Phospholamban (PLN, PLB) mAb (clone A1)

Quality Control Certificate of Analysis
Catalogue No.:A010-14
Unit Size: 20 µl
Lot No.: 0314-02

Background: The majority of calcium required for muscle contraction is mobilised from the Sarcoplasmic Reticulum (SR), to which it has to return to in order to facilitate relaxation. The (Ca^{2+}- Mg^{2+}) ATPase enzyme is responsible for the sequestration of calcium after its release from the SR, and is controlled by another sarcoplasmic reticulum protein called phospholamban (PLB) in cardiac, smooth and slow-twitch skeletal muscle. (Drago and Colyer, 1994). The monoclonal antibody (A1) was raised against bovine cardiac PLB (Suzuki and Wang, 1986) and recognises an epitope comprising of residues $_{7}$LTRSAIRRAS$_{16}$ (Morris *et al*., 1991). The antibody reacts with all forms of PLB: monomer, oligomers, phosphorylated and non-phosphorylated. The antibody stimulates Ca^{2+} pump activity upon binding to PLB, to an extent equivalent to stoichiometric phosphorylation of PLB (Jackson and Colyer, 1996). Manipulation of SERCA2:PLB ratios is a therapeutic strategy for heart failure. Elimination of PLB boosts SR Ca^{2+}-load which can exacerbate pathological outcomes (apoptosis, arrhythmias) when combined with other alterations in SR function.

Description: Affinity Purified Mouse monoclonal antibody (A010-14) to phospholamban.

Immunogen: Bovine cardiac phospholamban. Epitope has been mapped to residues 7-16 (Morris *et al* 1991).

Antibody Isotype: IgG.

Antibody Purity: Protein G affinity purified

Vial Constituents: Lyophilised (20 µg) from a solution of 0.2M citrate-phosphate-tris pH 7.0. Contains no preservatives.

Storage Instructions: Lyophilised antibody is stable at 4°C when stored with desiccant. Reconstitute lyophilised powder in 20 µl of 18 MΩ H_2O, aliquot and store frozen at -80°C for 1 year. Avoid freeze – thaw cycles.

Tested Applications: WB 1:5000, IHC Microscopy 1:200, Ca^{2+} pump assays 1:500.

Specificity: The antibody recognises all forms of phospholamban: monomer, oligomer, phosphorylated and non-phosphorylated. Binding of the antibody to its target epitope is blocked in the presence of a peptide containing the PLB A1 epitope. As Ser-16 is with the epitope, the affinity for PLB and PLB Phospho Ser-16 may differ.

Species Cross Reactivity: Reacts with phospholamban from bovine, canine, ferret, hamster, human, rat and sheep species

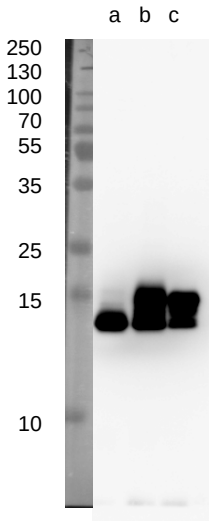

Image: PLN detected in canine cardiac SR 4µg SR in dephos (a), CaMKII phos (b), PKA phos (c) state. SDS-PAGE on 15% gel, blotted with A010-14 lot 0314-02, 1:5000 dilution, 30s exposure.

Related Products:
PLB phosphor Ser-16 Antibody (A010-12AP); PLB Phospho Thr-17 Antibody (A010-13AP).

Background References:

• Drago, G. A., and Colyer, J. (1994): *J Biol Chem* **269**, 25073-7.
• Jackson & Colyer (1996): *Biochem. J.* **316**, 201-207.
• Morris *et al*. (1991): *J. Biol. Chem.* **266**, 11270-11275.
• Suzuki & Wang (1986): *J. Biol. Chem.* **261**, 7018-7023.