abcam

ab282104

Anti-Calcineurin A antibody [EPR24997-22]

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	EPR24997-22
Purification technique	Affinity purification Protein A
Concentration	0.524 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Tested

Species	Mouse
Dilution info	1/50
Notes	-

Species	Human

Dilution info	1/50
Notes	-

Expected

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

Not recommended

Species	Recombinant full length protein - Human
Dilution info	-
Notes	-

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	-

Not recommended

Species	Recombinant full length protein - Human

Dilution info	-
Notes	-

WB

Tested

Species	Mouse
Dilution info	1/1000
Notes	-

Species	Rat
Dilution info	1/1000
Notes	-

Species	Human
Dilution info	1/1000
Notes	-

Species	Recombinant full length protein - Human
Dilution info	1/1000
Notes	-

Flow Cyt (Intra)

Tested

Species	Mouse
Dilution info	1/500
Notes	-

Species	Human
Dilution info	1/500
Notes	-

Expected

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

Not recommended

Species	Recombinant full length protein - Human
Dilution info	-
Notes	-

IHC-P

Tested

Species	Rat
Dilution info	1/100
Notes	-

Species	Mouse
Dilution info	1/100
Notes	-

Species	Human
Dilution info	1/100
Notes	-

Not recommended

Species	Recombinant full length protein - Human
Dilution info	-
Notes	-

Target data

See full target information PPP3CA

Function	Calcium-dependent, calmodulin-stimulated protein phosphatase which plays an essential role in the transduction of intracellular Ca(2+)-mediated signals (PubMed:15671020, PubMed:18838687, PubMed:19154138, PubMed:23468591, PubMed:30254215). Many of the substrates contain a PxIxIT motif and/or a LxVP motif (PubMed:17498738, PubMed:17502104, PubMed:22343722, PubMed:23468591, PubMed:27974827). In response to increased Ca(2+) levels, dephosphorylates and activates phosphatase SSH1 which results in cofilin dephosphorylation (PubMed:15671020). In response to increased Ca(2+) levels following mitochondrial depolarization, dephosphorylates DNM1L inducing DNM1L translocation to the mitochondrion (PubMed:18838687). Positively regulates the CACNA1B/CAV2.2-mediated Ca(2+) release probability at hippocampal neuronal soma and synaptic terminals (By similarity). Dephosphorylates heat shock protein HSPB1 (By similarity). Dephosphorylates and activates transcription factor NFATC1 (PubMed:19154138). In response to increased Ca(2+) levels, regulates NFAT-mediated transcription probably by dephosphorylating NFAT and promoting its nuclear translocation (PubMed:26248042). Dephosphorylates and inactivates transcription factor ELK1 (PubMed:19154138). Dephosphorylates DARPP32 (PubMed:19154138). May dephosphorylate CRTC2 at 'Ser-171' resulting in CRTC2 dissociation from 14-3-3 proteins (PubMed:30611118). Dephosphorylates transcription factor TFEB at 'Ser-211' following Coxsackievirus B3 infection, promoting nuclear translocation (PubMed:33691586). Required for postnatal development of the nephrogenic zone and superficial glomeruli in the kidneys, cell cycle homeostasis in the nephrogenic zone, and ultimately normal kidney function (By similarity). Plays a role in intracellular AQP2 processing and localization to the apical membrane in the kidney, may thereby be required for efficient kidney filtration (By similarity). Required for secretion of salivary enzymes amylase, peroxidase, lysozyme and sialic acid via formation of secretory vesicles in the submandibular glands (By similarity). Required for calcineurin activity and homosynaptic depotentiation in the hippocampus (By similarity). Required for normal differentiation and survival of keratinocytes and therefore required for epidermis superstructure formation (By similarity). Positively regulates osteoblastic bone formation, via promotion of osteoblast differentiation (By similarity). Positively regulates osteoclast differentiation, potentially via NFATC1 signaling (By similarity). May play a role in skeletal muscle fiber type specification, potentially via NFATC1 signaling (By similarity). Negatively regulates MAP3K14/NIK signaling via inhibition of nuclear translocation of the transcription factors RELA and RELB (By similarity). Required for antigen-specific T-cell proliferation response (By similarity). Dephosphorylates KLHL3, promoting the interaction between KLHL3 and WNK4 and subsequent degradation of WNK4 (PubMed:30718414). Negatively regulates SLC9A1 activity (PubMed:31375679).

