abcam

ab215368

Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] - BSA and Azide free

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	E184
Purification technique	Affinity purification Protein A
Specificity	For immunohistochemistry, this antibody only detects actin in smooth muscle and not cardiac muscle. This antibody has been shown to detect P62736-ACTA (gene ACTA2): (Ac)-EEEDSTALVC and P63267-ACTH (gene ACTG2): (Ac)-EEETTALVC in indirect ELISA.
Concentration	1.026 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ELISA

Tested

Species	Synthetic peptide
Dilution info	-
Notes	-

Expected

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

IHC-P

Tested

Species	Mouse
Dilution info	-
Notes	Internal test showed non-specific staining on mouse kidney, mouse stomach, rat kidney and rat stomach.

Species	Human
Dilution info	-
Notes	Internal test showed non-specific staining on mouse kidney, mouse stomach, rat kidney and rat stomach.

Expected

Species	Rat
Dilution info	-
Notes	Internal test showed non-specific staining on mouse kidney, mouse stomach, rat kidney and rat stomach.

Not recommended

Species	Synthetic peptide
Dilution info	-

Notes	-

ICC/IF

Tested

Species	Mouse, Rat, Human
Dilution info	-
Notes	-

Not recommended

Species	Synthetic peptide
Dilution info	-
Notes	-

WB

Tested

Species	Mouse, Human, Rat
Dilution info	-
Notes	-

Not recommended

Species	Synthetic peptide
Dilution info	-
Notes	-

IHC-Fr

Expected

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

Not recommended

Species	Synthetic peptide
Dilution info	-
Notes	-

IP

Not recommended

Species	Human, Mouse, Rat, Synthetic peptide
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	ab199376- Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

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

Not recommended

Species	Synthetic peptide
Dilution info	-
Notes	-

Target data

See full target information ACTA2 acE3

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 conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

ab215368 is the carrier-free version of ab32575.

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Conjugation ready
Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

Compatibility
This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

Supplementary info

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

Activity summary	Alpha smooth muscle Actin also known as ACTG2 is an important protein in muscle contraction and cellular structure. It is most commonly found in smooth muscle cells and is not typically expressed in striated muscle. This protein is part of the actin family and has a molecular mass of approximately 42 kDa. ACTG2 plays a role in forming microfilaments which are key components of the muscle contractile machinery. In smooth muscle tissues such as those found in the intestines and blood vessels ACTG2 is often detected together with other cytoskeletal and regulatory proteins.
Biological function summary	ACTG2 contributes to muscle contraction by facilitating the interaction between actin and myosin. It is not considered a part of a protein complex but interacts closely with several other proteins involved in contractile functions. Beyond contraction ACTG2 also supports cellular integrity and shape maintenance. In tissues ACTG2 is involved in activities that require dynamic structural reorganization such as during cellular migration and wound healing highlighting its versatility beyond just a contractile agent.
Pathways	ACTG2 participates in the regulation of the smooth muscle contraction pathway influencing muscle tone and responsiveness to stimuli. The actin-myosin interaction where ACTG2 is involved is critical for the contractile process with other proteins like myosin light chain kinase (MLCK) and tropomyosin playing supportive roles. Additionally the integrin signaling pathway is another context where ACTG2 is indirectly involved aiding in the transmission of mechanical signals from the extracellular matrix to the cell.
Associated diseases and disorders	ACTG2 is associated with conditions such as megacystis-microcolon-intestinal hypoperistalsis syndrome (MMIHS) and various vascular disorders. Mutations in the ACTG2 gene can disrupt normal muscle function leading to defective peristalsis in the gastrointestinal tract as seen in MMIHS. The connection between ACTG2 and myosin regulatory light chains illustrates how changes in its function can impact muscle contractility and lead to disease. In vascular disorders abnormal expression of ACTG2 is often linked to impaired vessel tone and blood flow regulation.

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

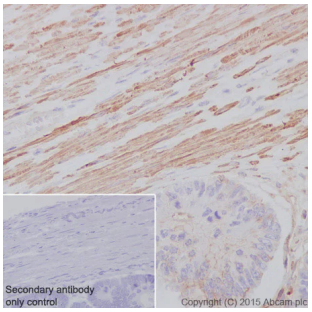
We do not recommend this combination. It is not covered by our product promise.

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.

