abcam

ab184675

Alexa Fluor® 488 Anti-alpha smooth muscle Actin antibody [1A4]

Anti-alpha smooth muscle Actin antibody [1A4] conjugated to Alexa Fluor® 488 - suitable for intracellular flow cytometry, ICC/IF, IHC-P, and reacts with mouse, human, rat samples. Clone [1A4] is a mouse monoclonal antibody and one of the most commonly used clones for flow cytometry.

Design your panel with our interactive flow cytometry panel builder. Click here.

Key facts

Isotype	IgG2a
Host species	Mouse
Conjugation	Alexa Fluor® 488
Excitation/Emission	Ex: 495nm, Em: 519nm
Storage buffer	pH: 7.4 Preservative: 0.02% Sodium azide Constituents: PBS, 30% Glycerol (glycerin, glycerine), 1% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	1A4
Purification technique	Affinity purification
Light chain type	kappa
Concentration	0.5 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Flow Cyt (Intra)

Tested

Species	Rat
Dilution info	1/100
Notes	ab171464 - Mouse monoclonal IgG2a, is suitable for use as an isotype control with this antibody.

Expected

Species	Human, Mouse
Dilution info	Use at an assay dependent concentration.
Notes	-

Predicted

Species	Sheep, Goat, Chicken, Guinea pig, Cat, Dog, Snake, Zebrafish
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Rat
Dilution info	1/50 - 1/100
Notes	-

Species	Human
Dilution info	1/50
Notes	-

Species	Mouse
Dilution info	1/50
Notes	-

Predicted

Species	Sheep, Goat, Chicken, Guinea pig, Cat, Dog, Snake, Zebrafish
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/100
Notes	-

Species	Mouse
Dilution info	1/100
Notes	-

Species	Rat
Dilution info	1/100
Notes	-

Predicted

Species	Sheep, Goat, Chicken, Guinea pig, Cat, Dog, Snake, Zebrafish
Dilution info	-
Notes	-

Target data

See full target information ACTA2

Function	Actins are highly conserved proteins that are involved in various types of cell motility and are ubiquitously expressed in all eukaryotic cells.

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle, Stable for 12 months at -20°C, Store in the dark

Notes

Alexa Fluor® 488 Anti-alpha smooth muscle Actin antibody [1A4] (ab184675) was developed by Abcam using patented rabbit monoclonal antibody technology and is validated for use in Flow Cyt (Intra), ICC/IF in rat samples.

Alexa Fluor® 488 Anti-alpha smooth muscle Actin antibody [1A4] (ab184675) has been cited over 19 times in peer reviewed journals and is trusted by the scientific community.

Flourescent conjugated antibodies are ideal tools for multiplex IHC and flow cytometry experiments.

Alexa Fluor® 488 Anti-alpha smooth muscle Actin antibody [1A4] (ab184675) has 7 independent reviews from customers.

Alexa Fluor® 488 Anti-alpha smooth muscle Actin antibody [1A4] (ab184675) specifically detects alpha smooth muscle Actin (UniProt ID: P62736; Molecular weight: 42kDa) and is sold in a 100 uL selling size.

Conjugation-ready, carrier free format available for antibody clone (1A4) - ab240654.

