

Product Information

MONOCLONAL ANTI- α -SMOOTH MUSCLE ACTIN ALKALINE PHOSPHATASE CONJUGATE CLONE 1A4 Ig Fraction of Mouse Ascites Fluid

Product No. **A 5691**

Product Description

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 NH₂ terminal synthetic decapeptide of α smooth muscle actin coupled to keyhole limpet hemocyanin (KLH) was used as the immunogen. 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 immunoglobulin fraction of the ascites fluid is conjugated to Alkaline Phosphatase using 0.2% glutaraldehyde.

Monoclonal Anti- α -Smooth Muscle Actin specifically recognizes the α smooth muscle actin isoform of actin (42 kDa) in 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) and myocardium (α -myocardial). No reactivity is displayed with γ -smooth muscle isoform.

Monoclonal Anti- α -Smooth Muscle Actin (also known Anti- α -SM-1) recognizes the α -smooth muscle isoform of actin (42 kDa). The antibody reacts with normal and neoplastic, human vascular and visceral smooth muscle cells. It also 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.^{1,2,3,4,5,6} The antibody also reacts with stromal myofibroblasts in hypertrophic scars, and in neoplastic tissues.⁷

α -Smooth muscle actin is also transiently co-expressed with sarcomeric α -actin during myogenesis in chicken and rat embryos.^{8,9} 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.^{10,11} 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 Alkaline Phosphatase Conjugated Monoclonal Anti- α -Smooth Muscle Actin is especially useful for direct staining of tissues and cells.

Uses

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 α -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 liquid in 0.05 M Tris buffer, pH 8.0, containing 1% BSA, 50% glycerol, with 1 mM MgCl₂ and 0.1% sodium azide as a preservative.

Precautions

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

1. A working dilution of at least 1:30 was determined by direct alkaline phosphatase staining of human tonsil or appendix sections.
2. A working dilution of at least 1:100 was determined by direct immunoblotting assay using chicken fibroblast extract.

In order to obtain best results, it is recommended that each user determine the optimal working dilution for individual applications by titration assay.

Storage

Store at 2-8 °C. Do Not Freeze.

Working dilution should be discarded if unused within 12 hours.

References

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