

RyR (F-1): sc-376507

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 $\alpha 1$ 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^{2+} current density.

SOURCE

RyR (F-1) is a mouse monoclonal antibody raised against amino acids 1-300 mapping at the N-terminus of RyR of human origin.

PRODUCT

Each vial contains 200 μ g IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

RyR (F-1) is available conjugated to agarose (sc-376507 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-376507 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376507 PE), fluorescein (sc-376507 FITC), Alexa Fluor® 488 (sc-376507 AF488), Alexa Fluor® 546 (sc-376507 AF546), Alexa Fluor® 594 (sc-376507 AF594) or Alexa Fluor® 647 (sc-376507 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376507 AF680) or Alexa Fluor® 790 (sc-376507 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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.

APPLICATIONS

RyR (F-1) is recommended for detection of skeletal muscle, cardiac muscle and brain ryanodine receptors of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ 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).

Molecular Weight of RyR-1: 550 kDa.

Molecular Weight of RyR-2: 565 kDa.

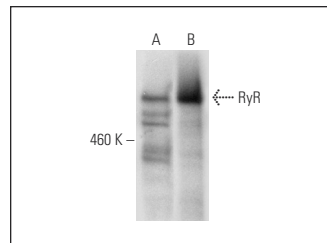
Molecular Weight of RyR-3: 552 kDa.

Positive Controls: rat heart extract: sc-2393, Sol8 cell lysate: sc-2249 or mouse brain extract: sc-2253.

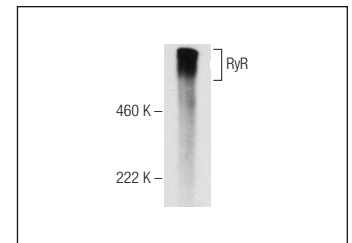
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



RyR (F-1): sc-376507. Western blot analysis of RyR expression in Sol8 whole cell lysate (A) and mouse brain tissue extract (B).



RyR (F-1): sc-376507. Western blot analysis of RyR expression in rat heart tissue extract.

SELECT PRODUCT CITATIONS

1. Tsuda, T., et al. 2017. Corticotropin releasing hormone receptor 2 exacerbates chronic cardiac dysfunction. *J. Exp. Med.* 214: 1877-1888.
2. Zuppinger, C., et al. 2017. Characterization of cytoskeleton features and maturation status of cultured human iPSC-derived cardiomyocytes. *Eur. J. Histochem.* 61: 2763.
3. Meyer, P., et al. 2021. Skeletal ryanodine receptors are involved in impaired myogenic differentiation in duchenne muscular dystrophy patients. *Int. J. Mol. Sci.* 22: 12985.
4. Desai, V.G., et al. 2022. Doxorubicin-induced delayed-onset subclinical cardiotoxicity in mice. *J. Appl. Toxicol.* 42: 778-792.
5. Hopton, C., et al. 2022. Characterization of the mechanism by which a nonsense variant in RYR2 leads to disordered calcium handling. *Physiol. Rep.* 10: e15265.
6. Yuan, W., et al. 2022. Intracellular TMEM16A is necessary for myogenesis of skeletal muscle. *iScience* 25: 105446.

PROTOCOLS

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

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