abcam

ab302519

Anti-Rab3A antibody [EPR26022-9] - BSA and Azide free

Recombinant | RabMAb | KO Validated

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	EPR26022-9
Purification technique	Affinity purification Protein A
Concentration	0.999 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Tested

Species	Human, Mouse, Rat
Dilution info	-

Notes	-

Not recommended

Species	Transfected cell line - Human
Dilution info	-
Notes	-

IHC-P

Tested

Species	Mouse, Rat, Human
Dilution info	-
Notes	-

Not recommended

Species	Transfected cell line - Human
Dilution info	-
Notes	-

Dot

Tested

Species	Transfected cell line - Human
Dilution info	-
Notes	-

Expected

Species	Human, Mouse, Rat
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	-

Not recommended

Species	Transfected cell line - Human
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

Not recommended

Species	Transfected cell line - Human
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

Not recommended

Species	Transfected cell line - Human
Dilution info	-
Notes	-

IP

Tested

Species	Human, Mouse
Dilution info	-
Notes	-

Expected

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

Not recommended

Species	Transfected cell line - Human
Dilution info	-
Notes	-

Target data

See full target information RAB3A

Function	The small GTPases Rab are key regulators of intracellular membrane trafficking, from the formation of transport vesicles to their fusion with membranes (PubMed:2501306). Rabs cycle between an inactive GDP-bound form and an active

GTP-bound form that is able to recruit to membranes different sets of downstream effectors directly responsible for vesicle formation, movement, tethering and fusion (PubMed:2501306). RAB3A plays a central role in regulated exocytosis and secretion. Controls the recruitment, tethering and docking of secretory vesicles to the plasma membrane (PubMed:2501306). Upon stimulation, switches to its active GTP-bound form, cycles to vesicles and recruits effectors such as RIMS1, RIMS2, Rabphilin-3A/RPH3A, RPH3AL or SYTL4 to help the docking of vesicules onto the plasma membrane (By similarity). Upon GTP hydrolysis by GTPase-activating protein, dissociates from the vesicle membrane allowing the exocytosis to proceed (By similarity). Stimulates insulin secretion through interaction with RIMS2 or RPH3AL effectors in pancreatic beta cells (By similarity). Regulates calcium-dependent lysosome exocytosis and plasma membrane repair (PMR) via the interaction with 2 effectors, SYTL4 and myosin-9/MYH9 (PubMed:27325790). Acts as a positive regulator of acrosome content secretion in sperm cells by interacting with RIMS1 (PubMed:22248876, PubMed:30599141). Also plays a role in the regulation of dopamine release by interacting with synaptotagmin I/SYT (By similarity).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	Rab3A also known as Ras-related protein Rab-3A acts as a small GTPase involved in regulating membrane trafficking. Its molecular mass is approximately 25 kDa. Rab3A is highly expressed in neurons particularly at synaptic vesicles. It cycles between an active GTP-bound state and an inactive GDP-bound state to regulate the docking and fusion of synaptic vesicles with the presynaptic membrane.
Biological function summary	Rab3A facilitates neurotransmitter release by interacting with effector proteins such as RIM and Rabphilin-3A. It is part of a larger complex that includes the SNAREs which help mediate synaptic vesicle fusion. Through its regulatory action Rab3A ensures that neurotransmitters are released in a controlled manner during synaptic transmission which is essential for proper neuronal communication.
Pathways	Rab3A participates in the synaptic vesicle cycle which is vital in neurotransmitter release. This cycle involves key proteins like Syntaxin and VAMP. Rab3A interacts with these SNARE proteins to participate in vesicle docking and priming. Additionally it plays a role in the calcium-dependent exocytosis pathway which relies on calcium ions triggering vesicle fusion at nerve terminals.

Associated diseases and disorders	Rab3A associates with neurological conditions such as epilepsy and synaptic dysfunction. Dysfunction in Rab3A mechanisms can lead to improper neurotransmitter release and synaptic connectivity contributing to these conditions. The protein links to diseases through its interactions with proteins such as RIM which can also affect synaptic function and are implicated in certain neurodevelopmental disorders.

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

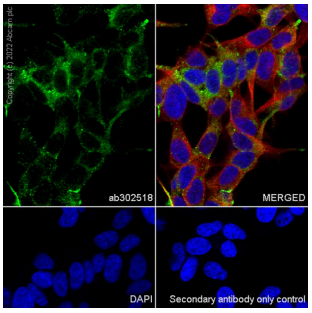
We do not recommend this combination. It is not covered by our product promise.

