**β-Actin (13E5) Rabbit mAb**

For Research Use Only. Not For Use In Diagnostic Procedures.

### Applications

<table>
<thead>
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<th>Applications</th>
<th>Species Cross-Reactivity*</th>
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<tr>
<td>W, IHC-P, IF-IC, F</td>
<td>H, M, R, Mk, Pg, B, (C, Dg, Hr, Hm)</td>
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### Molecular Wt. **45 kDa**

### Isotype Rabbit IgG**

**Background:** Actin, a ubiquitous protein in eukaryotes, is the major component of the cytoskeleton. At least six isoforms are known in mammals. Nonmuscle β- and γ-actin, also known as cytoplasmic actin, are predominantly expressed in nonmuscle cells, controlling cell structure and motility (1). α cardiac and α-skeletal actin are expressed in striated cardiac and skeletal muscles, respectively; two smooth muscle acts, α- and γ-actin, are found primarily in vascular smooth muscle and enteric smooth muscle, respectively. These actin isoforms regulate contractile potentials for the 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 (2). The Arp2/3 complex stabilizes F-actin fragments and promotes formation of new actin filaments (2). It has been reported that actin is hyper-phosphorylated in primary breast tumors (3). Cleavage of actin under apoptotic conditions has been observed in vitro and in cardiac and skeletal muscles (4-6). Actin cleavage by caspase-3 may accelerate ubiquitin/proteosome dependent muscle proteolysis (6).

**Specificity/Sensitivity:** β-Actin (13E5) Rabbit mAb detects endogenous levels of total β-actin protein. This antibody may cross-react with the γ-actin (cytoplasmic isoform). It does not cross-react with α-skeletal, α-cardiac, α-vascular smooth, or γ-enteric smooth muscle isoforms.

**Source/Purification:** Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to the carboxy-terminal region of nonmuscle β-actin protein. This antibody may cross-react with the γ-actin (cytoplasmic isoform). It does not cross-react with α-skeletal, α-cardiac, α-vascular smooth, or γ-enteric smooth muscle isoforms.

**Background References:**


**Recommended Antibody Dilutions:**

- Western blotting: 1:1000
- Immunohistochemistry (Paraffin): 1:50-1:200
- Optimal IHC dilutions determined using SignalStain® Boost IHC Detection Reagent.
- Unmasking buffer: Citrate
- Antibody diluent: SignalStain® Antibody Diluent #8112
- Detection reagent: SignalStain® Boost (HRP, Rabbit) #8114
- Immunofluorescence (IF-IC): 1:100-1:400
- IF Protocol: Methanol Permeabilization required
- Flow Cytometry: 1:100-1:400

**For application specific protocols please see the web page for this product at www.cellsignal.com.**

Please visit www.cellsignal.com for a complete listing of recommended companion products.

**Western blot analysis of cell extracts from various cell lines using β-Actin (13E5) Rabbit mAb.**

**Immunohistochemical analysis of paraffin-embedded human leiomyoma using β-Actin (13E5) Rabbit mAb.**

**IMPORTANT:** For western blots, incubate membrane with diluted antibody in 5% w/v BSA, 1X TBS, 0.1% Tween®20 at 4°C with gentle shaking, overnight.
Flow cytometric analysis of NIH/3T3 cells using β-Actin (13E5) Rabbit mAb (blue) compared to a nonspecific negative control antibody (red).

Immunohistochemical analysis of paraffin-embedded human skeletal muscle using β-Actin (13E5) Rabbit mAb. Note the lack of staining of skeletal muscle actin.

Immunohistochemical analysis of paraffin-embedded human heart using β-Actin (13E5) Rabbit mAb. Note the lack of staining of cardiac actin.

Immunohistochemical analysis of paraffin-embedded human lung carcinoma using β-Actin (13E5) Rabbit mAb (#4970) in the presence of control peptide (left) or β-Actin Blocking Peptide #1025 (right).

Confocal immunofluorescent analysis of COS-7 cells using β-Actin (13E5) Rabbit mAb (green). Blue pseudocolor = DRAQ5® #4084 (fluorescent DNA dye).

Immunohistochemical analysis of paraffin-embedded 4T1 syngeneic mouse tumor using β-Actin (13E5) Rabbit mAb.