abcam

ab246696

Anti-IFNGR1 antibody [EPR7866] - Low endotoxin, Azide free

Recombinant | RabMAb | KO Validated

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	EPR7866
Purification technique	Affinity purification Protein A
Dissociation constant	1.2 x 10^{-11} M
Concentration	1.072 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →
Purification notes	Endotoxin level is less than 1 EU/ml as determined by the TAL test.

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	-
Notes	-

IP

Not recommended

Species	Human
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	ab199376 - Rabbit monoclonal IgG (Low endotoxin, Azide free), is suitable for use as an isotype control with this antibody.

Target data

See full target information IFNGR1

Function	Receptor subunit for interferon gamma/INFG that plays crucial roles in antimicrobial, antiviral, and antitumor responses by activating effector immune cells and enhancing antigen presentation (PubMed:20015550). Associates with transmembrane accessory factor IFNGR2 to form a functional receptor (PubMed:10986460, PubMed:2971451, PubMed:7615558, PubMed:7617032, PubMed:7673114). Upon ligand binding, the intracellular domain of IFNGR1 opens out to allow association of downstream signaling components JAK1 and JAK2. In turn, activated JAK1 phosphorylates IFNGR1 to form a docking site for STAT1. Subsequent phosphorylation of STAT1 leads to dimerization, translocation to the nucleus, and stimulation of target gene transcription (PubMed:28883123). STAT3 can also be activated in a similar manner although activation seems weaker. IFNGR1 intracellular domain phosphorylation also provides a docking site for SOCS1 that regulates the JAK-STAT pathway by competing with STAT1 binding to IFNGR1 (By similarity).

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

ab246696 is the carrier-free version of ab134070.

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.

What does low endotoxin mean?
Our low endotoxin, azide-free formats have low endotoxin level (1 EU/mg, determined by the TAL assay) and are free from azide, to achieve consistent experimental results in functional assays.

Supplementary info

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

Activity summary	The IFNGR1 protein also known as Interferon Gamma Receptor 1 is an integral component of the cell surface receptor for interferon-gamma (IFN-γ). It possesses a mass of approximately 53 kDa. IFNGR1 is expressed in various cell types including immune cells such as T cells and macrophages and is also present in other cell lines like HEK 293. This receptor binds to its specific ligand IFN-γ initiating a series of intracellular events that are essential for immune response modulation.
Biological function summary	IFNGR1 functions as part of the interferon-gamma receptor complex working alongside the IFNGR2 subunit. This interaction with IFNGR2 is important for the receptor to properly transmit signals inside the cell. The binding of interferon-gamma to this receptor complex activates the JAK-STAT signaling pathway promoting the transcription of genes that enhance the antimicrobial activity of immune cells and regulate cellular immunity.
Pathways	The IFNGR1 protein plays an important role in the JAK-STAT signaling pathway which is critical for mediating responses to interferon-gamma. Upon activation by IFN-γ IFNGR1 recruits JAK kinases leading to the phosphorylation of STAT1 a significant transcription factor. STAT1 then dimerizes and translocates to the nucleus where it induces the expression of genes involved in immune defense and inflammation. This process is vital for the body's ability to handle infections and other immunological challenges.
Associated diseases and disorders	IFNGR1 is associated with susceptibility to infections and certain immune-related disorders. Mutations or deficiencies in IFNGR1 can lead to Mendelian Susceptibility to Mycobacterial Disease (MSMD) where individuals show increased vulnerability to mycobacterial infections. Additionally improper signaling through IFNGR1 is linked to chronic granulomatous disease which can involve defective functioning of the NADPH oxidase complex. Understanding IFNGR1's function and interactions is important for exploring new therapeutic strategies for these disorders.

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.

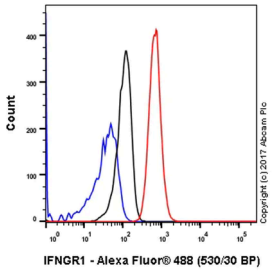
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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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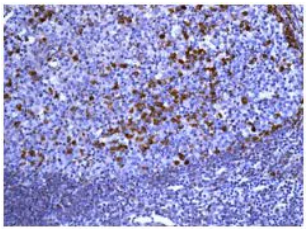
6 product images



Flow Cytometry (Intracellular) - Anti-IFNGR1 antibody [EPR7866] - Low endotoxin, Azide free (ab246696)

IFNGR1 Flow Cytometry (Intracellular) staining using rabbit Anti-IFNGR1 antibody

Intracellular Flow Cytometry analysis of HeLa (human cervix adenocarcinoma) cells labeling IFNGR1 (red) with ab134070 at a 1/1000 dilution. Cells were fixed with 80% methanol and permeabilized with 0.1% Tween-20. A goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) was used as the secondary antibody at a 1/2000 dilution. Black - Rabbit monoclonal IgG (ab172730). Blue (unlabeled control) - Cells without incubation with the 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 (ab134070).

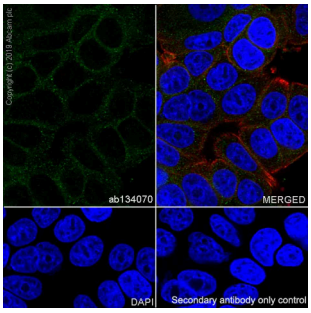


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-IFNGR1 antibody [EPR7866] - Low endotoxin, Azide free (ab246696)

IFNGR1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-IFNGR1 antibody

Immunohistochemical analysis of paraffin-embedded Human tonsil tissue labelling IFNGR1 with ab134070 at 1/100 dilution.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab134070).

