SANTA CRUZ BIOTECHNOLOGY, INC.

Cabin-1 (B-11): sc-514269

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The Power to Question

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. and Olson, E.N. 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 (human) mapping to 22q11.23; Cabin1 (mouse) mapping to 10 C1.

SOURCE

Cabin-1 (B-11) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 2169-2188 near the C-terminus of Cabin-1 of human origin.

PRODUCT

Each vial contains 200 µg IgM kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-514269 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

Cabin-1 (B-11) is recommended for detection of Cabin-1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for Cabin-1 siRNA (h): sc-43652, Cabin-1 siRNA (m): sc-141959, Cabin-1 shRNA Plasmid (h): sc-43652-SH, Cabin-1 shRNA Plasmid (m): sc-141959-SH, Cabin-1 shRNA (h) Lentiviral Particles: sc-43652-V and Cabin-1 shRNA (m) Lentiviral Particles: sc-141959-V.

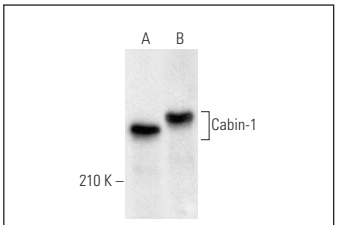
Molecular Weight of Cabin-1 isoforms: 246/238 kDa.

Positive Controls: TE671 cell lysate: sc-2416 or IMR-32 cell lysate: sc-2409.

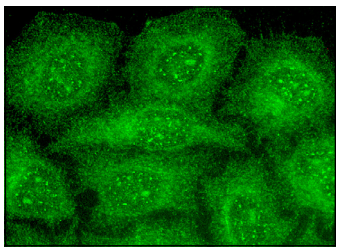
RECOMMENDED SUPPORT REAGENTS

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) Immunoprecipitation: use Protein L-Agarose: sc-2336 (0.5 ml agarose/2.0 ml). 3) 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.

DATA



Cabin-1 (B-11): sc-514269. Western blot analysis of Cabin-1 expression in TE671 (**A**) and IMR-32 (**B**) whole cell lysates.



Cabin-1 (B-11): sc-514269. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear and cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Zhang, M., et al. 2022. Histone chaperone HIRA complex regulates retrotransposons in embryonic stem cells. Stem Cell Res. Ther. 13: 137.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

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