# Mouse actin alpha-smooth Monoclonal Antibody

Mouse anti actin alpha-smooth

| CATALOG # | HOST | REACTIVITY | APPLICATIONS |
|---|---|---|---|
| **AAA77468** | **Mouse** | **Chicken, Caprine, Monkey, Quail, Rat, Sheep, Swine, Xenopus** | **Western Blot, Immunohistochemistry, Immunohistochemistry, Immunocytochemistry** |

## PRODUCT SYNONYMS

actin alpha-smooth; Monoclonal Antibody; Mouse anti actin alpha-smooth; anti-actin alpha-smooth antibody

## PRODUCT SPECIFICATIONS

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| **Host** | Mouse |
| **Reactivity** | Chicken, Caprine, Monkey, Quail, Rat, Sheep, Swine, Xenopus |
| **Clonality** | Monoclonal |
| **Isotype** | IgG2a |
| **Clone Number** | 1A4 |
| **Specificity** | alpha-SM1 reacts exclusively with alpha-smooth muscle actin which is typical for vascular and visceral smooth muscle cells, but which is also present in myofibroblasts. The epitope that is recognized by alpha-SM1 is Ac-EEED. |
| **Form/Format** | Each vial contains 50 ul 1 mg/ml purified monoclonal antibody in PBS containing 0.09% sodium azide. |
| **Applicable Applications for anti-actin alpha-smooth antibody** | WB (Western Blot), IHC (Immunohistochemistry), IHC (Immunohistochemistry), ICC (Immunocytochemistry), EM (Immunoelectron Microscopy) |
| **Source Note** | alpha-SM1 (clone 1A4) is a Mouse monoclonal IgG2a antibody derived by fusion of Sp2/0 Mouse myeloma cells with spleen cells from a BALB/c Mouse immunized with a peptide comprising the first 10 amino acids of alpha-smooth muscle actin with an acetylated N-terminus coupled to keyhole limpet hemocyanin via the C-terminal cysteine (Ac-EEEDSTALVC). |
| **Reactivity Note** | The epitope recognized by alpha-SM1 is highly conserved. The antibody therefore cross-reacts with many species including protochordates, lower craniates and mammals. |
| **Preparation and Storage** | Store at 4 degree C, or in small aliquots at -20 degree C. |

## IMAGES

**Application Data**
Frozen section of human small intestine immunostained with Î±-SM1 (1:1000

## ADDITIONAL INFORMATION

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| **Related Product Information for anti-actin alpha-smooth antibody** | Among the six actin isoforms described in mammals, two are found in virtually all cells (beta- and gamma-cytoplasmic), two are detected in smooth muscle cells (alpha- and gamma-smooth muscle) and two are present in striated muscles, one predominantly in skeletal (alpha-skeletal) and one in cardiac (alpha-cardiac) muscle cells. These actin isoforms differ slightly in their N-terminus, but the sequence of each of these actins is highly conserved in higher vertebRates. Alpha-smooth muscle actin is abundant in vascular and visceral smooth muscle cells. In addition, it has also been shown to appear in stress fibers of fibroblastic cells during pathological situations involving contractile phenomena such as wound healing and fibrocontractive diseases. |
| **Product Categories/Family for anti-actin alpha-smooth antibody** | Cytoskeletal; Cell differentiation; Cytoskeleton; Stem cell research |
| **References** | Skalli, O., Ropraz, P., Trzeciak, A., Benzonana, G., Gillessen, D. and Gabbiani, G. (1986). A monoclonal antibody anti alpha-smooth muscle actin: a new probe for smooth muscle differentiation. J Cell Biol 103, 2787-96. Skalli, O., Schurch, W., Seemayer, T., Lagace, R., Montandon, D., Pittet, B. and Gabbiani, G. (1989). Myofibroblasts from diverse pathologic settings are heterogeneous in their content of actin isoforms and intermediate filament proteins. Lab Invest 60, 275-85. Babaev, V.R., Bobryshev, Y.V., Stenina, O.V., Tararak, E.M. and Gabani, G. (1990). Heterogeneity of smooth muscle in atheromatous plaque of Human aorta. American Journal of Pathlogy 136, 1031-42. Sappino, A. P., Schurch, W. and Gabbiani, G. (1990). Differentiation repertoire of fibroblastic cells: expression of cytoskeletal proteins as marker of phenotypic modulations. Lab Invest 63, 144-61. Vyalov, S. L., Gabbiani, G. and Kapanci, Y. (1993). Rat alveolar myofibroblasts acquire alpha-smooth muscle actin expression during bleomycin-induced pulmonary fibrosis. Am J Pathol 143, 1754-65. Chaponnier, C., Goethals, M., Janmey, P. A., Gabbiani, F., Gabbiani, G. and Vandekerckhove, J. (1995). The specific NH2-terminal sequence Ac-EEED of alpha-smooth muscle actin plays a role in polymerization in vitro and in vivo. J Cell Biol 130, 887-95. Simoncelli, F., Fagotti, A., Di Rosa, I., Panara, F., Chaponnier, C., Gabbiani, G. and Pascolini, R., (1996). Expression of an actin in protochordates and lower craniates defined by anti-aSM-1. European J of Cell Biol 69, 297-300. Hinz, B., Celetta, G., Tomasek, J. J., Gabbiani, G. and Chaponnier, C. (2001). Alpha-smooth muscle actin expression upregulates fibroblast contractile activity. Mol Biol Cell 12, 2730-41. Hinz, B., Gabbiani, G. and Chaponnier, C. (2002). The NH2-terminal peptide of alpha-smooth muscle actin inhibits force geneRation by the myofibroblast in vitro and in vivo. J Cell Biol 157, 657-63. Hinz, B., Dugina, V., Ballestrem, C., Wehrle-Haller, B. and Chaponnier, C. (2003). Alpha-smooth muscle actin is crucial for focal adhesion matuRation in myofibroblasts. Mol Biol Cell 14, 2508-19. Clément, S., Hinz, B., Dugina, V., Gabbiani, G. and Chaponnier, C. (2004). The N-terminal Ac-EEED sequence plays a role in alpha-smooth-muscle actin incorpoRation into stress fibers. Journal of Cell Science 118, 1395-1404. Chaponnier, C. and Gabbiani, G. (2004). Pathological situation characterized by altered actin isoform expression. J Pathol 204, 386-95. Clément, S., Stouffs, M., Bettiol, E., Kampf, S., Krause, K., Chaponnier, C. and Jaconi, M. (2006). Expression and function of alpha-smooth muscle actin during embryonic-stem-cell-derived cardiomyocyte differentiation. Journal of Cell Science 120, 229-38. De Visscher, G., Plusquin, R., Mesure, L. and Flameng, W. (2010). Selection of an immunohistochemical panel for cardiovascular research in Sheep. Appl Immunohistochem Mol Morphol 18, 382-91. |

**For Research Use Only.** Not for use in diagnostic or therapeutic procedures. Small volumes of product may become entrapped in the seal of the vial during shipment and storage; if necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the cap.

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