abcam

ab51249

Anti-Presenilin 2/AD5 antibody [EP1515Y]

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	EP1515Y
Purification technique	Affinity purification Protein A
Concentration	0.494 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	1/500
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Rat
Dilution info	1/50 - 1/250
Notes	-

Expected

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

IP

Tested

Species	Rat
Dilution info	1/20
Notes	-

Species	Human
Dilution info	1/20
Notes	-

Expected

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

WB

Tested

Species	Mouse
Dilution info	1/20000
Notes	-

Species	Rat
Dilution info	1/20000
Notes	-

Species	Human
Dilution info	1/20000
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/50
Notes	-

Expected

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

Target data

See full target information PSEN2

Function Catalytic subunit of the gamma-secretase complex, an endoprotease complex that catalyzes the intramembrane cleavage of integral membrane proteins such as Notch receptors and APP (amyloid-beta precursor protein) (PubMed:10497236, PubMed:10652302, PubMed:16752394, PubMed:27293189, PubMed:36272978). Selectively cleaves late endosomal/lysosomal localized substrates and generates

the prominent pool of intracellular amyloid beta that contains longer amyloid beta (PubMed:27293189). The holoprotein functions as a calcium-leak channel that allows the passive movement of calcium from endoplasmic reticulum to cytosol and is involved in calcium homeostasis (PubMed:16959576). Is a regulator of mitochondrion-endoplasmic reticulum membrane tethering and modulates calcium ions shuttling between ER and mitochondria (PubMed:21285369).

Storage

Shipped at conditions	Conditional Ambient
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 presenilin 2 (PSEN2) protein also known as AD5 plays a role as a catalytic subunit in the gamma-secretase complex. This complex is involved in intramembrane proteolysis of several type-I transmembrane proteins. PSEN2 has a mass of about 52 kDa and is expressed mainly in the brain and several other tissues throughout the body. Its gene is located on chromosome 1 and has the alternative name 'EP-2614'. Presenilin 2 is closely associated with presenilin 1 (PSEN1) a related protein within the same family.

Biological function summary	Presenilin 2 functions in the regulation of proteolytic processing of the amyloid precursor protein (APP) within the gamma-secretase complex. This action produces amyloid beta peptides which are critical for normal brain function but may accumulate under pathological conditions. The protein is also involved in NOTCH receptor activation which plays a part in cell fate determination during development. The gamma-secretase complex includes other key proteins such as nicastrin anterior pharynx-defective 1 (APH-1) and presenilin enhancer 2 (PEN-2).
Pathways	Presenilin 2 is central to the amyloidogenic pathway through its role in APP processing. This pathway links to Alzheimer's disease where dysregulation of amyloid beta peptide production leads to plaque formation. Additionally presenilin 2 takes part in the NOTCH signaling pathway which influences neurogenesis and cellular differentiation. Presenilin 1 is a partner protein of presenilin 2 within these pathways sharing overlapping functions and regulation.
Associated diseases and disorders	Presenilin 2's connection to Alzheimer's disease arises from its role in amyloid beta production. Mutations in the PSEN2 gene can lead to familial Alzheimer's disease where altered processing of APP results in neurotoxic peptide accumulation. Additionally presenilin 2 influences cardiovascular disease development through its involvement in cell signaling pathways affecting vascular biology. Presenilin 1 mutations also associate with similar disorders due to its analogous role and participation in these pathological processes.

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

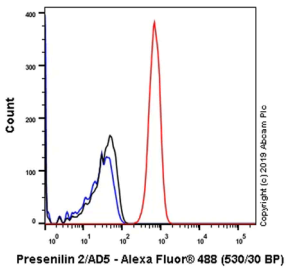
We do not recommend this combination. It is not covered by our product promise.

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.

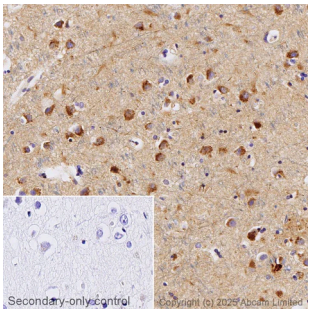
9 product images



Flow Cytometry (Intracellular) - Anti-Presenilin 2/AD5 antibody [EP1515Y] (ab51249)

Presenilin 2/AD5 Flow Cytometry (Intracellular) staining using rabbit Anti-Presenilin 2/AD5 antibody

Intracellular Flow Cytometry analysis of HeLa (Human cervix adenocarcinoma epithelial cell) cells labeling Presenilin 2/AD5 with purified ab51249 at 1/50 dilution (5 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-Presenilin 2/AD5 antibody [EP1515Y] (ab51249)

