SANTA CRUZ BIOTECHNOLOGY, INC.

Cabin-1 siRNA (m): sc-141959

BACKGROUND

Calcineurin binding protein (Cabin-1) and the corresponding rat homolog, designated Cain, are widely expressed nuclear phosphoproteins that regulate the serine/threonine phosphotase activity of calcineurin and influence T cell signaling and apoptosis. Calcineurin is required for the transcriptional activation of cytokines and the activation of various transcription factors, including NFAT, NFκB and AP-1, involved in T cell receptor (TCR)-mediated signaling. The regulation of calcineurin depends on the changes in intracellular calcium concentrations and the activity of protein kinase C. TCR activation results in PKC inducing the hyperphosphorylation of Cabin-1, which facilitates the high affinity binding of Cabin-1 to calcineurin. This complex formation, in turn, inhibits calcineurin activity and attenuates TCR-mediated signaling. Cabin-1 also associates directly with MEF-2 proteins, a family of transcription factors that regulate apoptosis signaling in T cells. This association between Cabin-1 and MEF-2 leads to the inhibition of MEF-2-mediated gene transcription and the inhibition of apoptosis.

REFERENCES

1. Shenolikar, S. 1994. Protein serine/threonine phosphatases—new avenues for cell regulation. Annu. Rev. Cell Biol. 10: 55-86.
2. Black, B.L., et al. 1998. Transcriptional control of muscle development by myocyte enhancer factor-2 (MEF-2) proteins. Annu. Rev. Cell Dev. Biol. 14: 167-196.
3. Sun, L., et al. 1998. Cabin-1, a negative regulator for calcineurin signaling in T lymphocytes. Immunity 8: 703-711.
4. Lai, M.M., et al. 1998. Cain, a novel physiologic protein inhibitor of calcineurin. J. Biol. Chem. 273: 18325-18331.
5. Villalba, M., et al. 1999. Protein kinase Cθ cooperates with calcineurin to induce FAS ligand expression during activation-induced T cell death. J. Immunol. 163: 5813-5819.
6. Youn, H.D., et al. 1999. Apoptosis of T cells mediated by Ca^{2+}-induced release of the transcription factor MEF-2. Science 286: 790-793.

CHROMOSOMAL LOCATION

Genetic locus: Cabin1 (mouse) mapping to 10 C1.

PRODUCT

Cabin-1 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 Cabin-1 shRNA Plasmid (m): sc-141959-SH and Cabin-1 shRNA (m) Lentiviral Particles: sc-141959-V as alternate gene silencing products.

For independent verification of Cabin-1 (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-141959A, sc-141959B and sc-141959C.

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 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

Cabin-1 siRNA (m) is recommended for the inhibition of Cabin-1 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

Cabin-1 (B-11): sc-514269 is recommended as a control antibody for monitoring of Cabin-1 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 Cabin-1 gene expression knockdown using RT-PCR Primer: Cabin-1 (m)-PR: sc-141959-PR (20 µl). 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.