

Product Information

MONOCLONAL ANTI- α -SMOOTH MUSCLE ACTIN CLONE 1A4 Cy3 CONJUGATE

Purified Mouse Immunoglobulin

Product No. **C 6198**

Product Description

Cy3 Conjugated Monoclonal Anti- α -Smooth Muscle Actin is a purified mouse monoclonal antibody conjugated to Cy3. Monoclonal Anti- α -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 synthetic NH₂ terminal 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 (Product Code ISO-1) and by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents (Product Code ISO-2). The Cy3-antibody conjugate is extensively dialyzed to remove unbound Cy3.

Monoclonal Anti- α -Smooth Muscle Actin specifically recognizes the α -smooth muscle actin isoform of actin (42 kDa) by ELISA and immunoblotting.¹ It does not react with the other major actin isoforms present in fibroblasts or epithelial cells (β and γ -cytoplasmic), striated muscle (α -sarcomeric), myocardium (α -myocardial), or γ -smooth muscle isoform.

Cy3 Conjugated Monoclonal Anti- α -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 epithelioid and intraductal breast carcinoma.
4. Studies on the expression of actins in cultured cells.
5. Detection of α -smooth muscle actin positive cells in hepatic fibrosis, bone marrow fibrosis, experimental gliosis, atherosclerosis, pulmonary hypertension and wound healing.

Monoclonal Anti- α -Smooth Muscle Actin, clone 1A4 (also known as Anti- α -SM-1) recognizes the α -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 tissue, liver, ovary and bone marrow.^{1,2,3,4,5,6} The antibody reacts with stromal myofibroblasts in hypertrophic scars and in neoplastic tissues.⁷ α -Smooth muscle actin is transiently co-expressed with sarcomeric α -actin during myogenesis in chicken and rat embryos.^{8,9} 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.^{10,11} 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. Cy3 Conjugated Monoclonal Anti- α Smooth Muscle Actin is especially useful for direct staining of tissues and cells.

Reagents

The conjugate is provided as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 1% BSA with 0.1% sodium azide as preservative.

Precautions and Disclaimers

Due to 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 1:200 was determined by direct immunofluorescent staining using formalin-fixed, paraffin-embedded sections of 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.

Spectral Characteristics of Cy3

Absorbance Max 552 nm
Emission Max 570 nm

F/P Molar Ratio: 3 to 9

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_{552} .

1.4 = extinction coefficient of IgG at A_{280} .

0.05 = correction factor for Cy3 absorbance at A_{280} .

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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