

Reporting Summary

Nature Portfolio wishes to improve the reproducibility of the work that we publish. This form provides structure for consistency and transparency in reporting. For further information on Nature Portfolio policies, see our [Editorial Policies](#) and the [Editorial Policy Checklist](#).

Statistics

For all statistical analyses, confirm that the following items are present in the figure legend, table legend, main text, or Methods section.

n/a Confirmed

- ☐ ☒ The exact sample size (n) for each experimental group/condition, given as a discrete number and unit of measurement
- ☐ ☒ A statement on whether measurements were taken from distinct samples or whether the same sample was measured repeatedly
- ☐ ☒ The statistical test(s) used AND whether they are one- or two-sided
Only common tests should be described solely by name; describe more complex techniques in the Methods section.
- ☒ ☐ A description of all covariates tested
- ☐ ☒ A description of any assumptions or corrections, such as tests of normality and adjustment for multiple comparisons
- ☐ ☒ A full description of the statistical parameters including central tendency (e.g. means) or other basic estimates (e.g. regression coefficient) AND variation (e.g. standard deviation) or associated estimates of uncertainty (e.g. confidence intervals)
- ☐ ☒ For null hypothesis testing, the test statistic (e.g. F , t , r) with confidence intervals, effect sizes, degrees of freedom and P value noted
Give P values as exact values whenever suitable.
- ☒ ☐ For Bayesian analysis, information on the choice of priors and Markov chain Monte Carlo settings
- ☒ ☐ For hierarchical and complex designs, identification of the appropriate level for tests and full reporting of outcomes
- ☒ ☐ Estimates of effect sizes (e.g. Cohen's d , Pearson's r), indicating how they were calculated

Our web collection on [statistics for biologists](#) contains articles on many of the points above.

Software and code

Policy information about [availability of computer code](#)

Data collection No custom code or software were implemented

Data analysis Data were analyzed using ImageJ, GraphPad Prism 9, Microsoft Excel (Office 365)

For manuscripts utilizing custom algorithms or software that are central to the research but not yet described in published literature, software must be made available to editors and reviewers. We strongly encourage code deposition in a community repository (e.g. GitHub). See the Nature Portfolio [guidelines for submitting code & software](#) for further information.

Data

Policy information about [availability of data](#)

All manuscripts must include a [data availability statement](#). This statement should provide the following information, where applicable:

- Accession codes, unique identifiers, or web links for publicly available datasets
- A description of any restrictions on data availability
- For clinical datasets or third party data, please ensure that the statement adheres to our [policy](#)

The data generated in this study are provided in the Supplementary Information/Source Data file. Should any raw data be needed in another format they are available from the corresponding authors upon reasonable request.

Research involving human participants, their data, or biological material

Policy information about studies with [human participants or human data](#). See also policy information about [sex, gender \(identity/presentation\), and sexual orientation](#) and [race, ethnicity and racism](#).

Reporting on sex and gender	This work does not use human material besides cell lines which are described in the manuscript
Reporting on race, ethnicity, or other socially relevant groupings	N/A
Population characteristics	N/A
Recruitment	N/A
Ethics oversight	Not relevant in this work

Note that full information on the approval of the study protocol must also be provided in the manuscript.

Field-specific reporting

Please select the one below that is the best fit for your research. If you are not sure, read the appropriate sections before making your selection.

☒ Life sciences ☐ Behavioural & social sciences ☐ Ecological, evolutionary & environmental sciences

For a reference copy of the document with all sections, see [nature.com/documents/nr-reporting-summary-flat.pdf](https://www.nature.com/documents/nr-reporting-summary-flat.pdf)

Life sciences study design

All studies must disclose on these points even when the disclosure is negative.

Sample size	No statistical methods were used to predetermine sample size. Sample size was determined based on our previous publications.
Data exclusions	No data were excluded
Replication	All experiments were repeated on different days with independent samples to verify the replicability
Randomization	Data assignment, organization and collection were randomized.
Blinding	Data collection and analysis were not performed blindly.

Reporting for specific materials, systems and methods

We require information from authors about some types of materials, experimental systems and methods used in many studies. Here, indicate whether each material, system or method listed is relevant to your study. If you are not sure if a list item applies to your research, read the appropriate section before selecting a response.

