abcam

ab302607

Anti-GBA (mutated E326K) antibody [EPR24900-273]

Recombinant | RabMAb | 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	EPR24900-273
Purification technique	Affinity purification Protein A
Concentration	0.472 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Dot

Tested

Species	Synthetic peptide - Human
Dilution info	1/1000
Notes	-

Expected

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

Not recommended

Species	Transfected cell lysate - Human
Dilution info	-
Notes	-

IP

Tested

Species	Human
Dilution info	1/30
Notes	-

Not recommended

Species	Synthetic peptide - Human, Transfected cell lysate - Human
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/500
Notes	-

Not recommended

Species	Synthetic peptide - Human, Transfected cell lysate - Human

Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/1000
Notes	-

Not recommended

Species	Synthetic peptide - Human, Transfected cell lysate - Human
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	1/5000
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Not recommended

Species	Synthetic peptide - Human, Transfected cell lysate - Human
Dilution info	-
Notes	-

WB

Tested

Species	Human

Dilution info	1/1000
Notes	-

Species	Transfected cell lysate - Human
Dilution info	1/1000
Notes	-

Not recommended

Species	Synthetic peptide - Human
Dilution info	-
Notes	-

Target data

See full target information GBA1 E326K

Function

Glucosylceramidase that catalyzes, within the lysosomal compartment, the hydrolysis of glucosylceramides/GlcCers (such as beta-D-glucosyl-(1<->1')-N-acylsphing-4-enine) into free ceramides (such as N-acylsphing-4-enine) and glucose (PubMed:15916907, PubMed:24211208, PubMed:32144204, PubMed:39395789, PubMed:9201993). Plays a central role in the degradation of complex lipids and the turnover of cellular membranes (PubMed:27378698). Through the production of ceramides, participates in the PKC-activated salvage pathway of ceramide formation (PubMed:19279011). Catalyzes the glucosylation of cholesterol, through a transglucosylation reaction where glucose is transferred from GlcCer to cholesterol (PubMed:24211208, PubMed:26724485, PubMed:32144204). GlcCer containing mono-unsaturated fatty acids (such as beta-D-glucosyl-N-(9Z-octadecenoyl)-sphing-4-enine) are preferred as glucose donors for cholesterol glucosylation when compared with GlcCer containing same chain length of saturated fatty acids (such as beta-D-glucosyl-N-octadecanoyl-sphing-4-enine) (PubMed:24211208). Under specific conditions, may alternatively catalyze the reverse reaction, transferring glucose from cholesteryl 3-beta-D-glucoside to ceramide (Probable) (PubMed:26724485). Can also hydrolyze cholesteryl 3-beta-D-glucoside producing glucose and cholesterol (PubMed:24211208, PubMed:26724485, PubMed:39395789). Catalyzes the hydrolysis of galactosylceramides/GalCers (such as beta-D-galactosyl-(1<->1')-N-acylsphing-4-enine), as well as the transfer of galactose between GalCers and cholesterol in vitro, but with lower activity than with GlcCers (PubMed:32144204). Contrary to GlcCer and GalCer, xylosylceramide/XylCer (such as beta-D-xyosyl-(1<->1')-N-acylsphing-4-enine) is not a good substrate for hydrolysis, however it is a good xylose donor for transxylosylation activity to form cholesteryl 3-beta-D-xyloside (PubMed:33361282). Can also metabolize plant glycosyl phytosterols such as glucosylstigmasterol (PubMed:39395789).

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	Avoid freeze / thaw cycle

Notes

Want a custom formulation?
This antibody clone is manufactured by Abcam. If you require a custom buffer formulation or conjugation for your experiments, please contact orders@abcam.com

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	GBA also known as glucosylceramidase is a lysosomal enzyme with a molecular mass of approximately 59 kDa. This enzyme breaks down glucosylceramide into glucose and ceramide. GBA is expressed predominantly in tissues with high metabolic activities such as the brain liver and spleen. Its function relies on its catalytic activity where substrates bind to its active site enabling the hydrolysis process necessary for maintaining cellular metabolism.

Biological function summary	GBA plays an important role in sphingolipid metabolism. It participates in the degradation of glycolipids within the lysosome contributing to lipid recycling. It acts independently rather than as a part of a major enzymatic complex. Through its role in degrading glucosylceramide GBA influences cellular homeostasis and bioenergetics ensuring balance in neural and systemic lipid levels.
Pathways	GBA's enzymatic functions are integral to the glycosphingolipid metabolic pathway. It is involved in the downstream steps of the lysosomal degradation of glycosphingolipids. The pathway operates alongside other important proteins such as beta-glucosidase and CERT-related transfer proteins all of which contribute to membrane lipid organization and signal transduction processes.
Associated diseases and disorders	GBA mutations are linked with Gaucher disease and Parkinson's disease. In Gaucher disease deficient GBA activity leads to substrate accumulation resulting in hepatosplenomegaly and other systemic symptoms. Reduced GBA activity is also associated with increased alpha-synuclein aggregation in Parkinson's disease implicating it in the pathogenesis of neurodegenerative disorders. The enzyme's function in these diseases highlights its role in maintaining cellular equilibrium and signaling pathways.

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

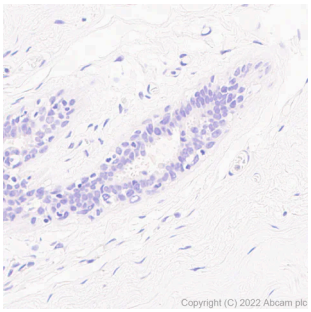
We do not recommend this combination. It is not covered by our product promise.

