abcam

ab263907

Anti-IGF1 Receptor antibody [EPR23027-80]

Recombinant | RabMAb | KO Validated | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
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	EPR23027-80
Purification technique	Affinity purification Protein A
Concentration	0.518 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	1/30
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

Flow Cyt

Tested

Species	Human
Dilution info	1/500
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	1/1000
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

IHC-P

Not recommended

Species	Mouse, Rat, Human
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/100
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
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	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

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.

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

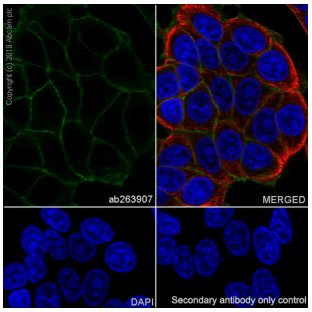
We do not recommend this combination. It is not covered by our product promise.

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.

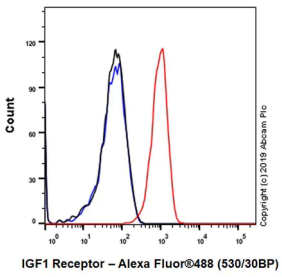
6 product images



Immunocytochemistry/ Immunofluorescence - Anti-IGF1 Receptor antibody [EPR23027-80] (ab263907)

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

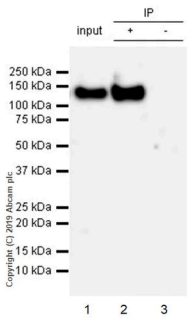
Immunofluorescent analysis of 100% Methanol-fixed MCF7 (human breast adenocarcinoma epithelial cell) cells labelling IGF1 Receptor with ab263907 at 1/100 dilution, followed by ab150077 AlexaFluor®488 Goat anti-Rabbit secondary antibody at 1/1000 dilution (Green). Confocal image showing membranous staining in MCF7 cell line. ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at1/200 dilution (Red). The Nuclear counterstain was DAPI (Blue).
Secondary antibody only control: Secondary antibody is ab150077 AlexaFluor®488 Goat anti-Rabbit secondary at 1/1000 dilution.



Flow Cytometry - Anti-IGF1 Receptor antibody [EPR23027-80] (ab263907)

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

Flow cytometric analysis MCF7 (human breast adenocarcinoma epithelial cell) cells labelling IGF1 Receptor with ab263907 at 1/500 dilution (Red) compared with a Rabbit monoclonal IgG (ab172730) / Black isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue). A Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) at 1/2000 dilution was used as the secondary antibody.
Gated on viable cells.



Immunoprecipitation - Anti-IGF1 Receptor antibody [EPR23027-80] (ab263907)

IGF1 Receptor was immunoprecipitated from 0.35 mg MCF7 (human breast adenocarcinoma epithelial cell) whole cell lysate with ab263907 at 1/30 dilution (2ug in 0.35mg lysates). Western blot was performed on the immunoprecipitate using ab263907 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP) (ab131366) was used at 1/5000 dilution.
Lane 1: MCF7 (human breast adenocarcinoma epithelial cell) whole cell lysate 10ug

Lane 2: ab263907 IP in MCF7 whole cell lysate

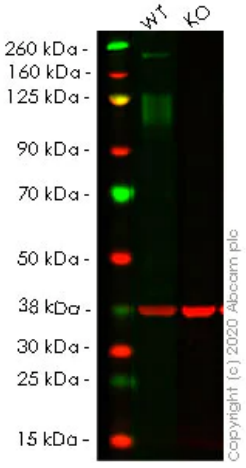
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab263907 in MCF7 whole cell lysate

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

Exposure time: 3 min.
All lanes:
Immunoprecipitation - Anti-IGF1 Receptor antibody [EPR23027-80] (ab263907)

Predicted band size: 154 kDa

Observed band size: 130 kDa



Western blot - Anti-IGF1 Receptor antibody [EPR23027-80] (ab263907)