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	Calcineurin A also known as PPP3CA is a highly specific protein phosphatase with a pivotal role in cellular signaling. It has a molecular mass of approximately 59 to 61 kDa depending on the isoform. Calcineurin A expression occurs in various tissues including the brain immune cells and cardiac tissues. It acts as the catalytic subunit of the enzyme calcineurin and is important for its function.
Biological function summary	Calcineurin A participates in numerous cellular processes through its phosphatase activity. As part of the calcineurin complex which includes a regulatory subunit it modulates the dephosphorylation of target proteins. This activity enables Calcineurin A to influence activation of T-lymphocytes by dephosphorylating the nuclear factor of activated T-cells (NFAT) a transcription factor responsible for immune response. Calcineurin A also plays a role in neuronal signaling and muscle function.
Pathways	Calcineurin A engages in the calcium signaling pathway which is vital for diverse cellular functions. It is related to proteins like calmodulin which binds calcium ions to activate Calcineurin A. Another important pathway includes the MAPK signaling pathway where Calcineurin A influences various cellular outcomes by regulating different transcription factors. Through these pathways Calcineurin A integrates signals that affect cellular growth survival and differentiation.
Associated diseases and disorders	Calcineurin A is associated with cardiac hypertrophy and immunosuppressive conditions. In cardiac hypertrophy aberrant Calcineurin A activity leads to changes

in heart muscle size and function. The protein also connects to the disorder of immunosuppression through its inhibition by drugs like cyclosporine which are used to prevent transplant rejection by targeting Calcineurin A. This inhibition blocks T-cell activation and provides therapeutic benefits in managing transplant patients.

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

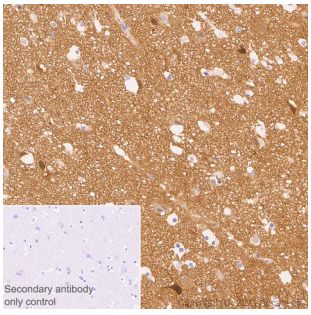
We do not recommend this combination. It is not covered by our product promise.

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.

15 product images

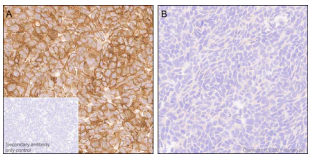


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Calcineurin A antibody [EPR24997-22] (ab282104)

Calcineurin A Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Calcineurin A antibody

Immunohistochemical analysis of paraffin-embedded Human cerebrum tissue labelling Calcineurin A with ab282104 at 1/2000 dilution (0.267 ug/ml) followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Cytoplasmic staining on human cerebrum (PMID: 28524178). The section was incubated with ab282104 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 Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins

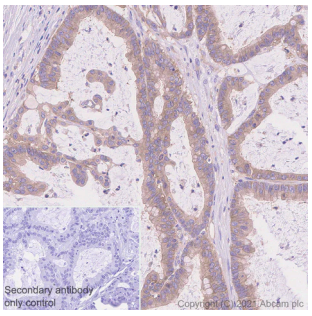


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Calcineurin A antibody [EPR24997-22] (ab282104)

Calcineurin A Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Calcineurin A antibody

Immunohistochemical analysis of paraffin-embedded Parental HAP1 cell pellet (A) and PPP3CA KO HAP1 cell pellet (B) labelling Calcineurin A with ab282104 at 1/100 dilution (5.33 ug/ml) followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Cytoplasmic staining on parental HAP1 cell pellet (A) and no staining on PPP3CA KO HAP1 cell pellet (B). The section was incubated with ab282104 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 Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins

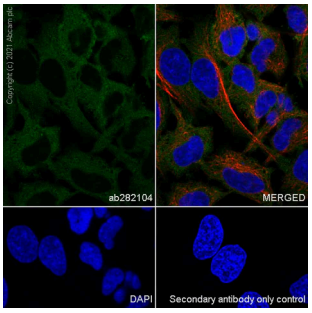


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Calcineurin A antibody [EPR24997-22] (ab282104)

Calcineurin A Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Calcineurin A antibody

Immunohistochemical analysis of paraffin-embedded Human colon carcinoma tissue labelling Calcineurin A with ab282104 at 1/2000 dilution (0.267 ug/ml) followed by a ready to use Goat Anti-Rabbit IgG H&L (HRP polymer). Cytoplamic staining on human colon carcinoma. Counterstained with Hematoxylin.
Secondary antibody only control: Secondary antibody is a ready to use Goat Anti-Rabbit IgG H&L (HRP polymer).