Alexa Fluor® is a registered trademark of Molecular Probes, Inc, a Thermo Fisher Scientific Company. The Alexa Fluor® dye included in this product is provided under an intellectual property license from Life Technologies Corporation. As this product contains the Alexa Fluor® dye, the purchase of this product conveys to the buyer the non-transferable right to use the purchased product and components of the product only in research conducted by the buyer (whether the buyer is an academic or for-profit entity). As this product contains the Alexa Fluor® dye the sale of this product is expressly conditioned on the buyer not using the product or its components, or any materials made using the product or its components, in any activity to generate revenue, which may include, but is not limited to use of the product or its components: in manufacturing; (ii) to provide a service, information, or data in return for payment (iii) for therapeutic, diagnostic or prophylactic purposes; or (iv) for resale, regardless of whether they are sold for use in research. For information on purchasing a license to this product for purposes other than research, contact Life Technologies Corporation, 5781 Van Allen Way, Carlsbad, CA 92008 USA or outlicensing@thermofisher.com.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	Alpha smooth muscle actin (α-SMA) also known as ACTA2 is an actin isoform with a specific role in the contractile function of smooth muscle cells. The molecular weight of α-SMA is approximately 42 kDa. This protein is expressed widely in vascular smooth muscle cells the peritoneal lining and myofibroblasts. It often serves as a marker for these cell types. The expression of α-SMA is critical for the mechanical attributes of cells contributing to the rigidity and contractility of tissues where it is present.
Biological function summary	Alpha smooth muscle actin aids in maintaining the structural integrity of tissues by forming part of the actin cytoskeleton an important element in cellular support. It exists in high concentration in stress fibers contributing to cellular movements and shape maintenance. These actions are essential in various dynamic cellular processes such as cell migration and adhesion. Alpha smooth muscle actin does not typically form complexes but it associates with other components of the actin cytoskeleton to ensure cell stability and function.
Pathways	Alpha smooth muscle actin functions significantly within the TGF-beta signaling pathway which influences cell proliferation differentiation and apoptosis. It interacts closely with proteins such as myosin to facilitate cellular contractility and motility. Additionally α-SMA plays a part in the RhoA/Rho kinase (ROCK) pathway connecting with regulators of actin filament organization. These pathways are essential for modulation of smooth muscle contraction and actin filament assembly contributing to vascular development and wound healing.
Associated diseases and disorders	Alpha smooth muscle actin is importantly involved in fibrotic diseases and vascular diseases like arteriosclerosis. Increased expression of α-SMA is often observed in fibrotic tissues contributing to pathogenesis due to excessive extracellular matrix deposition. In the context of vascular disorders overexpression of α-SMA can lead to abnormal vascular remodeling often seen in diseases like hypertension. Interactions with proteins such as fibronectin and collagens facilitate these pathological changes highlighting the importance of α-SMA in disease development.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

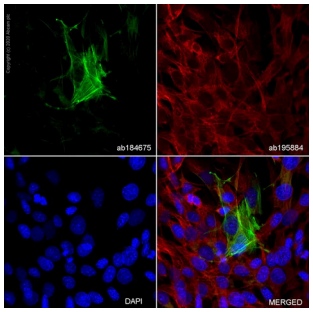
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

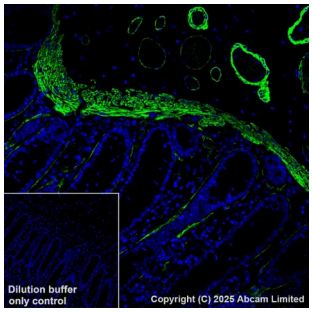
Full details and terms and conditions can be found here:
Terms & Conditions.

9 product images



Immunocytochemistry/ Immunofluorescence - Alexa Fluor® 488 Anti-alpha smooth muscle Actin antibody [1A4] (ab184675)

ab184675 staining alpha Smooth Muscle Actin in SV40LT-SMC cells. The cells were fixed with 100% Methanol (5min), permeabilized with 0.1% Triton X-100 for 5 minutes and then blocked with 1% BSA/10% normal goat serum/0.3M glycine in 0.1% PBS-Tween for 1h. The cells were then incubated overnight at +4°C with ab184675 at 1/250 dilution (shown in green) and ab195884, Rat monoclonal to alpha Tubulin (Alexa Fluor® 647), at 2µg/ml (shown in red). Nuclear DNA was labelled with DAPI (shown in blue).
Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).



Immunohistochemistry paraffin embedded sections - Alexa Fluor® 488 Anti-alpha smooth muscle Actin antibody [1A4] (ab184675)

Alpha smooth muscle Actin Immunohistochemistry paraffin embedded sections staining of Human colon tissue using mouse Anti-alpha smooth muscle Actin antibody

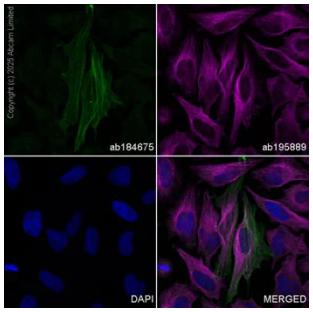
Immunohistochemical analysis of Paraffin-embedded Human colon tissue labelling alpha smooth muscle Actin with ab184675 at 1/100 dilution.

