

CARP (L-13): sc-23253

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 Ca²⁺ 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

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- Zou, Y., et al. 1997. CARP, a cardiac ankyrin repeat protein, is downstream in the Nkx2.5 homeobox gene pathway. *Development* 124: 793-804.
- 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.
- 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.
- 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.
- 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.
- Ihara, Y., et al. 2002. Modulation of gene expression in transgenic mouse hearts overexpressing calsequestrin. *Cell Calcium* 32: 21-29.

CHROMOSOMAL LOCATION

Genetic locus: Ankr1 (mouse) mapping to 19 C2.

SOURCE

CARP (L-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of CARP of mouse origin.

RESEARCH USE

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

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-23253 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

CARP (L-13) is recommended for detection of CARP of mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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 (m): sc-37732, CARP shRNA Plasmid (m): sc-37732-SH and CARP shRNA (m) Lentiviral Particles: sc-37732-V.

Molecular Weight of CARP: 40 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

- Tokarska-Schlattner, M., et al. 2005. Acute toxicity of doxorubicin on isolated perfused heart: response of kinases regulating energy supply. *Am. J. Physiol. Heart. Circ. Physiol.* 289: H37-H47.
- Tokarska-Schlattner, M., et al. 2010. Early effects of doxorubicin in perfused heart: transcriptional profiling reveals inhibition of cellular stress response genes. *Am. J. Physiol. Regul. Integr. Comp. Physiol.* 298: R1075-R1088.
- Wang, Y.Y., et al. 2010. Up-regulation of type 2 iodothyronine deiodinase in dilated cardiomyopathy. *Cardiovasc. Res.* 87: 636-646.

STORAGE

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



Try **CARP (G-2): sc-365056**, our highly recommended monoclonal alternative to CARP (L-13).