abcam

ab181603

Anti-GAPDH antibody [EPR16884] - Loading Control

Anti-GAPDH antibody [EPR16884] - Loading Control (ab181603) is a rabbit monoclonal antibody detecting GAPDH in **Western Blot, Flow Cytometry (Intra), IHC-P, ICC/IF**. Suitable for **African green monkey, Chicken, Cow, Dog, Human, Mouse, Rat**.

- Biophysical QC for unrivalled batch-batch consistency
- Over 200 publications

Lab Essentials | Recombinant | RabMAb | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	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	EPR16884
Purification technique	Affinity purification Protein A
Concentration	1.497 - 1.505 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Mouse
Dilution info	1/10000
Notes	-

Species	Rat
Dilution info	1/10000
Notes	-

Species	Cow
Dilution info	1/10000
Notes	-

Species	Chicken
Dilution info	1/10000
Notes	-

Species	Dog
Dilution info	1/10000
Notes	-

Species	Human
Dilution info	1/10000
Notes	-

Species	African green monkey
Dilution info	1/10000
Notes	-

Predicted

Species	Monkey
Dilution info	-
Notes	-

Not recommended

Species	Vervet monkey
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/250
Notes	-

Expected

Species	Dog
Dilution info	-
Notes	-

Species	African green monkey
Dilution info	-
Notes	-

Species	Mouse
Dilution info	1/250
Notes	-

Species	Rat
Dilution info	1/250
Notes	-

Species	Chicken
Dilution info	1/250
Notes	-

Species	Cow
Dilution info	1/250

Notes	-

Species	Vervet monkey
Dilution info	1/250
Notes	-

Predicted

Species	Monkey
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/200
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

Species	African green monkey
Dilution info	-
Notes	-

Species	Mouse
Dilution info	1/200
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Species	Rat
Dilution info	1/200
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Species	Chicken
Dilution info	1/200
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Species	Cow
Dilution info	1/200
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Species	Dog
Dilution info	1/200
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Species	Vervet monkey
Dilution info	1/200
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Predicted

Species	Monkey
Dilution info	-
Notes	-

IHC-P

Tested

Species	Mouse
Dilution info	1/500
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Species	Rat
Dilution info	1/500
Notes	

	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Species	Human
Dilution info	1/500
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Expected

Species	African green monkey
Dilution info	-
Notes	-

Species	Chicken
Dilution info	1/500
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Species	Cow
Dilution info	1/500
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Species	Dog
Dilution info	1/500
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Species	Vervet monkey
Dilution info	1/500
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Predicted

Species	Monkey
Dilution info	-

Notes	-

Target data

See full target information GAPDH

Function	Catalyzes the conversion of D-glyceraldehyde 3-phosphate (G3P) into 3-phospho-D-glyceroyl phosphate in glycolysis and the reverse reaction in gluconeogenesis (PubMed:11724794, PubMed:3170585). Also shows nitrosylase activity, thereby playing a role in nuclear functions (PubMed:11724794, PubMed:3170585). Modulates the organization and assembly of the cytoskeleton (By similarity). Facilitates the CHP1-dependent microtubule and membrane associations through its ability to stimulate the binding of CHP1 to microtubules (By similarity). Component of the GAIT (gamma interferon-activated inhibitor of translation) complex which mediates interferon-gamma-induced transcript-selective translation inhibition in inflammation processes (PubMed:23071094). Upon interferon-gamma treatment assembles into the GAIT complex which binds to stem loop-containing GAIT elements in the 3'-UTR of diverse inflammatory mRNAs (such as ceruplasmin) and suppresses their translation (PubMed:23071094). Also plays a role in innate immunity by promoting TNF-induced NF-kappa-B activation and type I interferon production, via interaction with TRAF2 and TRAF3, respectively (PubMed:23332158, PubMed:27387501). Participates in nuclear events including transcription, RNA transport, DNA replication and apoptosis (By similarity). Nuclear functions are probably due to the nitrosylase activity that mediates cysteine S-nitrosylation of nuclear target proteins such as SIRT1, HDAC2 and PRKDC (By similarity).

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

What is this antibody validated in?
Anti-GAPDH antibody [EPR16884] - Loading Control (ab181603) is a rabbit recombinant monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Intra), Immunohistochemistry (IHC-P), Immunocytochemistry/immunofluorescence (ICC/IF) in African green monkey, Chicken, Cow, Dog, Human, Mouse, Rat samples.

