β-Actin (8H10D10) Mouse mAb

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

**Applications**
- Western (W)
- Immunohistochemistry (IHC-P)
- Immunofluorescence (IF-IC)
- Flow Cytometry (E-P)

**Species Cross-Reactivity**
- Human (H)
- Mouse (M)
- Pig (P)
- Rat (R)
- Hamster (Hm)
- Dog (Dg)

**Molecular Weight (MW)**: 45 kDa

**Isotype**: Mouse IgG2b

**Background**
Actin, a ubiquitous eukaryotic protein, 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 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 and cofilin promotes fragmentation and depolymerization of F-actin during processes such as cytokinesis, endocytosis, or stress, cofilin promotes fragmentation and depolymerization of F-actin (2). It has been reported that actin is hyperphosphorylated in primary breast tumors (3). Cleavage of actin under apoptotic conditions has been observed and cofilin promotes fragmentation and depolymerization of F-actin (2).

**Specificity/Sensitivity**: β-Actin (8H10D10) Mouse mAb detects endogenous levels of total β-actin protein.

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

**Background References**

**Recommended Antibody Dilutions**
- Western blotting: 1:1000
- Immunohistochemistry (Paraffin): 1:16000
- Unmasking buffer: Citrate Antigen Unmasking Buffer
- Antibody diluent: SignalStain® Antibody Diluent #8112
- Detection reagent: SignalStain® Boost (HRP, Mouse) #8125

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

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

**IMPORTANT**: For western blots, incubate membrane with diluted antibody in 5% w/v nonfat dry milk, 1X TBS, 0.1% Tween-20 at 4°C with gentle shaking, overnight.
Immunohistochemical analysis of paraffin-embedded human breast carcinoma using β-Actin (8H10D10) Mouse mAb.

Immunohistochemical analysis of paraffin-embedded human heart using β-Actin (8H10D10) Mouse mAb. Note the lack of staining of cardiac muscle.

Flow-cytometric analysis of HeLa cells using β-Actin (8H10D10) Mouse mAb (blue) compared to a nonspecific negative control antibody (red).