abcam

ab134101

Anti-IRS2 antibody [EPR904(2)]

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	EPR904(2)
Purification technique	Affinity purification Protein A
Concentration	0.737 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Rat
Dilution info	1/50 - 1/500
Notes	-

Species	Human

Dilution info	1/50 - 1/500
Notes	-

Expected

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

WB

Tested

Species	Mouse
Dilution info	1/1000 - 1/10000
Notes	Although some papers support the expression in liver (PMID: 30202052), A549 (PMID: 30988063), NCI-H1299 (PMID: 30988063), LADMAC (PMID: 29115630), MDA-MB-231 (PMID: 29685905) and MEF (PMID: 30679431), ab134101 can't detect the target band in these samples, even at the dilution of 1:200

Species	Rat
Dilution info	1/1000 - 1/10000
Notes	Although some papers support the expression in liver (PMID: 30202052), A549 (PMID: 30988063), NCI-H1299 (PMID: 30988063), LADMAC (PMID: 29115630), MDA-MB-231 (PMID: 29685905) and MEF (PMID: 30679431), ab134101 can't detect the target band in these samples, even at the dilution of 1:200

Species	Human
Dilution info	1/1000 - 1/10000
Notes	Although some papers support the expression in liver (PMID: 30202052), A549 (PMID: 30988063), NCI-H1299 (PMID: 30988063), LADMAC (PMID: 29115630), MDA-MB-231 (PMID: 29685905) and MEF (PMID: 30679431), ab134101 can't detect the target band in these samples, even at the dilution of 1:200

ICC/IF

Tested

Species	Human

Dilution info	1/300
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/100 - 1/1000
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

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

Target data

See full target information Insulin receptor substrate 2

Function

Signaling adapter protein that participates in the signal transduction from two prominent receptor tyrosine kinases, insulin receptor/INSR and insulin-like growth factor I receptor/IGF1R (PubMed:25879670). Plays therefore an important role in development, growth, glucose homeostasis as well as lipid metabolism (PubMed:24616100). Upon phosphorylation by the insulin receptor, functions as a signaling scaffold that propagates insulin action through binding to SH2 domain-containing proteins including the p85 regulatory subunit of PI3K, NCK1, NCK2, GRB2 or SHP2 (PubMed:15316008, PubMed:19109239). Recruitment of GRB2 leads to the activation of the guanine nucleotide exchange factor SOS1 which in turn triggers the Ras/Raf/MEK/MAPK signaling cascade (By similarity). Activation of the PI3K/AKT pathway is responsible for most of insulin metabolic effects in the cell, and the Ras/Raf/MEK/MAPK is involved in the regulation of gene expression and in cooperation with the PI3K pathway regulates cell growth and differentiation. Acts a

positive regulator of the Wnt/beta-catenin signaling pathway through suppression of DVL2 autophagy-mediated degradation leading to cell proliferation (PubMed:24616100). Plays a role in cell cycle progression by promoting a robust spindle assembly checkpoint (SAC) during M-phase (PubMed:32554797). In macrophages, IL4-induced tyrosine phosphorylation of IRS2 leads to the recruitment and activation of phosphoinositide 3-kinase (PI3K) (PubMed:19109239).

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	Stable for 12 months at -20°C

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	Insulin Receptor Substrate 2 (IRS2) is an important cytoplasmic adaptor protein involved in insulin signaling. Alternate names for IRS2 include IRS-2 or HEK293 products IRS2. It plays a role in transducing signals from the insulin receptor

	tyrosine kinase to downstream effectors. IRS2 has a molecular mass of approximately 180 kDa. Expression of IRS2 occurs in many tissues with significant presence in liver and skeletal muscle indicating its broad physiological role.
Biological function summary	IRS2 acts in signal transduction and is a part of the insulin and insulin-like growth factor signaling pathways. IRS2 does not function alone but interacts with other molecules to propagate signals that regulate cellular processes. It is essential for glucose homeostasis and lipid metabolism playing a critical role in maintaining energy balance within the organism. IRS2 also mediates other biological processes like cell growth and differentiation.
Pathways	With regards to pathways IRS2 is involved in the insulin signaling and mTOR pathways. It serves as an important junction between metabolic and growth-promoting signals. Activation of IRS2 through insulin receptors leads to downstream signaling involving PI3K and Akt essential for mediating metabolic actions of insulin. It also interacts with mTOR a central protein in cell growth regulation. These pathways illustrate the integration of IRS2 in broader cellular responses to growth signals and energy availability.
Associated diseases and disorders	IRS2 is linked to conditions like type 2 diabetes and obesity. Dysregulation of IRS2-mediated signaling can contribute to insulin resistance a characteristic feature of type 2 diabetes. In such disorders IRS2 signaling may be impaired or altered affecting its interaction with proteins like PI3K and Akt which are also implicated in these conditions. Furthermore chronic imbalance in IRS2 activity may contribute to obesity as it affects key metabolic pathways that regulate fat storage and energy expenditure.

