

#4970 Store at -20°C

β-Actin (13E5) Rabbit mAb



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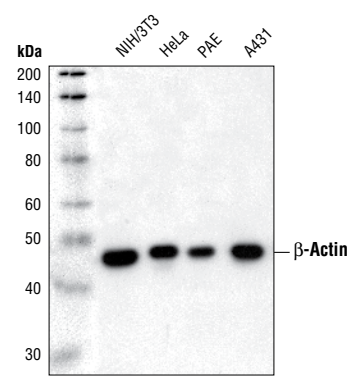
Applications	Species Cross-Reactivity*	Molecular Wt.	Isotype
W, IHC-P, IF-IC, F Endogenous	H, M, R, Mk, Pg, B, (C, Dg, Hr, Hm)	45 kDa	Rabbit IgG**

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 actins, 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 hyperphosphorylated 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/proteasome dependent muscle proteolysis (6).

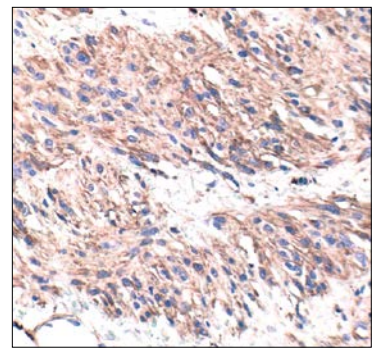
Specificity/Sensitivity: β-Actin (13E5) Rabbit mAb detects endogenous levels of total β-actin protein. This antibody may cross-react with the γ-actin (cytoplasmic isoform). It does not cross-react with α-skeletal, α-cardiac, α-vascular smooth, or γ-enteric smooth muscle isoforms.

Source/Purification: Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding residues near the amino-terminus of human β-actin.

- Background References:**
- (1) Herman, I.M. (1993) *Curr. Opin. Cell Biol.* 5, 48–55.
 - (2) Condeelis, J. (2001) *Trends Cell Biol.* 11, 288–293.
 - (3) Lim, Y. P. et al. (2004) *Clin. Cancer Res.* 10, 3980–3987.
 - (4) Kayalar, C. et al. (1996) *Proc. Natl. Acad. Sci. USA.* 93, 2234–2238.
 - (5) Communal, C. et al. (2002) *Proc. Natl. Acad. Sci. USA.* 99, 6252–6256.
 - (6) Du, J. et al. (2004) *J. Clin. Invest.* 113, 115–123.



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.

Entrez-Gene ID #60
UniProt ID #P60709

Storage: Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at -20°C. Do not aliquot the antibody.

*Species cross-reactivity is determined by western blot.

**Anti-rabbit secondary antibodies must be used to detect this antibody.

Recommended Antibody Dilutions:

Western blotting	1:1000
Immunohistochemistry (Paraffin)	1:50-1:200
<i>Optimal IHC dilutions determined using SignalStain® Boost IHC Detection Reagent.</i>	
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.

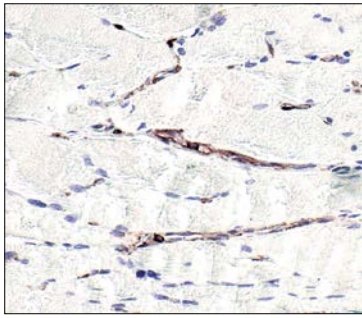
IMPORTANT: For western blots, incubate membrane with diluted antibody in 5% w/v BSA, 1X TBS, 0.1% Tween®20 at 4°C with gentle shaking, overnight.

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U.S. Patent No. 5,675,063

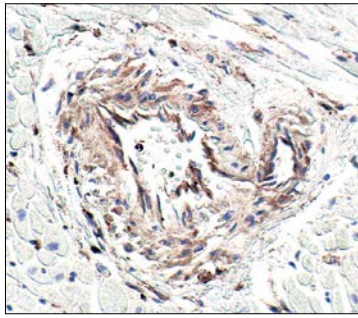
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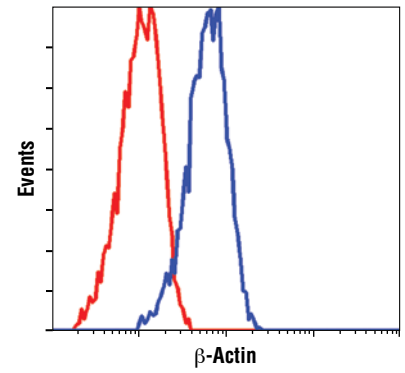
Applications Key: W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA-Peptide
Species Cross-Reactivity Key: H—human M—mouse R—rat Hm—hamster Mk—monkey Mi—mink C—chicken Dm—D. melanogaster X—Xenopus Z—zebrafish B—bovine
Dg—dog Pg—pig Sc—S. cerevisiae Ce—C. elegans Hr—horse All—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.



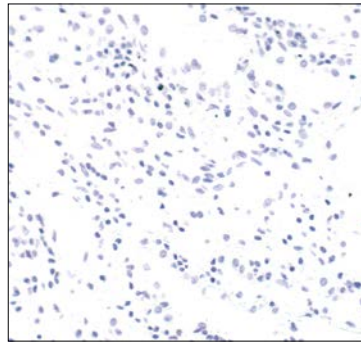
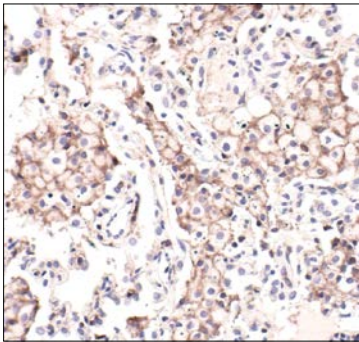
Immunohistochemical analysis of paraffin-embedded human skeletal muscle using β -Actin (13E5) Rabbit mAb. Note the lack of staining of skeletal muscle actin.



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

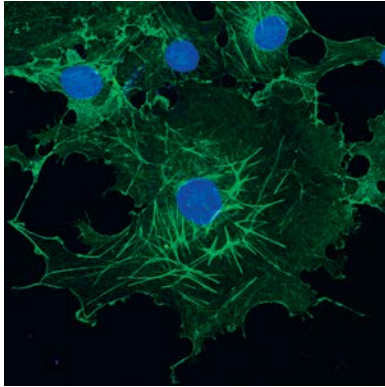


Flow cytometric analysis of NIH/3T3 cells using β -Actin (13E5) Rabbit mAb (blue) compared to a nonspecific negative control antibody (red).

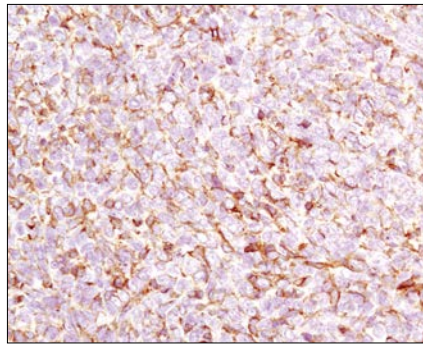


Immunohistochemical analysis of paraffin-embedded human lung carcinoma using β -Actin (13E5) Rabbit mAb (#4970) in the presence of control peptide (left) or β -Actin Blocking Peptide #1025 (right).

COS-7



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.