Presenilin 2/AD5 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of human Alzheimer's brain tissue using rabbit Anti-Presenilin 2/AD5 antibody

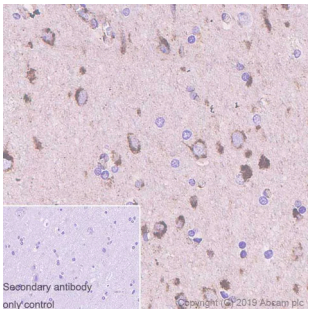
Immunohistochemical analysis of paraffin-embedded human Alzheimer's brain tissue* labelling PSEN2 with ab51249 at 1ug/ml followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).
Positive staining in human Alzheimer's brain.

The section was incubated with ab51249 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Heat mediated antigen retrieval with sodium citrate buffer (pH 6.0 epitope retrieval solution1) for 20 mins.

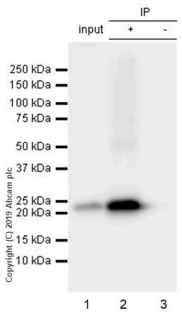
*Tissue obtained from the Human Research Tissue Bank, supported by the NIHR Cambridge Biomedical Research Centre.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Presenilin 2/AD5 antibody [EP1515Y] (ab51249)

Presenilin 2/AD5 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Presenilin 2/AD5 antibody

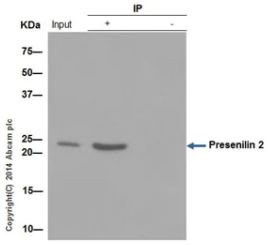
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human cerebrum tissue sections labeling Presenilin 2/AD5 with purified ab51249 at 1/500 dilution (0.51 µg/ml). Heat mediated antigen retrieval using Bond™ Epitope Retrieval Solution 2 (pH 9.0). Rabbit specific IHC polymer detection kit HRP/DAB (ab209101) was used as the secondary antibody. Negative control: PBS instead of the primary antibody. Hematoxylin was used as a counterstain.



Immunoprecipitation - Anti-Presenilin 2/AD5 antibody [EP1515Y] (ab51249)

ab51249 (purified) at 1/20 dilution (1ug) immunoprecipitating Presenilin 2/AD5 in HeLa whole cell lysate.
Lane 1 (input): HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysate 10ug
Lane 2 (+): ab51249 & HeLa whole cell lysate
Lane 3 (-): Rabbit monoclonal IgG (ab172730) instead of ab51249 in HeLa whole cell lysate
For western blotting, VeriBlot for IP Detection Reagent (HRP) (ab131366) was used at 1/1000 dilution.
Blocking and diluting buffer: 5% NFDM/TBST.
All lanes:
Immunoprecipitation - Anti-Presenilin 2/AD5 antibody [EP1515Y] (ab51249)

Predicted band size: 50 kDa



Immunoprecipitation - Anti-Presenilin 2/AD5 antibody [EP1515Y] (ab51249)

Presenilin was immunoprecipitated from 1 mg of HeLa whole cell extract with unpurified ab51249 at 1/50 dilution. Western blot was performed from the immunoprecipitate using ab51249 at 1/5000 dilution. Anti-Rabbit IgG (HRP), specific to the non-reduced form of IgG, was used as secondary antibody at 1/1500 dilution.
Input: HeLa whole cell extract 10 µg.

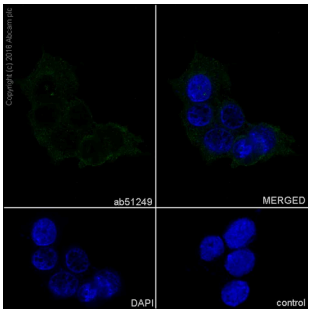
IP (+): ab51249 IP in HeLa whole cell extract.

IP (-): Rabbit monoclonal IgG (ab172730) instead of ab51249 in HeLa whole cell extract.
Blocking and dilution buffer and concentration: 5% NFDM/TBST.

