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Mouse anti actin gamma-cytoplasmic

 nordicmubio.com/products/mouse-anti-actin-gamma-cytoplasmic/MUB0111P

Catalog number: **MUB0111P**

Clone	2A3
Isotype	IgG2b
Product Type	Primary Antibodies
Units	0.1 mg
Host	Mouse
Species Reactivity	Chicken Human Mouse Rabbit Rat Swine Zebrafish
Application	ELISA Flow Cytometry Immunohistochemistry (frozen) Immunohistochemistry (paraffin) Western Blotting

Background

Among the six actin isoforms described in mammals, two are found in virtually all cells (β - and γ -cytoplasmic), two are detected in smooth muscle cells (α - and γ -smooth muscle) and two are present in striated muscles, one predominantly in skeletal (α -skeletal) and one in cardiac (α -cardiac) muscle cells. These actin isoforms differ slightly in their N-terminus, but the sequence of each of these actins is highly conserved in higher vertebrates. β - and γ -cytoplasmic actin play crucial roles during various key cellular processes. Whereas β -actin is preferentially localized in stress fibers, circular bundles and at cell-cell contacts, suggesting a role in cell attachment and contraction, γ -actin displays a more versatile organization, according to cell activities. In moving cells, γ -actin

is mainly organized as a meshwork in cortical and lamellipodial structures, suggesting a role in cell motility. β - and γ -actin depleted fibroblasts exhibit distinct changes in motility compared with their controls, suggesting a specific role for each isoform in cell locomotion.

Source

2A3 is a Mouse monoclonal IgG2b antibody derived by fusion of NS0 Mouse myeloma cells with spleen cells from a BALB/c Mouse immunized with a peptide comprising the N-terminal nonapeptide of γ -cytoplasmic actin with an acetylated N-terminus (Ac-EEEIAALVI-COOH) coupled to keyhole limpet hemocyanin through the cysteine residue. The antibody does not cross react with other actin isoforms.

Product

Each vial contains 100 μ l 1 mg/ml purified monoclonal antibody in PBS containing 0.09% sodium azide.

Formulation: Each vial contains 100 μ l 1 mg/ml purified monoclonal antibody in PBS containing 0.09% sodium azide.

Specificity

2A3 is a mouse monoclonal IgG2b antibody highly specific for γ -cytoplasmic actin (γ -actin 1; encoded by ACTG1). It does not cross-react with the γ -actin isoform expressed in the enteric smooth muscle tissues (γ -actin 2; encoded by ACTG2).

Species Reactivity: The epitope recognized by α -SM1 is highly conserved. The antibody therefore cross-reacts with many species including protochordates, lower craniates and mammals.

Applications

2A3 is useful for immunocytochemistry on methanol fixed cells, immunohistochemistry on methanol fixed frozen sections and paraffin-embedded tissues, immunoblotting, flow cytometry and ELISA. Optimal antibody dilution should be determined by titration; recommended range is 1:100 – 1:500 for immunohistochemistry with avidin-biotinylated Horseradish peroxidase complex (ABC) as detection reagent, and 1:1000 – 1:5000 for immunoblotting applications.

Storage

The antibody is shipped at ambient temperature and may be stored at +4°C. For prolonged storage prepare appropriate aliquots and store at or below -20°C. Prior to use, an aliquot is thawed slowly in the dark at ambient temperature, spun down again and used to prepare working dilutions by adding sterile phosphate buffered saline (PBS, pH 7.2). Repeated thawing and freezing should be avoided. Working dilutions should be stored at +4°C, not refrozen, and preferably used the same day. If a slight precipitation occurs upon storage, this should be removed by centrifugation. It will not affect the performance or the concentration of the product.

Caution

This product is intended FOR RESEARCH USE ONLY, and FOR TESTS IN VITRO, not for use in diagnostic or therapeutic procedures involving humans or animals. It may contain hazardous ingredients. Please refer to the Safety Data Sheets (SDS) for additional information and proper handling procedures. Dispose product remainders according to local regulations. This datasheet is as accurate as reasonably achievable, but Exalpha Biologicals accepts no liability for any inaccuracies or omissions in this information.

References

1. Vandekerckhove, J. and Weber, K. (1978). At least six different actins are expressed in a higher mammal: an analysis based on the amino acid sequence of the amino-terminal tryptic peptide. *J Mol Biol.* 126(4), 783-802. 2. Bassell, G.J., Zhang, H., Byrd, A.L., Femino, A.M., Singer, R.H., Taneja, K.L., Lifshitz, L.M., Herman, I.M. and Kosik, K.S. (1998). Sorting of beta-actin mRNA and protein to neurites and growth cones in culture. *J Neurosci.* 1998 18(1), 251-65. 3. Dugina, V., Zwaenepoel, I., Gabbiani, G., Clément, S. and Chaponnier, C. (2009). β - and γ -cytoplasmic actins display distinct distribution and functional diversity. *J Cell Sci* 122, 2980-88. 4. Gallant, C., Appel, S., Graceffa, P., Leavis, P., Lin, J.J., Gunning, P.W., Schevzov, G., Chaponnier, C., Degnore, J., Lehman, W. and Morgan, K.G. (2011). Tropomyosin variants describe distinct functional subcellular domains in differentiated vascular smooth muscle cells. *Am J Physiol Cell Physiol.* 300(6), 1356-65.

Protein Reference(s)

Database Name: UniProt

Accession Number: P63261

Safety Datasheet(s) for this product:

NM_Sodium Azide



Figure 1. Methanol fixed human dermal fibroblasts immunostained with MUB0111P (2A3; 1:500)



Figure 2. Reactivity of MUB0111P (up to a 1:1000 dilution) in the epithelial villi in swine colon.



Figure 3. Formalin fixed, paraffin embedded human heart tissue immunostained for gamma cytoplasmic actin using MUB0111P (clone 2A3) at a 100x dilution.