

## Beta-actin monoclonal antibody

Catalog: MB65885

Host: Mouse

Reactivity: Human, Mouse, Rat

### 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. While all actin isoforms are highly homologous, cytoplasmic  $\beta$ - and  $\gamma$ -actin protein sequences differ by only four biochemically similar amino acids. 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. 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. The ARP2/3 complex stabilizes F-actin fragments and promotes formation of new actin filaments. Research studies have shown that actin is hyperphosphorylated in primary breast tumors. Cleavage of actin under apoptotic conditions has been observed in vitro and in cardiac and skeletal muscle, as shown in research studies. Actin cleavage by caspase-3 may accelerate ubiquitin/proteasome-dependent muscle proteolysis.

### Product:

Liquid in 0.42% Potassium phosphate, 0.87% Sodium chloride, pH 7.3, 30% glycerol, and 0.01% sodium azide.

### Molecular Weight:

~ 43 kDa

### Swiss-Prot:

P60709

### Purification&Purity:

The antibody was affinity-purified from mouse antiserum by affinity-chromatography using epitope-specific immunogen and the purity is > 95% (by SDS-PAGE).

### Applications:

WB (1/2000 - 1/5000), IHC (1/100 - 1/200), IF/ICC (1/100 - 1/200)

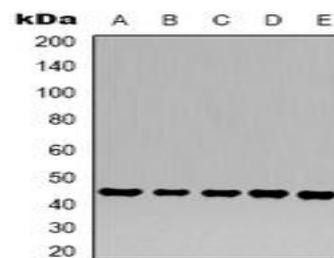
### Storage&Stability:

Store at 4 °C short term. Aliquot and store at -20 °C long term. Avoid freeze-thaw cycles.

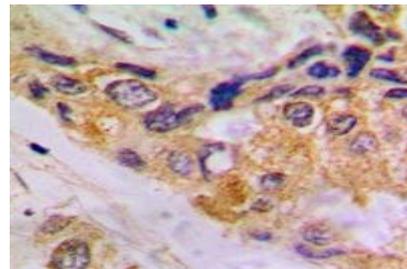
### Specificity:

Recognizes endogenous levels of Beta-actin protein.

### DATA:



Western blot analysis of Beta-actin expression in 293T (A), HeLa (B), mouse kidney (C), rat heart (D), rat brain (E) whole cell lysates.



Immunohistochemical analysis of Beta-actin staining in human prostate cancer formalin fixed paraffin embedded tissue section. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH 6.0). The section was then incubated with the antibody at room temperature and detected using an HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX.

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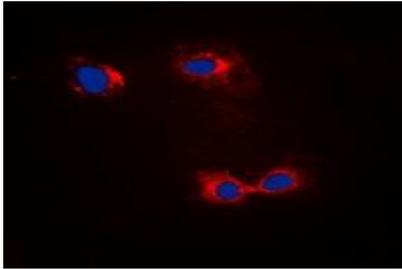
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Immunofluorescent analysis of Beta-actin staining in HeLa cells. Formalin-fixed cells were permeabilized with 0.1% Triton X-100 in TBS for 5-10 minutes and blocked with 3% BSA-PBS for 30 minutes at room temperature. Cells were probed with the primary antibody in 3% BSA-PBS and incubated overnight at 4 °C in a humidified chamber. Cells were washed with PBST and incubated with a FITC-conjugated second-

ary antibody (green) in PBS at room temperature in the dark. DAPI was used to stain the cell nuclei (blue).

**Note:**

For research use only, not for use in diagnostic procedure.

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