

Datasheet: MCA5775GA

BATCH NUMBER 171191

Description:	MOUSE ANTI HUMAN ACTIN BETA
Specificity:	ACTIN BETA
Other names:	ACTB
Format:	Purified
Product Type:	Monoclonal Antibody
Clone:	4C2
Isotype:	IgG1
Quantity:	0.1 mg

Product Details

Applications

This product has been reported to work in the following applications. This information is derived from testing within our laboratories, peer-reviewed publications or personal communications from the originators. Please refer to references indicated for further information. For general protocol recommendations, please visit www.bio-rad-antibodies.com/protocols.

	Yes	No	Not Determined	Suggested Dilution
Immunohistology - Frozen	▪			1/50 - 1/100
Immunohistology - Paraffin			▪	
ELISA			▪	
Immunoprecipitation			▪	
Western Blotting	▪			
Immunofluorescence	▪			

Where this antibody has not been tested for use in a particular technique this does not necessarily exclude its use in such procedures. Suggested working dilutions are given as a guide only. It is recommended that the user titrates the antibody for use in their own system using appropriate negative/positive controls.

Target Species

Human

Species Cross Reactivity

Reacts with: Rabbit, Pig, Mouse, Rat

N.B. Antibody reactivity and working conditions may vary between species. Cross reactivity is derived from testing within our laboratories, peer-reviewed publications or personal communications from the originators. Please refer to references indicated for further information.

Product Form

Purified IgG - liquid

Preparation

Purified IgG prepared by affinity chromatography on Protein A from tissue culture

supernatant

Buffer Solution Phosphate buffered saline

Preservative Stabilisers 0.09% Sodium Azide (NaN₃)

Carrier Free Yes

Approx. Protein Concentrations IgG concentration 1 mg/ml

Immunogen Synthetic peptide corresponding to the acetylated N-terminal nonapeptide of beta-cytoplasmic actin, coupled to KLH.

External Database Links

UniProt:

[P60709](#) [Related reagents](#)

Entrez Gene:

[60](#) ACTB [Related reagents](#)

RRID AB_2571580

Specificity **Mouse anti Human actin beta, clone 4C2**, recognizes cytoplasmic actin beta (known also as ACTB and Beta Actin), a 41.7 kDa cytoskeletal protein.

Actins are highly conserved proteins that are involved in cell motility, structure and integrity and are ubiquitously expressed in all eukaryotic cells. Six different isoforms of actin have been identified in mammals ([Vandekerckhove *et al.* 1978](#)).

Clone 4C2 is highly specific for cytoplasmic actin β and does not react with other actin isoforms. Mouse anti Human actin beta, clone 4C2 has been used to look at the remodeling of the actin cytoskeleton following sendai virus infection and the specific role of the viral M protein in actin remodeling ([Miazza *et al.* 2011](#)).

References

1. Brockmann, C. *et al.* (2011) Beta- and gamma-cytoplasmic actins are required for meiosis in mouse oocytes. [Biol Reprod. 85 \(5\): 1025-39.](#)
2. Miazza, V. *et al.* (2011) Sendai virus induced cytoplasmic actin remodeling correlates with efficient virus particle production. [Virology. 410 \(1\): 7-16.](#)
3. Baranwal, S. *et al.* (2012) Nonredundant roles of cytoplasmic β - and γ -actin isoforms in regulation of epithelial apical junctions. [Mol Biol Cell. 23 \(18\): 3542-53.](#)
4. Shagieva, G.S. *et al.* (2012) Actin isoforms and reorganization of adhesion junctions in epithelial-to-mesenchymal transition of cervical carcinoma cells. [Biochemistry \(Mosc\). 77 \(11\): 1266-76.](#)
5. Dugina, V. *et al.* (2015) Tumor promotion by γ and suppression by β non-muscle actin isoforms. [Oncotarget. 6 \(16\): 14556-71.](#)
6. Rubtsova, S.N. *et al.* (2015) A Novel Role of E-Cadherin-Based Adherens Junctions in Neoplastic Cell Dissemination. [PLoS One. 10 \(7\): e0133578.](#)

