abcam

ab273156

Anti-Syntaxin 1a antibody [EPR23457-15] - 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	EPR23457-15
Purification technique	Affinity purification Protein A
Concentration	1.017 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Mouse, Human
Dilution info	-

Notes	-

Expected

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

WB

Expected

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

ICC/IF

Tested

Species	Mouse, Rat
Dilution info	-
Notes	-

Expected

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

IHC-Fr

Tested

Species	Mouse, Rat
Dilution info	-
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Mouse, Human
Dilution info	-
Notes	-

Expected

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

IHC-P

Tested

Species	Mouse, Rat, Human
Dilution info	-
Notes	-

Target data

See full target information STX1A

Function	Plays an essential role in hormone and neurotransmitter calcium-dependent exocytosis and endocytosis (PubMed:26635000). Part of the SNARE (Soluble NSF Attachment Receptor) complex composed of SNAP25, STX1A and VAMP2 which mediates the fusion of synaptic vesicles with the presynaptic plasma membrane. STX1A and SNAP25 are localized on the plasma membrane while VAMP2 resides in synaptic vesicles. The pairing of the three SNAREs from the N-terminal SNARE motifs to the C-terminal anchors leads to the formation of the SNARE complex,

which brings membranes into close proximity and results in final fusion. Participates in the calcium-dependent regulation of acrosomal exocytosis in sperm (PubMed:23091057). Also plays an important role in the exocytosis of hormones such as insulin or glucagon-like peptide 1 (GLP-1) (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

ab273156 is the carrier-free version of ab272736.

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	Syntaxin 1a also known as STX1A is an essential protein in cellular mechanisms involved in neurotransmitter release. This protein weighing approximately 33 kDa plays a direct role in synaptic vesicle fusion through its function as a member of the SNARE (Soluble N-ethylmaleimide-sensitive factor Attachment protein Receptor) complex. Syntaxin 1a is highly expressed in the brain especially in areas like the hippocampus and cerebral cortex where it facilitates rapid neurotransmission important for communication between neurons.
Biological function summary	The involvement of Syntaxin 1a in synaptic transmission is significant. It forms a complex with other proteins such as SNAP-25 and VAMP enabling the docking and fusion of synaptic vesicles with the presynaptic membrane. This action results in the release of neurotransmitters into the synaptic cleft which then bind to receptors on the postsynaptic neuron to propagate neural signals. Syntaxin 1a ensures efficient synaptic activity and is indispensable for maintaining synaptic plasticity which is critical for learning and memory.
Pathways	Syntaxin 1a is pivotal in the regulation of neurotransmitter release within the synaptic vesicle cycle pathway. This pathway includes the assembly and disassembly of the SNARE complex which are processes vital for neurotransmitter exocytosis. Syntaxin 1a engages closely with proteins like synaptotagmin acting as calcium sensors and Munc18 which helps in initiating SNARE assembly. These interactions highlight the careful orchestration of vesicle trafficking and fusion events necessary for effective synaptic communication.
Associated diseases and disorders	Dysfunctions in Syntaxin 1a are linked to neurological conditions such as epilepsy and autism spectrum disorders. Alterations or mutations in Syntaxin 1a can lead to improper synaptic vesicle fusion and disrupted neurotransmitter release which are characteristics of these disorders. Additionally Syntaxin 1a interacts with proteins like Munc18-1 whose mutations are associated with similar synaptic transmission deficiencies further implicating the involvement of Syntaxin 1a in these pathologies.

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

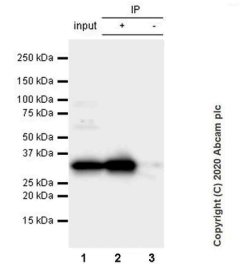
We do not recommend this combination. It is not covered by our product promise.

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.

5 product images



Immunoprecipitation - Anti-Syntaxin 1a antibody [EPR23457-15] - BSA and Azide free (ab273156)

Syntaxin 1a was immunoprecipitated from 0.35 mg human brain tissue lysate 10µg with ab272736 at 1/30 dilution (2µg in 0.35mg lysates). Western blot was performed on the immunoprecipitate using ab272736 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP)(ab131366) was used at 1/5000 dilution.
Lane 1: Human brain tissue lysate 10µg.

