abcam

ab109538

Anti-Insulin degrading enzyme / IDE antibody [EPR6099]

Recombinant | RabMAb | KO Validated

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	EPR6099
Purification technique	Affinity purification Protein A
Concentration	0.379 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Not recommended

Species	Mouse, Human, Rat
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	1/10000 - 1/50000
Notes	-

Expected

Species	Mouse
Dilution info	1/10000 - 1/50000
Notes	-

Species	Rat
Dilution info	-
Notes	-

IHC-P

Not recommended

Species	Mouse, Human, 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 IDE

Function

Plays a role in the cellular breakdown of insulin, APP peptides, IAPP peptides, natriuretic peptides, glucagon, bradykinin, kallidin, and other peptides, and thereby plays a role in intercellular peptide signaling (PubMed:10684867, PubMed:17051221, PubMed:17613531, PubMed:18986166, PubMed:19321446, PubMed:21098034, PubMed:2293021, PubMed:23922390, PubMed:24847884, PubMed:26394692, PubMed:26968463, PubMed:29596046). Substrate binding induces important conformation changes, making it possible to bind and degrade larger substrates, such as insulin (PubMed:23922390, PubMed:26394692, PubMed:29596046). Contributes to the regulation of peptide hormone signaling cascades and regulation of blood glucose homeostasis via its role in the degradation of insulin, glucagon and IAPP (By similarity). Plays a role in the degradation and clearance of APP-derived amyloidogenic peptides that are secreted by neurons and microglia (Probable) (PubMed:26394692, PubMed:9830016). Degrades the natriuretic peptides ANP, BNP and CNP, inactivating their ability to raise intracellular cGMP (PubMed:21098034). Also degrades an aberrant frameshifted 40-residue form of NPPA (fsNPPA) which is associated with familial atrial fibrillation in heterozygous patients (PubMed:21098034). Involved in antigen processing. Produces both the N terminus and the C terminus of MAGEA3-derived antigenic peptide (EVDPIGHLY) that is presented to cytotoxic T lymphocytes by MHC class I. (Microbial infection) The membrane-associated isoform acts as an entry receptor for varicella-zoster virus (VZV).

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 degrading enzyme (IDE) also known as insulinase is a zinc metalloprotease involved in the breakdown of small proteins including insulin. IDE has a molecular weight of approximately 110 kDa. It works by cleaving the peptide bonds of its substrate proteins therefore decreasing their molecular integrity. IDE is expressed in several tissues including the liver muscle and kidney where it plays a significant role in regulating metabolic processes. This protein can be found both within cells and in the extracellular space.
Biological function summary	IDE manages the levels of insulin and other peptides by degrading them preventing accumulation and maintaining homeostasis. It is not part of a complex but it acts individually in cellular environments to modulate the concentration of its substrates. IDE is important for controlling insulin availability and turnover which impacts glucose metabolism. By influencing the degradation of insulin IDE aids in balancing metabolic demands with insulin availability.
Pathways	IDE plays a vital role in insulin signaling and glucose metabolic processes. It is directly involved in the insulin signaling pathway by regulating insulin levels which consequently affects cellular responses to insulin. IDE connects with several proteins associated with these pathways including insulin receptor and glucose transporters ensuring proper cell signaling and metabolic functions. By modulating insulin levels IDE helps optimize glucose uptake and storage.

Associated diseases and disorders	IDE has a relevant connection to Alzheimer's disease and type 2 diabetes. Its role in insulin degradation links it to type 2 diabetes where dysregulation of insulin levels can exacerbate the disease. IDE is also associated with Alzheimer's disease since it degrades amyloid-beta peptides. Any malfunction or altered expression of IDE can lead to accumulation of these peptides contributing to Alzheimer's pathology. In the context of these diseases IDE interacts with amyloid-beta precursor protein and components of insulin signaling pathways highlighting its significance in maintaining health and preventing disease progression.

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

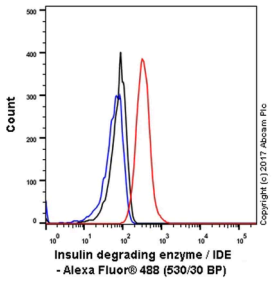
We do not recommend this combination. It is not covered by our product promise.

