

phospholamban (L-15): sc-21923

BACKGROUND

The Sarco(endo)plasmic-reticulum (SER) regulatory protein, Phospholamban (PLB), is a small, plasma membrane-associated phospho-protein found in the SER of cardiac, smooth and slow-twitch muscle. Believed to assemble into a pentamer, PLB regulates cardiac contractility and Ca^{2+} affinity for cardiac SER Ca^{2+} ATPase (SERCA2a). Non-phosphorylated PLB associates with SERCA2a, and inhibits Ca^{2+} reuptake into the SER. PLB activation occurs when key Serine/Threonine residues in PLB (Ser-10, Ser-16, Thr-17) are phosphorylated by numerous effectors, which include PKC, PKA, PKG, and CaM kinase. Phosphorylation of PLB causes dissociation from SERCA2a and a subsequent increase in the rate of Ca^{2+} reuptake into the SER, which accelerates ventricular relaxation.

REFERENCES

1. Koss, K.L. and Kranias, E.G. 1996. Phospholamban: a prominent regulator of myocardial contractility. *Circ. Res.* 79: 1059-1063.
2. Arkin, I.T., et al. 1997. Structural perspectives of phospholamban, a helical transmembrane pentamer. *Annu. Rev. Biophys. Biomol. Struct.* 26: 157-179.
3. Coyle, J. 1998. Phosphorylation states of phospholamban. *Ann. N.Y. Acad. Sci.* 853: 79-91.
4. Adams, P.D., et al. 1998. Models for the transmembrane region of the phospholamban pentamer: which is correct? *Ann. N.Y. Acad. Sci.* 853: 178-185.
5. Minamisawa, S., et al. 1999. Chronic phospholamban-sarcoplasmic reticulum calcium ATPase interaction is the critical calcium cycling defect in dilated cardiomyopathy. *Cell* 99: 313-322.
6. Zhai, J., et al. 2000. Cardiac-specific overexpression of a superinhibitory pentameric phospholamban mutant enhances inhibition of cardiac function *in vivo*. *J. Biol.Chem.* 275: 10538-10544.

CHROMOSOMAL LOCATION

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

SOURCE

phospholamban (L-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of 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-21923 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

STORAGE

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

APPLICATIONS

phospholamban (L-15) is recommended for detection of 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).

phospholamban (L-15) is also recommended for detection of phospholamban in additional species, including equine, canine, bovine and porcine.

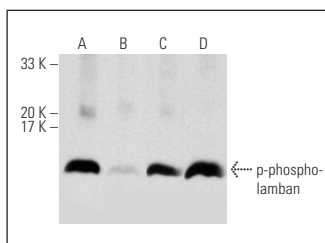
Suitable for use as control antibody for phospholamban siRNA (h): sc-39143, phospholamban siRNA (m): sc-39144, phospholamban shRNA Plasmid (h): sc-39143-SH, phospholamban shRNA Plasmid (m): sc-39144-SH, phospholamban shRNA (h) Lentiviral Particles: sc-39143-V and phospholamban shRNA (m) Lentiviral Particles: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

Molecular Weight of phospholamban oligomer: 25 kDa.

Molecular Weight of phospholamban monomer: 6 kDa.

Positive Controls: rat heart extract: sc-2393 or mouse heart extract: sc-2254.

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 (Thr 17)-R: sc-17024-R (A, B) and phospholamban (L-15): sc-21923 (C, D).

SELECT PRODUCT CITATIONS

1. Deng, Y., et al. 2008. Fluidic and air-stable supported lipid bilayer and cell-mimicking microarrays. *J. Am. Chem. Soc.* 130: 6267-6271.

RESEARCH USE

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

PROTOCOLS

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



Try **phospholamban (F-7): sc-393990**, our highly recommended monoclonal alternative to phospholamban (L-15). Also, for AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647 conjugates, see **phospholamban (F-7): sc-393990**.