abcam

ab246702

Anti-IGF1 Receptor antibody [EPR19322] - 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	EPR19322
Purification technique	Affinity purification Protein A
Concentration	0.996 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

IP

Tested

Species	Mouse

Dilution info	-
Notes	-

Expected

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

WB

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

ICC/IF

Tested

Species	Mouse, Rat
Dilution info	-
Notes	-

Expected

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

Flow Cyt

Tested

Species	Mouse
Dilution info	-
Notes	-

Expected

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

Target data

See full target information IGF1R

Function

Receptor tyrosine kinase which mediates actions of insulin-like growth factor 1 (IGF1). Binds IGF1 with high affinity and IGF2 and insulin (INS) with a lower affinity. The activated IGF1R is involved in cell growth and survival control. IGF1R is crucial for tumor transformation and survival of malignant cell. Ligand binding activates the receptor kinase, leading to receptor autophosphorylation, and tyrosines phosphorylation of multiple substrates, that function as signaling adapter proteins including, the insulin-receptor substrates (IRS1/2), Shc and 14-3-3 proteins. Phosphorylation of IRSs proteins lead to the activation of two main signaling pathways: the PI3K-AKT/PKB pathway and the Ras-MAPK pathway. The result of activating the MAPK pathway is increased cellular proliferation, whereas activating the PI3K pathway inhibits apoptosis and stimulates protein synthesis. Phosphorylated IRS1 can activate the 85 kDa regulatory subunit of PI3K (PIK3R1), leading to activation of several downstream substrates, including protein AKT/PKB. AKT phosphorylation, in turn, enhances protein synthesis through mTOR activation and triggers the antiapoptotic effects of IGFIR through phosphorylation and inactivation of BAD. In parallel to PI3K-driven signaling, recruitment of Grb2/SOS by phosphorylated IRS1 or Shc leads to recruitment of Ras and activation of the ras-MAPK pathway. In addition to these two main signaling pathways IGF1R signals also through the Janus kinase/signal transducer and activator of transcription pathway (JAK/STAT). Phosphorylation of JAK proteins can lead to phosphorylation/activation of signal transducers and activators of transcription (STAT) proteins. In particular activation of STAT3, may be essential for the transforming activity of IGF1R. The JAK/STAT pathway activates gene transcription and may be responsible for the transforming activity. JNK kinases can also be activated by the IGF1R. IGF1 exerts inhibiting activities on JNK activation via phosphorylation and inhibition of MAP3K5/ASK1, which is able to directly associate with the IGF1R. When present in a hybrid receptor with INSR, binds IGF1. PubMed:12138094 shows that hybrid receptors composed of IGF1R and INSR

isoform Long are activated with a high affinity by IGF1, with low affinity by IGF2 and not significantly activated by insulin, and that hybrid receptors composed of IGF1R and INSR isoform Short are activated by IGF1, IGF2 and insulin. In contrast, PubMed:16831875 shows that hybrid receptors composed of IGF1R and INSR isoform Long and hybrid receptors composed of IGF1R and INSR isoform Short have similar binding characteristics, both bind IGF1 and have a low affinity for insulin.

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

ab246702 is the carrier-free version of ab182408.

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 IGF1 Receptor often referred to as IGF-1R is a transmembrane receptor protein composed of alpha and beta subunits. Studies indicate that the IGF1R protein is involved in mediating the effects of insulin-like growth factor 1 (IGF-1) and plays an important role in cellular signaling. It has a molecular weight of approximately 180 kDa and is widely expressed in various tissues with high concentrations in the liver muscle and brain. Being a tyrosine kinase receptor IGF1R plays an essential role in growth and metabolism.
Biological function summary	IGF1R contributes to several cellular processes including cell proliferation differentiation and survival. This receptor forms a complex upon ligand binding and undergoes autophosphorylation to activate intracellular signaling cascades. IGF1R activation recruits and phosphorylates insulin receptor substrates enabling the downstream signaling pathways that promote cell growth and survival. Its function in cellular responses makes it a focal point in understanding cell biology.
Pathways	IGF1R holds a central position in the PI3K/AKT and MAPK signaling cascades. These pathways play significant roles in cellular growth proliferation and survival. IGF1R phosphorylates various downstream effectors such as IRS-1 and Shc linking it to the activation of AKT and ERK respectively. Therefore it shares pathways with related proteins like the insulin receptor highlighting its importance in mediating similar biological responses.
Associated diseases and disorders	IGF1R has been implicated in cancers and diabetes. Overexpression of IGF1R has been observed in various malignancies including breast cancer where it relates to resistance in treatment and poor prognosis with cell lines like MCF-7 often being studied in this context. Additionally disruptions in IGF1R signaling link to insulin resistance an important feature of type 2 diabetes. These connections make IGF1R a potential therapeutic target with IGF1R inhibitors currently under exploration to address these health challenges.