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.

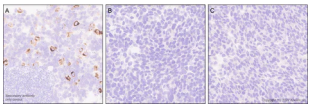
6 product images



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-GBA (mutated E326K) antibody [EPR24900-273] (ab302607)

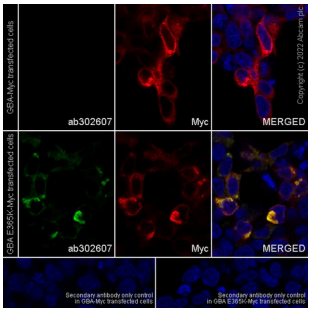
GBA (mutated E326K) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of Human breast using rabbit Anti-GBA (mutated E326K) antibody

Immunohistochemical analysis of paraffin-embedded Human breast tissue labeling GBA(mutated E326K) with ab302607 at 1/5000 (0.094 ug/ml) followed by a ready to use LeicaDS9800 (Bond☒ Polymer Refine Detection) was used. Negative control: No staining on human breast. The section was incubated with ab302607 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) was used. Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins



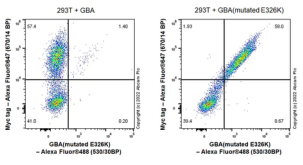
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-GBA (mutated E326K) antibody [EPR24900-273] (ab302607)

Immunohistochemical analysis of paraffin-embedded A HEK-293T cells tr tissue labeling GBA(mutated E326K) with ab302607 at 1/5000 (0.094 ug/ml) followed by a ready to use LeicaDS9800 (Bond☒ Polymer Refine Detection) was used. Cytoplasmic staining on HEK-293T cells transfected with a human GBA E365K expression vector containing a myc-His tag cell pallet (image A). No staining on HEK-293T cells transfected with a human WT GBA expression vector containing a myc-His tag cell pallet (image B) and 293T transfected with an empty vector cell pallet (image C). The section was incubated with ab302607 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) was used. Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins



Immunocytochemistry/ Immunofluorescence - Anti-GBA (mutated E326K) antibody [EPR24900-273] (ab302607)

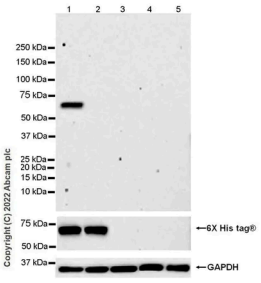
Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized HEK-293T (human embryonic kidney epithelial cell) cells labelling GBA(mutated E326K) with ab302607 at 1/1000 (0.472 ug/ml) dilution, followed by ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed antibody at 1/1000 2 ug/mL dilution (Green). Confocal image showing cytoplasmic staining in HEK-293T cells transfected with a human GBA E365K expression vector containing a Myc tag and no staining in HEK-293T cells transfected with a human GBA expression vector containing a Myc tag is observed. Myc-Tag Mouse mAb (Alexa Fluor® 647) was used to counterstain tubulin at 1/100 0.38ug/ml dilution (Red). The Nuclear counterstain was DAPI (Blue). Secondary antibody only control: Secondary antibody is ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1000 2 ug/mL dilution.



Flow Cytometry (Intracellular) - Anti-GBA (mutated E326K) antibody [EPR24900-273] (ab302607)

Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized HEK-293T (human embryonic kidney) cells transfected with a human GBA (WT) expression vector containing a myc-his tag (Left) / HEK-293T transfected with a human GBA (mutated E326K) expression vector

containing a myc-his tag (Right) cells labelling GBA(mutated E326K) with ab302607 at 1/500 dilution (0.1ug)/ Left and Right (Red) compared with a isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue). A Goat Anti-Rabbit IgG (Alexa Fluor® 488, ab150081) at 1/2000 dilution was used as the secondary antibody.



Western blot - Anti-GBA (mutated E326K) antibody [EPR24900-273] (ab302607)

Blocking and diluting buffer and concentration: 5% NFDM/TBST Negative in GBA (WT) transfected cells and GBA (WT)-expressing tissues. Exposure time: 3 minutes
All lanes:
Western blot - Anti-GBA (mutated E326K) antibody [EPR24900-273] (ab302607) at 1/1000 dilution

Lane 1:
HEK-293T transfected with a human GBA (E326K mutation) expression vector containi a His-tag, whole cell lysate 20 µg

Lane 2:
HEK-293T transfected with a human GBA (WT) expression vector containi a His-tag, whole cell lysate 20 µg

Lane 3:
Human spleen tissue lysate 20 µg

Lane 4:
Human fetal brain tissue lysate 20 µg

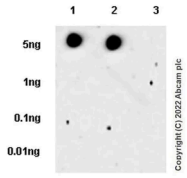
Lane 5:
Human adrenal gland tissue lysate 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Observed band size: 60 kDa

Exposure time: 3min



Dot Blot - Anti-GBA (mutated E326K) antibody [EPR24900-273] (ab302607)

Dot blot analysis of GBA(mutated E326K) using ab302607 at 1:1000 (0.472 ug/ml) followed by a Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated (ab97051) at 1:100,000 dilution. Exposure time: 3 minutes Blocking and diluting buffer and concentration: 5% NFDM/TBST

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