Materials & experimental systems

n/a	Involved in the study
☐	☒ Antibodies
☐	☒ Eukaryotic cell lines
☒	☐ Palaeontology and archaeology
☐	☒ Animals and other organisms
☒	☐ Clinical data
☒	☐ Dual use research of concern
☒	☐ Plants

Methods

n/a	Involved in the study
☒	☐ ChIP-seq
☒	☐ Flow cytometry
☒	☐ MRI-based neuroimaging

Antibodies

Antibodies used	Anti-HA-Tag (C29F4) antibody (Cell Signaling; #3724). Goat anti-rabbit 1.4 nm gold-labeled Immunoglobulin-G Fab' fragment antibody (Nanoprobes Inc.; #2004). GFAP (Abcam, #ab4674). Actin (Sigma-Aldrich; #A5441). AKAP121 (Cell Signaling; #5203). BIII-tubulin (Abcam; #ab78078). Calnexin (Cell Signaling; #2433S). ERK (Cell Signaling; #9107S). pERK (Cell Signaling; #4370S). GFAP (Cell Signaling; #80788). GNAS (ABClonal; #A5546). HA (Cell signaling; #2367S). MFN1 (Abnova; #H00055669). Myc (Cell Signaling; #2276S and
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Validation

2278S). Na/K-ATPase (Signaling; #3010S). NDUFS4 (Abcam; #ab87399). pNDUFS4 (generated by the group of J.P.B.). PHB2 (Cell Signaling; #14085S). PKA(C-a) (Cell Signaling; #4782S). SDHA (Abcam; #ab14715). Tubulin (Cell Signaling; #2144). TOM20 (Abcam; #ab186734). NDUFS1 (Abcam; #ab169540). NDUFA9 (Abcam; #ab14713). ATPB (MitoSciences; #MS503). Phospho-PKA Substrate (RRXS*/T*) (100G7E) (Cell Signaling; #9624S). HA (Biolegend; #901501 or 902301). hErp57 (RD System, #AF8219). Alexa Fluor® 488-, 594- or 647-goat anti-mouse/rabbit/sheep (Jackson ImmunoResearch, #115-545-003, #115-585-003, #115-605-003, #713-545-003, #713-585-003). Peroxidase-conjugated anti-rabbit or anti-mouse secondary antibodies (Jackson ImmunoResearch, #115-035-003).

anti-HA-Tag (C29F4) antibody (Cell Signaling; #3724).

HA-Tag (C29F4) Rabbit mAb detects exogenously expressed proteins containing the HA epitope tag. The antibody may cross-react with a protein of unknown origin ~100kDa. Suitable for WB-Western Blotting, IP-Immunoprecipitation, IHC-Immunohistochemistry, IF-Immunofluorescence, F-Flow Cytometry, ChIP-Chromatin Immunoprecipitation. Cited in 3716 publications.

[https://www.cellsignal.com/products/primary-antibodies/ha-tag-c29f4-rabbit-mab/3724?](https://www.cellsignal.com/products/primary-antibodies/ha-tag-c29f4-rabbit-mab/3724?srsltid=AfmBOorpfQj7ZjTZLbE4yCmlIvQNHXn5hxia4V2TMas9Xx0TInvlpZW)

[srsltid=AfmBOorpfQj7ZjTZLbE4yCmlIvQNHXn5hxia4V2TMas9Xx0TInvlpZW](https://www.cellsignal.com/products/primary-antibodies/ha-tag-c29f4-rabbit-mab/3724?srsltid=AfmBOorpfQj7ZjTZLbE4yCmlIvQNHXn5hxia4V2TMas9Xx0TInvlpZW)

Goat anti-rabbit 1.4 nm gold-labeled Immunoglobulin-G Fab' fragment antibody (Nanoprobes Inc.; #2004).

<https://www.nanoprobes.com/products/Nanogold-Antibody-Conjugates.html>

GFAP (Abcam, #ab4674).

Chicken Polyclonal GFAP antibody. Suitable for IHC-P, ICC, WB, IHC (PFA fixed), IHC-FrFl and reacts with Human, Mouse, Rat samples. Cited in 374 publications.