Positive staining on smooth muscle of human colon.

The primary antibody was incubated for 60 mins at room temperature (shown in green). Nuclear DNA was labeled with DAPI (shown in blue). The section was then mounted using Fluoromount®.

The immunostaining was performed on a Leica Biosystems BOND RX instrument.

Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).



Immunocytochemistry/ Immunofluorescence - Alexa Fluor® 488 Anti-alpha smooth muscle Actin antibody [1A4] (ab184675)

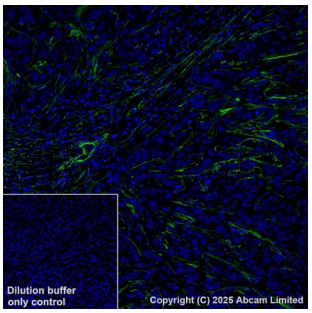
Alpha smooth muscle Actin Immunocytochemistry/ Immunofluorescence staining of HeLa (human cervical adenocarcinoma epithelial cell) cells using mouse Anti-alpha smooth muscle Actin antibody

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized HeLa (human cervical adenocarcinoma epithelial cell) cells labelling alpha smooth muscle Actin with

ab184675 at 1/50 dilution (Green).

Confocal image showing cytoplasmic staining in HeLa cell line (shown in green). The counterstain was observed in magenta. Nuclear DNA was labelled with DAPI (shown in blue). Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).

ab195889 Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 dilution (Magenta).



Immunohistochemistry paraffin embedded sections - Alexa Fluor® 488 Anti-alpha smooth muscle Actin antibody [1A4] (ab184675)

Alpha smooth muscle Actin Immunohistochemistry paraffin embedded sections staining of Human breast cancer tissue using mouse Anti-alpha smooth muscle Actin antibody

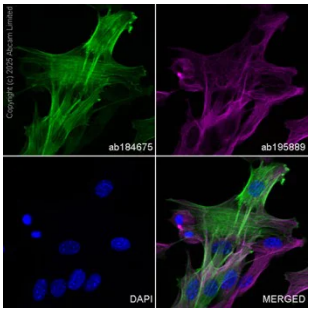
Immunohistochemical analysis of Paraffin-embedded Human breast cancer tissue labelling alpha smooth muscle Actin with ab184675 at 1/100 dilution.

Positive staining on smooth muscle of human breast cancer.

The primary antibody was incubated for 60 mins at room temperature (shown in green). Nuclear DNA was labeled with DAPI (shown in blue). The section was then mounted using Fluoromount®.

The immunostaining was performed on a Leica Biosystems BOND RX instrument.

Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).



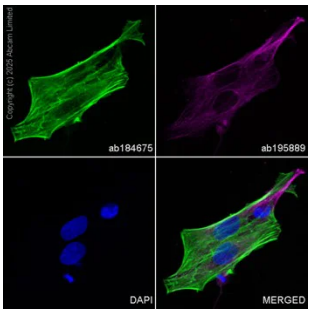
Immunocytochemistry/ Immunofluorescence - Alexa Fluor® 488 Anti-alpha smooth muscle Actin antibody [1A4] (ab184675)

Alpha smooth muscle Actin Immunocytochemistry/ Immunofluorescence staining of NIH/3T3 (mouse embryonic fibroblast) using mouse Anti-alpha smooth muscle Actin antibody

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized NIH/3T3 (mouse embryonic fibroblast) cells labelling alpha smooth muscle Actin with ab184675 at 1/50 dilution (Green).

Confocal image showing cytoplasmic staining in NIH/3T3 cell line (shown in green). The counterstain was observed in magenta. Nuclear DNA was labelled with DAPI (shown in blue). Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).

ab195889 Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 dilution (Magenta).