Heat mediated antigen retrieval using ab93684 (Tris/EDTA buffer, pH 9.0)

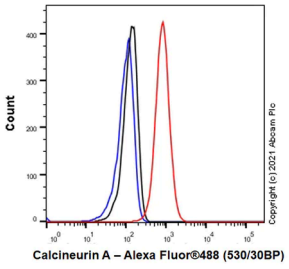


Immunocytochemistry/ Immunofluorescence - Anti-Calcineurin A antibody [EPR24997-22] (ab282104)

Calcineurin A Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Calcineurin A antibody

Immunofluorescent analysis of 100% methanol-fixed, 0.1% TritonX-100 permeabilized HeLa (Human cervix adenocarcinoma) cells labelling Calcineurin A with ab282104 at 1/50 dilution (10.66 ug/ml), followed by ab150077 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) antibody at 1/1000 dilution (Green). Confocal image showing cytoplasmic staining in HeLa cell line is observed. ab195889 Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 dilution (Red). The Nuclear counterstain was DAPI (Blue).

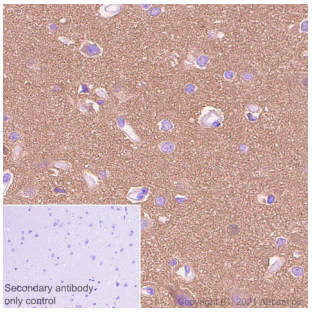
Secondary antibody only control: Secondary antibody is ab150077 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) at 1/1000 dilution.



Flow Cytometry (Intracellular) - Anti-Calcineurin A antibody [EPR24997-22] (ab282104)

Calcineurin A Flow Cytometry (Intracellular) staining using rabbit Anti-Calcineurin A antibody

Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized HeLa (Human cervix adenocarcinoma) cells labelling Calcineurin A with ab282104 at 1/500 dilution (0.1ug) (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). A Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) at 1/2000 dilution was used as the secondary antibody.

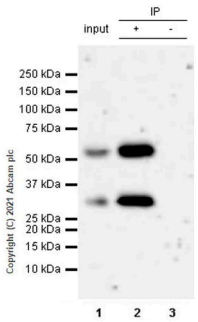


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Calcineurin A antibody [EPR24997-22] (ab282104)

Calcineurin A Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Calcineurin A antibody

Immunohistochemical analysis of paraffin-embedded Human astrocytoma tissue labelling Calcineurin A with ab282104 at 1/2000 dilution (0.267 ug/ml) followed by a ready to use Goat Anti-Rabbit IgG H&L (HRP polymer). Cytoplamic staining on human astrocytoma. Counterstained with Hematoxylin.
Secondary antibody only control: Secondary antibody is a ready to use Goat Anti-Rabbit IgG H&L (HRP polymer).

Heat mediated antigen retrieval using ab93684 (Tris/EDTA buffer, pH 9.0)



Immunoprecipitation - Anti-Calcineurin A antibody [EPR24997-22] (ab282104)

Calcineurin A was immunoprecipitated from 0.35 mg HeLa (Human cervix adenocarcinoma) whole cell lysate with ab282104 at 1/30 dilution (2ug in 0.35mg lysates). Western blot was performed on the immunoprecipitate using ab282104 at 1/1000 dilution. VeriBlot for IP secondary antibody(HRP)(ab131366) was used at 1/5000 dilution.
Lane 1: HeLa (Human cervix adenocarcinoma) whole cell lysate 10 ug

Lane 2: ab282104 IP in HeLa whole cell lysate

Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab282104 in HeLa whole cell lysate

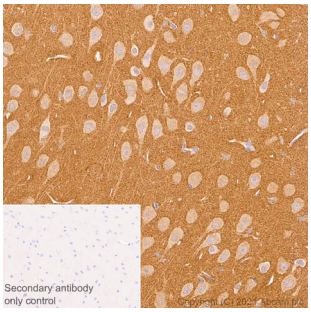
Blocking and dilution buffer and concentration: 5% NFDM/TBST.