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.

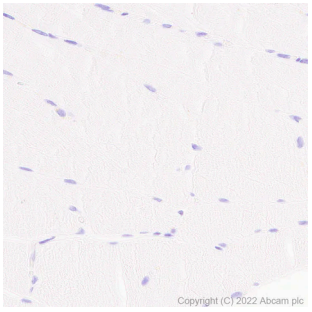
Full details and terms and conditions can be found here:
Terms & Conditions.

22 product images



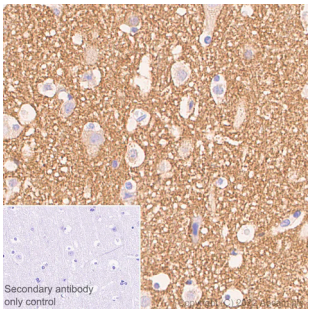
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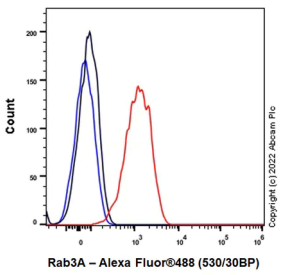
Immunohistochemistry - Anti-Rab3A antibody [EPR26022-9] - BSA and Azide free (ab302519)

This data was developed using ab302518, the same antibody clone in a different buffer formulation. Immunohistochemical analysis of paraffin-embedded Human skeletal muscle tissue labeling Rab3A with ab302518 at 1/5000 (0.11 ug/ml) followed by a LeicaDS9800 (Bond☒ Polymer Refine Detection) was used at Ready to use dilution. Negative control: No staining on human skeletal muscle. The section was incubated with ab302518 for 10 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 LeicaDS9800 (Bond☒ Polymer Refine Detection) was used at Ready to use dilution. Heat mediated antigen retrieval with Citrate buffer (pH 6.0, epitope retrieval solution 1) for 20 mins



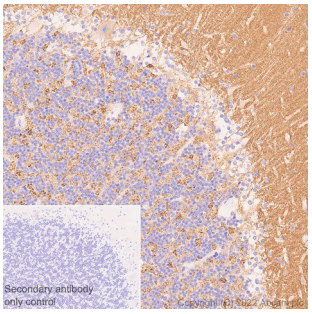
Immunohistochemistry - Anti-Rab3A antibody [EPR26022-9] - BSA and Azide free (ab302519)

This data was developed using ab302518, the same antibody clone in a different buffer formulation. Immunohistochemical analysis of paraffin-embedded Human cerebrum tissue labeling Rab3A with ab302518 at 1/5000 (0.11 ug/ml) followed by a LeicaDS9800 (Bond☒ Polymer Refine Detection) was used at Ready to use dilution. Cytoplasmic staining on human cerebrum (PMID: 26076492).The section was incubated with ab302518 for 10 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 LeicaDS9800 (Bond☒ Polymer Refine Detection) was used at Ready to use dilution. Heat mediated antigen retrieval with Citrate buffer (pH 6.0, epitope retrieval solution 1) for 20 mins



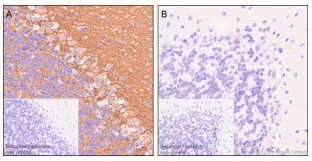
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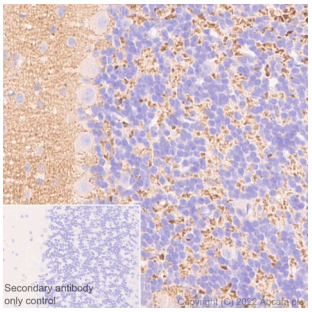
Immunohistochemistry - Anti-Rab3A antibody [EPR26022-9] - BSA and Azide free (ab302519)

This data was developed using ab302518, the same antibody clone in a different buffer formulation. Immunohistochemical analysis of paraffin-embedded Human cerebellum tissue labeling Rab3A with ab302518 at 1/5000 (0.11 ug/ml) followed by a LeicaDS9800 (Bond☒ Polymer Refine Detection) was used at Ready to use dilution. Cytoplasmic staining on human cerebellum. The section was incubated with ab302518 for 10 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 LeicaDS9800 (Bond☒ Polymer Refine Detection) was used at Ready to use dilution. Heat mediated antigen retrieval with Citrate buffer (pH 6.0, epitope retrieval solution 1) for 20 mins



