


## Product datasheet

### Anti-Ryanodine Receptor antibody [34C] ab2868

★★★★★ [11 Abreviews](#) [75 References](#) [4 Images](#)

#### Overview

<b>Product name</b>	Anti-Ryanodine Receptor antibody [34C]
<b>Description</b>	Mouse monoclonal [34C] to Ryanodine Receptor
<b>Host species</b>	Mouse
<b>Specificity</b>	Detects Ryanodine Receptor (RyR)-1 and RyR-2 isoforms. In chickens, this antibody detects the alpha, beta and cardiac isoforms. This antibody also detects RyR-3 in mouse cells. In frog, this antibody detects the alpha and beta isoforms. In fish, this antibody detects the alpha isoform. By Western blot, this antibody detects a 565 kDa protein representing RyR from rat skeletal muscle extracts. In non-mammalian vertebrates, a doublet is seen at 565 kDa representing the alpha and beta isoforms of the receptor. Immunohistochemical staining of RyR in chicken brain results in intense staining of cerebellar Purkinje neurons.
<b>Tested applications</b>	<b>Suitable for:</b> IHC-P, ICC/IF, IHC-Fr, IP, Inhibition Assay, WB
<b>Species reactivity</b>	<b>Reacts with:</b> Mouse, Rat, Sheep, Rabbit, Cow, Dog, Human, Pig, Xenopus laevis, Non human primates <b>Predicted to work with:</b> Fish, Amphibian 
<b>Immunogen</b>	Full length protein corresponding to Chicken Ryanodine Receptor. Partially purified chicken pectoral muscle ryanodine receptor. Database link: <a href="#">P21817-1</a>
<b>Positive control</b>	rat skeletal muscle
<b>General notes</b>	<p>The Life Science industry has been in the grips of a reproducibility crisis for a number of years. Abcam is leading the way in addressing this with our range of recombinant monoclonal antibodies and knockout edited cell lines for gold-standard validation. Please check that this product meets your needs before purchasing.</p> <p>If you have any questions, special requirements or concerns, please send us an inquiry and/or contact our Support team ahead of purchase. Recommended alternatives for this product can be found below, along with publications, customer reviews and Q&amp;As</p>

#### Properties

<b>Form</b>	Liquid
<b>Storage instructions</b>	Shipped at 4°C. Store at +4°C short term (1-2 weeks). Upon delivery aliquot. Store at -80°C. Avoid freeze / thaw cycle.

<b>Storage buffer</b>	pH: 7.40 Preservative: 0.05% Sodium azide Constituent: PBS
<b>Purity</b>	Protein A purified
<b>Primary antibody notes</b>	The Ryanodine Receptor (RyR) is the channel responsible for calcium release from muscle cell Sarcoplasmic Reticulum (SR) and also plays a role in calcium regulation in non-muscle cells. The RyR exists as a homotetramer and is predicted to have a short cytoplasmic C-terminus and 4-10 transmembrane domains. The remainder of the protein, termed the "foot" region, is located in the cytoplasm between the transverse tubule and the SR. Mammalian RyR isoforms are the product of three different genes: RyR-1 is expressed predominantly in skeletal muscle and areas of the brain; RyR-2 is expressed predominantly in heart muscle but also found in the stomach, endothelial cells and diffuse areas of the brain; and RyR-3 is found in smooth muscle and the brain (striatum, thalamus and hippocampus). In non-mammalian vertebrates, the RyR isoforms are termed alpha, beta and cardiac which correlate loosely to the mammalian RyR-1, RyR-3 and RyR-2 isoforms respectively.
<b>Clonality</b>	Monoclonal
<b>Clone number</b>	34C
<b>Isotype</b>	IgG1

## Applications

**The Abpromise guarantee** Our **Abpromise guarantee** covers the use of ab2868 in the following tested applications. The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Application	Abreviews	Notes
IHC-P	★★★★★ (1)	Use at an assay dependent concentration.
ICC/IF	★★★★★ (6)	Use a concentration of 1 µg/ml.
IHC-Fr	★★★★★ (2)	Use at an assay dependent concentration.
IP		Use at an assay dependent concentration.
Inhibition Assay		Use at an assay dependent concentration.
WB	★★★★★ (2)	Use at an assay dependent concentration. Predicted molecular weight: 565 kDa. As RyR is a large protein, we recommend using a 6-8% gel, wet transferring protein overnight at low voltage, adding 0.1% SDS to transfer buffer and reducing methanol to 10% or less.

## Target

**Function** Calcium channel that mediates the release of Ca(2+) from the sarcoplasmic reticulum into the cytoplasm and thereby plays a key role in triggering muscle contraction following depolarization of T-tubules. Repeated very high-level exercise increases the open probability of the channel and leads to Ca(2+) leaking into the cytoplasm. Can also mediate the release of Ca(2+) from

intracellular stores in neurons, and may thereby promote prolonged Ca(2+) signaling in the brain. Required for normal embryonic development of muscle fibers and skeletal muscle. Required for normal heart morphogenesis, skin development and ossification during embryogenesis.

**Tissue specificity**

Skeletal muscle and brain (cerebellum and hippocampus).

**Involvement in disease**

Malignant hyperthermia 1

Central core disease of muscle

Multiminicore disease with external ophthalmoplegia

Myopathy, congenital, with fiber-type disproportion

Defects in RYR1 may be a cause of Samaritan myopathy, a congenital myopathy with benign course. Patients display severe hypotonia and respiratory distress at birth. Unlike other congenital myopathies, the health status constantly improves and patients are minimally affected at adulthood.

**Sequence similarities**

Belongs to the ryanodine receptor (TC 1.A.3.1) family. RYR1 subfamily.

Contains 3 B30.2/SPRY domains.