What is the molecular weight of GAPDH?
Anti-GAPDH [EPR16884] - Loading Control (ab181603) is often used as a loading control in Western blot. It specifically detects a band for GAPDH (UniProt: P16858) at a molecular weight of 36kDa.

Trusted by the scientific community
Anti-GAPDH [EPR16884] - Loading Control (ab181603) was first used in a scientific publication in 2014 and has been cited over 200 times in peer-reviewed journals.

Reviewed by scientists
Anti-GAPDH [EPR16884] - Loading Control (ab181603) has over 5 independent reviews from customers.

Other related products
We have a range of other formats of antibody clone [EPR16884] also available for your convenience: ab181603, Carrier free - ab199554, Alexa Fluor® 647 - ab204480, HRP - ab204481, Alexa Fluor® 594 - ab206373, Alexa Fluor® 555 - ab206629, PE - ab209037

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.

Trial sizes available!
Test your antibody or perform pre-screening before committing to a larger quantity. Sold in 20µl. Discover our selection of trial-size antibodies.

Supplementary info

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

Activity summary	Glyceraldehyde-3-phosphate dehydrogenase commonly known as GAPDH is an enzyme involved in glycolysis. Its molecular weight (MW) is approximately 36 kDa. The protein is expressed ubiquitously in almost all tissues reflecting its essential role in energy production. GAPDH catalyzes the sixth step of glycolysis converting glyceraldehyde-3-phosphate into 13-bisphosphoglycerate. Due to its stable expression researchers often use GAPDH as a loading control in western blot experiments.

Biological function summary	GAPDH serves important metabolic functions beyond its enzymatic role in glycolysis. It functions as part of a multi-enzyme complex within the cytoplasm which facilitates efficient substrate channeling during glycolysis. Additionally GAPDH has non-glycolytic roles including involvement in nuclear processes like RNA export and DNA repair. Its ubiquitous presence across different cellular compartments indicates its multiple functions beyond metabolic pathways.
Pathways	GAPDH integrates into significant cellular functions like the glycolytic pathway and apoptotic pathways. In glycolysis GAPDH collaborates with enzymes like phosphoglycerate kinase forming a cohesive link in the energy conversion chain. Its participation in apoptotic pathways highlights GAPDH's involvement in cellular death processes interacting with proteins like Bcl-2 to influence apoptosis progression. These roles reinforce its presence in central metabolic and regulatory pathways.
Associated diseases and disorders	GAPDH has associations with neurodegenerative diseases and cancer. In neurodegenerative disorders such as Alzheimer's disease GAPDH's altered enzymatic activity is frequently observed influencing cellular energy homeostasis. Moreover overexpression or aberrant regulation of GAPDH relates to cancer cell proliferation and metastasis implicating proteins like p53 in these pathways. The diverse functions and interactions of GAPDH emphasize its importance in both normal cellular function and disease states.

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

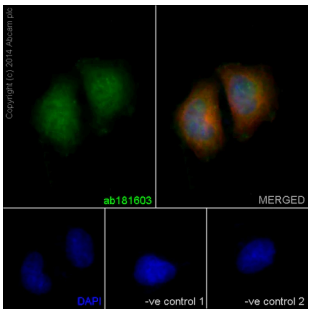
We do not recommend this combination. It is not covered by our product promise.

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.

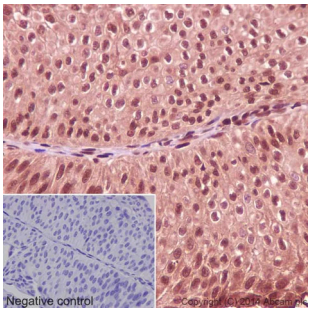
9 product images



Immunocytochemistry/ Immunofluorescence - Anti-GAPDH antibody [EPR16884] - Loading Control (ab181603)

GAPDH Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-GAPDH antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized HeLa (Human epithelial cells from cervix adenocarcinoma) cells labeling GAPDH with ab181603 at 1/250 dilution, followed by Goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/400 dilution (green). Cytoplasm and nuclear staining on HeLa cell line is observed. The nuclear counter stain is DAPI (blue). Tubulin is detected with ab7291 (anti-Tubulin mouse mAb) at 1/500 dilution and ab150120 (AlexaFluor®594 Goat anti-Mouse secondary) at 1/500 dilution (red).
The negative controls are as follows;
1. ab181603 at 1/250 dilution followed by ab150120 (AlexaFluor®594 Goat anti-Mouse secondary) at 1/500 dilution.
2. ab7291 (anti-Tubulin mouse mAb) at 1/500 dilution followed by ab150077 (Alexa Fluor®488 Goat Anti-Rabbit IgG H&L) at 1/400 dilution.