<https://www.abcam.com/en-fr/products/primary-antibodies/gfap-antibody-ab4674#>

Actin (Sigma-Aldrich; #A5441).

Monoclonal Anti β -Actin antibody recognizes an epitope located on the N-terminal end of the β -isoform of actin. The antibody specifically labels β -actin in a wide variety of tissues and species using immunoblotting (42 kDa), immunofluorescent staining of cultured cell lines, and immunohistochemistry. Cited in 10788 publications.

[https://www.sigmaaldrich.com/FR/en/product/sigma/a5441?](https://www.sigmaaldrich.com/FR/en/product/sigma/a5441?utm_source=google&utm_medium=cpc&utm_id=21473890494&utm_campaign=%7Bcampaignname%7D&utm_content=168623495887&utm_term=a5441&gad_source=1&gad_campaignid=21473890494&gbraid=0AAAAAD8kLQRUwIkR54_rKaUjFWTfaRQ04&gclid=CjwKCAjw6NrBBhB6EiwAvnT_rvTYXtd499M04X-WTsnuuXzo8M_Siu1EFVRhttfOqYYTFQnFiyDBhoCV_sQAvD_BwE)

[utm_source=google&utm_medium=cpc&utm_id=21473890494&utm_campaign=%7Bcampaignname%7D&utm_content=168623495887&utm_term=a5441&gad_source=1&gad_campaignid=21473890494&gbraid=0AAAAAD8kLQRUwIkR54_rKaUjFWTfaRQ04&gclid=CjwKCAjw6NrBBhB6EiwAvnT_rvTYXtd499M04X-WTsnuuXzo8M_Siu1EFVRhttfOqYYTFQnFiyDBhoCV_sQAvD_BwE](https://www.sigmaaldrich.com/FR/en/product/sigma/a5441?utm_source=google&utm_medium=cpc&utm_id=21473890494&utm_campaign=%7Bcampaignname%7D&utm_content=168623495887&utm_term=a5441&gad_source=1&gad_campaignid=21473890494&gbraid=0AAAAAD8kLQRUwIkR54_rKaUjFWTfaRQ04&gclid=CjwKCAjw6NrBBhB6EiwAvnT_rvTYXtd499M04X-WTsnuuXzo8M_Siu1EFVRhttfOqYYTFQnFiyDBhoCV_sQAvD_BwE)

AKAP121 (Cell Signaling; #5203).

AKAP1 (D9C5) Rabbit mAb recognizes endogenous levels of total AKAP1 protein. Suitable for WB-Western Blotting, IP-Immunoprecipitation. Cited by 14 publications.

<https://www.cellsignal.com/products/primary-antibodies/akap1-d9c5-rabbit-mab/5203?srsltid=AfmBOorWVcinni1obb1m3fER33d-UIHOApChz275bqHi0z7GHEnVrUzu>

BIII-tubulin (Abcam; #ab78078).

Anti-beta III Tubulin antibody [2G10] - Neuronal Marker is a mouse monoclonal antibody that is used to detect beta III Tubulin in Flow cytometry (Intra), ICC/IF, IHC-P, IP, Western blot. Suitable for Catshark, Common marmoset, Dogfish, Human, Mouse, Rat samples. Specificity confirmed with Tubb3 knockout cell line validation. Cited in 323 publications.

[https://www.abcam.com/en-us/products/primary-antibodies/beta-iii-tubulin-antibody-2g10-neuronal-marker-ab78078?](https://www.abcam.com/en-us/products/primary-antibodies/beta-iii-tubulin-antibody-2g10-neuronal-marker-ab78078?srsltid=AfmBOoqSV-PluBwB7LzWkaBbGY-VKF-kCjt1agsZvZlb7Lqx2AaKx4z1)

[srsltid=AfmBOoqSV-PluBwB7LzWkaBbGY-VKF-kCjt1agsZvZlb7Lqx2AaKx4z1](https://www.abcam.com/en-us/products/primary-antibodies/beta-iii-tubulin-antibody-2g10-neuronal-marker-ab78078?srsltid=AfmBOoqSV-PluBwB7LzWkaBbGY-VKF-kCjt1agsZvZlb7Lqx2AaKx4z1)

Calnexin (Cell Signaling; #2433S).

