abcam

ab6556

Anti-GFP antibody

Anti-GFP antibody (ab6556) is a rabbit polyclonal antibody detecting GFP in **Western Blot, Flow Cytometry, IP, IHC-P, IHC-Fr, ICC/IF, EM**. It is the purified version of our highly cited ab290 GFP antibody.

- Over 1310 publications
- Trusted since 2002

See more GFP antibodies and assay kits

Lab Essentials

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.4 Constituents: 25% Glycerol (glycerin, glycerine), 0.79% Tris HCl
Form	Liquid
Clonality	Polyclonal
Immunogen	Recombinant Full Length Protein corresponding to Aequorea victoria GFP. Database link P42212
Purification technique	Affinity purification Immunogen
Specificity	**GFP antibody (ab6556) is reactive against all variants of *Aequorea victoria* GFP such as S65T-GFP, RS-GFP, YFP, CFP, RFP and EGFP.**
Concentration	0.5 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	This antibody is an affinity purified rabbit anti-GFP antibody purified on an affinity chromatography column made with highly purified recombinant GFP.

Reactivity data

ICC/IF

Tested

Species	Tag
Dilution info	1/2000
Notes	-

IP

Expected

Species	Tag
Dilution info	Use at an assay dependent concentration.
Notes	-

EM

Tested

Species	Tag
Dilution info	1/5000
Notes	-

Flow Cyt

Expected

Species	Tag
Dilution info	Use at an assay dependent concentration.
Notes	-

WB

Expected

Species	Tag
Dilution info	Use at an assay dependent concentration.
Notes	-

IHC-P

Expected

Species	Tag
Dilution info	Use at an assay dependent concentration.
Notes	-

IHC-Fr

Expected

Species	Tag
Dilution info	Use at an assay dependent concentration.
Notes	-

Target data

See full target information GFP

Function	Energy-transfer acceptor. Its role is to transduce the blue chemiluminescence of the protein aequorin into green fluorescent light by energy transfer. Fluoresces in vivo upon receiving energy from the Ca(2+)-activated photoprotein aequorin.

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

Notes

Anti-GFP antibody (ab6556) was first used in a scientific publication in 1999 and has been cited over 1310 times in peer reviewed journals. It's performance in Western Blot, IHC and immunofluorescence is trusted by the scientific community.

Abcam's high quality validation processes ensure Anti-GFP antibody (ab6556) has high sensitivity and specificity.

Anti-GFP antibody (ab6556) has 61 independent reviews from customers.

GFP antibodies are used to visualize proteins labelled with this tag in a variety of applications (for example imaging and Flow cytometry). To enable specific detection of your tagged protein, Anti-GFP antibody (ab6556) has been validated in EM, Flow Cyt, ICC/IF, IHC-Fr, IHC-P, IP and WB.

Anti-GFP antibody (ab6556) specifically detects GFP (UniProt ID: P42212; Molecular weight: 27kDa) and is sold in 25 µL selling sizes.

Green Fluorescent Protein (GFP), originally derived from the jellyfish Aequorea victoria, emits a bright green fluorescence under ultraviolet or blue light. This unique property makes GFP an invaluable tool in molecular and cell biology research. Widely used to tag proteins, GFP allows scientists to visualize and track protein expression, localization and interactions within living cells. Key applications of GFP include fluorescence microscopy (ICC, IHC, IF), flow cytometry (FC) and western blotting (WB).

Supplementary info

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

Activity summary	GFP also known as Green Fluorescent Protein acts as a bioluminescent marker derived from the jellyfish Aequorea victoria. GFP is popular in molecular biology for its fluorescence properties making it useful for visualizing proteins. This protein has a molecular weight of approximately 27 kDa. Researchers and scientists often express GFP in various organisms as a luminescent tag helping them observe protein expression localization and interaction within cells. GFP tagging involves the fusion of GFP to a protein of interest enabling the study of the protein's function and dynamics without affecting the host cell.
Biological function summary	GFP serves as a marker due to its ability to emit green fluorescence without requiring additional substrates or cofactors. GFP does not function within complexes like other proteins but acts as a standalone tool to monitor physiological processes. Scientists utilize techniques such as Western blot ELISA and microscopy along with GFP to track and quantify proteins inside living cells. Anti-GFP antibodies can detect GFP fusion proteins in various applications providing valuable insights into protein behavior and allowing robust assays involving GFP.
Pathways	GFP itself does not participate actively in traditional biochemical or signaling pathways. Instead it enables visual tracking within pathways. Researchers utilize GFP to study pathways like MAPK/ERK and PI3K/AKT where they track proteins related to these pathways using GFP tagging. For instance fusing GFP with proteins like ERK1/2 allows tracking phosphorylation events and signal

