Actin, all Isotypes
Mouse Monoclonal Antibody

MCA-5J11

**Applications**
- WB, IF/ICC, IHC

**Host**
- Mouse

**Isotype**
- IgG1

**Molecular Wt.**
- 42kDa

**Species Cross-Reactivity**
- Hu, Rt, Ms, Co, Pi, Ho

**Format**
- Purified antibody at 1mg/mL in 50% PBS, 50% glycerol plus 5mM NaN3

**Storage**
- Store at 4°C for short term and -20°C for long term

**Recommended dilutions**
- WB: 1:1,000, IF/ICC or IHC: 1:500-1,000

**References**
7. Standard. MCA-5J11 also works in immunocytochemical experiments, strongly labeling filopodia, present in any mammalian cell or tissue extract, making it a useful and versatile western blotting control. The actin isotypes were originally classified as α, β and γ since three different actin spots were detected by 2-dimensional SDS-PAGE. Subsequently, the α spot was found to potentially contain three actin gene products, α-skeletal actin, α-vascular smooth muscle actin and α-cardiac muscle actin. The β spot contained a single protein called simply β-actin while the γ spot may contain either γ-1 and/or γ-2 actin, which are enteric and smooth muscle actins respectively. The six mammalian gene products are between 94 and 97% identical, with most of the variability seen at the N-terminus (2). Despite the similarity between the 6 gene products there is some evidence of functional differences between them (6). Actin cycles between monomeric (G-actin) and polymeric microfilaments (F-actin) in a highly regulated manner under the influence of a variety of actin capping and severing proteins the Rho family GTPases, the various Rac, Rho and CDC42 proteins (7).

The MCA-5J11 was made against an actin preparation derived from bovine brain. We have shown that MCA-5J11 binds all six actin gene products, (see supplemental data here), not unexpected given the 94-97% amino acid identity of the 6 proteins. As a result MCA-5J11 will detect all actin proteins present in any mammalian cell or tissue extract, making it a useful and versatile western blotting standard. MCA-5J11 also works in immunocytochemical experiments, strongly labeling filopodia, membrane ruffles and stress fibers in cells, all known to be rich in actin.

**FOR RESEARCH USE ONLY. NOT INTENDED FOR DIAGNOSTIC OR THERAPEUTIC USE.**

**Abbreviation Key:**
- mAb—Monoclonal Antibody
- pAb—Polyclonal Antibody
- WB—Western Blot
- IF—Immunofluorescence
- ICC—Immunocytochemistry
- IHC—Immunohistochemistry
- ELISA—Enzyme-Linked Immunosorbent Assay
- RT—Real-time Polymerase Chain Reaction
- Ms—Mouse
- Co—Cow
- PI—Planar Interface
- Ch—Chicken
- Dr—D. rerio
- Sm—D. melanogaster
- Ce—C. elegans
- Sa—S. cerevisiae
- Ae—S. aureus
- Ec—E. coli
Abbreviation Key: