abcam

ab32575

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

Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] (ab32575) is a rabbit monoclonal antibody detecting ACTG2 in **Western Blot, Flow Cytometry (Intra), IHC-P, IHC-Fr, ICC/IF, ELISA**. Suitable for **Human, Mouse, Rat**.

- Biophysical QC for unrivalled batch-batch consistency
- Over 580 publications
- Trusted since 2006

Recombinant | RabMAb | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
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	0.023 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-Fr

Expected

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

Not recommended

Species	Synthetic peptide
Dilution info	-
Notes	-

IP

Not recommended

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

IHC-P

Tested

Species	Mouse
Dilution info	1/200 - 1/500
Notes	Internal test showed non-specific staining on mouse kidney, mouse stomach, rat kidney and rat stomach. Perform heat-mediated antigen retrieval before commencing with IHC staining protocol.

Species	Human

Dilution info	1/200 - 1/500
Notes	Internal test showed non-specific staining on mouse kidney, mouse stomach, rat kidney and rat stomach. Perform heat-mediated antigen retrieval before commencing with IHC staining protocol.

Expected

Species	Rat
Dilution info	1/200 - 1/500
Notes	Internal test showed non-specific staining on mouse kidney, mouse stomach, rat kidney and rat stomach. Perform heat-mediated antigen retrieval before commencing with IHC staining protocol.

Not recommended

Species	Synthetic peptide
Dilution info	-
Notes	-

WB

Tested

Species	Rat
Dilution info	1/1000 - 1/5000
Notes	-

Species	Mouse
Dilution info	1/1000 - 1/5000
Notes	-

Species	Human
Dilution info	1/1000 - 1/5000
Notes	-

Not recommended

Species	Synthetic peptide
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Mouse
Dilution info	1/500
Notes	-

Species	Rat
Dilution info	1/500
Notes	-

Species	Human
Dilution info	1/500
Notes	-

Not recommended

Species	Synthetic peptide
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/20
Notes	ab172730 - 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	-

ELISA

Tested

Species	Synthetic peptide
Dilution info	0.00002-1 µg/mL
Notes	-

Expected

Species	Mouse, Human, Rat
Dilution info	Use at an assay dependent concentration.
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	Conditional Ambient
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

Notes

Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] (ab32575) was developed by Abcam using patented rabbit monoclonal antibody technology and is validated for use in ELISA, Flow Cyt (Intra), ICC/IF, IHC-Fr, IHC-P, WB in human, mouse, rat samples.

Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] (ab32575) has been cited over 584 times in peer reviewed journals and is trusted by the scientific community.

Abcam's high quality manufacturing and validation processes ensure Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody (Anti-ACTG2 acetyl E3 antibody/ Anti-ACTA2 antibody/ Anti-ACTG2 antibody) [E184] (ab32575) has high sensitivity and specificity alongside high lot-to-lot consistency and reproducibility.

Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] (ab32575) has 22 independent reviews from customers.

Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] (ab32575) specifically detects alpha smooth muscle Actin; ACTG2 Acetyl-E3 (UniProt ID: P62736; Molecular weight: 42kDa) and is sold in 100 µL and 1 mL selling sizes.

Conjugation-ready, carrier free format available for antibody clone E184 - ab215368.

Antibody clone E184 is also available pre-conjugated to a variety of labels for your convenience - Alexa Fluor® 647, HRP, PE, Alexa Fluor® 405, FITC, APC (ab196919, ab196920, ab209435, ab210128, ab223920, ab223921).

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.

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.

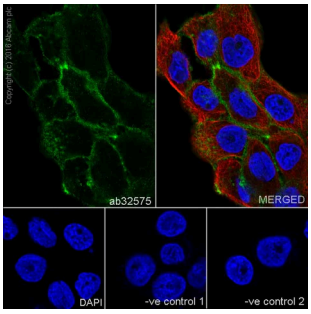
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

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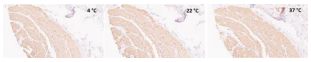
14 product images



Immunocytochemistry/ Immunofluorescence - Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] (ab32575)

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).

