



Orders: 877-616-CELL (2355)  
orders@cellsignal.com

Support: 877-678-TECH (8324)

Web: info@cellsignal.com  
cellsignal.com

3 Trask Lane | Danvers | Massachusetts | 01923 | USA

Store at +4C  
#8844

## $\beta$ -Actin (13E5) Rabbit mAb (Alexa Fluor<sup>®</sup> 488 Conjugate)

For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
IF-IC, FC-FP	H M R Mk B Pg	Endogenous	Rabbit IgG	#P60709	60

### Product Usage Information

#### Application

Immunofluorescence (Immunocytochemistry)  
Flow Cytometry (Fixed/Permeabilized)

#### Dilution

1:50 - 1:100  
1:50

### Storage

Supplied in PBS (pH 7.2), less than 0.1% sodium azide and 2 mg/ml BSA. Store at 4°C. Do not aliquot the antibody. Protect from light. Do not freeze.

### Specificity/Sensitivity

$\beta$ -Actin (13E5) Rabbit mAb (Alexa Fluor<sup>®</sup> 488 Conjugate) detects endogenous levels of total  $\beta$ -actin protein. Despite the high sequence identity between the cytoplasmic actin isoforms,  $\beta$ -actin and cytoplasmic  $\gamma$ -actin,  $\beta$ -Actin (13E5) Rabbit mAb (Alexa Fluor<sup>®</sup> 488 Conjugate) #8844 does not cross-react with cytoplasmic  $\gamma$ -actin, or any other actin isoforms.

### Species predicted to react based on 100% sequence homology

Hamster, Chicken, Dog, Horse, Rabbit

### Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues near the amino terminus of human  $\beta$ -actin protein.

### Description

This Cell Signaling Technology antibody is conjugated to Alexa Fluor<sup>®</sup> 488 fluorescent dye and tested in-house for direct flow cytometry and immunofluorescent analysis in human and monkey cells, respectively. The antibody is expected to exhibit the same species cross-reactivity as the unconjugated  $\beta$ -Actin (13E5) Rabbit mAb #4970.

### Background

Actin, a ubiquitous eukaryotic protein, is the major component of the cytoskeleton. At least six isoforms are known in mammals. Nonmuscle  $\beta$ - and  $\gamma$ -actin, also known as cytoplasmic actin, are ubiquitously expressed, controlling cell structure and motility (1). While all actin isoforms are highly homologous, cytoplasmic  $\beta$ - and  $\gamma$ -actin protein sequences differ by only four biochemically similar amino acids (2). For this reason, antibodies raised to  $\beta$ -actin may cross-react with  $\gamma$ -actin, and vice versa.  $\alpha$ -cardiac and  $\alpha$ -skeletal actin are expressed in striated cardiac and skeletal muscles, respectively; two smooth muscle actins,  $\alpha$ - and  $\gamma$ -actin, are found primarily in vascular smooth muscle and enteric smooth muscle, respectively. These actin isoforms regulate the contractile potential of muscle cells (1). Actin exists mainly as a fibrous polymer, F-actin. In response to cytoskeletal reorganizing signals during processes such as cytokinesis, endocytosis, or stress, cofilin promotes fragmentation and depolymerization of F-actin, resulting in an increase in the monomeric globular form, G-actin (3). The ARP2/3 complex stabilizes F-actin fragments and promotes formation of new actin filaments (3). Research studies have shown that actin is hyperphosphorylated in primary breast tumors (4). Cleavage of actin under apoptotic conditions has been observed *in vitro* and in cardiac and skeletal muscle, as shown in research studies (5-7). Actin cleavage by caspase-3 may accelerate ubiquitin/proteasome-dependent muscle proteolysis (7).

### Background References

- Herman, I.M. (1993) *Curr. Opin. Cell Biol.* 5, 48-55.
- Perrin, B.J. and Ervasti, J.M. (2010) *Cytoskeleton (Hoboken)* 67, 630-4.
- Condeelis, J. (2001) *Trends Cell Biol* 11, 288-93.
- Lim, Y.P. et al. (2004) *Clin Cancer Res* 10, 3980-7.
- Kayalar, C. et al. (1996) *Proc Natl Acad Sci U S A* 93, 2234-8.
- Communal, C. et al. (2002) *Proc Natl Acad Sci U S A* 99, 6252-6.
- Du, J. et al. (2004) *J Clin Invest* 113, 115-23.

### Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

### Applications Key

**IF-IC:** Immunofluorescence (Immunocytochemistry) **FC-FP:** Flow Cytometry (Fixed/Permeabilized)

## Cross-Reactivity Key

**H:** Human **M:** Mouse **R:** Rat **Mk:** Monkey **B:** Bovine **Pg:** Pig

## Trademarks and Patents

Cell Signaling Technology is a trademark of Cell Signaling Technology, Inc.

This product is provided under an intellectual property license from Life Technologies Corporation. The transfer of this product is conditioned on the buyer using the purchased product solely in research conducted by the buyer, excluding contract research or any fee for service research, and the buyer must not (1) use this product or its components for (a) diagnostic, therapeutic or prophylactic purposes; (b) testing, analysis or screening services, or information in return for compensation on a per-test basis; or (c) manufacturing or quality assurance or quality control, and/or (2) sell or transfer this product or its components for resale, whether or not resold for use in research. For information on purchasing a license to this product for purposes other than as described above, contact Life Technologies Corporation, 5791 Van Allen Way, Carlsbad, CA 92008 USA or [outlicensing@lifetech.com](mailto:outlicensing@lifetech.com).

All other trademarks are the property of their respective owners. Visit [cellsignal.com/trademarks](http://cellsignal.com/trademarks) for more information.

## Limited Uses

Except as otherwise expressly agreed in a writing signed by a legally authorized representative of CST, the following terms apply to Products provided by CST, its affiliates or its distributors. Any Customer's terms and conditions that are in addition to, or different from, those contained herein, unless separately accepted in writing by a legally authorized representative of CST, are rejected and are of no force or effect.

Products are labeled with For Research Use Only or a similar labeling statement and have not been approved, cleared, or licensed by the FDA or other regulatory foreign or domestic entity, for any purpose. Customer shall not use any Product for any diagnostic or therapeutic purpose, or otherwise in any manner that conflicts with its labeling statement. Products sold or licensed by CST are provided for Customer as the end-user and solely for research and development uses. Any use of Product for diagnostic, prophylactic or therapeutic purposes, or any purchase of Product for resale (alone or as a component) or other commercial purpose, requires a separate license from CST. Customer shall (a) not sell, license, loan, donate or otherwise transfer or make available any Product to any third party, whether alone or in combination with other materials, or use the Products to manufacture any commercial products, (b) not copy, modify, reverse engineer, decompile, disassemble or otherwise attempt to discover the underlying structure or technology of the Products, or use the Products for the purpose of developing any products or services that would compete with CST products or services, (c) not alter or remove from the Products any trademarks, trade names, logos, patent or copyright notices or markings, (d) use the Products solely in accordance with CST Product Terms of Sale and any applicable documentation, and (e) comply with any license, terms of service or similar agreement with respect to any third party products or services used by Customer in connection with the Products.