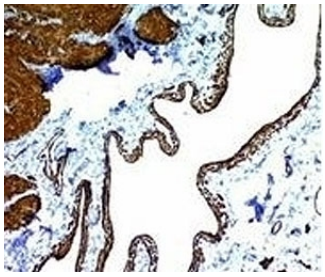
Alpha Smooth Muscle Actin Antibody / ACTA2 [clone ACTA2/791] (V2837)

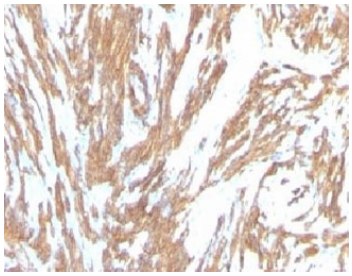
Catalog No.	Formulation	Size
V2837-100UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced) and 0.05% sodium azide	100 ug
V2837-20UG	0.2 mg/ml in 1X PBS with 0.1 mg/ml BSA (US sourced) and 0.05% sodium azide	20
V2837SAF-100UG	1 mg/ml in 1X PBS; BSA free, sodium azide free	100
V2837IHC-7ML	Prediluted in 1X PBS with 0.1 mg/ml BSA (US sourced) and 0.05% sodium azide; *For IHC use only*	7

Bulk quote request

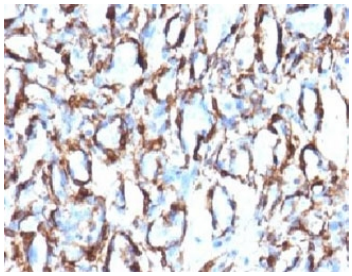
Availability	1-3 business days
Species Reactivity	Human, Rat
Format	Purified
Host	Mouse
Clonality	Monoclonal (mouse origin)
Isotype	Mouse IgG2a, kappa
Clone Name	ACTA2/791
Purity	Protein G affinity chromatography
UniProt	P62736
Localization	Cytoplasmic
Applications	Immunofluorescence: 1-2ug/ml Immunohistochemistry (FFPE): 0.25-0.5ug/ml for 30 min at RT
Limitations	This Alpha Smooth Muscle Actin antibody is available for research use only.



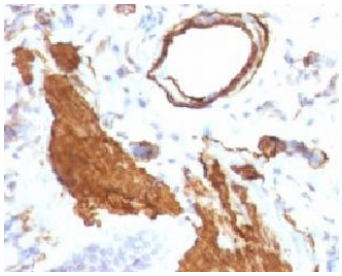
Immunohistochemistry analysis of Alpha Smooth Muscle Actin / ACTA2 antibody (clone ACTA2/791) in human colon carcinoma tissue. FFPE human colon carcinoma demonstrates cytoplasmic HRP-DAB brown staining predominantly in stromal smooth muscle cells and myofibroblast-like cells surrounding tumor glands, consistent with Alpha smooth muscle actin expression. Malignant epithelial cells show minimal specific staining, while peritumoral stromal regions exhibit strong cytoplasmic reactivity outlining spindle-shaped cells. Nuclei are counterstained blue.



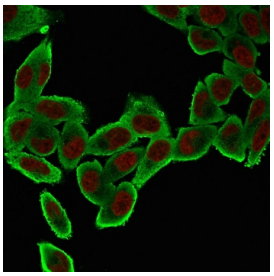
IHC: Formalin-fixed, paraffin-embedded human Leiomyosarcoma stained with alpha Smooth Muscle Actin antibody (clone ACTA2/791).



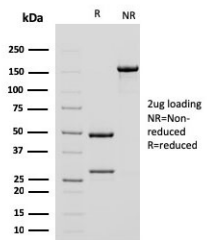
IHC: Formalin-fixed, paraffin-embedded human angiosarcoma stained with alpha Smooth Muscle Actin antibody (clone ACTA2/791).



IHC: Formalin-fixed, paraffin-embedded rat lung stained with alpha Smooth Muscle Actin antibody (clone ACTA2/791).



Immunofluorescent staining of permeabilized human HeLa cells with Alpha Smooth Muscle Actin antibody (green, clone ACTA2/791) and Reddot nuclear stain (red).



SDS-PAGE analysis of purified, BSA-free Alpha Smooth Muscle Actin antibody antibody (clone ACTA2/791) as confirmation of integrity and purity.

Description

Alpha Smooth Muscle Actin antibody, also known as ACTA2 antibody, recognizes Alpha smooth muscle actin, a contractile cytoskeletal protein encoded by the human ACTA2 gene located on chromosome 10q23.31. Alpha smooth muscle actin is predominantly localized to the cytoplasm, where it polymerizes into filamentous actin fibers that contribute to cellular contractility and structural integrity. ACTA2 is a member of the alpha actin subfamily within the highly conserved actin protein family and is widely used as a marker of smooth muscle differentiation and myofibroblast activation.

Alpha smooth muscle actin is strongly expressed in vascular smooth muscle cells, uterine myometrium, and other contractile tissues. In these cells, ACTA2-containing microfilaments interact with myosin to generate force and regulate vascular tone and tissue contractility. Beyond its role in normal physiology, Alpha smooth muscle actin is upregulated in fibroblasts undergoing differentiation into myofibroblasts during wound healing and fibrotic responses. This transition contributes to extracellular matrix remodeling and tissue contraction in repair processes.

Altered ACTA2 expression is associated with multiple pathological conditions. Germline mutations in ACTA2 have been linked to familial thoracic aortic aneurysm and dissection, underscoring its importance in maintaining vascular wall stability. Increased Alpha smooth muscle actin expression is also observed in fibrotic diseases of the lung, liver, and kidney, as well as within the tumor microenvironment, where ACTA2-positive cancer-associated fibroblasts influence tumor progression and stromal architecture. Because of its specific enrichment in contractile smooth muscle cells and activated myofibroblasts, Alpha Smooth Muscle Actin antibody is widely used to identify these cell populations in tissue sections.

Alpha Smooth Muscle Actin antibody is suitable for detecting ACTA2 expression in research focused on vascular biology, fibrosis, wound healing, and tumor stroma characterization. Clone ACTA2/791 is designed to recognize ACTA2 in research applications, supporting analysis of smooth muscle differentiation and contractile protein expression.

Application Notes

Optimal dilution of the Alpha Smooth Muscle Actin antibody should be determined by the researcher.

1. Staining of formalin-fixed tissues requires boiling tissue sections in pH 9 10mM Tris with 1mM EDTA for 10-20 min followed by cooling at RT for 20 min.
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

Recombinant full-length human protein was used as the immunogen for the Alpha Smooth Muscle Actin antibody.

Storage

Store the Alpha Smooth Muscle Actin antibody at 2-8oC (with azide) or aliquot and store at -20oC or colder (without azide).

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