

## Product Information

### Anti-Actin, $\alpha$ -Smooth Muscle-Cy3™ antibody, Mouse monoclonal clone 1A4, purified from hybridoma cell culture

Catalog Number **C6198**

#### Product Description

Monoclonal Anti-Actin,  $\alpha$ -Smooth Muscle (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 synthetic NH<sub>2</sub> terminal decapeptide of  $\alpha$ -smooth muscle actin coupled to keyhole limpet hemocyanin (KLH) was used as the immunogen.<sup>1</sup> The isotype is determined by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents, Catalog Number ISO2. The Cy3-antibody conjugate is extensively dialyzed to remove unbound Cy3.

Monoclonal Anti-Actin,  $\alpha$ -Smooth Muscle specifically recognizes the  $\alpha$ -smooth muscle isoform of actin (42 kDa) by 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.

Anti-Actin,  $\alpha$ -Smooth Muscle-Cy3 antibody, Mouse monoclonal 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.

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 tissue, liver, ovary and bone marrow.<sup>1,2,3,4,5,6</sup> The antibody 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 has been 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 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. Monoclonal Anti-Actin,  $\alpha$ -Smooth Muscle-Cy3 is especially useful for direct staining of tissues and cells.

#### Reagents

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

Antibody concentration: 1-1.5 mg/ml

F/P Molar Ratio: 3-9

#### Precautions and Disclaimers

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

#### Product Profile

**Immunohistochemistry:** a minimum working dilution of 1:200 was determined using formalin-fixed, paraffin-embedded sections of human tonsil or appendix.

**Note:** 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.

#### Spectral Characteristics of Cy3

Absorbance Max	552 nm
Emission Max	570 nm

The F/P molar ratio of the Cy3-antibody conjugate is determined spectrophotometrically as follows:

$$F = A_{552}/0.14 \quad P = \frac{A_{280} - (A_{552} \times 0.05)}{1.4}$$

F/P Molar Ratio = F/P x 0.16

Where:

0.14 = extinction coefficient of Cy3 at A<sub>552</sub>.

1.4 = extinction coefficient of IgG at A<sub>280</sub>.

0.05 = correction factor for Cy3 absorbance at A<sub>280</sub>.

0.16 = correction factor for molecular weights of Cy3 and IgG

#### **Storage**

Store at 2-8 °C. Protect from prolonged exposure to light.

#### **References**

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DS,PHC 11/15-1