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Product Information

Anti-γ-Actin antibody, Mouse monoclonal
clone 2-2.1.14.17, purified from hybridoma cell culture

Product Number **A8481**

Product Description

Monoclonal Anti-γ-Actin (mouse IgG1 isotype) is derived from the hybridoma 2-2.1.14.17 produced by the fusion of mouse myeloma cells (NS1) and splenocytes from BALB/c mice immunized with purified bovine brain cytoplasmic γ-actin and the KLH-conjugated amino terminal peptide of human γ-actin (Gene ID: 71).[1] The isotype is determined using a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents, Product Number ISO2.

Monoclonal Anti-γ-Actin recognizes human, bovine, canine, mouse, hamster, and chicken γ-actin. Applications include ELISA,[1] immunoblotting[1] (~43 kDa), and immunohistochemistry.

The two major cytoskeletal proteins implicated in cell motility are actin and myosin. Actin and myosin are constituents of many cell types and are involved in a myriad of cellular process including locomotion, secretion, cytoplasmic streaming, phagocytosis, and cytokinesis. Although actin is one of the most conserved eukaryotic proteins, it is expressed in mammals and birds as at least six isoforms characterized by electrophoresis and amino acid sequence analysis.[2,3]

Four of these isoforms represent differentiation markers of muscle tissues and two are found practically in all cells. There are three α-actin (skeletal, cardiac, and smooth muscle), one β-actin (β-nonmuscle) and two γ-actins (smooth muscle and nonmuscle). Actin isoforms show >90% overall sequence homology, but only 50–60% homology in their 18 NH_2-terminal residues.[4] The NH_2-terminal region of actin appears to be a major antigenic region, and may be involved in the interaction of actin with other proteins, such as myosin.

γ-Actin is predominantly localized to the sarcolemma and more faintly within an internal reticular lattice in normal muscle. The level of expression of γ-actin is upregulated 10-fold in skeletal muscle cells of dystrophin-deficient *mdx* mice. Moreover, γ-actin expression is restored to normal in mdx muscle expressing full-length utrophin or functional dystrophin, but not in mice expressing nonfunctional dystrophin.[1] Thus, excess of cytoplasmic γ-actin may explain how loss of dystrophin leads to abnormalities in cell signaling or gene expression.[1]

Reagent

Supplied as a solution in 0.01 M PBS, pH 7.4, containing 15 mM sodium azide as a preservative.

Antibody concentration: ~2.0 mg/mL

Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

For extended storage, freeze at –20 °C in working aliquots. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a working antibody concentration of 0.25–0.5 μg/mL is recommended using total cell extract of 3T3 cells.

Note: In order to obtain best results in various techniques and preparations, it is recommended to determine optimal working dilutions by titration.

References

1. Hanft., L.M. et al., *Proc. Natl. Acad. Sci. USA,* **103**, 5385-5390 (2006).
2. Vandekerchove, J., and Weber, K., *Eur. J. Biochem.*, **90**, 451-462 (1978).
3. Drew, J.S. et al., *Amer. J. Physiol*., **260**, C1332-C1340 (1991).
4. Lessard, J.L., *Cell Motil. Cytoskel*., **10**, 349-362 (1988).

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