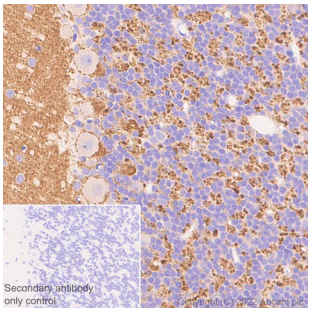
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Rab3A antibody [EPR26022-9] - BSA and Azide free (ab302519)

This data was developed using ab302518, the same antibody clone in a different buffer formulation. Immunohistochemical analysis of paraffin-embedded (A) Cerebellum tissue from wild-type C57BL/6JGpt mice (B) Cerebellum tissue from Rab3A knockout mice labeling Rab3A with ab302518 at 1/5000 dilution (0.11 µg/ml) followed by a ready to use LeicaDS9800 (BOND™ Polymer Refine Detection). Sections were fixed and counterstained with Hematoxylin. Antigen retrieval was Heat mediated with Citrate buffer (pH 6.0, Epitope Retrieval Solution 1) for 20 mins. Positive staining on (A) Cerebellum tissue from wild-type C57BL/6JGpt mice and no staining on (B) Cerebellum tissue from Rab3A knockout mice. The section was incubated with ab302518 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. The tissue samples were kindly provided by GemPharmatech. C57BL/6JGpt wildtype mice and Rab3A-KO homozygous mice (Strain ID: T016905).



Immunohistochemistry - Anti-Rab3A antibody [EPR26022-9] - BSA and Azide free (ab302519)

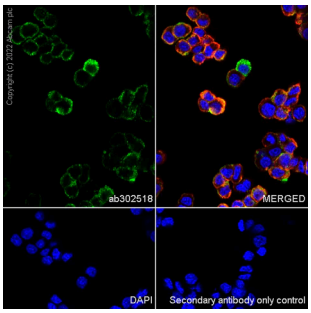
This data was developed using ab302518, the same antibody clone in a different buffer formulation. Immunohistochemical analysis of paraffin-embedded Mouse cerebellum tissue labeling Rab3A with ab302518 at 1/5000 (0.11 ug/ml) followed by a LeicaDS9800 (Bond☒ Polymer Refine Detection) was used at Ready to use dilution. Cytoplasmic staining on mouse cerebellum (PMID: 10407024).The section was incubated with ab302518 for 10 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 LeicaDS9800 (Bond☒ Polymer Refine Detection) was used at Ready to use dilution. Heat mediated antigen retrieval with Citrate buffer (pH 6.0, epitope retrieval solution 1) for 20 mins



Immunohistochemistry - Anti-Rab3A antibody [EPR26022-9] - BSA and Azide free (ab302519)

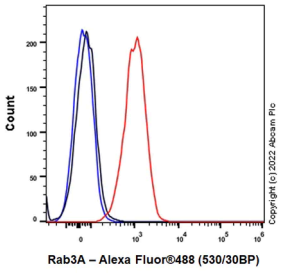
This data was developed using ab302518, the same antibody clone in a different buffer formulation. Immunohistochemical analysis of paraffin-embedded Rat cerebellum tissue labeling Rab3A with ab302518 at 1/5000 (0.11 ug/ml) followed by a LeicaDS9800 (Bond☒ Polymer Refine Detection) was used at Ready to use dilution. Cytoplasmic staining on rat cerebellum (PMID: 12937130).The section was incubated with ab302518 for 10 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 LeicaDS9800 (Bond☒

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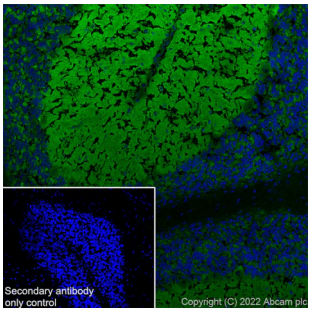
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This data was developed using ab302518, the same antibody clone in a different buffer formulation.Immunofluorescent analysis of 4% Paraformaldehyde-fixed, 0.1% TritonX-100 permeabilized PC-12 (rat adrenal gland pheochromocytoma small irregularly shaped cells) cells labelling Rab3A with ab302518 at 1/50 (11.0 ug/ml) dilution, followed by ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed antibody at 1/1000 2ug/ml dilution (Green). Confocal image showing cytoplasmic staining in PC-12 cell line is observed. ab195889 Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 2.5ug/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 2ug/ml dilution.