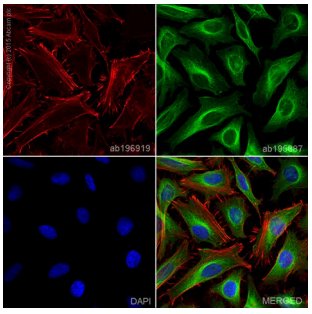
10 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] - BSA and Azide free (ab215368)

Alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody

This IHC data was generated using the same anti-alpha smooth muscle Actin antibody clone, E184, in a different buffer formulation (cat# ab32575).
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human smooth muscle tissue labelling alpha smooth muscle Actin with purified ab32575 at a dilution of 1/200. Heat mediated antigen retrieval was performed using EDTA buffer pH 9. ab97051, a HRP-conjugated goat anti-rabbit IgG (H+L) was used as the secondary antibody (1/500). Negative control using PBS instead of primary antibody. Counterstained with hematoxylin.

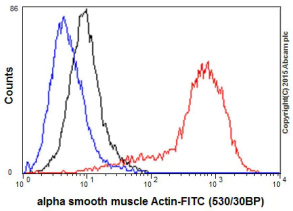


Immunocytochemistry/ Immunofluorescence - Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] - BSA and Azide free (ab215368)

Alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody

Clone E184 (ab215368) has been successfully conjugated by Abcam. This image was generated using Anti-alpha smooth muscle Actin antibody [E184] (Alexa Fluor® 647). Please refer to ab196919 for protocol details.
ab196919 staining alpha Smooth Muscle Actin in HeLa cells. The cells were fixed with 4% PFA (10min), 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 ab196919 at 1/100 dilution (shown in red) and ab195887, Mouse monoclonal to alpha Tubulin (Alexa Fluor® 488), at 2µg/ml (shown in green). Nuclear DNA was labelled with DAPI (shown in blue).

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

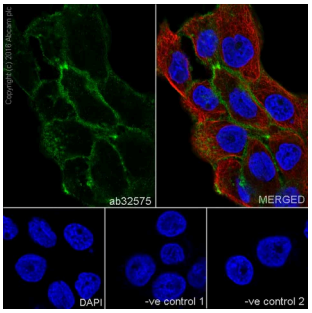


Flow Cytometry (Intracellular) - Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] - BSA and Azide free (ab215368)

Alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) Flow Cytometry (Intracellular) staining using rabbit Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody

Intracellular Flow Cytometry analysis of HeLa (Human epithelial cell line from cervix adenocarcinoma) cells labeling alpha smooth muscle Actin with purified ab32575 at a dilution of 1/20 (red).
Cells were fixed with 2% paraformaldehyde. A FITC-conjugated goat anti-rabbit IgG (1/150) was used as the secondary antibody. Black - Isotype control, rabbit monoclonal IgG. Blue - Unlabeled control, cells without incubation with primary and secondary antibodies.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab32575).



Immunocytochemistry/ Immunofluorescence - Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] - BSA and Azide free (ab215368)

Alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody

Immunocytochemistry/Immunofluorescence analysis of A431 (human epidermoid carcinoma) cells labeling alpha smooth muscle Actin (green) with purified ab32575 at 1/500. Cells were fixed with 4% paraformaldehyde and permeabilized with 0.1% Triton X-100. ab150077, Alexa Fluor® 488-conjugated goat anti-rabbit IgG (1/1000) was used as the secondary antibody. Cells were counterstained with ab7291, anti-Tubulin (mouse mAb) at 1/1000 followed by ab150120 Alexa Fluor®594 goat anti-mouse secondary (1/1000). Nuclei were counterstained with DAPI (blue).
For negative control 1, rabbit primary antibody and anti-mouse secondary antibody (ab150120) were used. For negative control 2, ab7291 (mouse primary antibody) was used followed by anti-rabbit secondary antibody (ab150077).

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab32575).

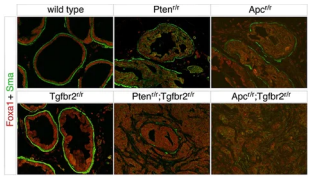


Image from Bjerke GA. et al PLoS One. 2014 Mar 20;9(3):e92800. doi: 10.1371/journal.pone.0092800. eCollection 2014.