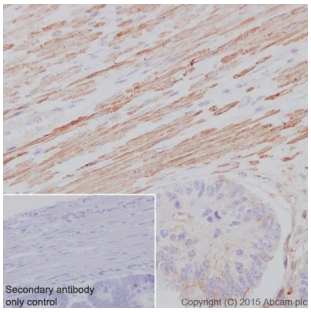


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] (ab32575)

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

The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Paraffin embedded human stomach tissue slides were dewaxed, followed by heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, Epitope Retrieval ER2 Solution) for 20 mins. Endogenous peroxidase activity was blocked with 3% H2O2 for 10 mins. The sections were then incubated with ab32575 (1/2000) at room temperature for 30 mins, followed by a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101). The sections were counterstained with Hematoxylin. The images were taken with a Leica Aperio AT2.

ab32575 was stored at a range of temperatures (+4°C, +22°C, +37°C) for 1 week before being tested in IHC-P. The image shows the staining intensity remains relatively constant across all storage temperatures, demonstrating that antibody activity is not affected under these conditions. This data was generated as part of a structured antibody stability study supporting Abcam’ s transition from cold⊠chain to ambient shipping.

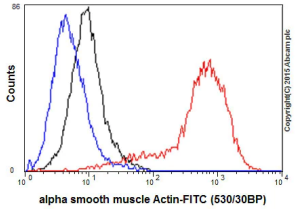


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] (ab32575)

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

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human 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.

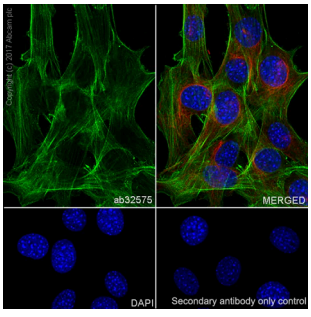


Flow Cytometry (Intracellular) - Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] (ab32575)

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.

Alexa Fluorr®488 (ab197240) and Alexa Fluorr®647 (ab196919) conjugated versions are available for this clone.

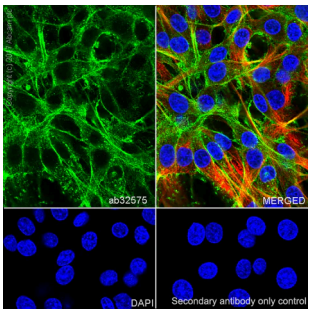


Immunocytochemistry/ Immunofluorescence - Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] (ab32575)

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 NIH/3T3(Mouse embryonic fibroblast) cells labeling alpha smooth muscle Actin with purified ab32575 at 1/500 dilution (5.2 ©:g/ml). Cells were fixed in 4% paraformaldehyde and permeabilized with 0.1% Triton X-100. Cells were counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) 1/200 (2.5 ©:g/ml). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) was used as the

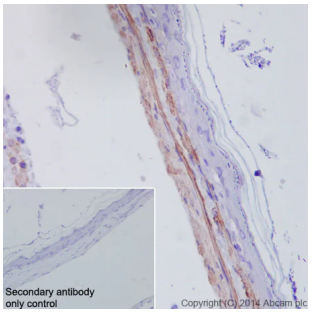
secondary antibody at 1/1000 dilution (2 ©:g/ml) dilution. DAPI was used as nuclear counterstain. PBS instead of the primary antibody was used as the secondary antibody only control.



Immunocytochemistry/ Immunofluorescence - Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] (ab32575)

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 C6(Rat glial tumor glial cell) cells labeling alpha smooth muscle Actin with purified ab32575 at 1/100 dilution (0.71 µg/ml). Cells were fixed in 4% paraformaldehyde and permeabilized with 0.1% Triton X-100. Cells were counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) 1/200 (2.5 µg/ml). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) was used as the secondary antibody at 1/1000 dilution (2 µg/ml) dilution. DAPI was used as nuclear counterstain. PBS instead of the primary antibody was used as the secondary antibody only control.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] (ab32575)

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.

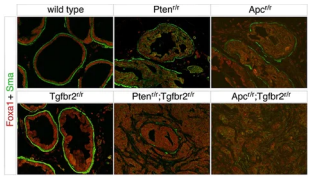
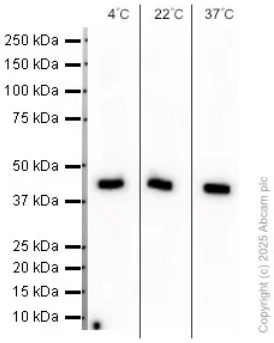


Image from Bjerke GA. et al PLoS One. 2014 Mar 20;9(3):e92800. doi: 10.1371/journal.pone.0092800. eCollection 2014.

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] (ab32575)

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.