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

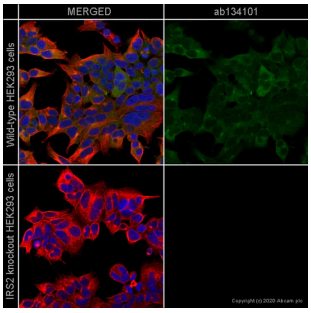
We do not recommend this combination. It is not covered by our product promise.

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.

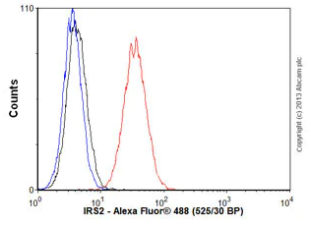
12 product images



Immunocytochemistry/ Immunofluorescence - Anti-IRS2 antibody [EPR904(2)] (ab134101)

IRS2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-IRS2 antibody

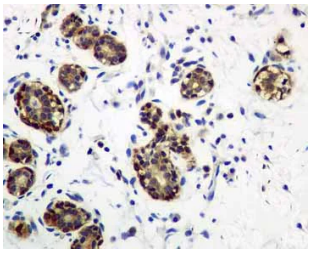
ab134101 staining IRS2 in wild-type HEK293 cells (top panel) and IRS2 knockout HEK293 cells (bottom panel). The cells were fixed with 4% paraformaldehyde (10 min) permeabilized with 0.1% Triton X-100 for 5 minutes and then blocked with 1% BSA/10% normal goat serum/0.3M glycine in 0.1% PBS-Tween for 1h. The cells were then incubated with ab134101 at 1/500 and ab7291 (Mouse monoclonal to alpha Tubulin) at 1/1000 dilution overnight at +4°C, followed by a further incubation at room temperature for 1h with a goat secondary antibody to rabbit IgG (Alexa Fluor® 488) (ab150081) at 2 µg/ml (shown in green) and a goat secondary antibody to mouse IgG (Alexa Fluor® 594) (ab150120) at 2 µg/ml (shown in red). Nuclear DNA was labelled in blue with DAPI. Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).



Flow Cytometry (Intracellular) - Anti-IRS2 antibody [EPR904(2)] (ab134101)

IRS2 Flow Cytometry (Intracellular) staining using rabbit Anti-IRS2 antibody

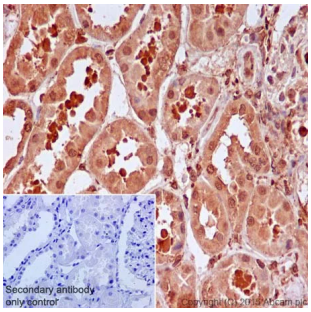
Overlay histogram showing HeLa cells stained with unpurified ab134101 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (unpurified ab134101, 1/1000 dilution) for 30 min at 22°C. The secondary antibody used was Alexa Fluor® 488 goat anti-rabbit IgG (H&L) (ab150077) at 1/2000 dilution for 30 min at 22°C. Isotype control antibody (black line) was rabbit IgG (monoclonal) (0.1µg/1x10^6 cells) used under the same conditions. Unlabelled sample (blue line) was also used as a control. Acquisition of >5,000 events were collected using a 20mW Argon ion laser (488nm) and 525/30 bandpass filter. This antibody gave a positive signal in HeLa cells fixed with 4% paraformaldehyde (10 min)/permeabilized with 0.1% PBS-Tween for 20 min used under the same conditions.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-IRS2 antibody [EPR904(2)] (ab134101)

IRS2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-IRS2 antibody

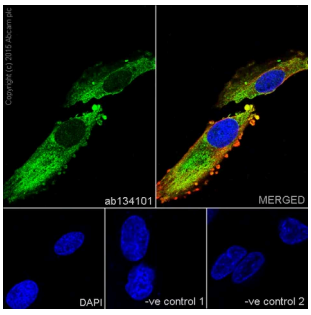
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human breast tissue labelling IRS2 with unpurified ab134101 at a dilution of 1/50.
Perform heat mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-IRS2 antibody [EPR904(2)] (ab134101)

IRS2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-IRS2 antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human kidney tissue labelling IRS2 with purified ab134101 at 1/500. Heat mediated antigen retrieval was performed using Tris/EDTA buffer pH 9. ab97051, a HRP-conjugated goat anti-rabbit IgG (H+L) was used as the secondary antibody (1/500). Negative control using PBS instead of primary antibody. Counterstained with hematoxylin.

