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## Product Information

**MONOCLONAL ANTI- $\alpha$ -SMOOTH MUSCLE ACTIN  
CLONE 1A4  
FITC CONJUGATE  
Purified Mouse Immunoglobulin**

Product No. **F3777**

### Product Description

FITC Monoclonal Anti- $\alpha$ -Smooth Muscle Actin is a purified mouse monoclonal antibody conjugated with fluorescein isothiocyanate (FITC) isomer I. Monoclonal Anti- $\alpha$ -Smooth Muscle Actin (mouse IgG2a isotype) is derived from the 1A4 hybridoma produced by the fusion of mouse myeloma cells and splenocytes of immunized BALB/c mice. The NH<sub>2</sub> terminal synthetic decapeptide of  $\alpha$ -smooth muscle actin coupled to keyhole limpet hemocyanin (KLH) was used as the immunogen.<sup>1</sup> The isotype is determined using Sigma ImmunoType™ Kit (Product Code ISO-1) and by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents (Product Code ISO-2).

Monoclonal Anti- $\alpha$ -Smooth Muscle Actin specifically recognizes the  $\alpha$ -smooth muscle actin isoform of actin (42 kDa) by ELISA and immunoblotting.<sup>1</sup> It does not react with the other major actin isoforms present in fibroblasts or epithelial cells ( $\beta$  and  $\gamma$ -cytoplasmic), striated muscle ( $\alpha$ -sarcomeric), myocardium ( $\alpha$ -myocardial), or  $\gamma$ -smooth muscle isoform.

Monoclonal Anti- $\alpha$ -Smooth Muscle Actin (also known as Anti- $\alpha$ -SM-1) recognizes the  $\alpha$ -smooth muscle isoform of actin. The antibody reacts with normal and neoplastic, human vascular and visceral smooth muscle cells. It reacts with normal myoepithelial cells, pericytes, eye lens cells, hair follicle cells and certain stromal cells in the intestine, testis, lymphoid organs, liver, ovary and bone marrow.<sup>1,2,3,4,5,6</sup> The antibody also reacts with stromal myofibroblasts in hypertrophic scars, and in neoplastic tissues.<sup>7</sup>  $\alpha$ -Smooth muscle actin is transiently co-expressed with sarcomeric  $\alpha$ -actin during myogenesis in chicken and rat embryos.<sup>8,9</sup> It was also found in the ventricular conducting tract of adult mammalian heart. It is expressed in leiomyomas, leiomyosarcomas and

leiomyoblastomas, as well as in a proportion of rhabdomyosarcomas.<sup>10,11</sup> The antibody cross reacts with actin expressing cells in human, bovine, goat, sheep, rabbit, cat, dog, mouse, rat, hamster, guinea pig, chicken, viper, lizard, frog, snail and crayfish tissues. It can be used for staining acetone-fixed, frozen sections, smears, cytopins and EM preparations. The FITC conjugated monoclonal anti- $\alpha$  smooth muscle actin is especially useful for direct staining of tissues and cells.

FITC Monoclonal Anti- $\alpha$ -Smooth Muscle Actin may be used for:

1. Identification of developing and adult smooth muscle pericytes and myoepithelial cells.
2. Detection and characterization of smooth muscle tumors, glomus tumors and certain myoepithelial tumors, osteosarcomas and soft tissue tumors.
3. Differentiation between glomus tumors and hemangiopericytomas, and between epitheliosis and intraductal breast carcinoma.
4. Studies on the expression of actins in cultured cells.
5. Detection of  $\alpha$ -smooth muscle actin positive cells in hepatic fibrosis, bone marrow fibrosis, experimental gliosis, atherosclerosis, pulmonary hypertension and wound healing.

### Reagents

The conjugate is provided as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 1% BSA with 15 mM sodium azide as a preservative.

### Precautions/Disclaimer

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

### Product Profile

A minimum working dilution of 1:250 was determined by direct immunofluorescent staining using formalin-fixed, paraffin-embedded human tonsil or appendix.

In order to obtain best results in different techniques and preparations, it is recommended that each individual user determine their optimum working dilutions by titration assay.

### Storage/Stability

For continuous use, store at 2-8 °C for up to one month.

For extended storage, freeze in working aliquots.

Repeated freezing and thawing is not recommended.

Storage in "frost-free" freezers is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Protect from prolonged exposure to light.

### References

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