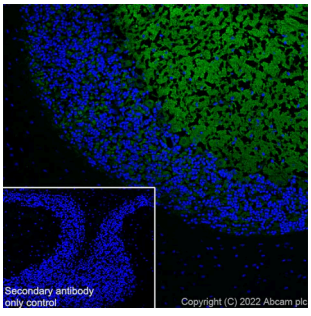
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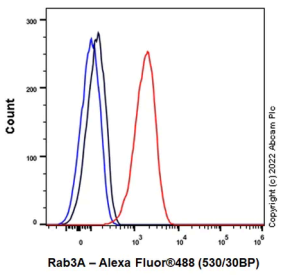
Immunohistochemistry (Frozen sections) - Anti-Rab3A antibody [EPR26022-9] - BSA and Azide free (ab302519)

This data was developed using ab302518, the same antibody clone in a different buffer formulation. Immunohistochemical analysis of 4% PFA-fixed, 0.2% Triton X-100 permeabilized frozen Mouse cerebellum (fresh) tissue labeling Rab3A with ab302518 at 1/500 (1.1 ug/ml) dilution followed by ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbed at 1/1000 2 ug/mL dilution (Green). Positive staining on mouse cerebellum is observed. The nuclear counterstain was DAPI (Blue). Secondary antibody control: Secondary antibody is ab150081 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) preadsorbedat 1/1000 2 ug/mL dilution.<\p> .



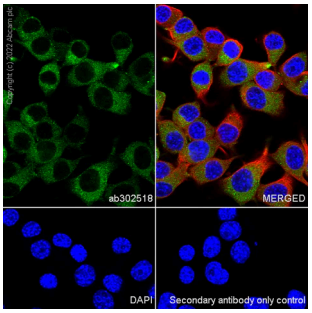
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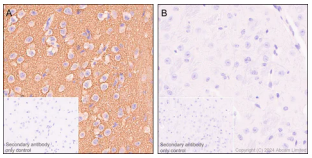
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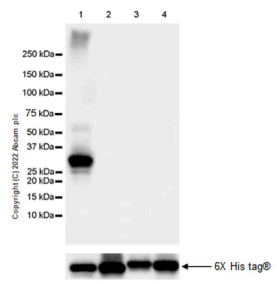
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Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Rab3A antibody [EPR26022-9] - BSA and Azide free (ab302519)

This data was developed using ab302518, the same antibody clone in a different buffer formulation. Immunohistochemical analysis of paraffin-embedded (A) Brain cortex tissue from wild-type C57BL/6JGpt mice (B) Brain cortex tissue from Rab3A knockout mice labeling Rab3A with ab302518 at 1/5000 dilution (0.11 µg/ml) followed by a ready to use LeicaDS9800 (BOND™ Polymer Refine Detection). Sections were fixed and counterstained with Hematoxylin. Antigen retrieval was Heat mediated with Citrate buffer (pH 6.0, Epitope Retrieval Solution 1) for 20 mins. Positive staining on (A) Brain cortex tissue from wild-type C57BL/6JGpt mice and no staining on (B) Brain cortex tissue from Rab3A knockout mice. The section was incubated with ab302518 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. The tissue samples were kindly provided by GemPharmatech. C57BL/6JGpt wildtype mice and Rab3A-KO homozygous mice (Strain ID: T016905).



Western blot - Anti-Rab3A antibody [EPR26022-9] - BSA and Azide free (ab302519)

Rab3A Western blot staining using rabbit Anti-Rab3A antibody

This data was developed using ab302518, the same antibody clone in a different buffer formulation.

Blocking and dilution buffer: 5% NFDM/TBST.

Bands above 150 kDa may be Rab3A aggregates.

Lanes 1 - 4:
Western blot - Anti-Rab3A antibody [EPR26022-9] (ab302518) at 1/1000 dilution

Lanes 1 - 4:
Western blot - Anti-Rab3A antibody [EPR26022-9] - BSA and Azide free (ab302519) at 1/1000 dilution

Lane 1:
HEK-293T cells transfected with a human RAB3A expression vector containing a myc-His-tag®, whole cell lysate at 10 µg

Lane 2:
HEK-293T cells transfected with a human RAB3B expression vector containing a myc-His-tag®, whole cell lysate at 10 µg

Lane 3:
HEK-293T cells transfected with a human RAB3C expression vector containing a myc-His-tag®, whole cell lysate at 10 µg

Lane 4:
HEK-293T cells transfected with a human RAB3D expression vector containing a myc-His-tag®, whole cell lysate at 10 µg

