

# RyR (H-21): sc-34019

## 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<sup>2+</sup> from internal stores. The  $\alpha$ 1-subunit of the DHPR contains a cytoplasmic loop which is thought to be involved in the interactions with RyR. Phosphorylation of the DHPR  $\alpha$ 1-subunit is also thought to play a role in the functional interaction of DHPR and RyR. Mutation in DHPR  $\alpha$ 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<sup>2+</sup> 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  $\alpha$ 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  $\beta$ -OH group of Ser687. *J. Biol. Chem.* 270: 18459-18464.
4. Powell, J.A., et al. 1996. Formation of triads without the dihydropyridine receptor  $\alpha$  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.

## CHROMOSOMAL LOCATION

Genetic locus: RYR1 (human) mapping to 19q13.2; Ryr1 (mouse) mapping to 7 B1.

## SOURCE

RyR (H-21) 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  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-34019 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

RyR (H-21) 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  $\mu$ g per 100–500  $\mu$ g 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 (H-21) is also recommended for detection of skeletal muscle, cardiac muscle and brain ryanodine receptors in additional species, including equine, canine, bovine and porcine.

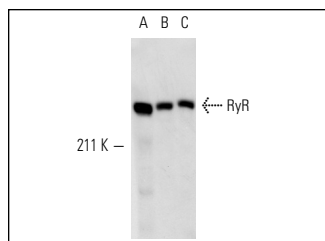
Molecular Weight of RyR-1: 550 kDa.

Molecular Weight of RyR-2: 565 kDa.

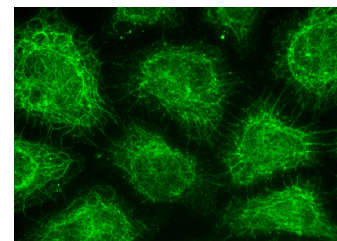
Molecular Weight of RyR-3: 552 kDa.

Positive Controls: Sol8 cell lysate: sc-2249, A-10 cell lysate: sc-3806 or L6 whole cell lysate.

## DATA



RyR (H-21): sc-34019. Western blot analysis of RyR expression in Sol8 (A), L6 (B) and A-10 (C) whole cell lysates.



RyR (H-21): sc-34019. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoskeletal localization.

## 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](http://www.scbt.com) or our catalog for detailed protocols and support products.

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Try **RyR (F-1): sc-376507**, our highly recommended monoclonal alternative to RyR (H-21).