

RCAN2/3 (F-7): sc-374453

BACKGROUND

RCAN2, also known as Calcipressin-2 or thyroid hormone-responsive protein ZAKI-4, is a 197 amino acid protein that belongs to the RCAN family. RCAN2 is a known inhibitor of calcineurin-dependent transcriptional responses by binding to the catalytic domain of calcineurin A and could play a role during central nervous system development. It is suggested that RCAN2 is constitutively expressed in endothelial cells and acts similar to DSCR1 (Down syndrome candidate region 1) in inhibiting calcineurin activity and restraining VEGF-mediated angiogenesis. RCAN2 is expressed in fibroblasts, heart, brain, liver and skeletal muscle but not in placenta, lung, kidney and pancreas. Expression of RCAN2 is upregulated by physiologic concentrations of triiodothyroxine. RCAN3 (regulator of calcineurin 3), also known as Calcipressin-3, DSCR1L2 (Down syndrome candidate region 1-like protein 2) and MCIP3 (myocyte-enriched calcineurin-interacting protein 3), is a 241 amino acid protein that potentially is involved in central nervous system development. As its name suggests, RCAN3 binds to calcineurin. Overexpression of RCAN3 results in inhibition of calcineurin activity towards the nuclear factor of activated T-cells (NFAT) transcription factors and also downregulates NFAT-dependent cytokine gene expression in activated Jurkat T-cells. Though expressed ubiquitously at low levels, high expression of RCAN3 is found in kidney, heart, liver, peripheral blood lymphocytes and skeletal muscle. RCAN3 also interacts with cardiac troponin I, suggesting that it may play a role in cardiac contraction events.

REFERENCES

- Qin, L., et al. 2006. Down syndrome candidate region 1 isoform 1 mediates angiogenesis through the calcineurin-NFAT pathway. *Mol. Cancer Res.* 4: 811-820.
- Mulero, M.C., et al. 2007. RCAN3, a novel calcineurin inhibitor that down-regulates NFAT-dependent cytokine gene expression. *Biochim. Biophys. Acta* 1773: 330-341.
- Porta, S., et al. 2007. Differential expression of members of the RCAN family of calcineurin regulators suggests selective functions for these proteins in the brain. *Eur. J. Neurosci.* 26: 1213-1226.
- Gollogly, L.K., et al. 2007. Down syndrome candidate region 1-like 1 (DSCR1-L1) mimics the inhibitory effects of DSCR1 on calcineurin signaling in endothelial cells and inhibits angiogenesis. *J. Surg. Res.* 142: 129-136.
- Facchin, F., et al. 2008. Identification and analysis of human RCAN3 (DSCR1L2) mRNA and protein isoforms. *Gene* 407: 159-168.
- Liu, X., et al. 2008. Transcription enhancer factor 3 (TEF3) mediates the expression of Down syndrome candidate region 1 isoform 1 (DSCR1-1L) in endothelial cells. *J. Biol. Chem.* 283: 34159-34167.

CHROMOSOMAL LOCATION

Genetic locus: RCAN2 (human) mapping to 6p21.1, RCAN3 (human) mapping to 1p36.11.

SOURCE

RCAN2/3 (F-7) is a mouse monoclonal antibody raised against amino acids 30-241 mapping at the C-terminus of RCAN3 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

RCAN2/3 (F-7) is recommended for detection of RCAN2 and RCAN3 of 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).

Molecular Weight of RCAN2: 22 kDa.

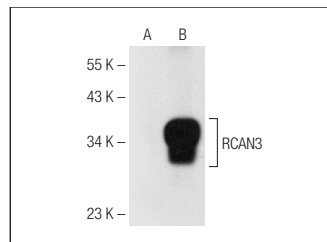
Molecular Weight of RCAN3: 27 kDa.

Positive Controls: RCAN3 (h): 293T lysate: sc-115421.

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 A/G PLUS-Agarose: sc-2003 (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



RCAN2/3 (F-7): sc-374453. Western blot analysis of RCAN3 expression in non-transfected: sc-117752 (A) and human RCAN3 transfected: sc-115421 (B) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

- Overton, J.D., et al. 2015. Hepatocystin is essential for TRPM7 function during early embryogenesis. *Sci. Rep.* 5: 18395.

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.