

CARP (h): 293T Lysate: sc-159723

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. TGF β induces CARP expression in vascular smooth muscle cells (VSMCs), wherein CARP may mediate the inhibitory effects of TGF β 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.
7. Ihara, Y., et al. 2002. Modulation of gene expression in transgenic mouse hearts overexpressing calsequestrin. *Cell Calcium* 32: 21-29.

CHROMOSOMAL LOCATION

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

PRODUCT

CARP (h): 293T Lysate represents a lysate of human CARP transfected 293T cells and is provided as 100 μg protein in 200 μl SDS-PAGE buffer.

STORAGE

Store at -20°C . Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

APPLICATIONS

CARP (h): 293T Lysate is suitable as a Western Blotting positive control for human reactive CARP antibodies. Recommended use: 10-20 μl per lane.

Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

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.