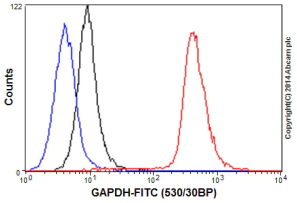


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-GAPDH antibody [EPR16884] - Loading Control (ab181603)

Immunohistochemical analysis of paraffin-embedded Human transitional cell carcinoma of bladder tissue labeling GAPDH with ab181603 at 1/500 dilution, followed by prediluted HRP Polymer for Rabbit/Mouse IgG. Cytoplasmic and nucleus staining on the tumor cells of transitional cell carcinoma of Human bladder is observed. Counter stained with Hematoxylin.

Negative control: Using PBS instead of primary ab, secondary ab is prediluted HRP Polymer for Rabbit/Mouse IgG.

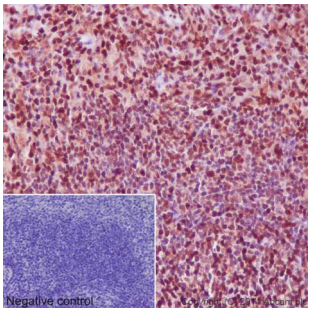
Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Flow Cytometry (Intracellular) - Anti-GAPDH antibody [EPR16884] - Loading Control (ab181603)

GAPDH Flow Cytometry (Intracellular) staining using rabbit Anti-GAPDH antibody

Intracellular flow cytometric analysis of 2% paraformaldehyde-fixed Jurkat (Human T cell leukemia cells from peripheral blood) cells labeling GAPDH with ab181603 at 1/200 dilution (red) compared with a rabbit monoclonal IgG isotype control (black) and a unlabelled control (cells without incubation with primary antibody and secondary antibody; blue). Goat anti rabbit IgG (FITC) at 1/150 dilution was used as the secondary antibody.



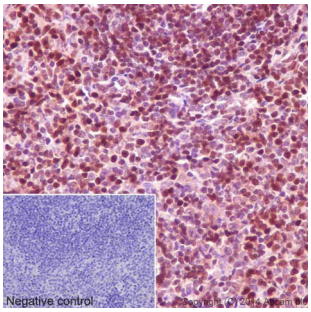
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-GAPDH antibody [EPR16884] - Loading Control (ab181603)

GAPDH Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-GAPDH antibody

Immunohistochemical analysis of paraffin-embedded Mouse spleen tissue labeling GAPDH with ab181603 at 1/500 dilution, followed by prediluted HRP Polymer for Rabbit/Mouse IgG. Nucleus and cytoplasmic staining on lymphocytes of mouse spleen is observed. Counter stained with Hematoxylin.

Negative control: Using PBS instead of primary ab, secondary ab is prediluted HRP Polymer for Rabbit/Mouse IgG.

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



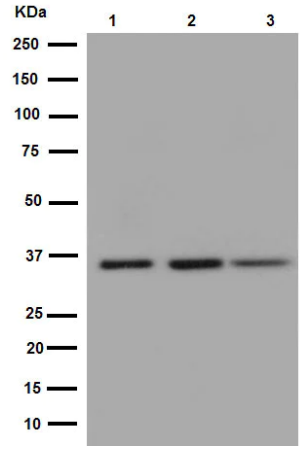
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-GAPDH antibody [EPR16884] - Loading Control (ab181603)

GAPDH Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-GAPDH antibody

Immunohistochemical analysis of paraffin-embedded Rat spleen tissue labeling GAPDH with ab181603 at 1/500 dilution, followed by prediluted HRP Polymer for Rabbit/Mouse IgG. Nucleus and cytoplasmic staining on lymphocyte of rat spleen is observed. Counter stained with Hematoxylin.

Negative control: Using PBS instead of primary ab, secondary ab is prediluted HRP Polymer for Rabbit/Mouse IgG.