	transduction in living cells leading to better understanding of cellular responses to different stimuli.
Associated diseases and disorders	Researchers use GFP as a model to study gene expression and protein interactions under disease conditions. For example in neurological disorders GFP helps visualize neuronal pathways and protein aggregation processes. By tagging proteins such as amyloid precursor protein (APP) or tau with GFP scientists can study their role in Alzheimer's disease progression. Similarly GFP facilitates the investigation of cancer pathways allowing visualization of tumor-related proteins and helping researchers study how cancer cells grow and invade tissues supporting cancer research and therapy 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

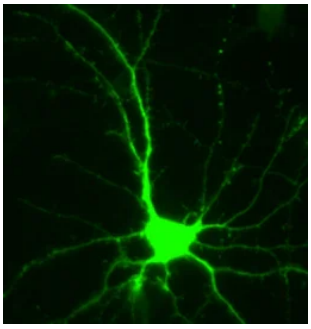
We do not recommend this combination. It is not covered by our product promise.

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.

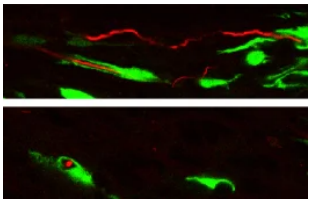
7 product images



Immunocytochemistry/ Immunofluorescence - Anti-GFP antibody (ab6556)

GFP Immunocytochemistry/ Immunofluorescence staining of HCT116 cells using rabbit Anti-GFP antibody

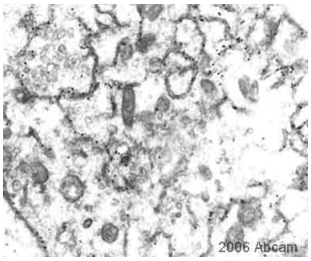
This image shows a single primary hippocampal neuron from a primary culture overexpressing GFP stained with ab6556 at a dilution of 1/2000. This picture was kindly supplied as part of the review submitted by one of our customers.



Immunocytochemistry/ Immunofluorescence - Anti-GFP antibody (ab6556)

GFP Immunocytochemistry/ Immunofluorescence staining of GFP-expressing glial cells using rabbit Anti-GFP antibody

This image shows IF using GFP-expressing glial cells (green) transplanted into lesioned rat spinal cord. This was detected using ab6556 anti-GFP antibody and a FITC conjugated secondary antibody. Axons are labelled red by an antibody to neurofilament-200 and a rhodamine secondary. ab6556 reveals the morphology of the transplanted cells to such an extent that their close interactions with axons are obvious. The top picture shows an optical section from a confocal microscope scan showing how a GFP cell wraps around a branched axon travelling longitudinally. The bottom picture consists of an optical section from another confocal scan showing a GFP cell enveloping an axon in the transverse plane. Review by Andrew Toft submitted 19 May 2004.



Electron Microscopy - Anti-GFP antibody (ab6556)

Specific labeling of a Trk-GFP fusion protein being synthesized on ER in sympathetic neurons infected with an adenovirus carrying the construct. The gold is associated with the ER membranes. This was done using a 1/5000 dilution of affinity purified antibody (ab6556). The tissue section was fixed and embedded using durcupan resin.

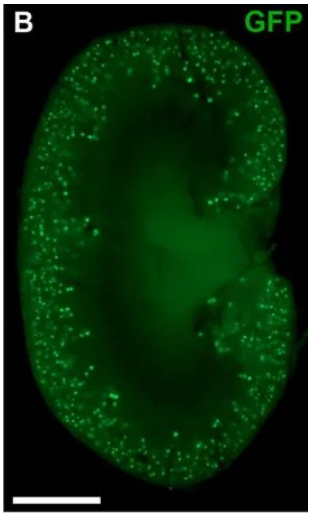


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IHC - Wholemount - Anti-GFP antibody (ab6556)

GFP IHC - Wholemount staining using rabbit Anti-GFP antibody

GFP immunohistochemistry-immunofluorescence using Anti-GFP antibody ab6556. Publication image and figure legend from Wilm, T. P., Tanton, H., et al. 2021, Sci Rep, PubMed 34354169.

