Ryanodine Receptor 2 (RYR2) (pSer2814) pAb

Quality Control Certificate of Analysis
Catalogue No.: A010-31
Unit Size: 50 µl
Lot No: 1209-04

Background: The ryanodine receptor (RyR2) is a Ca^{2+} channel of cardiac muscle that plays a central role in EC coupling. The binding of Ca^{2+} to RyR2 opens the channel and Ca^{2+} stored in the SR moves through the channel into the cytosol to initiate muscle contraction (Bers, 2002). CaMKII, was able to phosphorylate Ser-2814 of RYR2 (Wehrens et al., 2004) enhancing Ca^{2+}- sensitivity and increasing open probability. Excessive phosphorylation of Ser-2814 leads to atrial fibrillation (Dobrer and wehsens, 2010), arrhythmias and sudden death (Van Oort et al, 2010)

Description: Lyophilised **Rabbit** anti-serum (A010-31)

Immunogen: Synthetic peptide (TSQVS(PO_3H_2)VDAAH$_{2819}$) corresponding to amino acids surrounding the phosphorylated serine residue at position 2814 of RyR2 (human) conjugated to KLH.

Antibody Isotype: IgG.

Antibody Purity: Raw Serum.

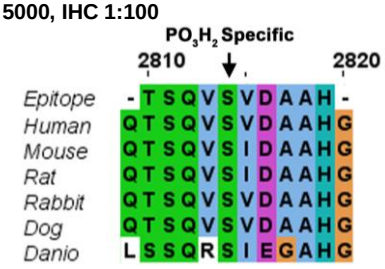
Specificity: Recognises Ser-2814 phosphorylated RyR2 exclusively, and will not react with dephosphorylated RyR2 or RyR2 phosphorylated at other sites.

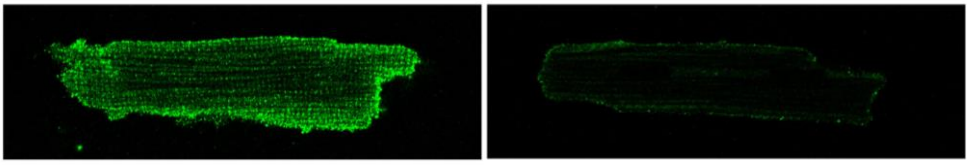
Species Cross Reactivity: Peptide aligns with RyR2 from all mammalian species. Sequence corresponds exactly in rabbit but differs at one residue (V2815I) in mouse and rat. However antibody recognises both sequences.

Vial Constituents: Lyophilised A010-31 Rabbit anti-serum (50 µl)

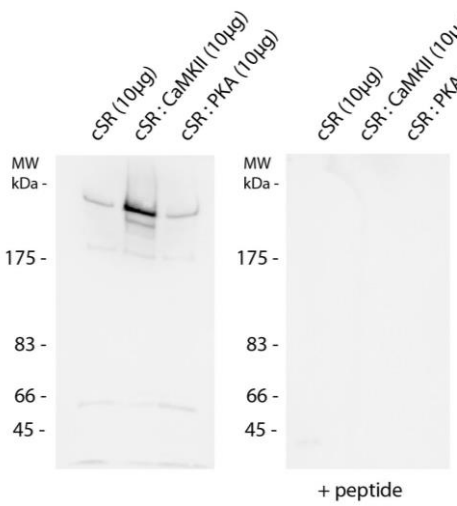
Storage Instructions: Lyophilised antibody is stable at 4°C when stored with desiccant. Reconstitute lyophilised powder in 50 µl of 18 MΩ H_2O, aliquot and store frozen at -80°C for 1 year. Avoid freeze - thaw cycles.

Tested Applications: **WB 1:5000, IHC 1:100**





IHC Microscopy using 1:100 RYR2 Phospho Ser-2814 anti-serum (A010-31) against Rat cardiac myocytes stimulated electrically at 0.5Hz and chemically with β1-adrenergic agonist (100nM isoproterenol + 100nM ICI118551) for 5 minutes. Cells were fixed in 4% formaldehyde for 30min, washed in PBS (3 times) and permeabilised using 0.1% Triton X-100 in PBS. Cells were blocked with donkey serum, and incubated with 1:100 anti-RYR2 Phospho Ser-2814 antibody (A010-31) +/- 3µM epitope peptide for 60min at room temperature. Cells were washed 3 times in PBS and incubated with 1:500 Alexa Fluor donkey anti-rabbit IgG for 2 hours. Cells were washed (3xPBS) and mounted on a slide and viewed under a confocal fluorescence microscope under oil immersion.



WB using 1:5000 RYR2 Phospho Ser-2814 anti-serum (A010-31) against 10µg of canine cardiac Sarcoplasmic Reticulum +/- Protein Kinase A or CaMKII treatment. Blots run in duplicate +/- 1 µM immunising peptide. A010-31 detects RYR2 when phosphorylated by CaMKII (350 kDa) 6 % SDS-PAGE gel. PVDF membrane

A010-31 (1:5000) 1 µl in 5 ml of Tris buffer + 5% milk powder 16 hours at 4°C.
Secondary antibody = Goat anti Rabbit HRP
Chemiluminescent detection

Related Products: A010-30AP RYR2 Phospho Ser-2808 (AP), A010-32AP RYR2 Phospho Ser-2030 (AP); A010-35AP RYR2 Dephospho Ser-2808 (AP), A010-31AP RYR2 Phospho Ser-2814 (AP).

Background References:

- Bers, D. M. (2002) *Nature 415*, 198-205.
- Wehrens, X.H.T., Lehnart, S.E., Reiken, S.R. & Marks, A.R. (2004) Circ. Res. 94, e61-e70
- Dobrer,D. & Wehrens, X.HT (2010) Trends in Cardiovascular Medicine. 20, 30-34
- Van Oort, R.J et al. (2010) circulation. 122, 2669-79