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Western blot - Anti-GAPDH antibody [EPR16884] - Loading Control (ab181603)

GAPDH Western blot staining using rabbit Anti-GAPDH antibody

Blocking/Dilution buffer: 5% NFDM/TBST.
All lanes:
Western blot - Anti-GAPDH antibody [EPR16884] - Loading Control (ab181603) at 1/10000 dilution

Lane 1:
Human fetal brain lysate at 10 µg

Lane 2:
Human fetal heart lysate at 10 µg

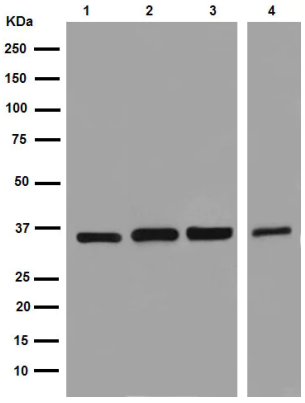
Lane 3:
Human fetal kidney lysate at 10 µg

Secondary

All lanes:
Anti-Rabbit IgG (HRP), specific to the non-reduced form of IgG at 1/1000 dilution

Predicted band size: 36 kDa

Observed band size: 36 kDa



Western blot - Anti-GAPDH antibody [EPR16884] - Loading Control (ab181603)

Blocking/Dilution buffer: 5% NFDM/TBST.
All lanes:
Western blot - Anti-GAPDH antibody [EPR16884] - Loading Control (ab181603) at 1/10000 dilution

Lane 1:
HeLa (Human epithelial cells from cervix adenocarcinoma) whole cell lysates at 20 µg

Lane 2:
MDBK (Bovine kidney cell line) whole cell lysates at 20 µg

Lane 3:
COS-1 (African green monkey kidney fibroblast-like cell line) whole cell lysates at 20 µg

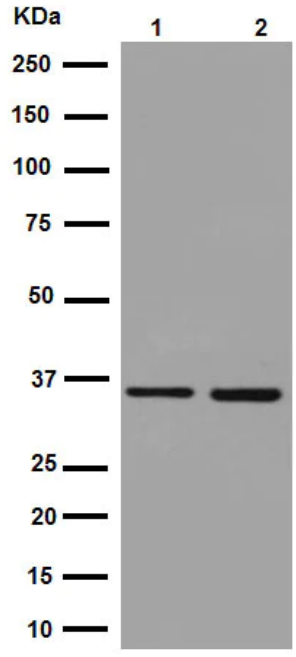
Lane 4:
MDCK (Canine kidney cell line) whole cell lysates at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L),Peroxidase conjugated at 1/1000 dilution

Predicted band size: 36 kDa

Observed band size: 36 kDa



Western blot - Anti-GAPDH antibody [EPR16884] - Loading Control (ab181603)

GAPDH Western blot staining using rabbit Anti-GAPDH antibody

Blocking/Dilution buffer: 5% NFDM/TBST.
All lanes:
Western blot - Anti-GAPDH antibody [EPR16884] - Loading Control (ab181603) at 1/50000 dilution

Lane 1:
UMNSAH/DF-1 (Transformed chicken embryonic fibroblast cells) whole cell lysates at 20 µg

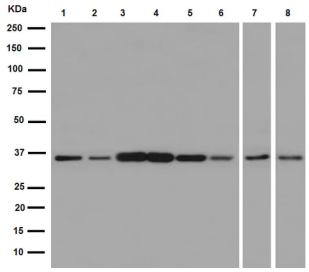
Lane 2:
Jurkat (Human T cell leukemia cells from peripheral blood) whole cell lysates at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L),Peroxidase conjugated at 1/1000 dilution

Predicted band size: 36 kDa

Observed band size: 36 kDa



Western blot - Anti-GAPDH antibody [EPR16884] - Loading Control (ab181603)

Blocking/Dilution buffer: 5% NFDM/TBST.
All lanes:
Western blot - Anti-GAPDH antibody [EPR16884] - Loading Control (ab181603) at 1/10000 dilution

Lane 1:
Mouse brain lysate at 10 µg

Lane 2:
Mouse heart lysate at 10 µg

Lane 3:
Rat brain lysate at 10 µg

Lane 4:
Rat heart lysate at 10 µg

Lane 5:
Rat kidney lysate at 10 µg

Lane 6:
Rat spleen lysate at 10 µg

Lane 7:
C6 (Rat glial tumor cells) whole cell lysates at 10 µg

Lane 8:
NIH/3T3 (Mouse embyro fibroblast cells) whole cell lysates at 10 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L),Peroxidase conjugated at 1/1000 dilution

Predicted band size: 36 kDa

Observed band size: 36 kDa

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