SANTA CRUZ BIOTECHNOLOGY, INC.

CARP (E-3): sc-398139

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

A proposed genetic marker of cardiac hypertrophy, CARP (cardiac ankyrin repeat protein) is a nuclear protein with an established role in regulation of cardiac gene expression. A distinct increase in CARP expression occurs in rats with abdominal aorta constriction, spontaneous hypertension and Dahl salt-sensitivity. In cardiomyocytes, CARP inhibits transcription of both cardiac troponin C and atrial natriuretic factor. Specifically, expression of the CARP gene, which lies downstream of the cardiac homeobox gene Nkx2.5, inhibits Nkx2.5 transactivation of atrial natriuretic factor promoter. An increase in CARP expression is observed in the ventricular tissue of patients with end-stage heart failure. The major Ca^{2+} binding protein of cardiac sarcoplasmic reticulum (SR), Calsequestrin (CSQ), upregulates the CARP gene and may contribute to the development of cardiac hypertrophy and fibrosis. TGFβ induces CARP expression in vascular smooth muscle cells (VSMCs), wherein CARP may mediate the inhibitory effects of TGFβ on VSMC proliferation.

REFERENCES

1. Jeyaseelan, R., et al. 1997. A novel cardiac-restricted target for doxorubicin. CARP, a nuclear modulator of gene expression in cardiac progenitor cells and cardiomyocytes. J. Biol. Chem. 272: 22800-22808.
2. Zou, Y., et al. 1997. CARP, a cardiac ankyrin repeat protein, is downstream in the Nkx2.5 homeobox gene pathway. Development 124: 793-804.
3. Aihara, Y., et al. 2000. Cardiac ankyrin repeat protein is a novel marker of cardiac hypertrophy: role of M-CAT element within the promoter. Hypertension 36: 48-53.
4. Kanai, H., et al. 2001. Transforming growth factor β/Smads signaling induces transcription of the cell type-restricted ankyrin repeat protein CARP gene through CAGA motif in vascular smooth muscle cells. Circ. Res. 88: 30-36.
5. Bang, M.L., et al. 2001. Myopalladin, a novel 145 kilodalton sarcomeric protein with multiple roles in Z-disc and I-band protein assemblies. J. Cell Biol. 153: 413-427.
6. Zolk, O., et al. 2002. Cardiac ankyrin repeat protein, a negative regulator of cardiac gene expression, is augmented in human heart failure. Biochem. Biophys. Res. Commun. 293: 1377-1382.

CHROMOSOMAL LOCATION

Genetic locus: ANKRD1 (human) mapping to 10q23.31.

SOURCE

CARP (E-3) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 14-39 near the N-terminus of CARP of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 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-398139 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

CARP (E-3) is recommended for detection of CARP 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).

Suitable for use as control antibody for CARP siRNA (h): sc-37731, CARP shRNA Plasmid (h): sc-37731-SH and CARP shRNA (h) Lentiviral Particles: sc-37731-V.

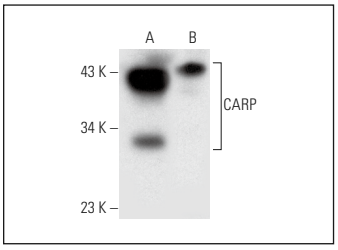
Molecular Weight of CARP: 40 kDa.

Positive Controls: Hep G2 nuclear extract: sc-364819 or human heart extract: sc-363763.

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



CARP (E-3): sc-398139. Western blot analysis of CARP expression in human heart tissue extract (**A**) and Hep G2 nuclear extract (**B**).

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.

PROTOCOLS

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