abcam

ab302677

Anti-Glucocorticoid receptor antibody [41/Glucocorticoid Receptor]

Recombinant | KO Validated

Key facts

Isotype	IgG1
Host species	Mouse
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	41-Glucocorticoid Receptor
Purification technique	Affinity purification Protein A
Concentration	0.899 - 1.017 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Human
Dilution info	1/1000
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/500
Notes	Perform heat-mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

Not recommended

Species	Mouse
Dilution info	-
Notes	Perform heat-mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

Species	Rat
Dilution info	-
Notes	Perform heat-mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.

ICC/IF

Tested

Species	Human
Dilution info	1/50
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

IP

Not recommended

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/8990
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

Target data

See full target information NR3C1

Function

Receptor for glucocorticoids (GC) (PubMed:27120390, PubMed:37478846). Has a dual mode of action: as a transcription factor that binds to glucocorticoid response elements (GRE), both for nuclear and mitochondrial DNA, and as a modulator of other transcription factors (PubMed:28139699). Affects inflammatory responses, cellular proliferation and differentiation in target tissues. Involved in chromatin remodeling (PubMed:9590696). Plays a role in rapid mRNA degradation by binding to the 5' UTR of target mRNAs and interacting with PNRC2 in a ligand-dependent manner which recruits the RNA helicase UPF1 and the mRNA-decapping enzyme DCP1A, leading to RNA decay (PubMed:25775514). Could act as a coactivator for STAT5-dependent transcription upon growth hormone (GH) stimulation and could

reveal an essential role of hepatic GR in the control of body growth (By similarity). Isoform Alpha. Has transcriptional activation and repression activity (PubMed:11435610, PubMed:15769988, PubMed:15866175, PubMed:17635946, PubMed:19141540, PubMed:19248771, PubMed:20484466, PubMed:21664385, PubMed:23820903). Mediates glucocorticoid-induced apoptosis (PubMed:23303127). Promotes accurate chromosome segregation during mitosis (PubMed:25847991). May act as a tumor suppressor (PubMed:25847991). May play a negative role in adipogenesis through the regulation of lipolytic and antilipogenic gene expression (By similarity). Isoform Beta. Acts as a dominant negative inhibitor of isoform Alpha (PubMed:20484466, PubMed:7769088, PubMed:8621628). Has intrinsic transcriptional activity independent of isoform Alpha when both isoforms are coexpressed (PubMed:19248771, PubMed:26711253). Loses this transcription modulator function on its own (PubMed:20484466). Has no hormone-binding activity (PubMed:8621628). May play a role in controlling glucose metabolism by maintaining insulin sensitivity (By similarity). Reduces hepatic gluconeogenesis through down-regulation of PEPCK in an isoform Alpha-dependent manner (PubMed:26711253). Directly regulates STAT1 expression in isoform Alpha-independent manner (PubMed:26711253). Isoform Alpha-2. Has lower transcriptional activation activity than isoform Alpha. Exerts a dominant negative effect on isoform Alpha trans-repression mechanism (PubMed:20484466). Isoform GR-P. Increases activity of isoform Alpha. Isoform Alpha-B. More effective than isoform Alpha in transcriptional activation, but not repression activity. Isoform 10. Has transcriptional activation activity. Isoform Alpha-C1. Has transcriptional activation activity. Isoform Alpha-C2. Has transcriptional activation activity. Isoform Alpha-C3. Has highest transcriptional activation activity of all isoforms created by alternative initiation (PubMed:15866175, PubMed:23820903). Has transcriptional repression activity (PubMed:23303127). Mediates glucocorticoid-induced apoptosis (PubMed:23303127, PubMed:23820903). Isoform Alpha-D1. Has transcriptional activation activity. Isoform Alpha-D2. Has transcriptional activation activity. Isoform Alpha-D3. Has lowest transcriptional activation activity of all isoforms created by alternative initiation (PubMed:15866175, PubMed:23820903). Has transcriptional repression activity (PubMed:23303127).

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

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.

