abcam

ab272736

Anti-Syntaxin 1a antibody [EPR23457-15]

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	EPR23457-15
Purification technique	Affinity purification Protein A
Concentration	0.531 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Mouse
Dilution info	1/30
Notes	-

Species	Human

Dilution info	1/30
Notes	-

Expected

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

WB

Tested

Species	Mouse
Dilution info	1/1000
Notes	-

Species	Rat
Dilution info	1/1000
Notes	-

Species	Human
Dilution info	1/1000
Notes	-

ICC/IF

Tested

Species	Mouse
Dilution info	1/50
Notes	-

Species	Rat
Dilution info	1/50
Notes	-

Expected

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

IHC-Fr

Tested

Species	Mouse
Dilution info	1/100
Notes	-

Species	Rat
Dilution info	1/100
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Mouse
Dilution info	1/500
Notes	-

Expected

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

Notes	-

IHC-P

Tested

Species	Mouse
Dilution info	1/2000
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Species	Rat
Dilution info	1/2000
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Species	Human
Dilution info	1/2000
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

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	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

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	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

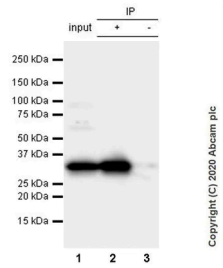
We do not recommend this combination. It is not covered by our product promise.

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.

8 product images



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

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.

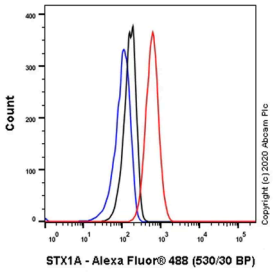
Blocking/Dilution buffer: 5% NFDM/TBST.

Exposure time: 3.25 seconds.

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

Predicted band size: 33 kDa

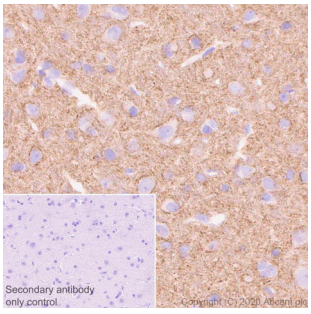
Observed band size: 33 kDa



Flow Cytometry (Intracellular) - Anti-Syntaxin 1a antibody [EPR23457-15] (ab272736)

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.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Syntaxin 1a antibody [EPR23457-15] (ab272736)

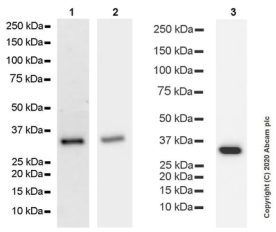
Syntaxin 1a Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining of Rat cerebrum using rabbit Anti-Syntaxin 1a antibody

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.



Western blot - Anti-Syntaxin 1a antibody [EPR23457-15] (ab272736)

Blocking and diluting buffer and concentration: 5% NFDM/TBST.
Exposure time: Lane 1: 3 minutes Lane 2: 3.25 seconds Lane 3: 15 seconds.

All lanes:
Western blot - Anti-Syntaxin 1a antibody [EPR23457-15] (ab272736) at 1/1000 dilution

Lane 1:
SH-SY5Y (human neuroblastoma epithelial cell), whole cell lysate at 20 µg

Lane 2:
Neuro-2a (mouse neuroblastoma neuroblast), whole cell lysate at 20 µg

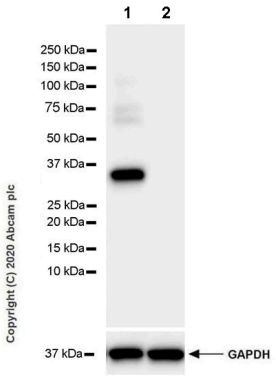
Lane 3:
PC-12 (rat adrenal gland pheochromocytoma), whole cell lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated (ab97051) at 1/100000 dilution

Predicted band size: 33 kDa

Observed band size: 33 kDa



Western blot - Anti-Syntaxin 1a antibody [EPR23457-15] (ab272736)

Syntaxin 1a Western blot staining using rabbit Anti-Syntaxin 1a antibody

Blocking and diluting buffer and concentration: 5% NFDM/TBST.
The expression profile observed is consistent with what have been described in literature (PMID: 10644452).

Negative control: Human liver (PMID: 10644452).

Exposure time: 3.25 seconds.

All lanes:
Western blot - Anti-Syntaxin 1a antibody [EPR23457-15] (ab272736) at 1/2000 dilution

Lane 1:
Human brain tissue lysate at 20 µg

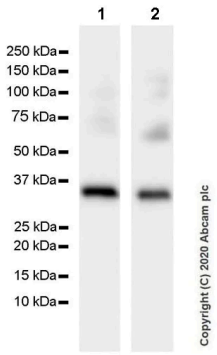
Lane 2:
Human liver tissue lysate at 20 µg

Secondary

All lanes:
VeriBlot for IP secondary antibody(HRP)(ab131366) at 1/1000 dilution

Predicted band size: 33 kDa

Observed band size: 33 kDa



Western blot - Anti-Syntaxin 1a antibody [EPR23457-15] (ab272736)

Syntaxin 1a Western blot staining using rabbit Anti-Syntaxin 1a antibody

Blocking and diluting buffer and concentration: 5% NFDM/TBST.
Exposure time: 3.25 seconds.

All lanes:
Western blot - Anti-Syntaxin 1a antibody [EPR23457-15] (ab272736) at 1/2000 dilution

Lane 1:
Mouse brain tissue lysate at 20 µg

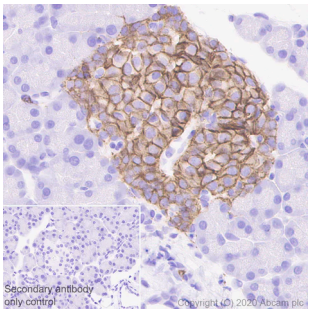
Lane 2:
Rat brain tissue lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated (ab97051) at 1/100000 dilution

Predicted band size: 33 kDa

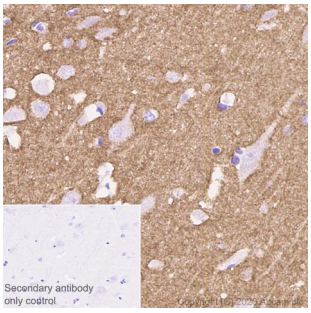
Observed band size: 33 kDa



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Syntaxin 1a antibody [EPR23457-15] (ab272736)

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.



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Syntaxin 1a antibody [EPR23457-15] (ab272736)

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.

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