

# TNNI3K (D-13): sc-136936

## BACKGROUND

TNNI3K (TNNI3-interacting kinase), also known as CARK (cardiac ankyrin repeat kinase), is a 936 amino acid serine/threonine-protein kinase that is highly expressed in heart. Overexpression of TNNI3K leads to improved cardiac function by enhancing beating frequency and increasing contractile force and epinephrine response. TNNI3K suppresses phosphorylation of cardiac Troponin I and p38/JNK-mediated apoptosis, therefore protecting the myocardium from ischemic injury. Administration of TNNI3K to mice with myocardial infarction improves cardiac performance and attenuates ventricular remodeling, suggesting that TNNI3K could be a promising target in the treatment of cardiac diseases. There are four isoforms of TNNI3K that are produced as a result of alternative splicing events.

## REFERENCES

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- Zhao, Y., et al. 2003. Cloning and characterization of a novel cardiac-specific kinase that interacts specifically with cardiac Troponin I. *J. Mol. Med.* 81: 297-304.
- Feng, Y., et al. 2007. AOP-1 interacts with cardiac-specific protein kinase TNNI3K and downregulates its kinase activity. *Biochemistry Mosc.* 72: 1199-1204.
- Lai, Z.F., et al. 2008. Overexpression of TNNI3K, a cardiac-specific MAP kinase, promotes P19CL6-derived cardiac myogenesis and prevents myocardial infarction-induced injury. *Am. J. Physiol. Heart Circ. Physiol.* 295: H708-H716.
- Kaski, J.P., et al. 2008. Idiopathic restrictive cardiomyopathy in children is caused by mutations in cardiac sarcomere protein genes. *Heart* 94: 1478-1484.
- Gu, C.C., et al. 2009. Genetic association analysis of coronary heart disease by profiling gene-environment interaction based on latent components in longitudinal endophenotypes. *BMC Proc.* 3: S86.
- Wheeler, F.C., et al. 2009. TNNI3K modifies disease progression in murine models of cardiomyopathy. *PLoS Genet.* 5: e1000647.

## CHROMOSOMAL LOCATION

Genetic locus: TNNI3K (human) mapping to 1p31.1; Tnni3k (mouse) mapping to 3 H4.

## SOURCE

TNNI3K (D-13) is an affinity purified rabbit polyclonal antibody raised against a peptide mapping within an internal region of TNNI3K of human origin.

## PRODUCT

Each vial contains 100 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-136936 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

TNNI3K (D-13) is recommended for detection of TNNI3K isoforms 1-4 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:50-1:500), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:25, dilution range 1:25-1:250) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

TNNI3K (D-13) is also recommended for detection of TNNI3K isoforms 1-4 in additional species, including equine, canine, bovine and avian.

Suitable for use as control antibody for TNNI3K siRNA (h): sc-78851, TNNI3K siRNA (m): sc-154542, TNNI3K shRNA Plasmid (h): sc-78851-SH, TNNI3K shRNA Plasmid (m): sc-154542-SH, TNNI3K shRNA (h) Lentiviral Particles: sc-78851-V and TNNI3K shRNA (m) Lentiviral Particles: sc-154542-V.

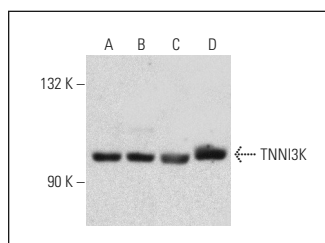
Molecular Weight of TNNI3K: 93 kDa.

Positive Controls: HL-60 whole cell lysate: sc-2209, K-562 whole cell lysate: sc-2203 or THP-1 cell lysate: sc-2238.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## DATA



TNNI3K (D-13): sc-136936. Western blot analysis of TNNI3K expression in HL-60 (A), K-562 (B), THP-1 (C) and Hep G2 (D) whole cell lysates.

## 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.