Want a custom formulation?
This antibody clone is manufactured by Abcam. If you require a custom buffer formulation or conjugation for your experiments, please contact orders@abcam.com

Supplementary info

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

Activity summary	The glucocorticoid receptor (GR) also known as the cortisol receptor is a type of nuclear receptor that functions as a transcription factor. This receptor has a molecular mass of approximately 97 kDa. GR is expressed in various tissues including the liver lung and immune cells. Its mechanical action involves binding to glucocorticoids—hormones like cortisol—which can regulate DNA transcription. When activated the receptor translocates into the cell nucleus where it can directly interact with DNA to regulate gene expression.
Biological function summary	The glucocorticoid receptor plays a significant role in mediating the physiological effects of glucocorticoids. It controls processes like inflammation and immune response. The receptor is part of a larger receptor complex enhancing its effectiveness in gene regulation. It modulates expression levels of diverse genes involved in metabolism immune functionality and cellular growth. GR's regulatory actions make it contextual within various biological processes impacting cellular behavior extensively.
Pathways	The glucocorticoid receptor integrates into significant signaling networks like the hypothalamic-pituitary-adrenal (HPA) axis and the inflammatory response pathway. This receptor coordinates with other proteins to control stress responses and inflammatory signals. In the HPA axis GR helps regulate cortisol levels and counteracts inflammatory cytokines. Its interaction with other receptors and transcription factors exemplifies its role in essential pathways that maintain homeostasis and stress adaptation within the organism.
Associated diseases and disorders	Abnormal glucocorticoid receptor function links to conditions like Cushing's syndrome and glucocorticoid resistance. Cushing's syndrome characterized by excessive cortisol levels shows altered GR signaling. Similarly glucocorticoid resistance involves mutations or dysfunctions in GR that lead to improper hormone action affecting inflammation and immune responses. These diseases often involve other proteins such as various cytokines in the inflammatory response showing the broad impact of GR in disease processes.

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

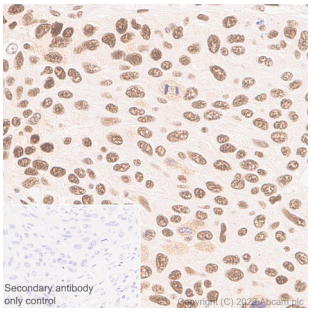
We do not recommend this combination. It is not covered by our product promise.

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.

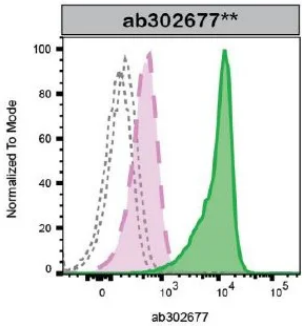
Full details and terms and conditions can be found here:
Terms & Conditions.

7 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Glucocorticoid receptor antibody [41/Glucocorticoid Receptor] (ab302677)

Immunohistochemical analysis of paraffin-embedded human cervical cancer tissue labeling Glucocorticoid receptor with ab302677 at 1/500 dilution (1.798 µg/ml) followed by ready to use LeicaDS9800 (Bond® Polymer Refine Detection). Positive staining on human cervical cancer is observed. The section was incubated with ab302677 for 30 mins at room temperature, followed by anti-mouse IgG1 antibody (ab125913) for 8 mins during the LeicaDS9800 kit staining procedure. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with Hematoxylin. Secondary antibody only control: Secondary antibody is ready to use LeicaDS9800 (Bond® Polymer Refine Detection) was used. Heat mediated antigen retrieval with Citrate buffer (pH 6.0, epitope retrieval solution 1) for 20 mins.



Flow Cytometry (Intracellular) - Anti-Glucocorticoid receptor antibody [41/Glucocorticoid Receptor] (ab302677)

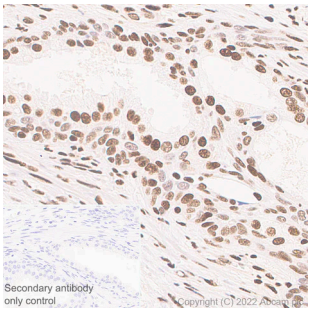
Glucocorticoid receptor Flow Cytometry (Intracellular) staining using mouse Anti-Glucocorticoid receptor antibody

A549 wild-type and Glucocorticoid receptor knockout cells were labelled with a green or violet, fluorescent dye, respectively. Wild-type and knockout cells were mixed in a 1:1 ratio, fixed in 4% PFA and permeabilized in 0.1% Triton X-100.