All lanes:
Immunoprecipitation - Anti-Presenilin 2/AD5 antibody [EP1515Y] (ab51249)

Predicted band size: 50 kDa

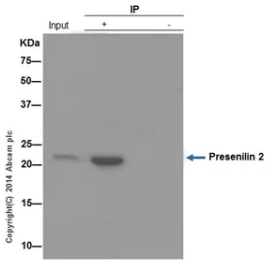
Observed band size: 24 kDa



Immunocytochemistry/ Immunofluorescence - Anti-Presenilin 2/AD5 antibody [EP1515Y] (ab51249)

Presenilin 2/AD5 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Presenilin 2/AD5 antibody

Immunocytochemistry/ Immunofluorescence analysis of PC-12 (Rat adrenal gland pheochromocytoma) cells labeling Presenilin 2/AD5 with purified ab51249 at 1/50 dilution (5 µg/ml). Cells were fixed in 100% Methanol and permeabilized with None. Cells were counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) 1/200 (2.5 µg/ml). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) was used as the secondary antibody at 1/1000 (2 µg/ml) dilution. DAPI (blue) was used as nuclear counterstain. PBS instead of the primary antibody was used as the secondary antibody only control.



Immunoprecipitation - Anti-Presenilin 2/AD5 antibody [EP1515Y] (ab51249)

Presenilin was immunoprecipitated from 1 mg of PC-12 (rat adrenal gland pheochromocytoma) whole cell extract with unpurified ab51249 at 1/50 dilution. Western blot was performed from the immunoprecipitate using ab51249 at 1/5000 dilution. Anti-Rabbit IgG (HRP), specific to the non-reduced form of IgG, was used as secondary antibody at 1/1500 dilution.
Input: PC-12 whole cell extract 10 µg.

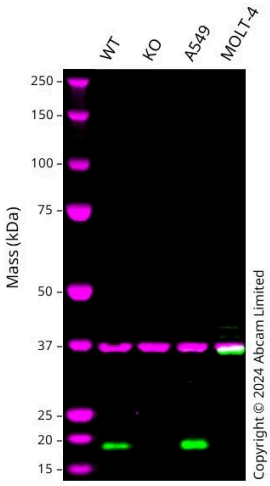
IP (+): ab51249 IP in PC-12 whole cell extract.

IP (-): Rabbit monoclonal IgG (ab172730) instead of ab51249 in PC-12 whole cell extract.
Blocking and dilution buffer and concentration: 5% NFDM/TBST.

All lanes:
Immunoprecipitation - Anti-Presenilin 2/AD5 antibody [EP1515Y] (ab51249)

Predicted band size: 50 kDa

Observed band size: 24 kDa



Western blot - Anti-Presenilin 2/AD5 antibody [EP1515Y] (ab51249)

Presenilin 2/AD5 Western blot staining using rabbit Anti-Presenilin 2/AD5 antibody

Western blot: Rabbit Monoclonal[EP1515Y] to Presenilin 2/AD5 ab51249 staining at 1/20000 dilution, shown in green; Mouse anti GAPDH (ab8245) loading control staining at 1/20,000 dilution, shown in magenta. A band was observed at 18 kDa in Wild-type U-87 MG ab278079 cell lysates with no signal observed at this size in PSEN2 knockout U-87 MG cell line. To generate this image, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 3pc Milk in TBS-0.1 % Tween® 20 (TBS-T) 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 800CW & Goat anti-Mouse 680RD at 1/20,000 dilution.
All lanes:
Western blot - Anti-Presenilin 2/AD5 antibody [EP1515Y] (ab51249) at 1/20000 dilution

Lane 1:
Wild-type U-87 MG ab278079 at 20 µg

Lane 2:
PSEN2 knockout U-87 MG at 20 µg

Lane 3:
A549 at 20 µg

Lane 4:
MOLT-4 at 20 µg

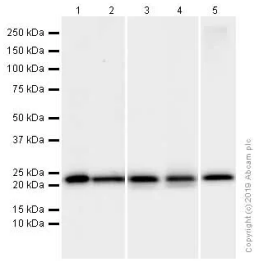
Secondary

All lanes:
Goat anti-Rabbit 800CW & Goat anti-Mouse 680RD at 1/20000 dilution

Performed under reducing conditions.

Predicted band size: 50 kDa

Observed band size: 18 kDa



Western blot - Anti-Presenilin 2/AD5 antibody [EP1515Y] (ab51249)

All lanes:
Western blot - Anti-Presenilin 2/AD5 antibody [EP1515Y] (ab51249) at 1/20000 dilution

Lane 1:
HeLa (Human cervix adenocarcinoma epithelial cell) whole cell lysates at 20 µg

Lane 2:
HepG2 (Human hepatocellular carcinoma epithelial cell) whole cell lysates at 20 µg

Lane 3:
C2C12 (Mouse myoblasts myoblast) whole cell lysates at 20 µg

Lane 4:
C6 (Rat glial tumor glial cell) whole cell lysates at 20 µg

Lane 5:
Neuro-2a (Mouse neuroblastoma neuroblast) whole cell lysates at 20 µg

Secondary

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

Predicted band size: 50 kDa

Observed band size: 23 kDa

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