Western blot - Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] (ab32575)

Alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) Western blot staining of MCF7 whole cell lysate using rabbit Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody

This blot was produced using 4-20% SDS-PAGE containing 15 µg of MCF7 whole cell lysate per lane at 150V for 1hr before being transferred onto a 0.45 µm PVDF membrane at 75V for 1hr. The membrane was then blocked for 1hr using 5% NFDM/TBST, then incubated with ab32575 (1/5000) at room temperature for 1hr. After being washed three times in TBST, the membrane was incubated with Peroxidase conjugated goat anti-rabbit IgG (H+L) (ab97051) at 1/20,000 dilution for 1hr at room temperature. The membrane was washed three times again. Then the signal was developed using the ECL technique.

ab32575 was stored at a range of temperatures (+4°C, +22°C, +37°C) for 1 week before being tested in WB. The image shows the band intensity remains relatively constant across all storage temperatures, demonstrating that antibody activity is not affected under these conditions. This data was generated as part of a structured antibody stability study supporting Abcam’ s transition from cold⊠chain to ambient shipping.

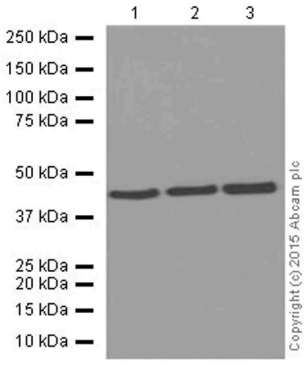
All lanes:
Western blot - Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] (ab32575) at 1/5000 dilution

All lanes:
MCF7 whole cell lysate at 15 µg with NDFM/TBST

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Exposure time: 20s



Western blot - Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] (ab32575)

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

Blocking and dilution buffer: 5% NFDM/TBST
All lanes:
Western blot - Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] (ab32575) at 1/5000 dilution

Lane 1:
A431 (Human epidermoid carcinoma cell line) whole cell lysate at 20 µg

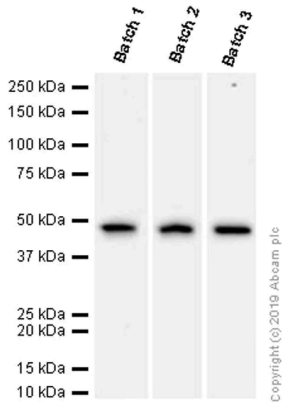
Lane 2:
HeLa (Human epithelial cell line from cervix adenocarcinoma) whole cell lysate at 20 µg

Lane 3:
MCF7 (Human breast adenocarcinoma cell line) whole cell lysate at 20 µg

Secondary

All lanes:
Peroxidase-conjugated goat anti-rabbit IgG (H+L) at 1/1000 dilution

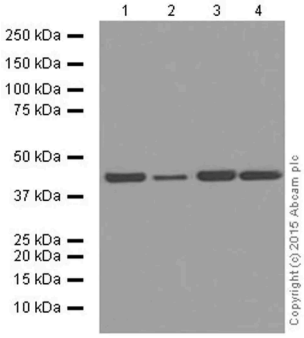
Observed band size: 42 kDa



Western blot - Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] (ab32575)

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

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)



Western blot - Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] (ab32575)

Blocking and dilution buffer: 5% NFDM/TBST
All lanes:
Western blot - Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] (ab32575) at 1/5000 dilution

Lane 1:
C6 (Rat glial tumor cell line) whole cell lysate at 20 µg

Lane 2:
RAW 264.7 (Mouse macrophage cell line transformed with Abelson murine leukemia virus) whole cell lysate at 20 µg

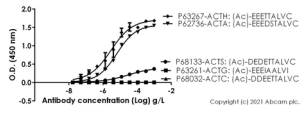
Lane 3:
PC-12 (Rat adrenal gland pheochromocytoma cell line) whole cell lysate at 20 µg

Lane 4:
NIH/3T3 (Mouse embryo fibroblast cell line) whole cell lysate at 20 µg

Secondary

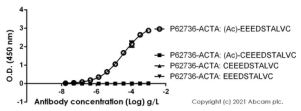
All lanes:
Peroxidase-conjugated goat anti-rabbit IgG (H+L) at 1/1000 dilution

Observed band size: 42 kDa



ELISA - Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] (ab32575)

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.



ELISA - Anti-alpha smooth muscle Actin (acetyl E3) + ACTG2 (acetyl E3) antibody [E184] (ab32575)

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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Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.