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

Lanes 1- 2: Merged signal (red and green). Green - ab263907 observed at 100 kDa. Red - Anti-GAPDH antibody [6C5] - Loading Control (ab8245) observed at 37 kDa.
ab263907 was shown to react with IGF1 Receptor in wild-type HeLa cells in western blot. Loss of signal was observed when knockout cell line ab264801 (knockout cell lysate ab256951) was used. Wild-type HeLa and IGF1R knockout HeLa cell lysates were subjected to SDS-PAGE. Membrane was blocked for 1 hour at room temperature in 0.1% TBST with 3% non-fat dried milk. ab263907 and Anti-GAPDH antibody [6C5] - Loading Control (ab8245) overnight at 4°C at a 1 in 1000 dilution and a 1 in 20000 dilution respectively. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye®800CW) preadsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye®680RD) preadsorbed (ab216776) secondary antibodies at 1 in 20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-IGF1 Receptor antibody [EPR23027-80] (ab263907) at 1/1000 dilution

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

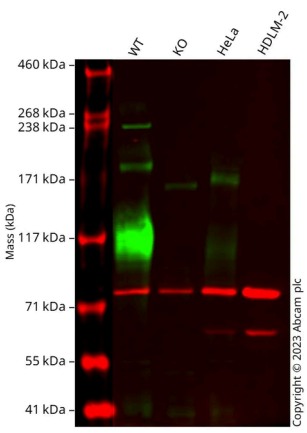
Lane 2:
IGF1R knockout HeLa cell lysate at 20 µg

Lane 2:
Western blot - Human IGF1R (IGF1 Receptor) knockout HeLa cell line (ab264801)

Performed under reducing conditions.

Predicted band size: 154 kDa

Observed band size: 100 kDa



Western blot - Anti-IGF1 Receptor antibody [EPR23027-80] (ab263907)

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

False colour image of Western blot: Anti-IGF1 Receptor antibody [EPR23027-80] 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, ab263907 was shown to bind specifically to IGF1 Receptor. A band was observed at 105-125 kDa (alpha chain) in wild-type MCF7 cell lysates with no signal observed at this size in IGF1R knockout cell line. To generate this image, wild-type and IGF1R knockout MCF7 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 [EPR23027-80] (ab263907) at 1/1000 dilution

Lane 1:
Wild-type MCF7 cell lysate at 20 µg

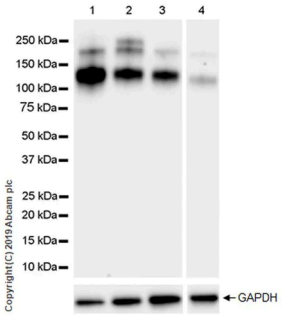
Lane 2:
IGF1R knockout MCF7 cell lysate at 20 µg

Lane 3:
HeLa cell lysate at 20 µg

Lane 4:
HDLM-2 cell lysate at 20 µg

Performed under reducing conditions.

Observed band size: 105-125 kDa



Western blot - Anti-IGF1 Receptor antibody [EPR23027-80] (ab263907)

Blocking and dilution buffer: 5% NFDM/TBST.
Exposure time: 10 seconds.

The expression profile & molecular weight observed is consistent with what has been described in the literature (PMID: 21807868, 28591735).

Note: the bands larger than 200kDa are Pro-IGF1R.

Low expression cell line: MDA-MB-231 (PMID: 28591735).

All lanes:
Western blot - Anti-IGF1 Receptor antibody [EPR23027-80] (ab263907) at 1/1000 dilution

Lane 1:
A431 (human epidermoid carcinoma epithelial cell) whole cell lysate at 20 µg

Lane 2:
HepG2 (human hepatocellular carcinoma epithelial cell) whole cell lysate at 20 µg

Lane 3:
HeLa (human cervix adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Lane 4:
MDA-MB-231 (human breast adenocarcinoma epithelial cell) whole cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 154 kDa

Observed band size: 130 kDa, 200 kDa

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