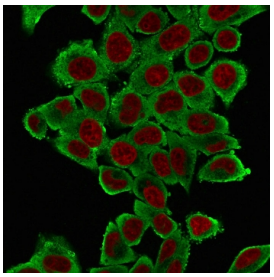
Smooth Muscle Actin Antibody [clone 1A4] (V2001)

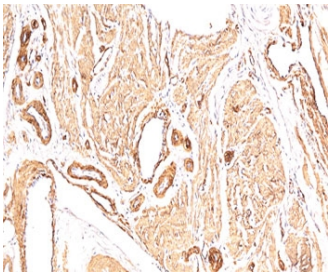
Catalog No.	Formulation	Size
V2001-100UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced) and 0.05% sodium azide	100 ug
V2001-20UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced) and 0.05% sodium azide	20 ug
V2001SAF-100UG	1 mg/ml in 1X PBS; BSA free, sodium azide free	100 ug
V2001IHC-7ML	Prediluted in 1X PBS with 0.1 mg/ml BSA (US sourced) and 0.05% sodium azide; *For IHC use only*	7 ml

Citations (23) **Bulk quote request**

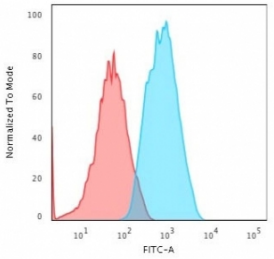
Species Reactivity	Human, Mouse, Rat
Format	Purified
Host	Mouse
Clonality	Monoclonal (mouse origin)
Isotype	Mouse IgG2a, kappa
Clone Name	1A4
Purity	Protein G affinity chromatography
UniProt	P62736
Gene ID	59
Localization	Cytoplasmic
Applications	Flow cytometry: 1-2ug/million cells Immunofluorescence: 1-4ug/ml Immunohistochemistry (FFPE): 0.25-0.5ug/ml for 30 min at RT Western blot: 2-4ug/ml
Limitations	This **Smooth Muscle Actin antibody** is available for research use only.



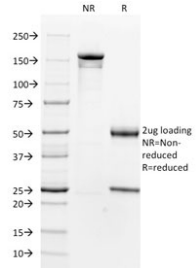
Immunofluorescent staining of fixed human HeLa cells with Smooth Muscle Actin antibody (clone 1A4, green) and NucSpot nuclear stain (red).



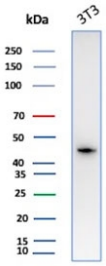
IHC: FFPE human leiomyosarcoma stained with Smooth Muscle Actin antibody (clone 1A4).



Flow cytometry testing of fixed human HeLa cells with Smooth Muscle Actin antibody (clone 1A4); Red=isotype control, Blue= Smooth Muscle Actin antibody.



SDS-PAGE analysis of purified, BSA-free Smooth Muscle Actin antibody (clone 1A4) as confirmation of integrity and purity.



Western blot testing of mouse NIH 3T3 cell lysate with Smooth Muscle Actin antibody.

Description

Smooth Muscle Actin antibody Clone 1A4 is a widely used monoclonal that specifically recognizes the alpha smooth muscle actin isoform ACTA2. This antibody was developed against the N terminal region of ACTA2 and has become a cornerstone reagent for identifying smooth muscle cells, myofibroblasts, and myoepithelial cells in both cultured systems and tissue sections. Its performance and specificity have been extensively validated across a wide range of studies, making it one of the most cited antibodies in histology and cancer research.

In diagnostic and research applications, Smooth Muscle Actin antibody Clone 1A4 provides strong and consistent staining of vascular and visceral smooth muscle cells, myofibroblasts, and myoepithelial cells. It is routinely applied to differentiate

leiomyomas, leiomyosarcomas, and tumors with a myoepithelial component, while also serving as a key marker in fibrotic processes and wound healing. The staining pattern is typically cytoplasmic, aligning with the filament bundles of the actin cytoskeleton.

The restricted reactivity of Clone 1A4 to ACTA2 helps ensure clean labeling without significant cross-reactivity to other actin isoforms such as skeletal or cardiac actin. This specificity makes the antibody especially valuable when precision is required in distinguishing smooth muscle from fibroblastic populations. It has also been adopted as a reliable marker for activated fibroblasts in cancer stroma, where alpha smooth muscle actin expression correlates with aggressive tumor behavior and remodeling of the extracellular matrix.

Smooth Muscle Actin antibody Clone 1A4 has been validated for use in immunohistochemistry on formalin-fixed, paraffin-embedded tissues, often with heat-mediated antigen retrieval to maximize epitope exposure. It also performs reliably in immunofluorescence studies, where it provides clear visualization of smooth muscle filaments in cultured cells. Its extensive publication history underscores its reproducibility and value in both clinical-style diagnostic panels and basic research studies.

Overall, Smooth Muscle Actin antibody Clone 1A4 remains an essential reagent for identifying smooth muscle differentiation, tracking myofibroblastic activation, and studying tumor microenvironments. Its broad application base and strong track record make it a trusted choice for scientists seeking consistent and specific results. Alternate names include ACTA2 antibody, alpha smooth muscle actin antibody, and SMA antibody.

Application Notes

Variations in protocols, secondaries and substrates may require the Smooth Muscle Actin antibody to be titered up or down for optimal performance.

1. No special pretreatment is required for the immunohistochemical staining of FFPE tissue.
2. The prediluted format is supplied in a dropper bottle and is optimized for use in IHC. After epitope retrieval step (if required), drip mAb solution onto the tissue section and incubate at RT for 30 min.

Immunogen

An N-Terminal decapeptide of the alpha smooth muscle isoform was used as the immunogen for this Smooth Muscle Actin antibody.

Storage

Store the Smooth Muscle Actin antibody at 2-8oC (aliquot/freeze the azide-free format).

References (1)

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