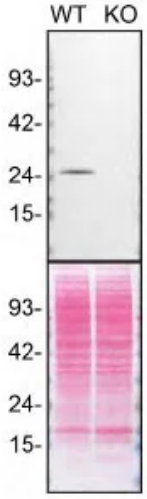
Secondary

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

Predicted band size: 24 kDa

Observed band size: 25 kDa

Exposure time: 5.5s



Western blot - Anti-Rab3A antibody [EPR26022-9] - BSA and Azide free (ab302519)

Rab3A Western blot staining using rabbit Anti-Rab3A antibody

This data was developed using ab302518, the same antibody clone in a different buffer formulation.

ab302518 was shown to react with RAB3A in wild-type SKNFI cells in Western blot with loss of signal observed in a RAB3A knockout cell line. Wild-type SKNFI and RAB3A knockout cell lysates were subjected to SDS-PAGE. Membranes were blocked in 5% milk in TBST for 1 hr before incubation with ab302518 overnight at 4 °C at a 1/1000 dilution. Blots were incubated with secondary antibodies at 0.2 µg/mL before imaging.

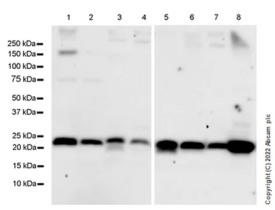
These data were provided by YCharOS Inc., an open science company with the mission of characterizing commercially available antibody reagents for all human proteins. Abcam and YCharOS are working together to help address the reproducibility crisis by enabling the life science community to better evaluate commercially available antibodies.

All lanes:
Western blot - Anti-Rab3A antibody [EPR26022-9] (ab302518) at 1/1000 dilution

Lane 1:
Wild-type SKNFI lysate at 40 µg

Lane 2:

Western blot - Human RAB3A knockout SK-N-FI cell line (ab288708) at 40 µg



Western blot - Anti-Rab3A antibody [EPR26022-9] - BSA and Azide free (ab302519)

Rab3A Western blot staining using rabbit Anti-Rab3A antibody

This data was developed using ab302518, the same antibody clone in a different buffer formulation.

Blocking and dilution buffer: 5% NFDM/TBST.

Bands above 150 kDa may be Rab3A aggregates.

All lanes:
Western blot - Anti-Rab3A antibody [EPR26022-9] (ab302518) at 1/1000 dilution

Lane 1:
Mouse eyeball tissue lysate at 20 µg

Lane 2:
Rat eyeball tissue lysate at 20 µg

Lane 3:
SH-SY5Y (human neuroblastoma epithelial cell) whole cell lysate at 20 µg

Lane 4:
SK-N-BE(2) (human neuroblastoma neuroblast) whole cell lysate at 20 µg

Lane 5:
PC-12 (rat adrenal gland pheochromocytoma cell) whole cell lysate at 20 µg

Lane 6:
AR42J (rat pancreatic tumor epithelial cell) whole cell lysate at 20 µg

Lane 7:
Neuro-2a (mouse neuroblastoma neuroblast) whole cell lysate at 20 µg

Lane 8:
Beta-TC-6 (mouse pancreas insulinoma beta cell) whole cell lysate at 20 µg

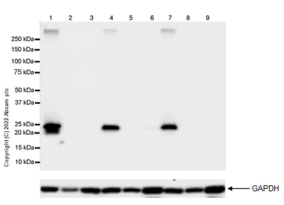
Secondary

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

Predicted band size: 24 kDa

Observed band size: 25 kDa

Exposure time: 37s



Western blot - Anti-Rab3A antibody [EPR26022-9] - BSA and Azide free (ab302519)

Rab3A Western blot staining using rabbit Anti-Rab3A antibody

This data was developed using ab302518, the same antibody clone in a different buffer formulation.

Blocking and dilution buffer: 5% NFDM/TBST.

Negative controls: liver, skeletal muscle (PMID: 11865063).

Bands above 250 kDa may be Rab3A aggregates.

