SANTA CRUZ BIOTECHNOLOGY, INC.

RyR-1 (XA7B6): sc-73607

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Dihydropyridine receptor (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 RyR family consists of RyR-1, RyR-2 and RyR-3, which are characterized respectively as skeletal muscle, cardiac and brain ryanodine receptors. RyR proteins are essential for calcium-dependent excitation. Cells that do not express RyR lack excitation-contraction coupling and exhibit a several-fold reduction in Ca^{2+} current density. RyR-1 is expressed in slow- and fast-twitch skeletal muscle. Activation of RyR-1 leads to the release of Ca^{2+} from the sarcoplasmic reticulum (SR) which, in turn, leads to muscle contraction. Mutations in the gene for this protein can result in a variety of muscle diseases, including Brody disease, malignant hyperthermia, cardiomyopathy and central core disease.

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., Xu, L. and Meissner, G. 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 Ser 687. J. Biol. Chem. 270: 18459-18464.
3. Fan, H., et al. 1995. Binding sites of monoclonal antibodies and dihydropyridine receptor α1 subunit cytoplasmic II-III loop on skeletal muscle triadin fusion peptides. Biochemistry 34: 14893-14901.
4. Powell, J.A., et al. 1996. Formation of triads without the dihydropyridine receptor a subunits in cell lines from dysgenic skeletal muscle. J. Cell Biol. 134: 375-387.
5. Flucher, B.E. and Franzini-Armstrong, C. 1996. Formation of junctions involved in excitation-contraction coupling in skeletal and cardiac muscle. Proc. Natl. Acad. Sci. USA 93: 8101-8106.
6. Franzini-Armstrong, C. and Protasi, F. 1997. Ryanodine receptors of striated muscles: a complex channel capable of multiple interactions. Physiol. Rev. 77: 699-729.
7. Slavik, K.J., et al. 1997. A carboxy-terminal peptide of the α1 subunit of the dihydropyridine receptor inhibits Ca^{2+}-release channels. Am. J. Physiol. 272: 1475-1481.
8. Nakai, J., et al. 1997. Functional nonequality of the cardiac and skeletal ryanodine receptors. Proc. Natl. Acad. Sci. USA 94: 1019-1022.

SOURCE

RyR-1 (XA7B6) is a mouse monoclonal antibody raised against skeletal muscle triads of rabbit origin.

PRODUCT

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

APPLICATIONS

RyR-1 (XA7B6) is recommended for detection of skeletal muscle ryanodine receptor Ca^{2+} channel of mouse, rat, rabbit and canine origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)].

Molecular Weight of RyR-1: 550 kDa.

Positive Controls: rat heart extract: sc-2393.

SELECT PRODUCT CITATIONS

1. Lewarchik, C.M., et al. 2014. The ryanodine receptor is expressed in human pancreatic acinar cells and contributes to acinar cell injury. Am. J. Physiol. Gastrointest. Liver Physiol. 307: G574-G581.

STORAGE

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

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.