Exposure time: 3 minutes

All lanes:
Immunoprecipitation - Anti-Calcineurin A antibody [EPR24997-22] (ab282104)

Predicted band size: 59 kDa

Observed band size: 32 kDa, 59 kDa



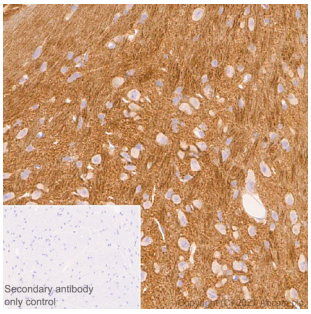
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Calcineurin A antibody [EPR24997-22] (ab282104)

Calcineurin A Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Calcineurin A antibody

Immunohistochemical analysis of paraffin-embedded Rat cerebrum tissue labelling Calcineurin A with ab282104 at 1/2000 dilution (0.267 ug/ml) followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Cytoplasmic staining on rat cerebrum. The section was incubated with ab282104 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 Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins

---

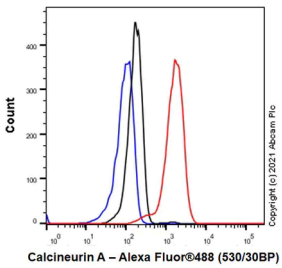


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Calcineurin A antibody [EPR24997-22] (ab282104)

Calcineurin A Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-Calcineurin A antibody

Immunohistochemical analysis of paraffin-embedded Mouse cerebrum tissue labelling Calcineurin A with ab282104 at 1/2000 dilution (0.267 ug/ml) followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection). Cytoplasmic staining on mouse cerebrum. The section was incubated with ab282104 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).

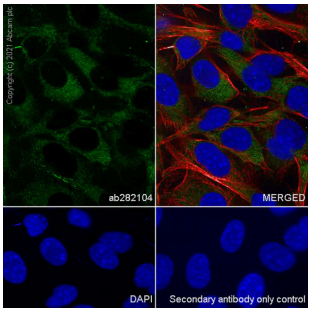
Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins



Flow Cytometry (Intracellular) - Anti-Calcineurin A antibody [EPR24997-22] (ab282104)

Calcineurin A Flow Cytometry (Intracellular) staining using rabbit Anti-Calcineurin A antibody

Flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized NIH/3T3 (Mouse embryonic fibroblast) cells labelling Calcineurin A with ab282104 at 1/500 dilution (0.1ug) (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). A Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) at 1/2000 dilution was used as the secondary antibody.

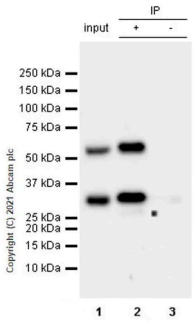


Immunocytochemistry/ Immunofluorescence - Anti-Calcineurin A antibody [EPR24997-22] (ab282104)

Calcineurin A Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Calcineurin A antibody

Immunofluorescent analysis of 100% methanol-fixed, 0.1% TritonX-100 permeabilized NIH/3T3 (Mouse embryonic fibroblast) cells labelling Calcineurin A with ab282104 at 1/50 dilution (10.66 ug/ml), followed by ab150077 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) antibody at 1/1000 dilution (Green). Confocal image showing cytoplasmic staining in NIH/3T3 cell line is observed. ab195889 Anti-alpha Tubulin mouse monoclonal antibody - Microtubule Marker (Alexa Fluor® 594) was used to counterstain tubulin at 1/200 dilution (Red). The Nuclear counterstain was DAPI (Blue).

Secondary antibody only control: Secondary antibody is ab150077 Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) at 1/1000 dilution.



Immunoprecipitation - Anti-Calcineurin A antibody [EPR24997-22] (ab282104)

Calcineurin A was immunoprecipitated from 0.35 mg NIH/3T3 (mouse embryonic fibroblast) whole cell lysate with ab282104 at 1/30 dilution (2ug in 0.35mg lysates). Western blot was performed on the immunoprecipitate using ab282104 at 1/1000 dilution. VeriBlot for IP secondary antibody(HRP)(ab131366) was used at 1/5000 dilution.
Lane 1: NIH/3T3 (mouse embryonic fibroblast) whole cell lysate10 ug

Lane 2: ab282104 IP in NIH/3T3 whole cell lysate

Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab282104 in NIH/3T3 whole cell lysate

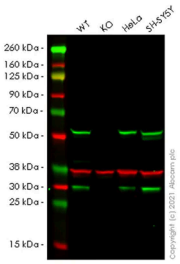
Blocking and dilution buffer and concentration: 5% NFDM/TBST.