Whole mount and histological analysis of adult kidney after lineage tracing of Wt1-expressing cells. Adult mice with either the Wt1CreERT2/+; Rosa26LacZ/LacZ or the Wt1CreERT2/+; Rosa26mTmG/mTmG reporter system were analysed 2-4 weeks after Tamoxifen administration. (A,B) In kidney whole mounts (sagittal halves), labelled cells expressing LacZ or GFP were found in the glomeruli. (C) Eosin-counterstained sagittal paraffin sections showing LacZ-expression in the glomeruli of the kidney (open arrowheads pointing to glomeruli showing weaker XGal staining due to reduced penetration of staining reagents into tissue). (C',C") LacZ-expressing cells are also detected in the parietal epithelial layer of the Bowman Capsule (filled arrowheads). (D) Immunofluorescence on frozen sagittal kidney sections revealed GFP-expressing cells in the glomeruli. (E) Immunofluorescence for Wt1 and GFP in higher magnification of the two glomeruli outlined in the box in (D). (E'-E"") Immunofluorescence for Wt1 and GFP of the left glomerulus shown in (E). GFP-labelled cells co-expressed Wt1 (E', Wt1 and DAPI; E", GFP and DAPI; E", Wt1 and GFP; E"", Wt1, GFP, DAPI). (F,G) In rare cases, LacZ- or GFP-expressing cells were found in tubular structures reaching into the renal medulla (filled arrowheads). The data shown in (A-E) are

consistent with analyses performed in n = 5 animals. Scale bars, 2 mm (A,B), 300 µm (C,D), 100 µm (C',C",E), 50 µm (E'-E""), 700 µm (F,G).

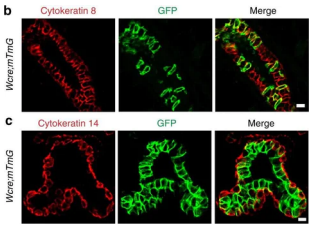


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Immunohistochemistry - Anti-GFP antibody (ab6556)

GFP Immunohistochemistry staining using rabbit Anti-GFP antibody

GFP Immunohistochemistry using Anti-GFP antibody ab6556. Schipper, K., Seinstra, D., et al., 2019, Nat Commun, PubMed 31444332.

E-cadherin loss drives cell extrusion towards the basal lamina. a Schematic overview of engineered alleles in Wcre;Cdh1F/F;mTmG mice. b, c Examination of GFP-positive Wcre activity in mammary glands of 6-week-old Wcre;mTmG female mice by immunofluorescence (IF) analysis (n = 6). b IF staining of GFP was examined in cytokeratin-8 (CK8)-positive luminal mouse mammary epithelial cells (MMECs) and c cytokeratin-14 (CK14)-positive myoepithelial cells. Scale bar, 10 µm. d Identification of E-cadherin inactivated MMECs by IF staining of E-cadherin, GFP, CK14, and CK8 in 6-week-old Wcre;Cdh1F/F;mTmG female mice (n = 6). Arrows indicate events of cell extrusion upon inactivation of E-cadherin. Scale bare, 10 µm. e Immunohistochemical detection of GFP-positive E-cadherin inactivated MMECs in mammary gland sections of 3-, 4-, and 6-month-old Wcre;Cdh1F/F;mTmG female mice and age-matched WCre;mTmG control mice (n = 3). Scale bar, 20 µm. f Examination of E-cadherin expression in mammary gland sections of 3-month-old Wcre;Cdh1F/F;mTmG female mice and age-matched Wcre;mTmG control mice by IF analysis of GFP, E-cadherin, CK14, and Hoechst. Asterisk indicates area of zoom. Scale bar, 50 µm. g Quantification of the amount of extruded GFP-positive cells in 3-month-old Wcre;Cdh1F/F;mTmG (n = 3) female mice and age-matched Wcre;mTmG (n = 3) control mice. Data are of nine images per group. h Quantification of the average size of extruded GFP-positive cell clusters in the mammary glands of Wcre;Cdh1F/F;mTmG mice at the ages of 3, 5, and 12 months. Data are of three mice per time point and 10 images per mouse. All data are depicted as mean ± standard deviation. All p values were calculated using an unpaired two tailed t-test. Source data are provided as a Source Data file

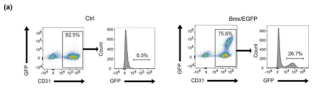


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Flow Cytometry - Anti-GFP antibody (ab6556)

GFP Flow Cytometry staining using rabbit Anti-GFP antibody

GFP flow cytometry using Anti-GFP antibody ab6556. Publication image and figure legend from Nakagawa, A., Naito, A. T., et al., 2016, Sci Rep, PubMed: 27146149.

