

Monoclonal Antibody to Ryanodine receptor 1 / RYR1 - Purified

Alternate names:	RYDR, RYR-1
Catalog No.:	SM5119
Quantity:	0.1 ml
Concentration:	1.0 mg/ml
Background:	<p>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.</p>
Uniprot ID:	Q90984
NCBI:	9031
Host / Isotype:	Mouse / IgG1
Recommended Isotype Controls:	SM10P (for use in human samples), SM20P (for use in rat samples), AM03095PU-N
Clone:	34C
Immunogen:	Partially purified Chicken pectoral muscle Ryanodine Receptor
Format:	State: Liquid purified IgG fraction Purification: Protein A Chromatography Preservatives: 0.05% Sodium Azide
Applications:	Immunofluorescence. Immunoprecipitation. Immunohistochemistry on Frozen Sections: 1/1000. Results in intense staining of cerebellar Purkinje neurons in Chicken brain. Western Blot: 1/5000. 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. Other applications not tested. Optimal dilutions are dependent on conditions and should be determined by the user.

Specificity: This antibody detects Ryanodine Receptor (RyR)-1 and RyR-2 isoforms in Amphibian, Bovine, Canine, Fish, Human, Non-Human Primate, Mouse, Rabbit, Mink, Rat and Sheep tissues.
In chickens this antibody detects the alpha, beta and cardiac isoforms.
This antibody also detects RyR-3 in Mouse cells. In Frog, SM5119 detects the alpha and beta isoforms and in Fish it detects the alpha isoform.
Species: Human, Mouse, Rat, Canine, Rabbit, Non-Human Primate, Bovine, Ovine, Amphibian, Fish and Mustelid.
Other species not tested.

Storage: Upon receipt, store undiluted (in aliquots) at -20°C.
Avoid repeated freezing and thawing.
Shelf life: one year from despatch.

General Readings:

1. Yusufi AN, Cheng J, Thompson MA, Dousa TP, Warner GM, Walker HJ, et al. cADP-ribose/ryanodine channel/Ca²⁺-release signal transduction pathway in mesangial cells. *Am J Physiol Renal Physiol.* 2001 Jul;281(1):F91-F102. PubMed PMID: 11399650.
2. Airey JA, Grinsell MM, Jones LR, Sutko JL, Witcher D. Three ryanodine receptor isoforms exist in avian striated muscles. *Biochemistry.* 1993 Jun 8;32(22):5739-45. PubMed PMID: 7684927.
3. *Biophysical Journal*, 59: 1153-1163, 1995.
4. Liu G, Pessah IN. Molecular interaction between ryanodine receptor and glycoprotein triadin involves redox cycling of functionally important hyperreactive sulfhydryls. *J Biol Chem.* 1994 Dec 30;269(52):33028-34. PubMed PMID: 7806531.
5. Walton PD, Airey JA, Sutko JL, Beck CF, Mignery GA, Südhof TC, et al. Ryanodine and inositol trisphosphate receptors coexist in avian cerebellar Purkinje neurons. *J Cell Biol.* 1991 Jun;113(5):1145-57. PubMed PMID: 1645737.
6. Chevessier F, Bauché-Godard S, Leroy JP, Koenig J, Paturneau-Jouas M, Eymard B, et al. The origin of tubular aggregates in human myopathies. *J Pathol.* 2005 Nov;207(3):313-23. PubMed PMID: 16178054.

Pictures: 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 (pH 6.0) 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 (Cat.-No SM5119) 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.