Exposure time: 59 seconds

All lanes:
Immunoprecipitation - Anti-Calcineurin A antibody [EPR24997-22] (ab282104)

Predicted band size: 59 kDa

Observed band size: 32 kDa, 59 kDa



Western blot - Anti-Calcineurin A antibody [EPR24997-22] (ab282104)

Calcineurin A Western blot staining using rabbit Anti-Calcineurin A antibody

Blocking and diluting buffer and concentration: Intercept® (TBS) Blocking Buffer diluted with an equal volume of 0.1% TBS
Lanes 1-4: Merged signal (red and green). Green - ab282104 observed at 59/32 kDa. Red - loading control ab8245 observed at 36 kDa.

ab282104 Anti-PPP3CA antibody [EPR24997-22 HT] was shown to specifically react with PPP3CA in wild-type HAP1 cells. Loss of signal was observed when the knockout cell line was used. Wild-type and PPP3CA knockout samples were subjected to SDS-PAGE. ab282104 and Anti-GAPDH antibody [6C5] - Loading Control (ab8245) were incubated at 4☒ overnight at 1/1000 dilution and 1/20000 dilution respectively. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preadsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preadsorbed (ab216776) secondary antibodies at 1/10000 dilution for 1 hour at room temperature before imaging.

The expression pattern & observed MW are consistent with what has been described in the literature (PMID:17785681).

All lanes:
Western blot - Anti-Calcineurin A antibody [EPR24997-22] (ab282104) at 1/1000 dilution

Lane 1:
Wild-type HAP1 (human chronic myelogenous leukemia near-haploid cell) whole cell lysate at 20 µg

Lane 2:
PPP3CA knockout HAP1 (human chronic myelogenous leukemia near-haploid cell) whole cell lysate at 20 µg

Lane 3:
HeLa (human cervix adenocarcinoma epithelial cell) whole cell lysate at 20 µg

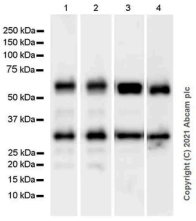
Lane 4:
SH-SY5Y (human neuroblastoma epithelial cell) whole cell lysate at 20 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG H&L (IRDye® 800CW) (ab216773) and Goat Anti-Mouse IgG H&L (IRDye® 680RD) (ab216776) at 1/10000 dilution

Predicted band size: 59 kDa

Observed band size: 32 kDa, 59 kDa



Western blot - Anti-Calcineurin A antibody [EPR24997-22] (ab282104)

Calcineurin A Western blot staining using rabbit Anti-Calcineurin A antibody

Blocking and diluting buffer and concentration: 5% NFDM/TBST
The expression pattern & observed MW are consistent with what has been described in the literature (PMID: 17785681).

Exposure time: Lane 1-2: 3.25 seconds Lane 3: 26 seconds Lane 4: 59 seconds
All lanes:
Western blot - Anti-Calcineurin A antibody [EPR24997-22] (ab282104) at 1/1000 dilution

Lane 1:
Mouse brain tissue lysate at 20 µg

Lane 2:
Rat brain tissue lysate at 20 µg

Lane 3:
Mouse lung tissue lysate at 20 µg

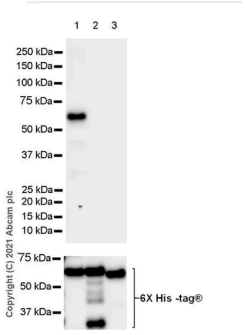
Lane 4:
Rat lung tissue lysate at 20 µg

Secondary

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

Predicted band size: 59 kDa

Observed band size: 32 kDa, 59 kDa



Western blot - Anti-Calcineurin A antibody [EPR24997-22] (ab282104)

Blocking and diluting buffer and concentration: 5% NFDM/TBST
This antibody does not recognize human PPP3CB and PPP3CC. These rec proteins are made in-house and expressed from E.coli expression systems.

Exposure time: 15 seconds

All lanes:
Western blot - Anti-Calcineurin A antibody [EPR24997-22] (ab282104) at 1/1000 dilution

Lane 1:
Human PPP3CA recombinant protein at 0.01 µg

Lane 2:
Human PPP3CB recombinant protein at 0.01 µg

Lane 3:
Human PPP3CC recombinant protein at 0.01 µg

Secondary

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

Predicted band size: 59 kDa

Observed band size: 32 kDa, 59 kDa

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