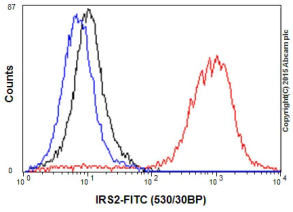


Immunocytochemistry/ Immunofluorescence - Anti-IRS2 antibody [EPR904(2)] (ab134101)

IRS2 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-IRS2 antibody

Immunocytochemistry/Immunofluorescence analysis of SH-SY5Y cells labelling IRS2 with purified ab134101 at 1/300. Cells were fixed with 4% paraformaldehyde and permeabilized with 0.1% Triton X-100. ab150077, an Alexa Fluor® 488-conjugated goat anti-rabbit IgG (1/1000) was used as the secondary antibody. DAPI (blue) was used as the nuclear counterstain. ab7291, a mouse anti-tubulin (1/1000) and ab150120, an Alexa Fluor® 594-conjugated goat anti-mouse IgG (1/1000) were also used.
Control 1: primary antibody (1/300) and secondary antibody, ab150120, an Alexa Fluor® 594-conjugated goat anti-mouse IgG (1/1000).

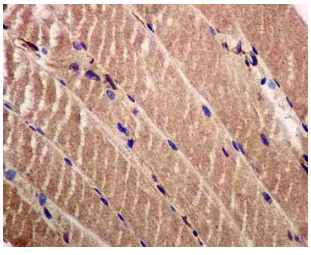
Control 2: ab7291 (1/1000) and secondary antibody, ab150077, an Alexa Fluor® 488-conjugated goat anti-rabbit IgG (1/1000).



Flow Cytometry (Intracellular) - Anti-IRS2 antibody [EPR904(2)] (ab134101)

IRS2 Flow Cytometry (Intracellular) staining using rabbit Anti-IRS2 antibody

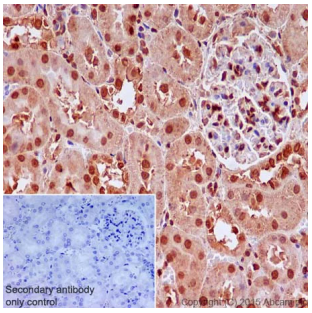
Intracellular Flow Cytometry analysis of HeLa cells labelling IRS2 with purified ab134101 at 1/120 (red). Cells were fixed with 2% paraformaldehyde. A FITC-conjugated goat anti-rabbit IgG (1/500) was used as the secondary antibody. Black - Isotype control, rabbit monoclonal IgG. Blue - Unlabelled control, cells without incubation with primary and secondary antibodies.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-IRS2 antibody [EPR904(2)] (ab134101)

IRS2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-IRS2 antibody

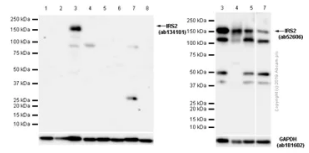
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human muscle tissue labelling IRS2 with unpurified ab134101 at a dilution of 1/50.
Perform heat mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-IRS2 antibody [EPR904(2)] (ab134101)

IRS2 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-IRS2 antibody

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of rat kidney tissue labelling IRS2 with purified ab134101 at 1/500. Heat mediated antigen retrieval was performed using Tris/EDTA buffer pH 9. ab97051, a HRP-conjugated goat anti-rabbit IgG (H+L) was used as the secondary antibody (1/500). Negative control using PBS instead of primary antibody. Counterstained with hematoxylin.



Western blot - Anti-IRS2 antibody [EPR904(2)] (ab134101)

Blocking/Diluting buffer and concentration: 5% NFDM/TBST.
Exposure time:

Left image: 180 seconds

Right image: 40 seconds

Although some papers support the expression in liver (PMID: 30202052), A549 (PMID: 30988063), NCI-H1299 (PMID: 30988063), LADMAC (PMID: 29115630), MDA-MB-231 (PMID: 29685905) and MEF (PMID: 30679431), ab134101 can't detect the target band in these samples, even at the dilution of 1:200.