Lane 2: ab272736 IP in human brain tissue lysate.

Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab272736 in human brain tissue lysate.

Blocking/Dilution buffer: 5% NFDM/TBST.

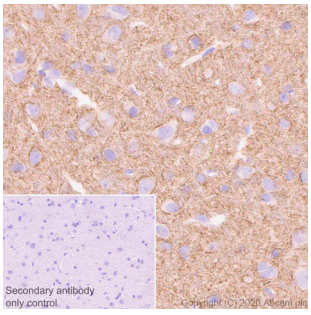
Exposure time: 3.25 seconds.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab272736).

All lanes:
Immunoprecipitation - Anti-Syntaxin 1a antibody [EPR23457-15] (ab272736)

Predicted band size: 33 kDa

Observed band size: 33 kDa



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Syntaxin 1a antibody [EPR23457-15] - BSA and Azide free (ab273156)

Syntaxin 1a Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of Rat cerebrum using rabbit Anti-Syntaxin 1a antibody

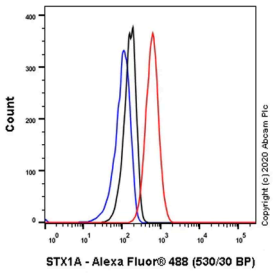
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab272736).
Immunohistochemical analysis of paraffin-embedded rat cerebrum tissue labeling Syntaxin 1a with ab272736 at 1/2000, followed by a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101).

Positive staining on rat cerebrum (PMID: 10644452).
The section was incubated with ab272736 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 Rabbit specific IHC polymer detection kit HRP/DAB (ab209101).

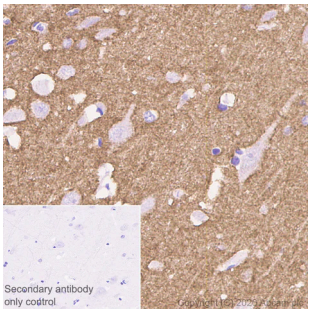
Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins.



Flow Cytometry (Intracellular) - Anti-Syntaxin 1a antibody [EPR23457-15] - BSA and Azide free (ab273156)

Syntaxin 1a Flow Cytometry (Intracellular) staining using rabbit Anti-Syntaxin 1a antibody

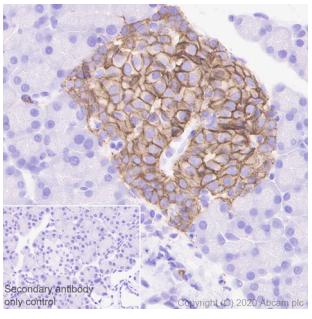
Intracellular flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized Neuro-2a (Mouse neuroblastoma neuroblast) cells labelling Syntaxin 1a with ab272736 at 1/500 dilution (0.1µg) (Red) compared with a Rabbit monoclonal IgG (ab172730) (Black) isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) at 1/2000 dilution was used as the secondary antibody.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab272736).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Syntaxin 1a antibody [EPR23457-15] - BSA and Azide free (ab273156)

Syntaxin 1a Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Syntaxin 1a antibody

Immunohistochemical analysis of paraffin-embedded human cerebrum tissue labeling Syntaxin 1a with ab272736 at 1/2000 followed by ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101). Positive staining on human cerebrum (PMID: 10644452). The section was incubated with ab272736 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 ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101). Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins. This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab272736).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Syntaxin 1a antibody [EPR23457-15] - BSA and Azide free (ab273156)

Syntaxin 1a Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Syntaxin 1a antibody

Immunohistochemical analysis of paraffin-embedded rat pancreas tissue labeling Syntaxin 1a with ab272736 at 1/2000 followed by ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101). Positive staining on rat pancreatic islet (PMID: 8557645, PMID: 32059362). The section was incubated with ab272736 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 ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101). Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0,

epitope retrieval solution2) for 20 mins. This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab272736).

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