Antibody staining was quantified using the Attune NxT Flow Cytometer with representative images showing the staining intensity in the knockout population (pink histogram, dashed line) compared to the wild-type cells (green histogram, solid line). Histograms with dotted lines represent secondary antibody-only controls in both wild-type and knockout cells.

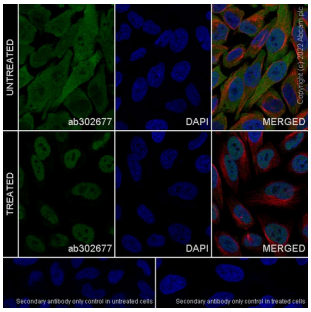
Antibody dilution: 1/8990

This data was provided by YCharOS Inc., an open science company with the mission of characterizing commercially available antibody reagents for all human proteins. Abcam and YCharOS are working together to help address the reproducibility crisis by enabling the life science community to better evaluate commercially available antibodies.



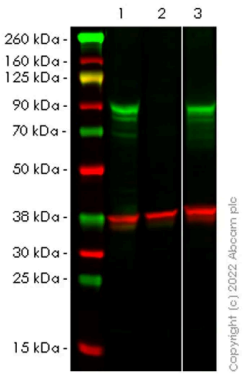
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Glucocorticoid receptor antibody [41/Glucocorticoid Receptor] (ab302677)

Immunohistochemical analysis of paraffin-embedded human prostatic hyperplasia tissue labeling Glucocorticoid receptor with ab302677 at 1/500 dilution (1.798 µg/ml) followed by ready to use LeicaDS9800 (Bond® Polymer Refine Detection). Positive staining on human prostatic hyperplasia is observed. The section was incubated with ab302677 for 30 mins at room temperature, followed by anti-mouse IgG1 antibody (ab125913) for 8 mins during the LeicaDS9800 kit staining procedure. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with Hematoxylin. Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond® Polymer Refine Detection). Heat mediated antigen retrieval with Citrate buffer (pH 6.0, epitope retrieval solution 1) for 20 mins.



Immunocytochemistry/ Immunofluorescence - Anti-Glucocorticoid receptor antibody [41/Glucocorticoid Receptor] (ab302677)

Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized HeLa (human cervix adenocarcinoma epithelial cell) cells labeling Glucocorticoid receptor with ab302677 at 1/50 dilution (17.98 µg/mL), followed by ab150117 Goat Anti-Mouse IgG H&L (Alexa Fluor® 488) preadsorbed antibody at 1/1000 dilution (2 µg/mL) (Green). Confocal image showing all the signal translocated from cytoplasm into nucleus in HeLa cells treated with dexamethasone (1 µM) for 20 min. Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8). ab202272 Recombinant Alexa Fluor® 594 Anti-alpha Tubulin antibody [EP1332Y] - Microtubule Marker (ab202272) was used to counterstain tubulin at 1/50 dilution (10 µg/mL) (Red). The nuclear counterstain was DAPI (Blue). Secondary antibody only control: Secondary antibody is ab150117 Goat Anti-Mouse IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1000 dilution (2 µg/mL).



Western blot - Anti-Glucocorticoid receptor antibody [41/Glucocorticoid Receptor] (ab302677)

Glucocorticoid receptor Western blot staining using mouse Anti-Glucocorticoid receptor antibody