All lanes:
Western blot - Anti-IRS2 antibody [EPR904(2)] (ab134101) at 1/1000 dilution

Lane 1:
Rat liver lysates at 20 µg

Lane 2:
Human liver lysates at 20 µg

Lane 3:
A375 (human malignant melanoma epithelial cell) whole cell lysates at 20 µg

Lane 4:
A549 (human lung carcinoma epithelial cell) whole cell lysates at 20 µg

Lane 5:
NCI-H1299 (human lung carcinoma epithelial cell) whole cell lysates at 20 µg

Lane 6:
LADMAC (Mouse bone marrow monocyte macrophage) whole cell lysates at 20 µg

Lane 7:
MDA-MB-231 (human breast adenocarcinoma epithelial cell) whole cell lysates at 20 µg

Lane 8:
MEF (Mouse embryonic fibroblast) whole cell lysates at 20 µg

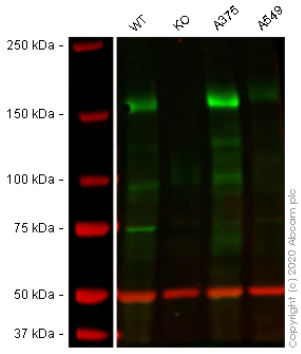
Secondary

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

Developed using the ECL technique.

Predicted band size: 137 kDa

Observed band size: 170-185 kDa



Western blot - Anti-IRS2 antibody [EPR904(2)] (ab134101)

IRS2 Western blot staining using rabbit Anti-IRS2 antibody

Lanes 1 - 4: Merged signal (red and green). Green - ab134101 observed at 160 kDa. Red - loading control ab7291 (Mouse anti-Alpha Tubulin [DM1A]) observed at 55kDa.
ab134101 was shown to react with IRS2 in wild-type HEK-293 cells in western blot with loss of signal observed in IRS2 knockout sample. Wild-type and IRS2 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 ab134101 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-IRS2 antibody [EPR904(2)] (ab134101) 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:
IRS2 knockout HEK-293 (Human epithelial cell line from embryonic kidney) whole cell lysate at 20 µg

Lane 2:
Western blot - Human IRS2 knockout HEK-293 cell line (ab264013)

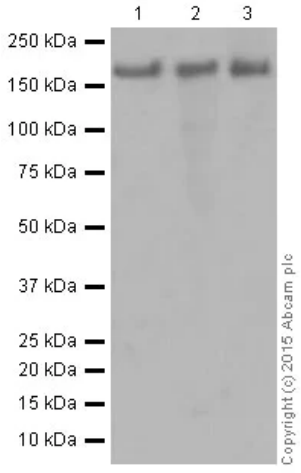
Lane 3:
A-375 cell lysate at 20 µg

Lane 4:
A549 (Human lung carcinoma cell line) whole cell lysate at 20 µg

Performed under reducing conditions.

Predicted band size: 137 kDa, 25 kDa

Observed band size: 160 kDa



Western blot - Anti-IRS2 antibody [EPR904(2)] (ab134101)

IRS2 Western blot staining using rabbit Anti-IRS2 antibody

Blocking and dilution buffer: 5% NFDM/TBST.
All lanes:
Western blot - Anti-IRS2 antibody [EPR904(2)] (ab134101) at 20 µg

Lane 1:
HEK293 whole cell lysate - untreated at 20 µg

Lane 2:
HEK293 whole cell lysate - treated with insulin at 20 µg

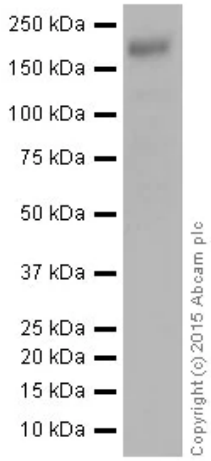
Lane 3:
SH-SY5Y whole cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/50000 dilution

Predicted band size: 137 kDa

Observed band size: 170-185 kDa



Western blot - Anti-IRS2 antibody [EPR904(2)] (ab134101)

IRS2 Western blot staining of NIH/3T3 whole cell lysate - treated with insulin using rabbit Anti-IRS2 antibody

Blocking and dilution buffer: 5% NFDM/TBST.
All lanes:
Western blot - Anti-IRS2 antibody [EPR904(2)] (ab134101) at 1/5000 dilution

All lanes:
NIH/3T3 whole cell lysate - treated with insulin at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/50000 dilution

Predicted band size: 137 kDa

Observed band size: 170-185 kDa

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