7. Simiczyjew, A. *et al.* (2015) Active invadopodia of mesenchymally migrating cancer cells contain both β and γ cytoplasmic actin isoforms. [Exp Cell Res. 339 \(2\): 206-19.](#)
8. Simiczyjew, A. *et al.* (2017) Involvement of β - and γ -actin isoforms in actin cytoskeleton organization and migration abilities of bleb-forming human colon cancer cells. [PLoS One. 12 \(3\): e0173709.](#)
9. Novikova, M.V. *et al.* (2017) [A change in the expression of membrane-associated proteins and cytoplasmic actin isoforms in the progression of human colon tumors]. [Arkh Patol. 79 \(2\): 15-21.](#)
10. Chaponnier, C. & Gabbiani, G. (2016) Monoclonal antibodies against muscle actin isoforms: epitope identification and analysis of isoform expression by immunoblot and immunostaining in normal and regenerating skeletal muscle. [F1000Res. 5: 416.](#)
11. Chen, A. *et al.* (2017) Cytokinesis requires localized β -actin filament production by an actin isoform specific nucleator. [Nat Commun. 8 \(1\): 1530.](#)
12. Dugina, V. *et al.* (2021) Impaired Expression of Cytoplasmic Actins Leads to Chromosomal Instability of MDA-MB-231 Basal-Like Mammary Gland Cancer Cell Line. [Molecules. 26\(8\):2151.](#)
13. Dugina, V. *et al.* (2024) Imbalance between Actin Isoforms Contributes to Tumour Progression in Taxol-Resistant Triple-Negative Breast Cancer Cells. [Int J Mol Sci. 25 \(8\): 4530.](#)
14. Levuschkina, Y.G. *et al.* (2025) Induction of Fibroblast-to-Myofibroblast Differentiation by Changing Cytoplasmic Actin Ratio. [Biochemistry \(Mosc\). 90 \(2\): 289-98.](#)
15. Simiczyjew, A. *et al.* (2025) Phenotype switching in highly invasive resistant to vemurafenib and cobimetinib melanoma cells. [Cell Commun Signal. 23 \(1\): 449.](#)

Further Reading 1. Perrin, B.J. & Ervasti, J.M. (2010) The actin gene family: function follows isoform. [Cytoskeleton \(Hoboken\). 67 \(10\): 630-4.](#)

Storage This product is shipped at ambient temperature. It is recommended to aliquot and store at -20°C on receipt. When thawed, aliquot the sample as needed. Keep aliquots at 2-8°C for short term use (up to 4 weeks) and store the remaining aliquots at -20°C.

Avoid repeated freezing and thawing as this may denature the antibody. Storage in frost-free freezers is not recommended.

Guarantee 12 months from date of despatch

Health And Safety Information Material Safety Datasheet documentation #10040 available at: <https://www.bio-rad-antibodies.com/SDS/MCA5775GA>

Regulatory For research purposes only

Related Products

Recommended Secondary Antibodies

Goat Anti Mouse IgG IgA IgM (STAR87...) [HRP](#)

Goat Anti Mouse IgG (STAR70...) [FITC](#)

Goat Anti Mouse IgG (STAR77...) [HRP](#)

Goat Anti Mouse IgG (STAR76...)	RPE
Rabbit Anti Mouse IgG (STAR12...)	RPE
Rabbit Anti Mouse IgG (STAR13...)	HRP
Rabbit Anti Mouse IgG (STAR9...)	FITC
Goat Anti Mouse IgG (Fc) (STAR120...)	FITC , HRP
Goat Anti Mouse IgG (H/L) (STAR117...)	Alk. Phos. , DyLight®488 , DyLight®550 , DyLight®650 , DyLight®680 , DyLight®800 , FITC , HRP

Recommended Negative Controls

[MOUSE IgG1 NEGATIVE CONTROL \(MCA928\)](#)

Product inquiries: www.bio-rad-antibodies.com/technical-support

To find a batch/lot specific datasheet for this product, please use our online search tool at: bio-rad-antibodies.com/datasheets
'M437659:250318'

Printed on 02 Jun 2026

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