition pore in mitochondria devoid of Cyclophilin D. *J. Biol. Chem.* 280: 18558-18561.
3. Baines, C.P., et al. 2005. Loss of Cyclophilin D reveals a critical role for mitochondrial permeability transition in cell death. *Nature* 434: 658-662.
4. Hu, P., et al. 2007. Ontogeny of rdh9 (Crad3) expression: ablation causes changes in retinoid and steroid metabolizing enzymes, but RXR and androgen signaling seem normal. *Biochim. Biophys. Acta* 1770: 694-705.
5. Naga, K.K., et al. 2007. High Cyclophilin D content of synaptic mitochondria results in increased vulnerability to permeability transition. *J. Neurosci.* 27: 7469-7475.
6. Du, H., et al. 2008. Cyclophilin D deficiency attenuates mitochondrial and neuronal perturbation and ameliorates learning and memory in Alzheimer's disease. *Nat. Med.* 14: 1097-1105.

CHROMOSOMAL LOCATION

Genetic locus: PPIF (human) mapping to 10q22.3.

PRODUCT

Cyclophilin F siRNA (h) 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 Cyclophilin F shRNA Plasmid (h): sc-77071-SH and Cyclophilin F shRNA (h) Lentiviral Particles: sc-77071-V as alternate gene silencing products.

For independent verification of Cyclophilin F (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-77071A, sc-77071B and sc-77071C.

RESEARCH USE

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

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

Cyclophilin F siRNA (h) is recommended for the inhibition of Cyclophilin F 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 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

Cyclophilin F (G-9): sc-376061 is recommended as a control antibody for monitoring of Cyclophilin F 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 Cyclophilin F gene expression knockdown using RT-PCR Primer: Cyclophilin F (h)-PR: sc-77071-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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