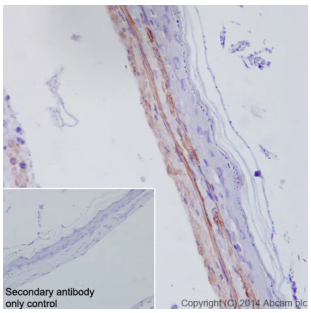
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] - BSA and Azide free (ab215368)

FoxA1 (red) and alpha smooth muscle actin (green) staining are shown by indirect immunofluorescence on sections of prostate from mice of the indicated genotypes.
Wild type: 21 weeks, *Tgfbr2*$^{r/r}$: 44 weeks, *Pten*$^{r/r}$: 21 weeks, *Pten*$^{r/r}$*;Tgfbr2*$^{r/r}$: 11 weeks, *Apc*$^{r/r}$: 36 weeks, and *Apc*$^{r/r}$*;Tgfbr2*$^{r/r}$: 24 weeks old.

IF images were captured on an Olympus BX51 microscope and DP70 digital camera, or on a Nikon Eclipse NI-U and captured with a DS-QI1 camera with NIS Elements software.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab32575).

Perform heat mediated antigen retrieval before commencing with IHC staining protocol.

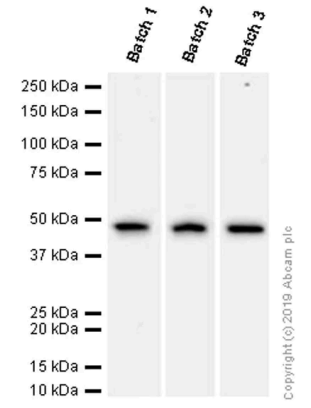


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] - BSA and Azide free (ab215368)

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of mouse smooth muscle tissue labeling alpha smooth muscle Actin with purified ab32575 at a dilution of 1/200. Heat mediated antigen retrieval was performed using EDTA buffer pH 9. ab97051, an HRP-conjugated goat anti-rabbit IgG (H+L) was used as the secondary antibody (1/500).
Negative control using PBS instead of primary antibody.

Counterstained with hematoxylin.

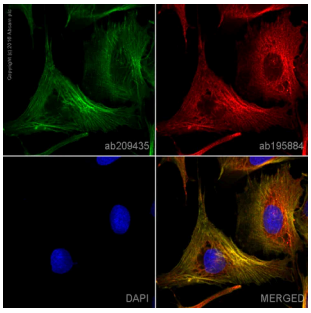
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab32575).



Western blot - Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] - BSA and Azide free (ab215368)

Alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) Western blot staining using rabbit Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody

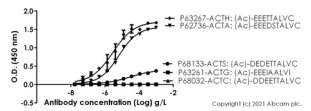
This data was developed using ab32575, the same antibody clone in a different buffer formulation. Different batches of ab32575 were tested on A431 (Human epidermoid carcinoma epithelial cell) lysate at 0.005 µg/ml. 15 µg of lysate was loaded in each lane. Bands observed at 42 kDa.
All lanes:
Western blot - Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] (ab32575)



Immunocytochemistry/ Immunofluorescence - Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] - BSA and Azide free (ab215368)

Clone E184 (ab215368) has been successfully conjugated by Abcam. This image was generated using Anti-alpha smooth muscle Actin antibody [E184] (PE). Please refer to ab209435 for protocol details.
ab209435 staining alpha smooth muscle Actin in SV40LT-SMC cells. The cells were fixed with 4% formaldehyde (10 min), 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 ab209435 at 1/500 dilution (Pseudocolored in green) and ab195884, Rat monoclonal to Tubulin (Alexa Fluor® 647), at 1/250 dilution (shown in red). Nuclear DNA was labelled with DAPI (shown in blue).

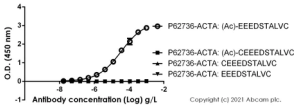
Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).



ELISA - Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] - BSA and Azide free (ab215368)

Following reconstitution in PBS with 10% DMSO, peptides (1 ug per mL) were immobilised in PBS on an ELISA plate overnight. After blocking in 5% BSA, primary antibody (ab271180) was added in a concentration range of 0.017-1000 ng per mL.
Pre-adsorbed secondary antibody goat anti-rabbit IgG H&L (HRP, ab97080) was used at 1/20000 dilution.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab32575).



ELISA - Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] - BSA and Azide free (ab215368)

Following reconstitution in PBS with 10% DMSO, peptides (1 ug per mL) were immobilised in PBS on an ELISA plate overnight. After blocking in 5% BSA, primary antibody (ab271180) was added in a concentration range of 0.017-1000 ng per mL.
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This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab32575).

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