

## Product Information

### Anti-Actin, $\alpha$ -Smooth Muscle antibody, Mouse monoclonal clone 1A4, purified from hybridoma cell culture

Catalog Number **A5228**

#### Product Description

Anti-Actin,  $\alpha$ -Smooth Muscle antibody, Mouse monoclonal (mouse IgG2a isotype) is derived from the 1A4 hybridoma produced by the fusion of mouse myeloma cells and splenocytes from mice immunized with the NH<sub>2</sub> terminal synthetic decapeptide of  $\alpha$ -smooth muscle actin, coupled to keyhole limpet hemocyanin (KLH).<sup>1</sup> The isotype is determined by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents, Catalog Number ISO2.

Anti-Actin,  $\alpha$ -Smooth Muscle antibody, Mouse monoclonal is specific for the single isoform  $\alpha$ -actin using indirect immunofluorescent labeling of formalin-fixed, paraffin-embedded human,<sup>1</sup> rabbit,<sup>4</sup> rat,<sup>1</sup> mouse,<sup>2</sup> bovine, frog, goat, guinea pig, dog, sheep, snake, and chicken<sup>1</sup> tissue sections. This antibody can be used in ELISA, immunoblotting,<sup>3</sup> and immunocytochemistry.<sup>5-6</sup>

The two major cytoskeletal proteins implicated in cell motility are actin and myosin. Actin and myosin are constituents of many cells types and are involved in a myriad of cellular processes including locomotion, secretion, cytoplasmic streaming, phagocytosis, and cytokinesis. Although actin is one of the most conserved eukaryotic proteins, it is expressed in mammals and birds as six isoforms characterized by electrophoresis and amino acid sequence analysis. Four of the six represent differentiation markers of muscle tissues. The other two are found in practically all cells. Actin isoforms show >90% overall sequence homology, but only 50-60% homology in the 18 NH<sub>2</sub>-terminal residues. The NH<sub>2</sub>-terminal region of actin appears to be a major antigenic region, and may be involved in the interaction of actin with other proteins such as myosin. It has been shown that the relative proportion of actin isoforms are different in smooth muscles of different organs and change within the same population of smooth muscle cells during development, pathological situations and different culture conditions. The actin in cells of various species and tissue origin are very similar in their immunological and physical properties.

Anti-Actin,  $\alpha$ -Smooth Muscle antibody, Mouse monoclonal may help in the characterization of stromal cell heterogeneity in various organs and distinguishing smooth muscle cells from fibroblasts in mixed cultures.

#### Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

Antibody Concentration: ~2 mg/ml.

#### Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

#### Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For prolonged storage, freeze in working aliquots. Repeated freezing and thawing, or storage in frost-free freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

#### Product Profile

**Indirect immunofluorescence:** a working antibody concentration of 5-10  $\mu$ g/ml is recommended for labeling of blood vessels in formalin-fixed, paraffin-embedded human tonsil or appendix tissue.

**Note:** In order to obtain the best results using various techniques and preparations, we recommend determining the optimal working dilution by titration.

#### References

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2. Abd-El-Basset, E., et al., *Neurosci. Lett.*, **125**, 117-120 (1991).
3. Durand-Arczynska, W., et al., *Histochemistry*, **100**, 465-471 (1993).
4. van Royen, N., et al., *FASEB*, **16**, 432-434 (2002).

5. Slaninova, I., et al., *Antonie Van Leeuwenhoek.*, **75**, 361-368 (1999).
6. Del Pup, L., et al., *Int. J. Mol. Med.*, **10**, 561-568 (2002).

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