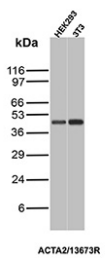
Alpha-SMA Antibody / Myofibroblast Marker / ACTA2 [clone ACTA2/13673R] (V5987)

Catalog No.	Formulation	Size
V5987-100UG	0.2 mg/ml in 1X PBS with 0.05% BSA, 0.05% sodium azide	100 ug
V5987-20UG	0.2 mg/ml in 1X PBS with 0.05% BSA, 0.05% sodium azide	20 ug
V5987SAF-100UG	1 mg/ml in 1X PBS; BSA free, sodium azide free	100 ug

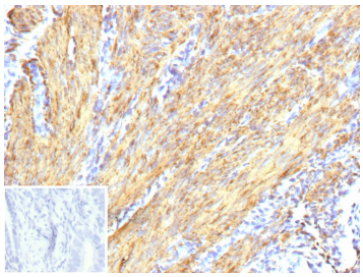
Recombinant RABBIT MONOCLONAL

Bulk quote request

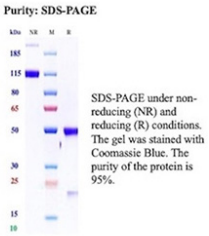
Species Reactivity	Human
Format	Purified
Host	Rabbit
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG, kappa
Clone Name	ACTA2/13673R
Purity	Protein A affinity
UniProt	P62736
Localization	Cytoplasm, Cytoskeleton
Applications	Immunohistochemistry (FFPE) : 1-2ug/ml Western Blot : 2-4ug/ml
Limitations	This Alpha-SMA/Myofibroblast Marker antibody is available for research use only.



Western blot analysis of Alpha-SMA / ACTA2 antibody (clone ACTA2/13673R) in human HEK293 and mouse NIH3T3 cell lysates. A clear immunoreactive band is observed at approximately 42 kDa in both HEK293 and NIH3T3 lysates, consistent with the predicted molecular weight of Alpha smooth muscle actin based on its amino acid sequence. The band migrates in the expected range for this cytoskeletal actin isoform. Signal intensity is comparable between the two species-derived samples under the conditions tested, supporting detection of ACTA2 in human and mouse cell lysates.



Immunohistochemistry analysis of Alpha-SMA / ACTA2 antibody (clone ACTA2/13673R) in human cervix tissue. FFPE human cervix shows strong cytoplasmic HRP-DAB brown staining in smooth muscle cells within the stromal and muscular layers, consistent with Alpha smooth muscle actin expression. Staining highlights elongated spindle-shaped smooth muscle cells arranged in bundles, while epithelial components demonstrate minimal specific signal. Nuclei are counterstained blue. The inset image represents a secondary antibody negative control in which PBS was used in place of the primary antibody and shows absence of specific staining. Heat induced epitope retrieval was performed by heating tissue sections in 10 mM Tris with 1 mM EDTA, pH 9.0, at 95oC for 45 minutes followed by cooling at room temperature for 20 minutes prior to immunostaining.



SDS-PAGE Analysis of Purified Alpha-SMA/Myofibroblast Marker antibody (ACTA2/13673R). Confirmation of Purity and Integrity of Antibody.

Description

Alpha-SMA antibody, also known as Myofibroblast Marker 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, frequently abbreviated as alpha-SMA, is predominantly localized to the cytoplasm where it polymerizes into actin filaments that contribute to cellular contractility and structural support. Alpha-SMA antibody targets a protein widely used as a marker of smooth muscle cells and activated myofibroblasts in normal and diseased tissues.

ACTA2 belongs to the alpha actin subfamily within the conserved actin protein family. In normal physiology, Alpha smooth muscle actin is strongly expressed in vascular smooth muscle cells, uterine myometrium, and other contractile tissues, where it interacts with myosin to generate force and regulate vascular tone. During wound healing and tissue repair, fibroblasts can differentiate into myofibroblasts characterized by increased ACTA2 expression and acquisition of contractile properties. These myofibroblasts play essential roles in extracellular matrix remodeling and wound contraction.

As a Myofibroblast Marker antibody, alpha-SMA is frequently used in studies of fibrosis, tumor stroma, and chronic inflammatory conditions. Increased ACTA2 expression is observed in fibrotic diseases of the lung, liver, kidney, and heart, where persistent myofibroblast activation contributes to excessive matrix deposition and tissue stiffening. In cancer biology, alpha-SMA-positive cancer-associated fibroblasts are prominent components of the tumor microenvironment and influence tumor growth, invasion, and therapeutic response. Because of its consistent enrichment in activated stromal cells, Alpha-SMA antibody is a valuable tool for evaluating stromal activation and tissue remodeling.

Alpha-SMA antibody is suitable for detecting ACTA2 expression in research focused on fibrosis, vascular biology, wound healing, and tumor microenvironment analysis. Recombinant monoclonal clone ACTA2/13673R is produced using defined expression systems to promote lot-to-lot consistency and reliable performance in research applications.

Application Notes

1. Optimal dilution of the Alpha-SMA/Myofibroblast Marker antibody should be determined by the researcher.

2. This Alpha-SMA/Myofibroblast Marker antibody is recombinantly produced by expression in CHO cells.

Immunogen

A recombinant fragment (around amino acids 2-124) of human ACTA2 protein (exact sequence is proprietary) was used as the immunogen for the Alpha-SMA/Myofibroblast Marker antibody.

Storage

Alpha-SMA/Myofibroblast Marker antibody with sodium azide - store at 2 to 8oC; antibody without sodium azide - store at -20 to -80oC.