All lanes:
Western blot - Anti-Rab3A antibody [EPR26022-9] (ab302518) at 1/1000 dilution

Lane 1:
Human cerebellum tissue lysate at 20 µg

Lane 2:
Human liver tissue lysate at 20 µg

Lane 3:
Human skeletal muscle tissue lysate at 20 µg

Lane 4:
Rat cerebellum tissue lysate at 20 µg

Lane 5:
Rat liver tissue lysate at 20 µg

Lane 6:
Rat skeletal muscle tissue lysate at 20 µg

Lane 7:
Mouse cerebellum tissue lysate at 20 µg

Lane 8:
Mouse liver tissue lysate at 20 µg

Lane 9:
Mouse skeletal muscle tissue lysate at 20 µg

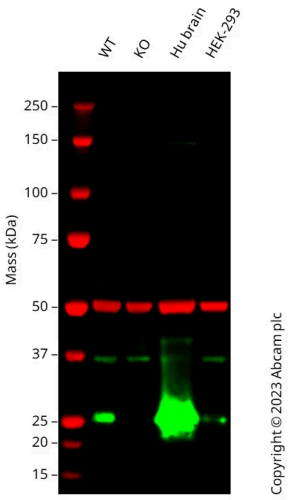
Secondary

All lanes:
Goat Anti-Rabbit IgG (HRP) with minimal cross-reactivity with human IgG at 1/4000 dilution

Predicted band size: 24 kDa

Observed band size: 25 kDa

Exposure time: 3s



Western blot - Anti-Rab3A antibody [EPR26022-9] - BSA and Azide free (ab302519)

Rab3A Western blot staining using rabbit Anti-Rab3A antibody

This data was developed using ab302518, the same antibody clone in a different buffer formulation.
Anti-RAB3A antibody [EPR26022-9] (ab302518) staining at 1/1000 dilution, shown in green; Mouse anti-Alpha Tubulin [DM1A] (ab7291) loading control staining at 1/20000 dilution, shown in red. In Western blot, ab302518 was shown to bind specifically to RAB3A. A band was observed at 27 kDa in wild-type SKNFI cell lysates with no signal observed at this size in RAB3A knockout cell line. To generate this image, wild-type and RAB3A knockout SKNFI cell lysates were analysed. First, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 3% 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 IgG H&L 800CW and Goat anti-Mouse IgG H&L 680RD at 1/20000 dilution.

All lanes:
Western blot - Anti-Rab3A antibody [EPR26022-9] (ab302518) at 1/1000 dilution

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

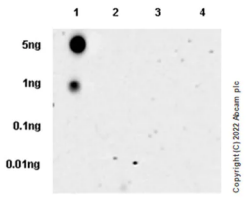
Lane 2:
Western blot - Human RAB3A knockout SK-N-FI cell line (ab288708) at 20 µg

Lane 3:
Human brain cell lysate at 20 µg

Lane 4:
HEK-293 cell lysate at 20 µg

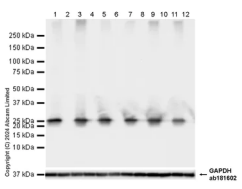
Performed under reducing conditions.

Observed band size: 27 kDa



Dot Blot - Anti-Rab3A antibody [EPR26022-9] - BSA and Azide free (ab302519)

This data was developed using ab302518, the same antibody clone in a different buffer formulation. Dot blot analysis of Rab3A using ab302518 at 1:1000 (0.55 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



Western blot - Anti-Rab3A antibody [EPR26022-9] - BSA and Azide free (ab302519)

Loading control: Anti-GAPDH antibody [EPR16891] - Loading Control (ab181602) (1:200000) (36KDa) Blocking/Diluting buffer and concentration: 5% NFDM/TBST The tissue samples were kindly provided by GemPharmatech. C57BL/6JGpt wildtype mice and Rab3A-KO homozygous mice (Strain ID: T016905).
Lanes 1 - 12:
Western blot - Anti-Rab3A antibody [EPR26022-9] (ab302518) at 1/1000 dilution

Lanes 1 - 12:
Western blot - Anti-Rab3A antibody [EPR26022-9] - BSA and Azide free (ab302519)

Lane 1:
Wild-type mouse cerebellum tissue lysate (male)

Lane 2:
Rab3A knockout cerebellum tissue lysate (male)

Lane 3:
Wild-type mouse brain cortex tissue lysate (male)

Lane 4:
Rab3A knockout brain cortex tissue lysate (male)

Lane 5:
Wild-type mouse striatum tissue lysate (male)

Lane 6:
Rab3A knockout striatum tissue lysate (male)

Lane 7:
Wild-type mouse cerebellum tissue lysate (female)

Lane 8:
Rab3A knockout cerebellum tissue lysate (female)

Lane 9:
Wild-type mouse brain cortex tissue lysate (female)

Lane 10:
Rab3A knockout brain cortex tissue lysate (female)

Lane 11:
Wild-type mouse striatum tissue lysate (female)

Lane 12:
Rab3A knockout striatum tissue lysate (female)

Secondary

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

Observed band size: 25 kDa

Exposure time: 1s

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