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

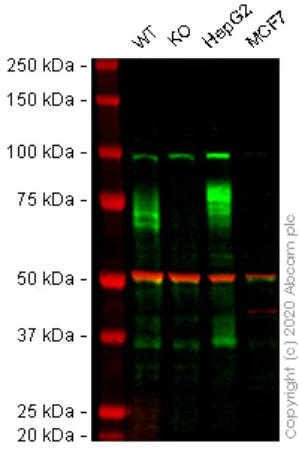


Immunocytochemistry/ Immunofluorescence - Anti-IFNGR1 antibody [EPR7866] - Low endotoxin, Azide free (ab246696)

IFNGR1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-IFNGR1 antibody

Immunocytochemistry/ Immunofluorescence analysis of MCF7 (human breast adenocarcinoma epithelial cell) cells labeling IFNGR1 with purified ab134070 at 1/100 dilution (10 µg/mL). Cells were fixed in 4% Paraformaldehyde and permeabilized with 0.1% tritonX-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 (2 µg/mL) dilution. DAPI (blue) was used as nuclear counterstain. ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) 1/200 (2.5 µg/mL) was used as the secondary antibody only control.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab134070).



Western blot - Anti-IFNGR1 antibody [EPR7866] - Low endotoxin, Azide free (ab246696)

IFNGR1 Western blot staining using rabbit Anti-IFNGR1 antibody

This data was developed using the same antibody clone in a different buffer formulation (ab134070).
Lanes 1 - 4: Merged signal (red and green). Green - ab134070 observed at 60-80 kDa. Red - loading control ab7291 (Mouse anti-Alpha Tubulin [DM1A] observed at 55kDa.

ab134070 was shown to react with IFNGR1 in wild-type HEK-293 cells in western blot with loss of signal observed in IFNGR1 knockout sample. Wild-type and IFNGR1 knockout HEK-293 cell lysates were subjected to SDS-PAGE. Membranes were blocked in 3% milk in TBS-T (0.1% Tween®) before incubation with ab134070 and ab7291 (Mouse anti-Alpha Tubulin [DM1A] overnight at 4°C at a 1 in 1000 Dilution and a 1 in 20000 dilution respectively. Blots were incubated with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preabsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preabsorbed (ab216776) secondary antibodies at 1 in 20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-IFNGR1 antibody [EPR7866] (ab134070) at 1/1000 dilution

Lane 1:
Wild-type HEK-293 (Human epithelial cell line from embryonic kidney) whole cell lysate at 20 µg

Lane 2:
IFNGR1 knockout HEK-293 (Human epithelial cell line from embryonic kidney) whole cell lysate at 20 µg

Lane 2:
Western blot - Human IFNGR1 knockout HEK-293 cell line (ab269471)

Lane 3:

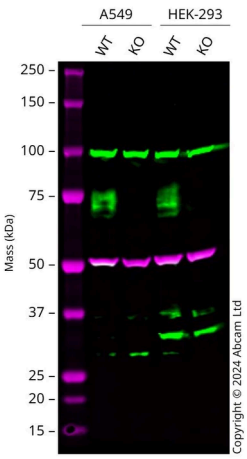
Hep G2 (Human liver hepatocellular carcinoma cell line) whole cell lysate at 20 µg

Lane 4:
MCF7 (Human breast adenocarcinoma cell line) whole cell lysate at 20 µg

Performed under reducing conditions.

Predicted band size: 54 kDa

Observed band size: 60-80 kDa



Western blot - Anti-IFNGR1 antibody [EPR7866] - Low endotoxin, Azide free (ab246696)

This data was developed using the same antibody clone in a different buffer formulation (ab134070).

Western blot: Anti-IFNGR1 antibody [EPR7866] (ab134070) staining at 1/1000 dilution, shown in green; Mouse anti-Alpha Tubulin [DM1A] (ab7291) loading control staining at 1/20000 dilution, shown in magenta. In Western blot, ab134070 was shown to bind specifically to IFNGR1. A band was observed at 70-75 kDa in wild-type A549 cell lysates with no signal observed at this size in IFNGR1 knockout cell line. To generate this image, wild-type and IFNGR1 knockout A549 cell lysates were analysed. First, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 3 % milk in TBS-0.1 % Tween® 20 (TBS-T) 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-Rabbit IgG H&L 800CW and Goat anti-Mouse IgG H&L 680RD at 1/20000 dilution.
All lanes:
Western blot - Anti-IFNGR1 antibody [EPR7866] (ab134070) at 1/1000 dilution

Lane 1:
Wild-type A549 cell lysate at 20 µg

Lane 2:
IFNGR1 knockout A549 cell lysate at 20 µg

Lane 2:
Western blot - Human IFNGR1 knockout A549 cell line (ab287503)

Lane 3:
Wild-type HEK-293 ab259780 cell lysate at 20 µg

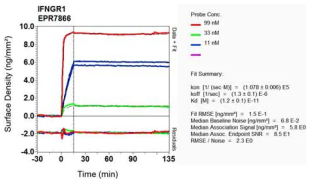
Lane 4:
IGNGR1 knockout HEK-293 ab269471 cell lysate at 20 µg

Secondary

All lanes:
Goat anti-Rabbit IgG H&L 800CW and Goat anti-Mouse IgG H&L 680RD at 1/20000 dilution

Performed under reducing conditions.

Observed band size: 70-75 kDa



OI-RD Scanning - Anti-IFNGR1 antibody [EPR7866] - Low endotoxin, Azide free (ab246696)

We have systematically measured KD (the equilibrium dissociation constant between the antibody and its antigen), of more than 840 recombinant antibodies to assess not only their individual KD values but also to see the average affinity of antibody. Based on the comparison with published literature values for mouse monoclonal antibodies, Recombinant antibodies appear to be on average 1-2 order of magnitude higher affinity.

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