Inducible activation of Wnt/β-catenin signaling in arterial ECs.(a) Flow cytometric analysis of ECs. ECs were collected from the heart of Bmx-CreERT2 mice (Ctrl) or from Bmx-CreERT2 crossed with CAG-CAT-EGFP mice (Bmx/EGFP) 1 week after the TAM treatment. (b) Immunofluorescent staining of cardiac tissue for GFP (red), CD31 (green), and TO-PRO-3 (blue). Scale bars: 20 µm. (c, d, e) Genotyping PCR (c), western blot (d) and quantitative RT-PCR analysis (e) of cardiac ECs isolated from Ctrl (Bmx-CreERT2 with Ctnnb1+/+) mice (Ctrl ECs) and Bmx/CA mice (Bmx/CA ECs). (c) Floxed allelle of β-catenin (=500 bp) was detected in Bmx/CA ECs but not in Ctrl ECs. (d) β-catenin protein lacking exon3 (=75 kDa) was detected in Bmx/CA ECs but not in Ctrl ECs. (e) Expression levels of Wnt/β-catenin signaling target genes (Axin2 and Lef1) were higher in Bmx/CA ECs compared with Ctrl ECs. **p < < 0.01.

F

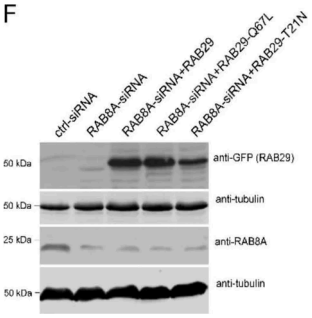


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Western blot - Anti-GFP antibody (ab6556)

GFP Western blot staining using rabbit Anti-GFP antibody

GFP western blotting using Anti-GFP antibody ab6556. Publication image and figure legend from Rivero-Ríos, P., Romo-Lozano, M., et al., 2020, Cells PubMed 32709066.

Deficits in EGF trafficking due to knockdown of RAB8A or RAB10 are rescued upon RAB29 expression. (A) HeLa cells were either transfected with ctrl-siRNA or RAB10-siRNA, and cotransfected with GFP-tagged RAB29 constructs as indicated, and the amount of surface-bound fluorescent EGF quantified. N = 3 independent experiments; * p < < 0.05. (B) Cells were transfected with ctrl-siRNA or RAB10-siRNA, and cotransfected with GFP-tagged RAB29 constructs as indicated, and internalized fluorescent EGF was quantified at 10 min (left) and 30 min (right). N = 3 independent experiments; *** p < < 0.005; **** p < < 0.001. (C) Cells were either transfected with ctrl-siRNA or RAB10-siRNA, and transfected with GFP-tagged RAB29 constructs as indicated, and cell extracts (30 µg) were analyzed by Western blotting for GFP-RAB29 levels, endogenous RAB10 levels, and GAPDH as loading control. (D) HeLa cells were either transfected with ctrl-siRNA or RAB8A-siRNA, and cotransfected with GFP-tagged RAB29 constructs as indicated, and the amount of surface-bound fluorescent EGF was quantified. N = 3 independent experiments; * p < < 0.05. (E) Cells were transfected with ctrl-siRNA or RAB8A-siRNA, and cotransfected with GFP-tagged RAB29 constructs as indicated, and internalized fluorescent EGF was quantified at 10 min (left) and 30 min (right). N = 3 independent experiments; * p < < 0.05; ** p < < 0.01; *** p < < 0.005. (F) Cells were either transfected with ctrl-siRNA or RAB8A-siRNA, and transfected with GFP-tagged RAB29 constructs as indicated, and cell extracts (30 µg) were analyzed by Western blotting for GFP-RAB29 levels, endogenous RAB8A levels, and tubulin as loading control.

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