Calnexin Antibody detects endogenous levels of total calnexin protein. Suitable for WB-Western Blotting, IP-Immunoprecipitation, IHC-Immunohistochemistry, IF-Immunofluorescence. Suitable for human samples. Cited by 177 publications.

https://www.cellsignal.com/products/primary-antibodies/calnexin-antibody/2433?srsltid=AfmBOopP9ay-qN4ObQA30yUGR2QCEJMYCRQCHuBwXmYSzkfKZ_ruDQoL

ERK (Cell Signaling; #9107S).

p44/42 MAPK (Erk1/2) (3A7) Mouse mAb detects endogenous levels of total p44/42 MAP kinase (Erk1/2). It does not cross-react with either JNK/SAPK or p38 MAP kinase. Suitable for Human, Mouse, Rat, Hamster, Monkey, Mink, Zebrafish, Bovine, Pig samples. Suitable for WB Western blotting. Cited by 719 publications.

[https://www.cellsignal.com/products/primary-antibodies/p44-42-mapk-erk1-2-3a7-mouse-mab/9107?](https://www.cellsignal.com/products/primary-antibodies/p44-42-mapk-erk1-2-3a7-mouse-mab/9107?srsltid=AfmBOorJ3ksaFmDYpbp2k_yf5ep6UhEcX-T-mOoh6l8bUzi_pFPV_ZK_)

[srsltid=AfmBOorJ3ksaFmDYpbp2k_yf5ep6UhEcX-T-mOoh6l8bUzi_pFPV_ZK_](https://www.cellsignal.com/products/primary-antibodies/p44-42-mapk-erk1-2-3a7-mouse-mab/9107?srsltid=AfmBOorJ3ksaFmDYpbp2k_yf5ep6UhEcX-T-mOoh6l8bUzi_pFPV_ZK_)

pERK (Cell Signaling; #4370S).

Phospho-p44/42 MAPK (Erk1/2) (Thr202/Tyr204) (D13.14.4E) XP® Rabbit mAb detects endogenous levels of p44 and p42 MAP Kinase (Erk1 and Erk2) when dually phosphorylated at Thr202 and Tyr204 of Erk1 (Thr185 and Tyr187 of Erk2), and singly phosphorylated at Thr202. This antibody does not cross-react with the corresponding phosphorylated residues of either JNK/SAPK or p38 MAP kinases. Suitable for Human, Mouse, Rat, Hamster, Monkey, Mink, D. melanogaster, Zebrafish, Bovine, Dog, Pig, S. cerevisiae samples.

Suitable for WB-Western Blotting IP-Immunoprecipitation IHC-Immunohistochemistry IF-Immunofluorescence F-Flow Cytometry. Cited by 9665 publications.

<https://www.cellsignal.com/products/primary-antibodies/phospho-p44-42-mapk-erk1-2-thr202-tyr204-d13-14-4e-xp-rabbit-mab/4370?srsltid=AfmBOopNoq3oQuAcLGXEijP4CPH0bviPSWq7sq1o06Sja3YiuxR1tAIW>

GFAP (Cell Signaling; #80788).

GFAP (E4L7M) XP® Rabbit mAb recognizes endogenous levels of total GFAP protein. Suitable for Human, Mouse, Rat, Monkey samples. Suitable for WB-Western Blotting IHC-Immunohistochemistry IF-Immunofluorescence. Cited by 136 publications.

[https://www.cellsignal.com/products/primary-antibodies/gfap-e4l7m-xp-rabbit-mab/80788?](https://www.cellsignal.com/products/primary-antibodies/gfap-e4l7m-xp-rabbit-mab/80788?srsltid=AfmBOorOpQsPZZkW6vA3w47lqG516Lk4nlxHih0EuVSY7jQuRVKwrbDp)

[srsltid=AfmBOorOpQsPZZkW6vA3w47lqG516Lk4nlxHih0EuVSY7jQuRVKwrbDp](https://www.cellsignal.com/products/primary-antibodies/gfap-e4l7m-xp-rabbit-mab/80788?srsltid=AfmBOorOpQsPZZkW6vA3w47lqG516Lk4nlxHih0EuVSY7jQuRVKwrbDp)

GNAS (ABClonal; #A5546).

