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SANTA CRUZ BIOTECHNOLOGY, INC.

FKBP12.6 siRNA (h): sc-42891

BACKGROUND

Immunophilins are a highly conserved family of *cis-trans* peptidyl-prolyl isomerases which bind to and mediate the effects of immunosuppressive drugs such as Cyclosporin, FK506 and Rapamycin. FKBP12.6, also known as FK506-binding protein 1B, is a 108 amino acid immunophilin belonging to the FKBP-type PPIase family. Subcellularly localized to the cytoplasm, FKBP12.6 binds to RyR in cardiac muscle sarcoplasmic reticulum and possibly plays a unique physiological role in excitation-contraction coupling in cardiac muscle. FKBP12.6 also catalyzes the *cis-trans* isomerization of proline imidic peptide bonds in oligopeptides. Ubiquitously expressed, FKBP12.6 is found at highest levels in brain and thymus. FKBP12.6 is expressed as two isoforms produced by alternative splicing.

REFERENCES

1. Tiso, N., et al. 2002. The binding of the RyR2 calcium channel to its gating protein FKBP12.6 is oppositely affected by ARVD2 and VTSIP mutations. Biochem. Biophys. Res. Commun. 299: 594-598.
2. George, C.H., et al. 2003. *In situ* modulation of the human cardiac ryanodine receptor (hRyR2) by FKBP12.6. Biochem. J. 370: 579-589.
3. Masumiya, H., et al. 2003. Localization of the 12.6 kDa FK506-binding protein (FKBP12.6) binding site to the NH_2-terminal domain of the cardiac Ca^{2+} release channel (ryanodine receptor). J. Biol. Chem. 278: 3786-3792.
4. George, C.H., et al. 2003. Dysregulated ryanodine receptors mediate cellular toxicity: restoration of normal phenotype by FKBP12.6. J. Biol. Chem. 278: 28856-28864.
5. Nakazawa, T., et al. 2005. Genomic organization, chromosomal localization, and promoter of human gene for FK506-binding protein 12.6. Gene 360: 55-64.
6. Zissimopoulos, S., et al. 2005. Interaction of FKBP12.6 with the cardiac ryanodine receptor C-terminal domain. J. Biol. Chem. 280: 5475-5485.
7. Hunt, D.J., et al. 2007. K201 (JTV519) suppresses spontaneous Ca^{2+} release and [^{3}H]ryanodine binding to RyR2 irrespective of FKBP12.6 association. Biochem. J. 404: 431-438.

CHROMOSOMAL LOCATION

Genetic locus: FKBP1B (human) mapping to 2p23.3.

PRODUCT

FKBP12.6 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see FKBP12.6 shRNA Plasmid (h): sc-42891-SH and FKBP12.6 shRNA (h) Lentiviral Particles: sc-42891-V as alternate gene silencing products.

For independent verification of FKBP12.6 (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-42891A, sc-42891B and sc-42891C.

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

FKBP12.6 siRNA (h) is recommended for the inhibition of FKBP12.6 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

FKBP12.6 (H-8): sc-376135 is recommended as a control antibody for monitoring of FKBP12.6 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 FKBP12.6 gene expression knockdown using RT-PCR Primer: FKBP12.6 (h)-PR: sc-42891-PR (20 µl). 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.