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## A010-14 anti-phospholamban antibody A1 20 $\mu$ g

**Background:** Phospholamban (PLB) is an inhibitor of the SR Ca<sup>2+</sup>-pump in cardiac, slow-twitch and smooth muscle. Phosphorylation of PLB on either Ser-16 (cAMP-dependent) or Thr-17 (Ca<sup>2+</sup>/CaM-dependent) prevents its interaction with the Ca<sup>2+</sup>-pump, and thus stimulates pump activity (Jackson & Colyer, 1996). This results in an acceleration of muscle relaxation, an enhancement in the Ca<sup>2+</sup>-content of the SR, and the release of more Ca<sup>2+</sup> in subsequent contractions. These effects alter muscle contractility substantially, making phospholamban one of the key control points in cardiac contraction.

**Description:** Lyophilised, protein G purified mouse monoclonal IgG antibody. Monoclonal antibody A1 is specific to phospholamban (Suzuki & Wang, 1986). Antibody stimulates SERCA activity maximally, thereby mimicking phospholamban phosphorylation in functional assays (Jackson & Colyer, 1996)

**Immunogen:** Purified phospholamban protein. Antibody recognises epitope comprising residues 7-16 (residues LTRSAIRRAS, Morris et al., 1991).

**Specificity and Species Cross Reactivity:** The antibody recognises phospholamban in all mammalian species. Antibody recognises oligomeric & monomeric forms, phosphorylated and non-phosphorylated phospholamban. Ser-16 phosphorylation of phospholamban reduces antibody binding.

**Applications:** ELISA, Western blot 0.2 $\mu$ g/ml; Sufficient for 100ml Western blotting at a working dilution of 1:5000. immunomicroscopy (5 $\mu$ g/ml) and Ca<sup>2+</sup>-pump assay formats (2 $\mu$ g/ $\mu$ g SR).

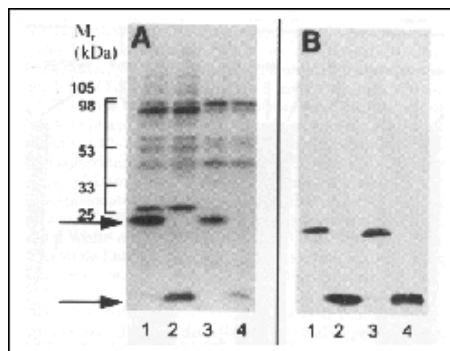
**Storage:** Store antibody desiccated at 4C when dry, and frozen (-20C or -80C) in small aliquots when reconstituted with 20 $\mu$ l deionised water.

### Epitope sequence alignment PLB (7-16)

Epitope	LTRSAIRRAS
Human	LTRSAIRRAS <sub>16</sub>
Bovine	LTRSAIRRAS <sub>16</sub>
Dog	LTRSAIRRAS <sub>16</sub>
Mouse	LTRSAIRRAS <sub>16</sub>
Pig	LTRSAIRRAS <sub>16</sub>
Rabbit	LTRSAIRRAS <sub>16</sub>
Rat	LTRSAIRRAS <sub>16</sub>
Chick	LTRSAIRRAS <sub>16</sub>

### references:

Jackson, W.A. & Colyer, J. (1996) *Biochem. J.* 316, 201-207  
Morris, G.L. et al. (1991) *J. Biol. Chem.* 266, 11270-11275.  
Suzuki, T. & Wang, J.H. (1986) *J. Biol. Chem.* 261, 7018-7023.



**Figure 1: Detection of PLB in rat heart lysate**  
(A) <sup>32</sup>P-phosphoproteins in rat heart homogenate showing PLB (arrows) on autoradiograph. (B) A1 detection of PLB in rat heart homogenate (100 $\mu$ g): (lanes 1,2) cAMP-treated, (lanes 3,4) Ca<sup>2+</sup>/CaM-treated. Adapted from Drago & Colyer (1994) *J. Biol. Chem.* 271, 25073-25077.