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.

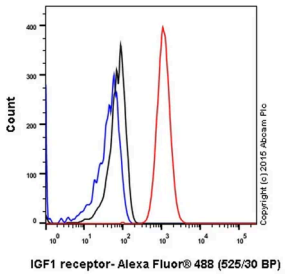
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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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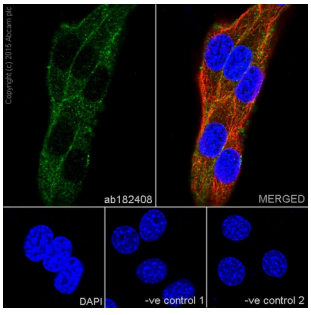
6 product images



Flow Cytometry - Anti-IGF1 Receptor antibody [EPR19322] - Low endotoxin, Azide free (ab246702)

IGF1 Receptor Flow Cytometry staining using rabbit Anti-IGF1 Receptor antibody

Flow cytometric analysis ofC2C12 (Mouse myoblast cell line) cells labeling IGF1 Receptor with ab182408 at 1/80 dilution (red) compared with a Rabbit IgG, monoclonal [EPR25A] - Isotype Control (ab172730) (black) and an unlabeled control (cells without incubation with primary antibody and secondary antibody) (blue). Goat anti Rabbit IgG (Alexa Fluor® 488) at 1/500 dilution was used as the secondary antibody. Gated on viable cells.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol and sodium azide (ab182408).



Immunocytochemistry/ Immunofluorescence - Anti-IGF1 Receptor antibody [EPR19322] - Low endotoxin, Azide free (ab246702)

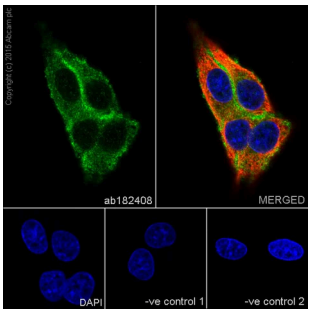
IGF1 Receptor Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-IGF1 Receptor antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized C2C12 (Mouse myoblast cell line) cells labeling IGF1 Receptor with ab182408 at 1/1000 dilution, followed by Goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing membranous and cytoplasmic staining on C2C12 cell line. The nuclear counterstain is DAPI (blue).
Tubulin is detected with Anti-alpha Tubulin antibody [DM1A] - Loading Control (ab7291) at 1/1000 dilution and Goat Anti-Mouse IgG H&L (Alexa Fluor® 594) preadsorbed (ab150120) at 1/1000 dilution (red).

The negative controls are as follows:

-ve control 1: ab182408 at 1/1000 dilution followed by ab150120 at 1/1000 dilution.
-ve control 2: ab7291 at 1/1000 dilution followed by ab150077 at 1/1000 dilution.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol and sodium azide (ab182408).



Immunocytochemistry/ Immunofluorescence - Anti-IGF1 Receptor antibody [EPR19322] - Low endotoxin, Azide free (ab246702)

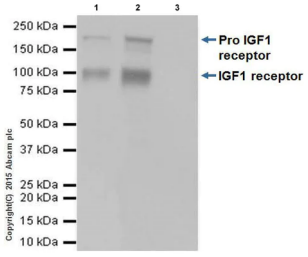
IGF1 Receptor Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-IGF1 Receptor antibody

Immunofluorescent analysis of 4% paraformaldehyde-fixed, 0.1% Triton X-100 permeabilized C6 (Rat glial tumor cell line) cells labeling IGF1 Receptor with ab182408 at 1/1000 dilution, followed by Goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing membranous and cytoplasmic staining on C6 cell line. The nuclear counterstain is DAPI (blue).
Tubulin is detected with Anti-alpha Tubulin antibody [DM1A] - Loading Control (ab7291) at 1/1000 dilution and Goat Anti-Mouse IgG H&L (Alexa Fluor® 594) preadsorbed (ab150120) at 1/1000 dilution (red).

