

p-phospholamban (Ser 16): sc-12963

BACKGROUND

Regulation of the heart contraction-relaxation cycle is controlled by the release and uptake of intracellular calcium by the Ca²⁺-ATPase, SERCA2a. SERCA2a function is inhibited by a direct molecular interaction with phospholamban (also designated PLN and PLB), which is an integral membrane protein found primarily in the sarcoplasmic reticulum of cardiac muscle. After stimulation of β -adrenergic receptors, phospholamban is phosphorylated on either Ser 16 or Thr 17, which causes the release of SERCA2a. This release results in an increase in SERCA2a activity as well as an increase in the calcium concentration in the sarcoplasmic reticulum. SERCA2a activity is a major determinant of cardiac function, and therefore, phospholamban is thought to play a role in heart failure by mediating the level of calcium in the sarcoplasmic reticulum.

CHROMOSOMAL LOCATION

Genetic locus: PLN (human) mapping to 6q22.31; Pln (mouse) mapping to 10 B3.

SOURCE

p-phospholamban (Ser 16) is available as either goat (sc-12963) or rabbit (sc-12963-R) polyclonal antibody raised against a short amino acid sequence containing Ser 16 phosphorylated phospholamban of human origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-12963 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

p-phospholamban (Ser 16) is recommended for detection of Ser 16 phosphorylated phospholamban of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g 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).

p-phospholamban (Ser 16) is also recommended for detection of correspondingly phosphorylated phospholamban in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for phospholamban siRNA (h): sc-39143, phospholamban siRNA (m): sc-39144, phospholamban shRNA Plasmid (h): sc-39143-SH, phospholamban shRNA Plasmid (m): sc-39144-SH, phospholamban shRNA (h) Lentiviral Particles: sc-39143-V and phospholamban shRNA (m) Lentiviral Particles: sc-39144-V.

Molecular Weight of p-phospholamban monomer: 6 kDa.

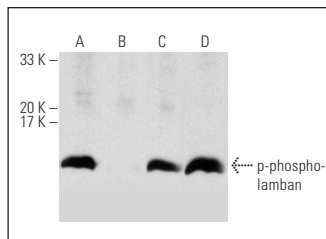
Molecular Weight of p-phospholamban oligomer: 25 kDa.

Positive Controls: mouse heart extract: sc-2254.

STORAGE

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

DATA



Western blot analysis of phospholamban phosphorylation in untreated (A, C) and lambda protein phosphatase (sc-200312A) treated (B, D) mouse heart tissue extract. Antibodies tested include p-phospholamban (Ser 16)-R: sc-12963-R (A, B) and phospholamban (L-15): sc-21923 (C, D).

SELECT PRODUCT CITATIONS

- Babick, A.P., et al. 2004. Cardiac contractile dysfunction in J2N-k cardiomyopathic hamsters is associated with impaired SR function and regulation. *Am. J. Physiol., Cell Physiol.* 287: C1202-C1208.
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- Abdallah, Y., et al. 2006. Insulin protects cardiomyocytes against reoxygenation-induced hypercontracture by a survival pathway targeting SR Ca²⁺ storage. *Cardiovasc. Res.* 70: 346-353.
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- Xu, X.L., et al. 2007. Modification of alterations in cardiac function and sarcoplasmic reticulum by astragaloside IV in myocardial injury *in vivo*. *Eur. J. Pharmacol.* 568: 203-212.
- Duhamel, T.A., et al. 2007. Muscle metabolic, SR Ca²⁺-cycling responses to prolonged cycling, with and without glucose supplementation. *J. Appl. Physiol.* 103: 1986-1998.
- Moon, M.R., et al. 2012. Differential calcium handling in two canine models of right ventricular pressure overload. *J. Surg. Res.* 178: 554-562.

RESEARCH USE

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