

Product Information

ANTI-MYOSIN IIB (nonmuscle)

Developed in Rabbit
Affinity Isolated Antibody

Product Number **M 7939**

Product Description

Anti-Myosin IIB (nonmuscle) is developed in rabbits using as immunogen, a synthetic peptide corresponding to amino acid residues 1965-1976 of the heavy chain of human myosin IIB (nonmuscle) conjugated to KLH. This sequence is identical in rabbit and differs by one and two amino acids from the respective bovine and rat sequences. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-Myosin IIB (nonmuscle) specifically recognizes the heavy chain of human myosin IIB (nonmuscle) (NMHCB) by immunoblotting (~200 kDa). Staining of myosin IIB (nonmuscle) by immunoblotting is inhibited by the immunizing peptide. Additional bands may be detected in some extract preparations. The antibody cross-reacts with dog and rat myosin.

Myosins belong to a superfamily of actin-based motor proteins comprising to date at least 15 classes. There are two main groups of myosins: the conventional (class II) and the unconventional myosins.¹ Myosin IIB (nonmuscle) is a relatively abundant, widespread two-headed myosin composed of an N-terminal motor domain, a light chain binding neck region, a coiled-coil region, and a nonhelical C-terminal domain. It forms a heterohexamer composed of a pair of heavy chains and two pairs of light chains.

The vertebrate myosin II class members include muscle (sarcomeric and smooth) and nonmuscle (cytoplasmic) myosins.¹⁻³ The nonmuscle myosin II class contains two isoforms: IIA and IIB, which exhibit 85% and 72% amino acid identity in the motor domain and the rod, respectively. Varying ratios of the two isoforms are expressed in different cells and tissues. Some cells express only a single isotype: e.g. myosin IIA in human platelets, rat basophilic leukemia cells, and chicken intestinal epithelium and myosin IIB in embryonic cardiac myocytes and COS-7 cells.²⁻⁵ The two isoforms vary in their intracellular localization, enzymatic activities, and proposed functions. Three additional isoforms of IIB have been described in neurons. Another isoform, myosin IIC, seems to constitute a distinct third isoform of the nonmuscle myosins.

Nonmuscle myosin II is involved in cell motility and adhesion, cytokinesis, vesicular transport, intracellular force generation, and in morphogenesis during development. Its activity is regulated by light chain and possibly heavy chain phosphorylation and by association with proteins such as Mts1.³ Lethal defects in the development of the heart and hydrocephalus of the brain have been described in NMHCB homozygous knockout mice.⁵

Reagent

Anti-Myosin IIB (nonmuscle) is supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 1% bovine serum albumin and 15 mM sodium azide.

Antibody concentration: 1.0-1.5 mg/ml

Precautions and Disclaimer

Due to the sodium azide content, a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For prolonged storage, freeze in working aliquots at -20 °C. Repeated freezing and thawing is not recommended. Storage in frost-free freezers is also not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

Product Profile

For immunoblotting, a minimum working antibody dilution of 1:200 is recommended using a whole extract of dog MDCK kidney cells, human Jurkat acute T cell leukemia cells, or rat NRK kidney cells and a chemiluminescent detection system.

Note: In order to obtain the best results using different techniques and preparations, we recommend determining the optimal working dilutions by titration.

References

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