SANTA CRUZ BIOTECHNOLOGY, INC.

FKBP51 siRNA (m): sc-35381

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 (HSP 90) in mature steroid receptor complexes.

REFERENCES

1. Liu, J., et al. 1991. Calcineurin is a common target of Cyclophilin-Cyclosporin A and FKBP-FK506 complexes. Cell 66: 807-815.
2. Peattie, D.A., et al. 1992. Expression and characterization of human FKBP52, an immunophilin that associates with the 90 kDa heat shock protein and is a component of steroid receptor complexes. Proc. Natl. Acad. Sci. USA 89: 10974-10978.
3. Yem, A.W., et al. 1992. The HSP 56 component of steroid receptor complexes binds to immobilized FK506 and shows homology to FKBP12 and FKBP13. J. Biol. Chem. 267: 2868-2871.
4. Bram, R.J., et al. 1993. Identification of the immunophilins capable of mediating inhibition of signal transduction by Cyclosporin A and FK506: roles of calcineurin binding and cellular location. Mol. Cell. Biol. 13: 4760-4769.
5. Baughman, G., et al. 1995. FKBP51, a novel T cell-specific immunophilin capable of calcineurin inhibition. Mol. Cell. Biol. 15: 4395-4402.
6. Okadome, T., et al. 1996. Characterization of the interaction of FKBP12 with the transforming growth factor β type I receptor *in vivo*. J. Biol. Chem. 271: 21687-21690.

CHROMOSOMAL LOCATION

Genetic locus: Fkbp5 (mouse) mapping to 17 A3.3.

PRODUCT

FKBP51 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 FKBP51 shRNA Plasmid (m): sc-35381-SH and FKBP51 shRNA (m) Lentiviral Particles: sc-35381-V as alternate gene silencing products.

For independent verification of FKBP51 (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-35381A, sc-35381B and sc-35381C.

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

FKBP51 siRNA (m) is recommended for the inhibition of FKBP51 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

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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 (m)-PR: sc-35381-PR (20 µl, 485 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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

PROTOCOLS

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