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ProductInformation

Monoclonal Anti-α Smooth Muscle Actin
Clone 1A4
Mouse Ascites Fluid

Product No. **A 2547**

Monoclonal Anti-α Smooth Muscle Actin (mouse IgG2a isotype) is derived from the hybridoma produced by the fusion of mouse myeloma cells and splenocytes from an immunized mouse. The NH_2 terminal synthetic decapeptide of α-smooth muscle actin coupled to keyhole limpet hemocyanin (KLH) was used as the immunogen.[1] The isotype is determined using Sigma ImmunoType™ Kit (Sigma Stock No. ISO-1) and by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents (Sigma Stock No. ISO-2).

Monoclonal Anti-α Smooth Muscle Actin is specific for the single isoform α-actin. It reacts specifically with α-smooth muscle actin using immunoblotting and indirect immunofluorescent labeling of formalin-fixed, paraffin-embedded or frozen tissue sections. The antibody can be used for immunocytochemical localization of the α-smooth muscle actin by means of immunoperoxidase, immunofluorescent, ELISA or immunoblot techniques. The antibody reacts with human, mouse, rat, bovine, chicken, frog, goat, guinea pig, rabbit, dog, sheep, and snake.

The two major cytoskeletal proteins implicated in cell motility are actin and myosin. Actin and myosin are constituents of many cell 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 their 18 NH_2-terminal residues. The NH_2-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.
Monoclonal Anti-α Smooth Muscle Actin may help in the characterization of stromal cell heterogeneity in various organs and in distinguishing smooth muscle cells from fibroblasts in mixed cultures.

Reagent
The antibody is provided as ascites fluid containing 15mM sodium azide as a preservative.

Storage
For continuous use, store at 2-8 °C for up to one month. For extended storage, solution may be frozen in working aliquots. Repeated freezing and thawing is **not** recommended. If slight turbidity occurs upon prolonged storage, clarify by centrifugation before use.

Precautions and Disclaimer
Due to the sodium azide content a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazards and safe handling practices.

Product Profile
A minimum working dilution of 1:400 is determined by indirect immunofluorescent labeling of blood vessels in formalin-fixed, paraffin-embedded human appendix tissue.

In order to obtain best results, it is recommended that each individual user determine their optimum working dilution by titration assay.

References
1. Skalli, O., et al., J. Cell Biol., **103**, 2787 (1986).

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