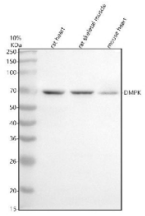
DMPK Antibody / Myotonin-protein kinase (FY12356)

Catalog No.	Formulation	Size
FY12356	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Mouse, Rat
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	P54265
Applications	Western Blot : 0.25-0.5ug/ml
Limitations	This DMPK antibody is available for research use only.



Western blot analysis of DMPK using anti-DMPK antibody. Electrophoresis was performed on a 10% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: rat heart tissue lysates, Lane 2: rat skeletal muscle tissue lysates, Lane 3: mouse heart tissue lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-DMPK antibody at 0.5 ug/ml overnight at 4oC, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal was developed using an ECL Plus Western Blotting Substrate. The expected molecular weight of DMPK is ~69 kDa.

Description

The DMPK antibody targets Myotonin-protein kinase, a serine/threonine kinase encoded by the DMPK gene. This enzyme belongs to the AGC kinase family and plays a central role in muscle structure and function. Myotonin-protein kinase regulates actomyosin organization, calcium homeostasis, and cell signaling in cardiac and skeletal muscle. The DMPK antibody enables detailed exploration of how this kinase influences muscle physiology, signal transduction, and

disease mechanisms associated with myotonic dystrophy type 1 (DM1).

Myotonin-protein kinase localizes to the sarcolemma, cytoplasm, and nuclear envelope of muscle cells, where it phosphorylates substrates involved in cytoskeletal organization and ion channel regulation. It contributes to the maintenance of sarcomere integrity and calcium signaling required for normal muscle contraction. The DMPK antibody is used to assess protein expression and localization, providing insights into how loss or mutation of this kinase disrupts muscular homeostasis.

Expansion of CTG trinucleotide repeats in the 3? untranslated region of the DMPK gene causes DM1, a multisystem disorder characterized by muscle weakness, myotonia, and cardiac conduction defects. This repeat expansion leads to toxic RNA accumulation, altered splicing of multiple genes, and reduced DMPK protein levels. The DMPK antibody supports investigations into these molecular effects by allowing direct measurement of protein expression in affected tissues. Studies using this reagent have clarified that decreased Myotonin-protein kinase activity contributes to muscle atrophy and electrical instability in DM1 patients.

Beyond myotonic dystrophy, DMPK signaling intersects with Rho GTPase and MAPK pathways, suggesting roles in cytoskeletal dynamics and stress responses. The DMPK antibody is a valuable reagent for studying these signaling networks and their involvement in cardiac hypertrophy, smooth muscle contractility, and cell migration. In cardiac research, immunohistochemical detection using the DMPK antibody reveals its presence in intercalated discs and perinuclear regions, correlating with its function in maintaining contractile coordination.

Experimental applications for the DMPK antibody include western blotting, immunofluorescence, and immunohistochemistry. These assays permit detailed characterization of Myotonin-protein kinase in tissue and cellular models. NSJ Bioreagents provides the DMPK antibody for consistent, high-specificity detection across research platforms. By enabling accurate quantification and localization of this muscle-specific kinase, the antibody supports ongoing research into muscle physiology, neuromuscular disease, and therapeutic interventions for myotonic dystrophy.

Application Notes

Optimal dilution of the DMPK antibody should be determined by the researcher.

Immunogen

A synthetic peptide corresponding to a sequence at the N-terminus of human DMPK was used as the immunogen for the DMPK antibody.

Storage

After reconstitution, the DMPK antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.