abcam

ab248112

Anti-IP3 receptor antibody [EPR4536] - BSA and 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	EPR4536
Purification technique	Affinity purification Protein A
Concentration	0.989 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	-

Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

IP

Not recommended

Species	Mouse, Rat, Human
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	-
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

Target data

See full target information ITPR1

Function	Inositol 1,4,5-trisphosphate-gated calcium channel that, upon inositol 1,4,5-trisphosphate binding, mediates calcium release from the endoplasmic reticulum (ER) (PubMed:10620513, PubMed:27108797). Undergoes conformational changes upon ligand binding, suggesting structural flexibility that allows the channel to switch from a closed state, capable of interacting with its ligands such as 1,4,5-trisphosphate and calcium, to an open state, capable of transferring calcium ions across the ER membrane (By similarity). Cytoplasmic calcium released from the ER triggers apoptosis by the activation of CAMK2 complex (By similarity). Involved in the regulation of epithelial secretion of electrolytes and fluid through the interaction with AHCYL1 (By similarity). Part of a complex composed of HSPA9, ITPR1 and VDAC1 that regulates mitochondrial calcium-dependent apoptosis by facilitating calcium transport from the ER lumen to the mitochondria intermembrane space thus providing calcium for the downstream calcium channel MCU that directly releases it into mitochondria matrix (By similarity). Regulates fertilization and egg activation by tuning the frequency and amplitude of calcium oscillations (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

ab248112 is the carrier-free version of ab125076.

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.

Supplementary info

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

Activity summary	The IP3 receptor (IP3R) also known as inositol 145-trisphosphate receptor functions as a ligand-gated calcium channel. It plays a major role in calcium release from the endoplasmic reticulum into the cytoplasm. The IP3 receptor has a molecular mass of approximately 313 kDa. IP3 receptor expression is extensive found in various tissues including the brain liver and smooth muscle cells. It is an essential component of intracellular calcium signaling mechanisms directly activated by IP3 a secondary messenger molecule.
Biological function summary	IP3 receptor involves in various cellular processes by mediating intracellular calcium release. Upon binding of IP3 produced by phospholipase C catalysis of PIP2 the channel opens to allow calcium ions to flow into the cytosol. The IP3 receptor forms a tetrameric complex essential for its function. This complex is vital for responses in signal transduction pathways affecting T-cell activation muscle contraction and neurotransmitter release.
Pathways	IP3 receptor is central to calcium signaling and interacts with the IP3 pathway modulating cellular activities in response to different stimuli. The interaction with proteins such as TRPC3 a transient receptor potential channel integrates calcium influx. IP3 receptor also participates in the calcium/calmodulin-dependent protein kinase (CaMK) pathway impacting phosphorylation events in the cell.
Associated diseases and disorders	Dysregulation of IP3 receptor function associates with neurodegenerative diseases such as Alzheimer's Disease due to calcium homeostasis disruption. The receptor also connects to heart diseases where abnormal calcium signaling can lead to

arrhythmic conditions. The interaction between the IP3 receptor and other proteins like ryanodine receptors may exacerbate these conditions influencing cellular calcium dynamics in pathological states.

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

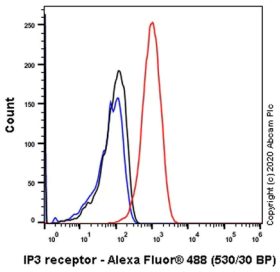
We do not recommend this combination. It is not covered by our product promise.

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.

4 product images

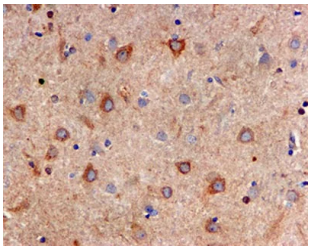


Flow Cytometry (Intracellular) - Anti-IP3 receptor antibody [EPR4536] - BSA and Azide free (ab248112)

IP3 receptor Flow Cytometry (Intracellular) staining using rabbit Anti-IP3 receptor antibody

This data was developed using ab125076, the same antibody clone in a different buffer formulation.

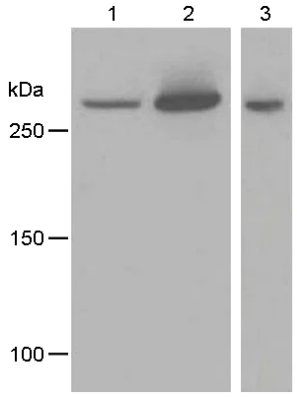
Flow Cytometry analysis of SH-SY5Y (Human neuroblastoma epithelial cell) cells labeling IP3 receptor with purified ab125076 at 1/500 dilution (1 µg/mL) (Red). Cells were fixed with 4% Paraformaldehyde and permeabilised with 90% Methanol. A Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) secondary antibody was used at 1/2000. Isotype control - Rabbit monoclonal IgG (Black). Unlabeled control - Cell without incubation with primary antibody and secondary antibody (Blue).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-IP3 receptor antibody [EPR4536] - BSA and Azide free (ab248112)

IP3 receptor Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-IP3 receptor antibody

This data was developed using ab125076, the same antibody clone in a different buffer formulation.
ab125076, at 1/50, staining ITPR1 in paraffin-embedded Human brain tissue by immunohistochemistry. Perform heat mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.



Western blot - Anti-IP3 receptor antibody [EPR4536] - BSA and Azide free (ab248112)

IP3 receptor Western blot staining using rabbit Anti-IP3 receptor antibody

This data was developed using ab125076, the same antibody clone in a different buffer formulation.
All lanes:
Western blot - Anti-IP3 receptor antibody [EPR4536] (ab125076) at 1/1000 dilution

Lane 1:
SH-SY5Y cell lysate at 10 µg

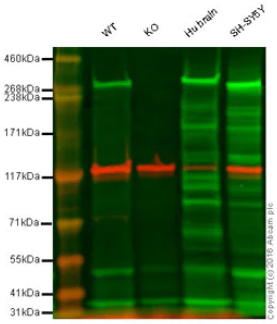
Lane 2:
HeLa cell lysate at 10 µg

Lane 3:
HuT78 cell lysate at 10 µg

Secondary

All lanes:
Goat anti-Rabbit HRP at 1/2000 dilution

Predicted band size: 314 kDa



Western blot - Anti-IP3 receptor antibody [EPR4536] - BSA and Azide free (ab248112)

IP3 receptor Western blot staining using rabbit Anti-IP3 receptor antibody

This data was developed using ab125076, the same antibody clone in a different buffer formulation.
Lane 1: Wild-type HAP1 cell lysate (20 µg)

Lane 2: IP3 receptor knockout HAP1 cell lysate (20 µg)

Lane 3: Human brain tissue lysate (20 µg)

Lane 4: SH-SY5Y cell lysate (20 µg)

Lanes 1 - 4: Merged signal (red and green). Green - ab125076 observed at 270 kDa. Red - loading control, ab18058, observed at 124 kDa.

ab125076 was shown to specifically recognize IP3 receptor in wild-type HAP1 cells along with additional cross-reactive bands. No band was observed when IP3 receptor knockout samples were examined. Wild-type and IP3 receptor knockout samples were subjected to SDS-PAGE. ab125076 and ab18058 (loading control to Vinculin) were diluted 1/1000 and 1/10,000 respectively and incubated overnight at 4°C. 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 1/10,000 dilution for 1 hour at room temperature before imaging.
All lanes:
Western blot - Anti-IP3 receptor antibody [EPR4536] (ab125076)

Predicted band size: 24 kDa, 314 kDa, 70 kDa

Observed band size: 60-65 kDa

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