Designed against a synthetic peptide corresponding to a sequence within amino acids 1-100 of human GNAS (NP_000507.1). Suitable

for WB Western Blotting IF-Immunofluorescence. Suitable for HepG2, HeLa, Mouse lung, Mouse brain, Rat brain samples. Cited by 4 publications.

<https://ap.abclonal.com/catalog-antibodies/GNASRabbitpAb/A5546#section5>

HA (Cell signaling; #23675).

HA-Tag (6E2) Mouse mAb detects recombinant proteins containing the HA epitope tag. The antibody recognizes the HA-tag fused to either the amino or carboxy terminus of targeted proteins in transfected cells. Suitable for WB-Western Blotting IHC-Immunohistochemistry IF-Immunofluorescence F-Flow Cytometry. Cited by 956 publications.

<https://www.cellsignal.com/products/primary-antibodies/ha-tag-6e2-mouse-mab/2367?>

srsltid=AfmBOooVUJtn9icYDIRH48tc7bwYFN8HICt1oF_C9mWcNYPqaCBgIH5i

MFN1 (Abnova; #H00055669).

Mouse monoclonal antibody raised against a full length recombinant MFN1. Suitable for Human, Mouse and Rat samples. RNAi Knockdown (Antibody validated). Suitable for WB-Western Blotting, IP-Immunoprecipitation, IHC-Immunohistochemistry, IF-Immunofluorescence. Cited by 45 publications.

<https://www.abnova.com/en-global/product/detail/H00055669-M04>

Myc (Cell Signaling; #22765 and 22785).

Myc-Tag (9B11) Mouse mAb detects exogenously expressed proteins containing the Myc epitope tag. This antibody recognizes the Myc tag fused to either the amino or carboxy terminus of targeted proteins in transfected cells. Myc-Tag (9B11) Mouse mAb detects exogenously expressed Myc-tagged proteins in cells expressed under a CMV promoter. Expression under other promoters has not been evaluated.

The antibody may cross-react with c-myc protein. The antibody may weakly cross-react with a protein of unknown origin ~90kDa. Suitable for WB-Western Blotting IP-Immunoprecipitation IHC-Immunohistochemistry IF-Immunofluorescence F-Flow Cytometry ChIP-Chromatin Immunoprecipitation. Cited by 2355 publications.

<https://www.cellsignal.com/products/primary-antibodies/myc-tag-9b11-mouse-mab/2276?>

srsltid=AfmBOopRDMuQeifipWPuuTxfF_eeJxag64ZlBmhOH07yTYXqm8kaw5S

Na/K-ATPase (Cell Signaling; #3010S).

Na,K-ATPase α Antibody detects endogenous levels of total Na,K-ATPase α 1 protein. Based on sequence homology, the antibody is likely to cross-react with α 2 and α 3 isoforms. Suitable for Human, Mouse, Rat, Monkey, Zebrafish samples. Suitable for WB Western blotting. Cited by 330 publications.

<https://www.cellsignal.com/products/primary-antibodies/na-k-atpase-antibody/3010?>

srsltid=AfmBOoqLpHPgccVG1bExWTzCHlp2yvcO2UbOgtj0ELQ3eFUL3oSxal6

NDUFS4 (Abcam; #ab87399).

Mouse Monoclonal Ndufs4 antibody. Suitable for Flow Cyt, WB and reacts with Human, Cow, Rat, Mouse samples. Cited in 18 publications.

<https://www.abcam.com/en-us/products/primary-antibodies/ndufs4-antibody-2c7cd4ag3-ab87399?>

srsltid=AfmBOop55yAs2BwlbmyuT1SKw8vksgQBmrallFvcZddEo-XKTbil6Ndzh

pNDUFS4 (generated by the group of J.P.B.).

PHB2 (Cell Signaling; #140855).

PHB2 (E1Z5A) Rabbit mAb recognizes endogenous levels of total PHB2 protein. Suitable for WB-Western Blotting IP-Immunoprecipitation IF-Immunofluorescence. Suitable for Human, Mouse and Rat samples. Cited by 34 publications.