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

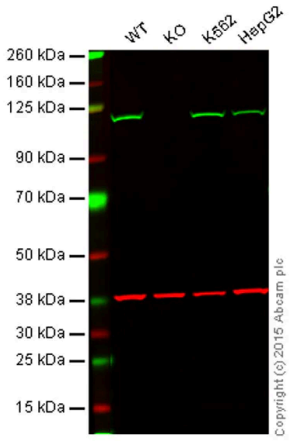


Flow Cytometry (Intracellular) - Anti-Insulin degrading enzyme / IDE antibody [EPR6099] (ab109538)

Insulin degrading enzyme / IDE Flow Cytometry (Intracellular) staining using rabbit Anti-Insulin degrading enzyme / IDE antibody

Intracellular Flow Cytometry analysis of HeLa (human cervix adenocarcinoma) cells labeling Insulin degrading enzyme / IDE with purified ab109538 at 1/150 dilution (10ug/ml) (red). Cells were fixed with 4% paraformaldehyde and permeabilised with 90% methanol. A Goat anti-rabbit IgG (Alexa Fluorr® 488) (1/2000 dilution) was used as the secondary antibody. Rabbit monoclonal

IgG (Black) was used as the isotype control, cells without incubation with primary antibody and secondary antibody (Blue) were used as the unlabeled control.



Western blot - Anti-Insulin degrading enzyme / IDE antibody [EPR6099] (ab109538)

Insulin degrading enzyme / IDE Western blot staining using rabbit Anti-Insulin degrading enzyme / IDE antibody

Lanes 1 - 4: Merged signal (red and green). Green - ab109538 observed at 118 kDa. Red - loading control, ab8245, observed at 37 kDa.

ab109538 was shown to specifically react with IDE in wild-type HAP1 cells. No band was observed when IDE knockout samples were examined. Wild-type and IDE knockout samples were subjected to SDS-PAGE. ab109538 and ab8245 (loading control to GAPDH) were both diluted 1/2000 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-Insulin degrading enzyme / IDE antibody [EPR6099] (ab109538) at 1/2000 dilution

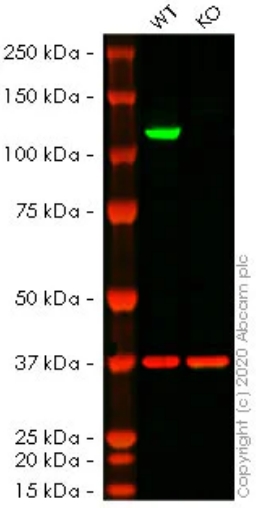
Lane 1:
Wild-type HAP1 cell lysate at 20 µg

Lane 2:
IDE knockout HAP1 cell lysate at 20 µg

Lane 3:
K562 cell lysate at 20 µg

Lane 4:
HepG2 cell lysate at 20 µg

Predicted band size: 118 kDa



Western blot - Anti-Insulin degrading enzyme / IDE antibody [EPR6099] (ab109538)

Insulin degrading enzyme / IDE Western blot staining using rabbit Anti-Insulin degrading enzyme / IDE antibody

Lanes 1- 2: Merged signal (red and green). Green - ab109538 observed at 118 kDa. Red - Anti-GAPDH antibody [6C5] - Loading Control (ab8245) observed at 37 kDa.
ab109538 was shown to react with Insulin degrading enzyme / IDE in wild-type HeLa cells in western blot. Loss of signal was observed when knockout cell line ab261755 (knockout cell lysate ab257197) was used. Wild-type HeLa and IDE 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. ab109538 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-Insulin degrading enzyme / IDE antibody [EPR6099] (ab109538) at 1/1000 dilution

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

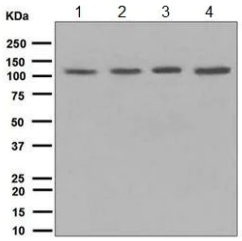
Lane 2:
IDE knockout HeLa cell lysate at 20 µg

Lane 2:
Western blot - Human IDE (Insulin degrading enzyme) knockout HeLa cell line (ab261755)

Performed under reducing conditions.

Predicted band size: 118 kDa

Observed band size: 118 kDa



Western blot - Anti-Insulin degrading enzyme / IDE antibody [EPR6099] (ab109538)

All lanes:
Western blot - Anti-Insulin degrading enzyme / IDE antibody [EPR6099] (ab109538) at 1/10000 dilution

Lane 1:
HeLa cell lysate at 10 µg

Lane 2:
HepG2 cell lysate at 10 µg

Lane 3:
A375 cell lysate at 10 µg

Lane 4:
K562 cell lysate at 10 µg

Secondary

All lanes:
HRP-labelled goat anti-rabbit at 1/2000 dilution

Predicted band size: 118 kDa

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