Contains 5 MIR domains.

**Domain**

The calcium release channel activity resides in the C-terminal region while the remaining part of the protein constitutes the 'foot' structure spanning the junctional gap between the sarcoplasmic reticulum (SR) and the T-tubule.

**Post-translational modifications**

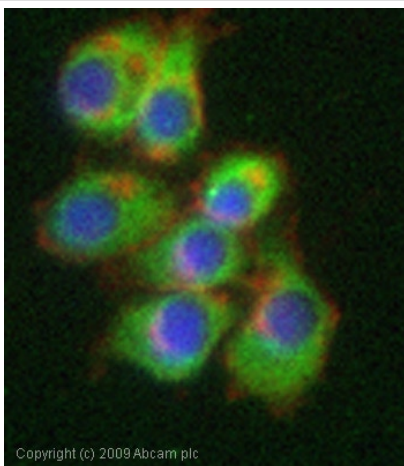
Channel activity is modulated by phosphorylation. Phosphorylation at Ser-2843 may increase channel activity. Repeated very high-level exercise increases phosphorylation at Ser-2843.

Activated by reversible S-nitrosylation. Repeated very high-level exercise increases S-nitrosylation.

**Cellular localization**

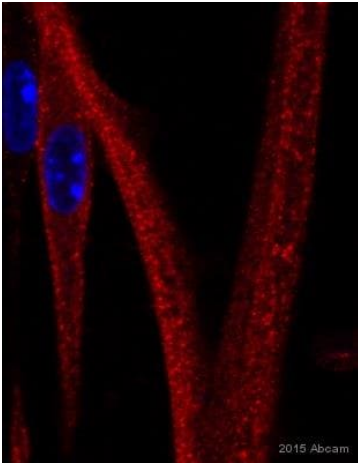
Sarcoplasmic reticulum membrane. Membrane. The number of predicted transmembrane domains varies between orthologs, but both N-terminus and C-terminus seem to be cytoplasmic.

**Images**



ICC/IF image of ab2868 stained PC12 cells. The cells were 4% formaldehyde fixed (10 min) and then incubated in 1%BSA / 10% normal goat serum / 0.3M glycine in 0.1% PBS-Tween for 1h to permeabilise the cells and block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab2868, 1µg/ml) overnight at +4°C. The secondary antibody (green) was Alexa Fluor® 488 goat anti-mouse IgG (H+L) used at a 1/1000 dilution for 1h. Alexa Fluor® 594 WGA was used to label plasma membranes (red) at a 1/200 dilution for 1h. DAPI was used to stain the cell nuclei (blue) at a concentration of 1.43µM.

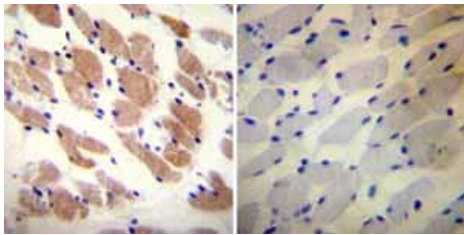
Immunocytochemistry/ Immunofluorescence - Anti-Ryanodine Receptor antibody [34C] (ab2868)



Immunocytochemistry/ Immunofluorescence - Anti-Ryanodine Receptor antibody [34C] (ab2868)

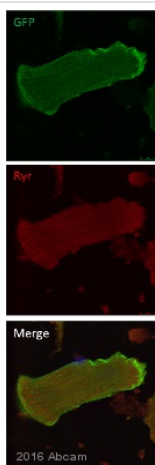
Image courtesy of an Abreview submitted by Jenny Sharpe

ab2868 staining Ryanodine Receptor (red) in Mouse Skeletal muscle cells at day 10 of agrin-treated differentiation by ICC/IF (Immunocytochemistry/immunofluorescence). Cells were fixed with paraformaldehyde, permeabilized with 0.25% Triton X-100 in PBS and blocked with 10% serum for 45 minutes at 20°C. Samples were incubated with primary antibody (1/200 in PBS + 3% BSA) for 2 hours at 20°C. An Alexa Fluor® 647-conjugated Donkey anti-mouse IgG polyclonal (1/500) was used as the secondary antibody. Nucleus stained blue.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Ryanodine Receptor antibody [34C] (ab2868)

Immunohistochemistry was performed on biopsies of deparaffinized Human skeletal muscle tissue. To expose target proteins heat induced antigen retrieval was performed using 10mM sodium citrate (pH6.0) buffer microwaved for 8-15 minutes. Following antigen retrieval tissues were blocked in 3% BSA-PBS for 30 minutes at room temperature. Tissues were then probed at a dilution of 1:20 with a mouse monoclonal antibody recognizing Ryanodine Receptor ab2868 or without primary antibody (negative control) overnight at 4°C in a humidified chamber. Tissues were washed extensively with PBST and endogenous peroxidase activity was quenched with a peroxidase suppressor. Detection was performed using a biotin-conjugated secondary antibody and SA-HRP followed by colorimetric detection using DAB. Tissues were counterstained with hematoxylin and prepped for mounting.



ab2868 staining Ryanodine Receptor in Rat cardiomyocyte cells by ICC/IF (Immunocytochemistry/immunofluorescence). Cells were fixed with methanol/acetone (1:1) and blocked with 3% BSA for 1 hour at 18°C. Samples were incubated with primary antibody (1/300 in PBS + 3% BSA) for 16 hours at 4°C. An Alexa Fluor® 546-conjugated Goat anti-mouse IgG (H+L) polyclonal (1/300) was used as the secondary antibody.

Immunocytochemistry/ Immunofluorescence - Anti-Ryanodine Receptor antibody [34C] (ab2868)

Image courtesy of an Abreview submitted by Can Zhou

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