<https://www.cellsignal.com/products/primary-antibodies/phb2-e1z5a-rabbit-mab/14085?>

srsltid=AfmBOooqcu_D3Mapy9rQJIFs3xx2wiGW3t4Chha5GtNZdhLVGT6exqzG

PKA(C- α) (Cell Signaling; #4782S).

PKA C- α Antibody detects endogenous levels of total PKA C- α . Suitable for Human, Mouse and Rat samples. Suitable for WB-Western Blotting IP-Immunoprecipitation IF-Immunofluorescence F-Flow Cytometry. Cited by 284 publications.

<https://www.cellsignal.com/products/primary-antibodies/pka-c-a-antibody/4782?>

srsltid=AfmBOorg_dj7dNJUdFKOqphEI9iY1wYr_i2GFaq-5yiffZaihd4Ejfes

SDHA (Abcam; #ab14715).

Anti-SDHA antibody [2E3GC12FB2AE2] is a mouse monoclonal antibody that is used to detect SDHA in Flow cytometry, ICC, IHC-Fr, IHC-P, Western blot. Suitable for Cow, Human, Mouse, Rat samples. Specificity confirmed with SDHA knockout cell line validation. Cited in 459 publications.

<https://www.abcam.com/en-us/products/primary-antibodies/sdha-antibody-2e3gc12fb2ae2-ab14715?>

srsltid=AfmBOoqWunxHUEeq3aGSjeV4g8aJ1u03WWZgn7zhwY2pKOujcuLV63LB

Tubulin (Cell Signaling; #2144).

The α -Tubulin Antibody detects endogenous levels of total α -tubulin protein, and does not cross-react with recombinant β -tubulin. Suitable for WB-Western Blotting IHC-Immunohistochemistry IF-Immunofluorescence F-Flow Cytometry. Suitable for Human, Mouse, Rat, Monkey, D Melanogaster, Bovine samples. Cited by 1284 publications.

<https://www.cellsignal.com/products/primary-antibodies/a-tubulin-antibody/2144?>

srsltid=AfmBOoolTVT43U9uAqi7wErLabUyGkRCsjJz3uXjxOPh2YDXRADHvG

TOM20 (Abcam; #ab186734).

Anti-TOMM20 antibody [EPR15581-39] ab186734 is a rabbit monoclonal antibody that is used in TOMM20 western blotting, IHC, immunofluorescence and flow cytometry. Suitable for human, mouse and rat samples. Cited by 93 publications.

<https://www.abcam.com/en-us/products/primary-antibodies/tomm20-antibody-epr15581-39-mitochondrial-marker-ab186734?>

srsltid=AfmBOoovldEWcQG0H9Q8dJgRRNRKD1zR1WLefKiqvDLDLZC599Z02saJ

NDUFS1 (Abcam; #ab169540).

Rabbit Recombinant Monoclonal Ndufs1 antibody. Suitable for IHC-P, IP, WB, ICC/IF, Flow Cyt (Intra) and reacts with Human, Mouse, Rat samples. Cited in 27 publications.

https://www.abcam.com/en-us/products/primary-antibodies/ndufs1-antibody-epr11521b-ab169540?srsltid=AfmBOorspkJI5_MYQcUwBw3ZfaVgnki2uO4nd4-WldXj26GhbhXGcCkF

NDUFA9 (Abcam; #ab14713).

Mouse Monoclonal NDUFA9 antibody. Suitable for Flow Cyt, WB, IHC-P and reacts with Human, Mouse, Rat, Cow samples. KO Validated. Cited in 246 publications.

https://www.abcam.com/en-us/products/primary-antibodies/ndufa9-antibody-20c11b11b11-ab14713?srsltid=AfmBOor54Pbp5afGTbSN48Biw6X8E_A0g_wk14MqOoDYsMSWDz41i_HA#tab=datasheet

ATPB (MitoSciences; #MS503).

Anti-ATPB antibody [3D5] ab14730 is a mouse monoclonal antibody that is used in ATPB western blotting, IHC, immunofluorescence and flow cytometry. Suitable for human, mouse and rat samples. Cited by 249 publications.

<https://www.abcam.com/en-us/products/primary-antibodies/atpb-antibody-3d5-mitochondrial-marker-ab14730>

Phospho-PKA Substrate (RRXS*/T*) (100G7E) (Cell Signaling; #9624S).

