

## Datasheet: MCA5775GA

<b>Description:</b>	MOUSE ANTI HUMAN ACTIN BETA
<b>Specificity:</b>	ACTIN BETA
<b>Other names:</b>	ACTB
<b>Format:</b>	Purified
<b>Product Type:</b>	Monoclonal Antibody
<b>Clone:</b>	4C2
<b>Isotype:</b>	IgG1
<b>Quantity:</b>	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](http://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

<b>Buffer Solution</b>	Phosphate buffered saline
<b>Preservative Stabilisers</b>	0.09% Sodium Azide (NaN <sub>3</sub> )
<b>Carrier Free</b>	Yes
<b>Approx. Protein Concentrations</b>	IgG concentration 1 mg/ml
<b>Immunogen</b>	Synthetic peptide corresponding to the acetylated N-terminal nonapeptide of beta-cytoplasmic actin, coupled to KLH.
<b>External Database Links</b>	<p><b>UniProt:</b>  <a href="#">P60709</a>    <a href="#">Related reagents</a></p> <p><b>Entrez Gene:</b>  <a href="#">60</a>    ACTB    <a href="#">Related reagents</a></p>
<b>RRID</b>	AB_2571580
<b>Specificity</b>	<p><b>Mouse anti Human actin beta, clone 4C2</b>, recognizes cytoplasmic actin beta (known also as ACTB and Beta Actin), a 41.7 kDa cytoskeletal protein.</p> <p>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 (<a href="#">Vandekerckhove et al. 1978</a>).</p> <p>Clone 4C2 is highly specific for cytoplasmic actin <math>\beta</math> 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 (<a href="#">Miazza et al. 2011</a>).</p>
<b>References</b>	<ol style="list-style-type: none"> <li>1. Brockmann, C. <i>et al.</i> (2011) Beta- and gamma-cytoplasmic actins are required for meiosis in mouse oocytes. <a href="#">Biol Reprod. 85 (5): 1025-39.</a></li> <li>2. Miazza, V. <i>et al.</i> (2011) Sendai virus induced cytoplasmic actin remodeling correlates with efficient virus particle production. <a href="#">Virology. 410 (1): 7-16.</a></li> <li>3. Baranwal, S. <i>et al.</i> (2012) Nonredundant roles of cytoplasmic <math>\beta</math>- and <math>\gamma</math>-actin isoforms in regulation of epithelial apical junctions. <a href="#">Mol Biol Cell. 23 (18): 3542-53.</a></li> <li>4. Shagieva, G.S. <i>et al.</i> (2012) Actin isoforms and reorganization of adhesion junctions in epithelial-to-mesenchymal transition of cervical carcinoma cells. <a href="#">Biochemistry (Mosc). 77 (11): 1266-76.</a></li> <li>5. Dugina, V. <i>et al.</i> (2015) Tumor promotion by <math>\gamma</math> and suppression by <math>\beta</math> non-muscle actin isoforms. <a href="#">Oncotarget. 6 (16): 14556-71.</a></li> <li>6. Rubtsova, S.N. <i>et al.</i> (2015) A Novel Role of E-Cadherin-Based Adherens Junctions in Neoplastic Cell Dissemination. <a href="#">PLoS One. 10 (7): e0133578.</a></li> <li>7. Simiczyjew, A. <i>et al.</i> (2015) Active invadopodia of mesenchymally migrating cancer cells contain both <math>\beta</math> and <math>\gamma</math> cytoplasmic actin isoforms. <a href="#">Exp Cell Res. 339 (2): 206-19.</a></li> </ol>

8. Simiczyjew, A. *et al.* (2017) Involvement of  $\beta$ - and  $\gamma$ -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  $\beta$ -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 \(8\) Apr 20 \[Epub ahead of print\].](#)

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

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**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.

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**Guarantee** 12 months from date of despatch

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

## Related Products

### Recommended Secondary Antibodies

Rabbit Anti Mouse IgG (STAR12...)	<a href="#">RPE</a>
Goat Anti Mouse IgG IgA IgM (STAR87...)	<a href="#">HRP</a>
Goat Anti Mouse IgG (STAR76...)	<a href="#">RPE</a>
Goat Anti Mouse IgG (STAR70...)	<a href="#">FITC</a>
Rabbit Anti Mouse IgG (STAR13...)	<a href="#">HRP</a>
Goat Anti Mouse IgG (Fc) (STAR120...)	<a href="#">FITC</a> , <a href="#">HRP</a>
Rabbit Anti Mouse IgG (STAR9...)	<a href="#">FITC</a>
Goat Anti Mouse IgG (STAR77...)	<a href="#">HRP</a>

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 \(MCA928\)](#)

<b>North &amp; South America</b>	Tel: +1 800 265 7376 Fax: +1 919 878 3751 Email: <a href="mailto:antibody_sales_us@bio-rad.com">antibody_sales_us@bio-rad.com</a>	<b>Worldwide</b>	Tel: +44 (0)1865 852 700 Fax: +44 (0)1865 852 739 Email: <a href="mailto:antibody_sales_uk@bio-rad.com">antibody_sales_uk@bio-rad.com</a>	<b>Europe</b>	Tel: +49 (0) 89 8090 95 21 Fax: +49 (0) 89 8090 95 50 Email: <a href="mailto:antibody_sales_de@bio-rad.com">antibody_sales_de@bio-rad.com</a>
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To find a batch/lot specific datasheet for this product, please use our online search tool at: [bio-rad-antibodies.com/datasheets](https://bio-rad-antibodies.com/datasheets)  
'M437659:250318'

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