The negative controls are as follows:

-ve control 1: ab182408 at 1/1000 dilution followed by ab150120 at 1/1000 dilution.
-ve control 2: ab7291 at 1/1000 dilution followed by ab150077 at 1/1000 dilution.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol and sodium azide (ab182408).



Immunoprecipitation - Anti-IGF1 Receptor antibody [EPR19322] - Low endotoxin, Azide free (ab246702)

IGF1 Receptor was immunoprecipitated from 1mg of C2C12 (Mouse myoblast cell line) whole cell lysate with ab182408 at 1/50 dilution. Western blot was performed from the immunoprecipitate using ab182408 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP) (ab131366), was used for detection at 1/10000 dilution.
Lane 1: C2C12 whole cell lysate, 10µg (Input).

Lane 2: ab182408 IP in C2C12 whole cell lysate.

Lane 3: Rabbit IgG,monoclonal [EPR25A] - Isotype Control (ab172730) instead of ab182408 in C2C12 whole cell lysate.

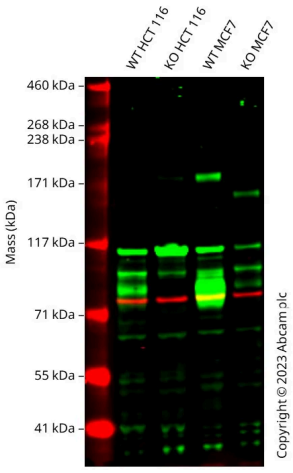
Blocking and dilution buffer and concentration: 5% NFDM/TBST.

Exposure time: 3 seconds.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol and sodium azide (ab182408).

All lanes:
Immunoprecipitation - Anti-IGF1 Receptor antibody [EPR19322] (ab182408)

Predicted band size: 154 kDa



Western blot - Anti-IGF1 Receptor antibody [EPR19322] - Low endotoxin, Azide free (ab246702)

IGF1 Receptor Western blot staining using rabbit Anti-IGF1 Receptor antibody

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol and sodium azide (ab182408). Anti-IGF1R antibody [EPR19322] (ab182408) staining at 1/1000 dilution, shown in green; Mouse anti-CANX [CANX/1543] (ab238078) loading control staining at 1/20000 dilution, shown in red. In Western blot, ab182408 was shown to bind specifically to IGF1R. A band was observed at 82 kDa in wild-type HCT 116 cell lysates with no signal observed at this size in IGF1R knockout cell line. To generate this image, wild-type and IGF1R knockout HCT 116 cell lysates were analysed. First, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in fluorescent western blot (TBS-based) blocking solution 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-IGF1 Receptor antibody [EPR19322] (ab182408) at 1/1000 dilution

All lanes:
Western blot at 20 µg

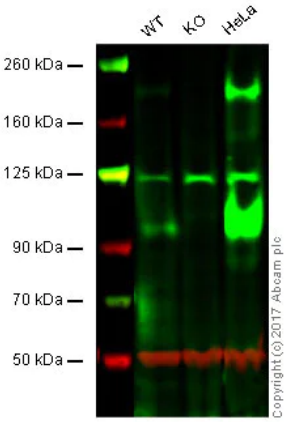
Secondary

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.

Predicted band size: 154 kDa

Observed band size: 82 kDa



Western blot - Anti-IGF1 Receptor antibody [EPR19322] - Low endotoxin, Azide free (ab246702)

IGF1 Receptor Western blot staining using rabbit Anti-IGF1 Receptor antibody

Lane 1: Wild-type HAP1 whole cell lysate (40 µg)
Lane 2: IGF1R knockout HAP1 whole cell lysate (40 µg)
Lane 3: HeLa whole cell lysate (40 µg)
Lanes 1 - 3 Merged signal (red and green). Green - ab182408 observed at 100 kDa. Red - loading control, ab8245, observed at 37 kDa.

ab182408 was shown to specifically recognize IGF1R in wild-type HAP1 cells along with additional cross-reactve bands. No band was observed when IGF1R knockout samples were examined. Wild-type and IGF1R knockout samples were subjected to SDS-PAGE. ab182408 and ab8245 (Mouse anti GAPDH loading control) were incubated overnight at 4°C at 1/2000 dilution and 1/10,000 dilution respectively. Blots were developed 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 1/10,000 dilution for 1 hour at room temperature before imaging.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol and sodium azide (ab182408).

All lanes:
Western blot - Anti-IGF1 Receptor antibody [EPR19322] (ab182408)

Predicted band size: 154 kDa

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