abcam

ab251091

Anti-IMPA1 antibody [EPR15405] - BSA and Azide free

Recombinant | RabMAb

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	EPR15405
Concentration	0.999 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Human, Mouse
Dilution info	-
Notes	-

Predicted

Species	Rat
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

Expected

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

Predicted

Species	Rat
Dilution info	-
Notes	-

Target data

See full target information IMPA1

Function

Phosphatase involved in the dephosphorylation of myo-inositol monophosphates to generate myo-inositol (PubMed:17068342, PubMed:8718889, PubMed:9462881). Is also able to dephosphorylate scyllo-inositol-phosphate, myo-inositol 1,4-diphosphate, scyllo-inositol-1,3-diphosphate and scyllo-inositol-1,4-diphosphate (PubMed:17068342). Also dephosphorylates in vitro other sugar-phosphates including D-galactose-1-phosphate, glucose-1-phosphate, glucose-6-phosphate, fructose-1-phosphate, beta-glycerophosphate and 2'-AMP (PubMed:17068342, PubMed:8718889, PubMed:9462881). Responsible for the provision of inositol required for synthesis of phosphatidylinositols and polyphosphoinositides, and involved in maintaining normal brain function (PubMed:26416544,

PubMed:8718889). Has been implicated as the pharmacological target for lithium (Li(+)) action in brain, which is used to treat bipolar affective disorder (PubMed:17068342). Is equally active with 1D-myo-inositol 1-phosphate, 1D-myo-inositol 3-phosphate and D-galactose 1-phosphate (PubMed:9462881).

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

ab251091 is the carrier-free version of ab191570.

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 inositol monophosphatase 1 (IMPA1) also known by its alternative names Inositol-1(or 4)-monophosphatase and IMPase 1 is an enzyme that dephosphorylates inositol monophosphate to produce free inositol. IMPA1 has a molecular mass of approximately 29 kDa. Expression of IMPA1 occurs broadly in mammalian tissues with high levels in brain and kidney. The enzyme requires magnesium ions for its activity and operates efficiently under low lithium concentration.
Biological function summary	The enzyme holds importance for phosphatidylinositol signaling and plays an important role in cellular inositol recycling. IMPA1 functions as part of a monomer or dimer but does not require complex formation with other proteins to operate effectively. Its enzyme activity maintains intracellular inositol levels which is important for cell membrane phospholipid integrity and secondary messenger systems.
Pathways	IMPA1 is integral to the phosphoinositide signaling pathway contributing to the regeneration of inositol triphosphate (IP3) and aiding in cell signal transduction processes. It also participates in the synthesis of myo-inositol by catalyzing the final step of inositol phosphate metabolism. Within these pathways it works closely with proteins like inositol polyphosphate 1-phosphatase (INPP1) and inositol polyphosphate 5-phosphatase (INPP5).
Associated diseases and disorders	IMPA1 has associations with bipolar disorder and schizophrenia. Lithium a common medication for bipolar disorder inhibits IMPA1 activity which affects inositol signaling. The enzyme's function and regulation impact synaptic transmission and neurochemical signaling with connections to proteins like glycogen synthase kinase 3 beta (GSK3B) in these disorders. Understanding of IMPA1's role provides insights into its potential therapeutic targets for mood disorders and other neuropsychiatric conditions.

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

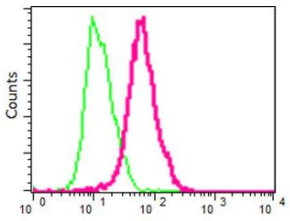
We do not recommend this combination. It is not covered by our product promise.

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.

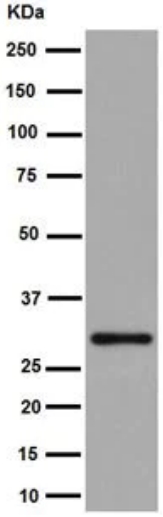
4 product images



Flow Cytometry (Intracellular) - Anti-IMPA1 antibody [EPR15405] - BSA and Azide free (ab251091)

IMPA1 Flow Cytometry (Intracellular) staining using rabbit Anti-IMPA1 antibody

This data was developed using ab191570, the same antibody clone in a different buffer formulation.
Intracellular flow cytometric analysis of PC3 cells labeling IMPA1 using ab191570at 1/300 dilution (red), Isotype control (green). Secondary antibody was Goat anti rabbit IgG (FITC) at 1/150 dilution. Cells were fixed in 2% paraformaldehyde prior to staining.



Western blot - Anti-IMPA1 antibody [EPR15405] - BSA and Azide free (ab251091)

IMPA1 Western blot staining of Human testis lysate using rabbit Anti-IMPA1 antibody

This data was developed using ab191570, the same antibody clone in a different buffer formulation.
Blocking and dilution buffer: 5% NFDM/TBST.

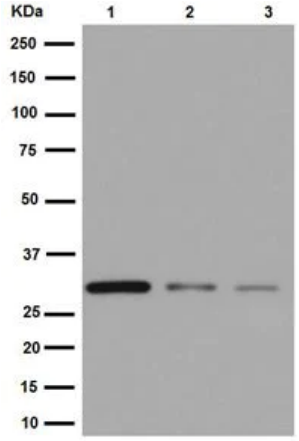
All lanes:
Western blot - Anti-IMPA1 antibody [EPR15405] (ab191570) at 1/100000 dilution

All lanes:
Human testis lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/1000 dilution

Predicted band size: 30 kDa



Western blot - Anti-IMPA1 antibody [EPR15405] - BSA and Azide free (ab251091)

This data was developed using ab191570, the same antibody clone in a different buffer formulation.
Blocking and dilution buffer: 5% NFDM/TBST.

All lanes:
Western blot - Anti-IMPA1 antibody [EPR15405] (ab191570) at 1/20000 dilution

Lane 1:
Jurkat cell lysate at 20 µg

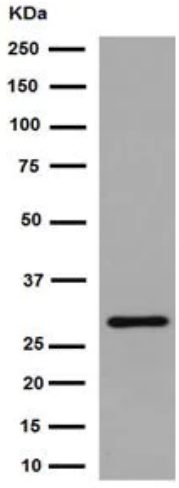
Lane 2:
PC3 cell lysate at 20 µg

Lane 3:
HCT 116 cell lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/1000 dilution

Predicted band size: 30 kDa



Western blot - Anti-IMPA1 antibody [EPR15405] - BSA and Azide free (ab251091)

IMPA1 Western blot staining of Mouse brain tissue lysate using rabbit Anti-IMPA1 antibody

This data was developed using ab191570, the same antibody clone in a different buffer formulation.
Blocking and dilution buffer: 5% NFDM/TBST.

All lanes:
Western blot - Anti-IMPA1 antibody [EPR15405] (ab191570) at 1/20000 dilution

All lanes:
Mouse brain tissue lysate at 10 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/1000 dilution

Predicted band size: 30 kDa

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