

RyR (E-15): sc-34016

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 α 1-subunit of the DHPR contains a cytoplasmic loop which is thought to be involved in the interactions with RyR. Phosphorylation of the DHPR α 1-subunit is also thought to play a role in the functional interaction of DHPR and RyR. Mutation in DHPR α 1 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. Fan, H., et al. 1995. Binding sites of monoclonal antibodies and dihydropyridine receptor α 1 subunit cytoplasmic II-III loop on skeletal muscle triadin fusion peptides. *Biochemistry* 34: 14893-14901.
3. 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.
4. Powell, J.A., et al. 1996. Formation of triads without the dihydropyridine receptor α subunits in cell lines from dysgenic skeletal muscle. *J. Cell Biol.* 134: 375-387.
5. Flucher, B.E., et al. 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., et al. 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 α 1-subunit of the dihydropyridine receptor inhibits Ca^{2+} -release channels. *Am. J. Physiol.* 272: C1475-C1481.
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 (E-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping near 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-34016 P, (100 μg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

RyR (E-15) 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), 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 (E-15) is also recommended for detection of skeletal muscle, cardiac muscle and brain ryanodine receptors in additional species, including equine, canine, bovine and porcine.

Molecular Weight of RyR-1: 550 kDa.

Molecular Weight of RyR-2: 565 kDa.

Molecular Weight of RyR-3: 552 kDa.

Positive Controls: mouse brain extract: sc-2253 or rat heart extract: sc-2393.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

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 or our catalog for detailed protocols and support products.

MONOS
Satisfaction
Guaranteed

Try **RyR (F-1): sc-376507**, our highly recommended monoclonal alternative to RyR (E-15).