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- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand

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# phospholamban (Ser 16): sc-24519

## 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  $\text{Ca}^{2+}$  affinity for cardiac SER  $\text{Ca}^{2+}$  ATPase (SERCA2a). Non-phosphorylated PLB associates with SERCA2a, and inhibits  $\text{Ca}^{2+}$  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  $\text{Ca}^{2+}$  reuptake into the SER, which accelerates ventricular relaxation.

## REFERENCES

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2. Arkin, I.T., Adams, P.D., Brunger, A.T., Smith, S.O. and Engelman, D.M. 1997. Structural perspectives of phospholamban, a helical transmembrane pentamer. *Annu. Rev. Biophys. Biomol. Struct.* 26: 157-179.
3. Adams, P.D., Lee, A.S., Brunger, A.T. and Engelman, D.M. 1998. Models for the transmembrane region of the phospholamban pentamer: which is correct? *Ann. N.Y. Acad. Sci.* 853: 178-185.
4. Coyle, J. 1998. Phosphorylation states of phospholamban. *Ann. N.Y. Acad. Sci.* 853: 79-91.
5. Minamisawa, S., Hoshijima, M., Chu, G., Ward, C.A., Frank, K., Wang, Y., Gu, Y., Martone, M.E., Ross, J. Jr., Kranias, E.G., Giles, W.R. and Chien, K.R. 1999. Chronic phospholamban-sarcoplasmic reticulum calcium ATPase interaction is the critical calcium cycling defect in dilated cardiomyopathy. *Cell* 99: 313-322.
6. Zhai, J., Schmidt, A.G., Hoit, B.D., Kimura, Y., MacLennan, D.H. and Kranias, E.G. 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 6q22.1; Pln (mouse) mapping to 10 B3.

## SOURCE

phospholamban (Ser 16) is a goat polyclonal antibody raised against a short amino acid sequence containing phosphorylated of phospholamban of origin.

## PRODUCT

Each vial contains 200  $\mu\text{g}$  IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-24519 P, (100  $\mu\text{g}$  peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## RESEARCH USE

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

## APPLICATIONS

phospholamban (Ser 16) is recommended for detection of phospholamban of origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for phospholamban siRNA (h): sc-39143 and phospholamban siRNA (m): sc-39144.

Molecular Weight of phospholamban: 25/6 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.

## STORAGE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.