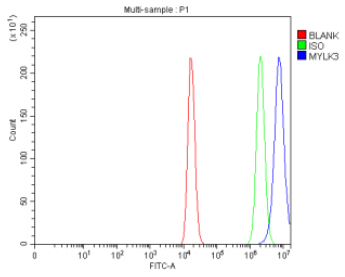
MYLK3 Antibody / Myosin light chain kinase 3 (FY13284)

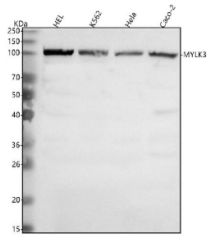
Catalog No.	Formulation	Size
FY13284	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Human
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	Q32MK0
Applications	Western Blot: 0.25-0.5ug/ml Flow cytometry: 1-3ug/million cells ELISA: 0.1-0.5ug/ml
Limitations	This MYLK3 antibody is available for research use only.



Flow Cytometry analysis of human HEL cells using anti-MYLK3 antibody. Overlay histogram showing HEL cells stained with (Blue line). To facilitate intracellular staining, cells were fixed with 4% paraformaldehyde and permeabilized with permeabilization buffer. The cells were blocked with 10% normal goat serum. And then incubated with rabbit anti-MYLK3 antibody (1 ug/million cells) for 30 min at 20oC. DyLight 488 conjugated goat anti-rabbit IgG (5-10 ug/million cells) was used as secondary antibody for 30 minutes at 20oC. Isotype control antibody (Green line) was rabbit IgG (1 ug/million cells) used under the same conditions. Unlabelled sample (Red line) was also used as a control.



Western blot analysis of MYLK3 using anti-MYLK3 antibody. Lane 1: human HEL whole cell lysates, Lane 2: human K562 whole cell lysates, Lane 3: human Hela whole cell lysates, Lane 4: human Caco-2 whole cell 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-MYLK3 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 enhanced chemiluminescent. A predominant band is detected at an approximately 100 kDa in all samples, running above the predicted ~88 kDa size but consistent with the higher apparent molecular weight typically observed for the heavily regulated kinase MYLK3.

Description

MYLK3 antibody targets Myosin light chain kinase 3, a cardiac-specific serine/threonine kinase that phosphorylates the regulatory light chain of myosin II to modulate cardiac muscle contraction. The MYLK3 gene encodes cardiac myosin light chain kinase (cMLCK), which plays a pivotal role in sarcomere assembly, contractile force generation, and maintenance of cardiac output. cMLCK phosphorylates myosin regulatory light chain (MLC2v), enhancing the interaction between actin and myosin filaments to promote efficient contraction of cardiomyocytes.

MYLK3 expression is restricted mainly to cardiac muscle tissue, distinguishing it from other members of the myosin light chain kinase family such as MYLK and MYLK2, which function in smooth and skeletal muscle, respectively. Located on chromosome 16q23.1, the MYLK3 gene is activated during cardiac differentiation and is transcriptionally regulated by cardiac transcription factors including NKX2-5 and GATA4. Its kinase domain shares structural homology with other Ca2+/calmodulin-dependent kinases but exhibits distinct substrate specificity suited to cardiac myosin regulation.

Functional studies demonstrate that MYLK3 enhances cardiac contractility by maintaining phosphorylation of ventricular myosin light chain 2 (MLC2v). Loss-of-function mutations or reduced expression of MYLK3 have been linked to dilated cardiomyopathy and impaired sarcomere organization. Overexpression of MYLK3 increases calcium sensitivity and promotes sarcomere maturation during cardiomyocyte development, emphasizing its importance in cardiac physiology. In experimental models, altered MYLK3 signaling can influence cardiac hypertrophy, mechanical stress responses, and recovery following myocardial injury.

Immunostaining using MYLK3 antibody reveals strong cytoplasmic localization in cardiac muscle fibers, particularly in ventricular tissue. The antibody is widely applied to research focused on cardiac muscle contractility, signal transduction, and kinase-mediated phosphorylation events. MYLK3 antibody from NSJ Bioreagents provides a reliable tool for investigating cardiac-specific myosin regulation, sarcomere dynamics, and disease mechanisms associated with cardiomyopathies.

Application Notes

Optimal dilution of the MYLK3 antibody should be determined by the researcher.

Immunogen

E.coli-derived human MYLK3 recombinant protein (Position: E34-K812) was used as the immunogen for the MYLK3 antibody.

Storage

After reconstitution, the MYLK3 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

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