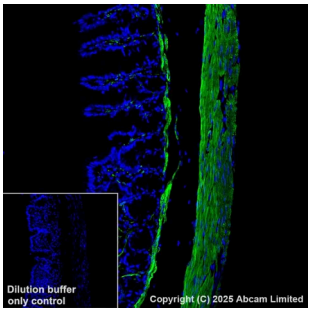
Immunocytochemistry/ Immunofluorescence - Alexa Fluor® 488 Anti-alpha smooth muscle Actin antibody [1A4] (ab184675)

Alpha smooth muscle Actin Immunocytochemistry/ Immunofluorescence staining of SV40LT-SMC (rat SV40 transfected aortic smooth muscle cell) cells using mouse Anti-alpha smooth muscle Actin antibody

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized SV40LT-SMC (rat SV40 transfected aortic smooth muscle cell) cells labelling alpha smooth muscle Actin with ab184675 at 1/50 dilution (Green).

Confocal image showing cytoplasmic staining in SV40LT-SMC cell line (shown in green). The counterstain was observed in magenta. Nuclear DNA was labelled with DAPI (shown in blue). Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).

ab195889 Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 dilution (Magenta).



Immunohistochemistry paraffin embedded sections - Alexa Fluor® 488 Anti-alpha smooth muscle Actin antibody [1A4] (ab184675)

Alpha smooth muscle Actin Immunohistochemistry paraffin embedded sections staining of Rat colon using mouse Anti-alpha smooth muscle Actin antibody

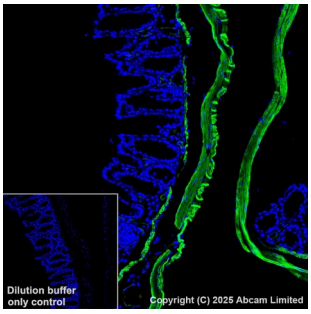
Immunohistochemical analysis of Paraffin-embedded Rat colon tissue labelling alpha smooth muscle Actin with ab184675 at 1/100 dilution.

Positive staining on smooth muscle of rat colon.

The primary antibody was incubated for 60 mins at room temperature (shown in green). Nuclear DNA was labeled with DAPI (shown in blue). The section was then mounted using Fluoromount®.

The immunostaining was performed on a Leica Biosystems BOND RX instrument.

Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).



Immunohistochemistry paraffin embedded sections - Alexa Fluor® 488 Anti-alpha smooth muscle Actin antibody [1A4] (ab184675)

Alpha smooth muscle Actin Immunohistochemistry paraffin embedded sections staining of Mouse colon tissue using mouse Anti-alpha smooth muscle Actin antibody

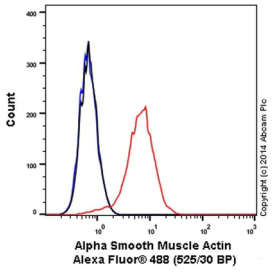
Immunohistochemical analysis of Paraffin-embedded Mouse colon tissue labelling alpha smooth muscle Actin with ab184675 at 1/100 dilution.

Positive staining on smooth muscle of mouse colon.

The primary antibody was incubated for 60 mins at room temperature (shown in green). Nuclear DNA was labeled with DAPI (shown in blue). The section was then mounted using Fluoromount®.

The immunostaining was performed on a Leica Biosystems BOND RX instrument.

Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).



Flow Cytometry (Intracellular) - Alexa Fluor® 488 Anti-alpha smooth muscle Actin antibody [1A4] (ab184675)

Overlay histogram showing SV40LT-SMC cells stained with ab184675 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab184675, 1/50 dilution) for 30 min at 22°C. Isotype control antibody (black line) was rabbit IgG (monoclonal) Alexa Fluor® 488 used at the same concentration and conditions as the primary antibody. Unlabelled sample (blue line) was also used as a control.

Acquisition of >5,000 events were collected using a 20mW Argon ion laser (488nm) and 525/30 bandpass filter.

This antibody gave a positive signal in SV40LT-SMC fixed with 4% formaldehyde (10 min)/permeabilized with 0.1% PBS-Tween for 20 min used under the same conditions.

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