Blocking and diluting buffer and concentration: Intercept® (TBS) Blocking Buffer diluted with an equal volume of 0.1% TBS. Lysates at 20 µg per lane. False colour image of Western blot: Anti-Glucocorticoid receptor antibody [41/Glucocorticoid Receptor] (ab302677 staining at 1/1000 dilution, shown in green; Rabbit anti-GAPDH antibody 16891 loading control staining at 1/20000 dilution, shown in red. In Western blot, ab302677 was shown to bind specifically to NR3C1. A band was observed at 94 kDa in wild-type HeLa cell lysates with no signal observed at this size in the NR3C1 knockout cell line. To generate this image, wild-type and NR3C1 knockout HeLa cell lysates were analysed. First, samples were run on an SDS-PAGE gel then transferred onto a PVDF-FL membrane. Membranes were blocked in Odyssey diluted in equal volume of 0.1 % TBS before incubation with primary antibodies overnight at 4°C. Blots were washed four times in TBS-T, incubated with secondary antibodies for 1 h at room temperature, washed again four times then imaged. Secondary antibodies used were Goat Anti-Mouse IgG H&L (IRDye® 800CW) (ab216772) and Goat Anti-Rabbit IgG H&L (IRDye® 680RD) (ab216777) at 1/10000 dilution. Performed under reducing conditions.
All lanes:
Western blot - Anti-Glucocorticoid receptor antibody [41/Glucocorticoid Receptor] (ab302677) at 1/1000 dilution

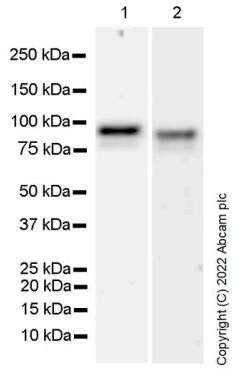
All lanes:
H9 (human lymphoma T lymphocyte), whole cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat anti-Mouse IgG H&L (IRDye® 800CW) preadsorbed (ab216772) at 1/10000 dilution

Performed under reducing conditions.

Observed band size: 94 kDa



Western blot - Anti-Glucocorticoid receptor antibody [41/Glucocorticoid Receptor] (ab302677)

Blocking and diluting buffer and concentration: 5% NFDM/TBST. The blot of lane 2 was developed using a high sensitivity ECL substrate. Exposure time: lane 1: 46 seconds; Lane 2: 37 seconds.
All lanes:
Western blot - Anti-Glucocorticoid receptor antibody [41/Glucocorticoid Receptor] (ab302677) at 1/1000 dilution

Lane 1:
HeLa (human epithelial cell line from cervical adenocarcinoma), whole cell lysate at 20 µg

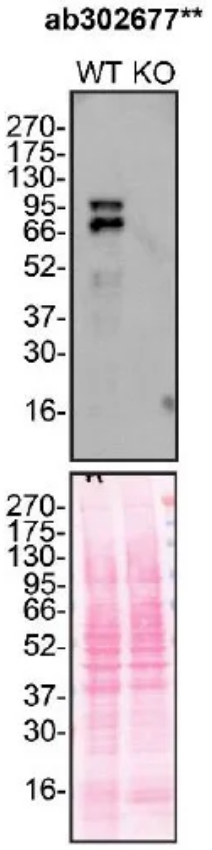
Lane 2:
293T (human embryonic kidney epithelial cell) whole cell lysate at 20 µg

Secondary

All lanes:
Peroxidase-Conjugated Goat anti-Mouse IgG (H+L) (ZB-2305) at 1/10000 dilution

Developed using the ECL technique.

Observed band size: 94 kDa



Western blot - Anti-Glucocorticoid receptor antibody [41/Glucocorticoid Receptor] (ab302677)

Glucocorticoid receptor Western blot staining using mouse Anti-Glucocorticoid receptor antibody

ab302677 was shown to react with NR3C1 in wild-type A549 cells in Western blot with loss of signal observed in a NR3C1 knockout cell line. Wild-type A549 and NR3C1 knockout cell lysates were subjected to SDS-PAGE. Membranes were blocked in 5% milk in TBST for 1 hr before incubation with ab302677 overnight at 4 °C at a 1/1000 dilution. Blots were incubated with secondary antibodies at 0.2 µg/mL before imaging.

This data was provided by YCharOS Inc., an open science company with the mission of characterizing commercially available antibody reagents for all human proteins. Abcam and YCharOS are working together to help address the reproducibility crisis by enabling the life science community to better evaluate commercially available antibodies.
All lanes:
Western blot - Anti-Glucocorticoid receptor antibody [41/Glucocorticoid Receptor] (ab302677) at 1/1000 dilution

Lane 1:
Wild-type A549 lysate at 30 µg

Lane 2:
Western blot - Human MMP7 knockout A549 cell line (ab328858) at 30 µg

Observed band size: 94 kDa, 67 kDa

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