

Ryanodine Receptor Polyclonal Antibody

Purified Rabbit Polyclonal Antibody (Pab)

Catalog # AP58415

Product Information

Application	IHC-P, IHC-F, IF, E
Primary Accession	P21817 , Q92736 , Q15413
Reactivity	Rat, Pig, Dog, Bovine
Host	Rabbit
Clonality	Polyclonal
Calculated MW	565176
Physical State	Liquid
Immunogen	KLH conjugated synthetic peptide derived from human Ryanodine Receptor
Epitope Specificity	4701-4800/5038
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SUBCELLULAR LOCATION	Sarcoplasmic reticulum membrane; Multi-pass membrane protein (Probable). Membrane; Multi-pass membrane protein. Microsome membrane; Multi-pass membrane protein.
SIMILARITY	Belongs to the ryanodine receptor (TC 1.A.3.1) family. RYR3 subfamily. Contains 3 B30.2/SPRY domains. Contains 5 MIR domains.
SUBUNIT	Homotetramer. Can also form heterotetramers with RYR2. Interacts with CALM; CALM with bound calcium inhibits the RYR1 channel activity. Interacts with S100A1. Interacts with FKBP1A; this stabilizes the closed conformation of the channel. Interacts with CACNA1S; interaction with CACNA1S is important for activation of the RYR1 channel. Interacts with CACNB1. Interacts with TRDN and ASPH; these interactions stimulate RYR1 channel activity (By similarity). Identified in a complex composed of RYR1, PDE4D, PKA, FKBP1A and protein phosphatase 1 (PP1). Repeated very high-level exercise decreases interaction with PDE4D and protein phosphatase 1 (PP1).
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. [PTM] Activated by reversible S-nitrosylation. Repeated very high-level exercise increases S-nitrosylation.
DISEASE	Malignant hyperthermia 1 (MHS1) [MIM:145600]: Autosomal dominant pharmacogenetic disorder of skeletal muscle and is one of the main causes of death due to anesthesia. In susceptible people, an MH episode can be triggered by all commonly used inhalational anesthetics such as halothane and by depolarizing muscle relaxants such as succinylcholine. The clinical features of the myopathy are hyperthermia, accelerated muscle metabolism, contractures, metabolic acidosis, tachycardia and death, if not treated with the postsynaptic muscle relaxant, dantrolene. Susceptibility to MH can be determined with the 'in vitro' contracture test (IVCT): observing the magnitude of contractures induced in strips of muscle tissue by caffeine alone and halothane alone. Patients with normal response are MH normal (MHN), those with abnormal response to caffeine alone or halothane alone are MH equivocal (MHE(C) and MHE(H) respectively). Note=The disease is caused by

mutations affecting the gene represented in this entry. Central core disease of muscle (CCD) [MIM:117000]: Autosomal dominant congenital myopathy, but a severe autosomal recessive form also exists. Both clinical and histological variability is observed. Affected individuals typically display hypotonia and proximal muscle weakness in infancy, leading to the delay of motor milestones. The clinical course of the disorder is usually slow or nonprogressive in adulthood, and the severity of the symptoms may vary from normal to significant muscle weakness. Microscopic examination of CCD-affected skeletal muscle reveals a predominance of type I fibers containing amorphous-looking areas (cores) that do not stain with oxidative and phosphorylase histochemical techniques. Note=The disease is caused by mutations affecting the gene represented in this entry. Multiminicore disease with external ophthalmoplegia (MMDO) [MIM:255320]: Clinically heterogeneous neuromuscular disorder. General features include neonatal hypotonia, delayed motor development, and generalized muscle weakness and amyotrophy, which may progress slowly or remain stable. Muscle biopsy shows multiple, poorly circumscribed, short areas of sarcomere disorganization and mitochondria depletion (areas termed minicores) in most muscle fibers. Typically, no dystrophic signs, such as muscle fiber necrosis or regeneration or significant endomysial fibrosis, are present in multiminicore disease. Note=The disease is caused by mutations affecting the gene represented in this entry. Congenital myopathy with fiber-type disproportion (CFTD) [MIM:255310]: Genetically heterogeneous disorder in which there is relative hypotrophy of type 1 muscle fibers compared to type 2 fibers on skeletal muscle biopsy. However, these findings are not specific and can be found in many different myopathic and neuropathic conditions. Note=The disease is caused by mutations affecting the gene represented in this entry. Note=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.

Important Note

This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.

Background Descriptions

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.

Additional Information

Gene ID

6261

Target/Specificity

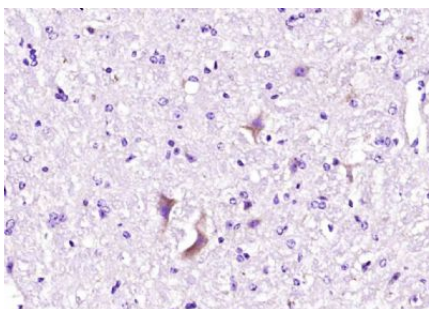
Brain, skeletal muscle, placenta and possibly liver and kidney. In brain, highest levels are found in the cerebellum, hippocampus, caudate nucleus and amygdala, with lower levels in the corpus callosum, substantia nigra and thalamus.

Dilution	IHC-P=1:100-500,IHC-F=1:100-500,IF=1:100-500,ELISA=1:5000-10000
Format	0.01M TBS(pH7.4) with 1% BSA, 0.09% (W/V) sodium azide and 50% Glycerol
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

Protein Information

Name	RYR1 (HGNC:10483)
Synonyms	RYDR
Function	Cytosolic calcium-activated calcium channel that mediates the release of Ca(2+) from the sarcoplasmic reticulum into the cytosol and thereby plays a key role in triggering muscle contraction following depolarization of T-tubules (PubMed: 11741831 , PubMed: 16163667 , PubMed: 18268335 , PubMed: 18650434 , PubMed: 26115329). Repeated very high- level exercise increases the open probability of the channel and leads to Ca(2+) leaking into the cytoplasm (PubMed: 18268335). 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 (By similarity).
Cellular Location	Sarcoplasmic reticulum membrane; Multi-pass membrane protein. Note=The number of predicted transmembrane domains varies between orthologs. Both N-terminus and C-terminus are cytoplasmic. {ECO:0000250 UniProtKB:P11716}
Tissue Location	Skeletal muscle and brain (cerebellum and hippocampus).

Images



Paraformaldehyde-fixed, paraffin embedded (mouse cerebellum tissue); Antigen retrieval by boiling in sodium citrate buffer (pH6.0) for 15min; Block endogenous peroxidase by 3% hydrogen peroxide for 20 minutes; Blocking buffer (normal goat serum) at 37°C for 30min; Antibody incubation with (Ryanodine Receptor) Polyclonal Antibody, Unconjugated (AP58415) at 1:400 overnight at 4°C, followed by operating according to SP Kit(Rabbit) (sp-0023) instructions and DAB staining.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.