SANTA CRUZ BIOTECHNOLOGY, INC.

RyR (N-19): sc-8170

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Dihydropyridine receptor (DHPR) is a surface membrane protein critical for the excitation-contraction coupling of striated muscle. DHPR and the sarcoplasmic reticulum ryanodine receptor (RyR) are two key components of the intracellular junctions, where depolarization of the surface membrane is converted into the release of Ca^{2+} from internal stores. The α1-subunit of the DHPR contains a cytoplasmic loop which is thought to be involved in the interactions with RyR. Phosphorylation of the DHPR α1-subunit is also thought to play a role in the functional interaction of DHPR and RyR. Mutation in DHPR α1 results in excitation-contraction uncoupling, leading to muscular dysgenesis, a complete inactivity in developing skeletal muscles. Cells that do not express RyR also lack excitation-contraction coupling and exhibit a several-fold reduction in Ca^{2+} current density.

REFERENCES

1. Pincon-Raymond, M., et al. 1990. A genetic model for the study of abnormal nerve-muscle interactions at the level of excitation-contraction coupling: the mutation muscular dysgenesis. J. Physiol. 84: 82-87.
2. Lu, X., et al. 1995. Phosphorylation of dihydropyridine receptor II-III loop peptide regulates skeletal muscle calcium release channel function. Evidence for an essential role of the β-OH group of Ser687. J. Biol. Chem. 270: 18459-18464.

SOURCE

RyR (N-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of RyR of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-8170 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

RyR (N-19) is recommended for detection of skeletal muscle, cardiac muscle and brain ryanodine receptors of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

RyR (N-19) is also recommended for detection of skeletal muscle, cardiac muscle and brain ryanodine receptors in additional species, including equine, bovine and porcine.

Molecular Weight of RyR-1: 550 kDa.

Molecular Weight of RyR-2: 565 kDa.

Molecular Weight of RyR-3: 552 kDa.

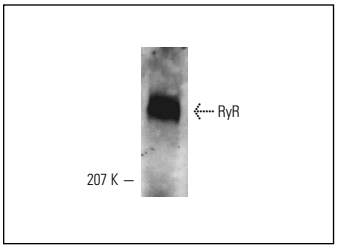
RESEARCH USE

For research use only, not for use in diagnostic procedures.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

DATA



RyR (N-19): sc-8170. Western blot analysis of RyR expression in mouse brain extract.

SELECT PRODUCT CITATIONS

1. Khoo, K.M., et al. 2000. Localization of the cyclic ADP-ribose-dependent calcium signaling pathway in hepatocyte nucleus. J. Biol. Chem. 275: 24807-24817.
2. George, C.H., et al. 2003. Dysregulated ryanodine receptors mediate cellular toxicity: restoration of normal phenotype by FKBP12.6. J. Biol. Chem. 278: 28856-28864.
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4. Wetzel, P., et al. 2007. Carbonic anhydrase XIV in skeletal muscle: subcellular localization and function from wild-type and knockout mice. Am. J. Physiol., Cell Physiol. 293: C358-C366.
5. Scheibe, R.J., et al. 2008. Carbonic anhydrases IV and IX: subcellular localization and functional role in mouse skeletal muscle. Am. J. Physiol., Cell Physiol. 294: C402-C412.
6. Yano, N., et al. 2008. Temporally controlled overexpression of cardiac-specific PI3Kα induces enhanced myocardial contractility—a new transgenic model. Am. J. Physiol. Heart Circ. Physiol. 295: H1690-H1694.
7. Liu, Q., et al. 2009. Protein kinase Cα, but not PKCβ or PKCγ, regulates contractility and heart failure susceptibility: implications for ruboxistaurin as a novel therapeutic approach. Circ. Res. 105: 194-200.
8. Hallerdei, J., et al. 2010. T tubules and surface membranes provide equally effective pathways of carbonic anhydrase-facilitated lactic acid transport in skeletal muscle. PLoS ONE 5: e15137.