FKBP51 shRNA Plasmid (h): sc-35380-SH

BACKGROUND

The immunophilins are a highly conserved family of *cis-trans* peptidyl-prolyl isomerases that bind to and mediate the effects of immunosuppressive drugs, such as cyclosporin, FK506 and rapamycin. Several related immunophilins, FKBP12, FKBP51 and FKBP52, are characterized as cytosolic FK506 binding proteins, and following ligand binding, they functionally inhibit the phosphatase activity of calcineurin. The ubiquitously expressed FKBP12 also associates with the cytoplasmic domain of the TGFβ-type I receptor, where it stabilizes the inactive conformation of the receptor and blocks the activation of the TGFβ pathway. FKBP51 and FKBP52 are two highly related proteins. FKBP51 is predominantly expressed in T cells and is induced by glucocorticoids. FKBP51 mediates the effects of FK506 and rapamycin by inhibiting intracellular calcineurin activity, and by blocking T-cell activation and proliferation. FKBP52, known also as FKBP-59 or heat shock protein 56, is expressed in a variety of tissues and can also associate with the heat shock protein (hsp90) in mature steroid receptor complexes.

REFERENCES


CHROMOSOMAL LOCATION


PRODUCT

FKBP51 shRNA Plasmid (h) is a pool of 3 target-specific lentiviral vector plasmids each encoding 19-25 nt (plus hairpin) shRNAs designed to knock down gene expression. Each plasmid contains a puromycin resistance gene for the selection of cells stably expressing shRNA. Each vial contains 20 µg of lyophilized shRNA plasmid DNA. Suitable for up to 20 transfections. Also see FKBP51 siRNA (h): sc-35380 and FKBP51 shRNA (h) Lentiviral Particles: sc-35380-V as alternate gene silencing products.

STORAGE AND RESUSPENSION

Store lyophilized shRNA plasmid DNA at 4°C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at 4°C for short term storage or -80°C for long term storage. Avoid repeated freeze thaw cycles.

Resuspend lyophilized shRNA plasmid DNA in 200 µl of the deionized water provided. Resuspension of the shRNA plasmid DNA in 200 µl of deionized water makes a 0.1 µg/µl solution in a 10 mM Tris, 1 mM EDTA buffered solution.

APPLICATIONS

FKBP51 shRNA Plasmid (h) is recommended for the inhibition of FKBP51 expression in human cells.

SUPPORT REAGENTS

For optimal shRNA Plasmid transfection efficiency, Santa Cruz Biotechnology’s shRNA Plasmid Transfection Reagent: sc-108061 (0.2 ml) and shRNA Plasmid Transfection Medium: sc-108062 (20 ml) are recommended. Control shRNAs are available as 20 µg lyophilized plasmid DNA. Each encodes a scrambled shRNA sequence that will not lead to the specific degradation of any known cellular mRNA. Control shRNA Plasmids include: sc-108060, sc-108065 and sc-108066.

GENE EXPRESSION MONITORING

FKBP51 (D-4): sc-271547 is recommended as a control antibody for monitoring of FKBP51 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 HRP, sc-516102 or m-IgG 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 FITC: sc-516140 or m-IgG 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 FKBP51 gene expression knockdown using RT-PCR Primer: FKBP51 (h)-PR: sc-35380-PR (20 µl, 302 bp). Annealing temperature for the primers should be 55-60°C and the extension temperature should be 68-72°C.

SELECT PRODUCT CITATIONS


RESEARCH USE

The purchase of this product conveys to the buyer the nontransferable right to use the purchased amount of the product and all replicates and derivatives for research purposes conducted by the buyer in his laboratory only (whether the buyer is an academic or for-profit entity). The buyer cannot sell or otherwise transfer (a) this product (b) its components or (c) materials made using this product or its components to a third party, or otherwise use this product or its components or materials made using this product or its components for Commercial Purposes.