Phospho-PKA Substrate (RRXS*/T*) (100G7E) Rabbit mAb detects peptides and proteins containing a phospho-Ser/Thr residue with arginine at the -3 and -2 positions. It is a useful tool in identifying new substrates of PKA. The antibody recognizes other -3 arginine-bearing phospho-Ser/Thr peptides, such as substrate motifs for Akt and PKC, to a lesser extent. It does not recognize the nonphosphorylated substrate motif peptides. Suitable for WB-Western Blotting IP-Immunoprecipitation. Cited by 400 publications.

<https://www.cellsignal.com/products/primary-antibodies/phospho-pka-substrate-rrxs-t-100g7e-rabbit-mab/9624?srsltid=AfmBOooXbskMpcmlScMzacoxe2MlrhmDXtI59PzxJHRamNU9sAfVJk9I>

HA (Biolegend; #901501)

The Purified anti-HA.11 Epitope Tag Antibody from BioLegend is a Mouse Monoclonal antibody. The Purified anti-HA.11 Epitope Tag Antibody has been validated for the following applications: Precipitation, Purification, Flow Cytometry, Immunocytochemistry, Immunoprecipitation, and Western Blot. Cited by 636 publications.

<https://www.biolegend.com/fr-fr/products/purified-anti-ha-11-epitope-tag-antibody-11374>

HA (Biolegend; #902301)

The Purified anti-HA.11 Epitope Tag Antibody from BioLegend is a Rabbit Polyclonal antibody. The Purified anti-HA.11 Epitope Tag Antibody has been validated for the following applications: Precipitation, Purification, ChIP, Immunocytochemistry, Immunoprecipitation, and Western Blot. Cited by 40 publications.

<https://www.biolegend.com/fr-fr/products/purified-anti-ha-11-epitope-tag-antibody-11375?GroupID=GROUP36>

hERp57 (RD System, #AF8219).

Polyclonal Sheep IgG, detects human ERp57/PDIA3 in direct ELISAs and Western blots. Cited by 2 publications.

https://www.rndsystems.com/products/human-erp57-pdia3-antibody_af8219#product-details

Alexa Fluor® 488-, 594- or 647-goat anti-mouse/rabbit/sheep (Jackson ImmunoResearch, #115-545-003, #115-585-003, #115-605-003, #713-545-003, #713-585-003).

<https://www.jacksonimmuno.com/>

Peroxidase-conjugated anti-rabbit or anti-mouse secondary antibodies (Jackson ImmunoResearch, #115-035-003).

<https://www.jacksonimmuno.com/>

Eukaryotic cell lines

Policy information about [cell lines and Sex and Gender in Research](#)

Cell line source(s)	HEK293, HeLa and MEF were obtained from ATCC (CRL-1573, CCL-2, CRL-2907, respectively).
Authentication	Cell lines were not authenticated upon reception
Mycoplasma contamination	Mycoplasma contamination is tested by-weekly. Contaminated cell lines are excluded and replaced.
Commonly misidentified lines (See ICLAC register)	HeLa

Animals and other research organisms

Policy information about [studies involving animals](#); [ARRIVE guidelines](#) recommended for reporting animal research, and [Sex and Gender in Research](#)

Laboratory animals	This study used WT and mutant mice on C57BL/6-J, C57BL/6-N and B6C3F1 strains at the age of 2- and 6 months.
Wild animals	No wild animals were used in this work.
Reporting on sex	Both males and Females mice were used. This information is included in the manuscript (Figure Legends).
Field-collected samples	No field-collected samples were used in this work.

Ethics oversight

All procedures follow the guidelines of the European Directive on the protection of animals used for scientific purposes (2010/62/EU) and were approved by the Committee on Animal Health and Care of INSERM, the French Ministry of Agriculture and Forestry (authorization number 3306369), the French Ministry of Higher Education, Research and Innovation (authorization APAFIS#20053 and #23810), the Animal Ethics Committee of the Barcelona Biomedical Research Park (PRBB; ABG-19-0041 and ABG-22-0041) and from the Generalitat de Catalunya (#10785).

Note that full information on the approval of the study protocol must also be provided in the manuscript.

Plants

Seed stocks

N/A

Novel plant genotypes

N/A

Authentication

N/A