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Anti-Tyrosine Hydroxylase/TH Antibody Picoband®

Catalog Number: PB9449

About TH

TH is equal to tyrosine hydroxylase. The protein encoded by this gene is involved in the conversion of tyrosine to dopamine. It is the rate-limiting enzyme in the synthesis of catecholamines, hence plays a key role in the physiology of adrenergic neurons. Mutations in this gene have been associated with autosomal recessive Segawa syndrome. Alternatively spliced transcript variants encoding different isoforms have been noted for this gene. In humans, tyrosine hydroxylase is encoded by the TH gene, and the enzyme is present in the central nervous system (CNS), peripheral sympathetic neurons and the adrenal medulla. Tyrosine hydroxylase, phenylalanine hydroxylase and tryptophan hydroxylase together make up the family of aromatic amino acid hydroxylases (AAAHs).

Overview

Product Name	Anti-Tyrosine Hydroxylase/TH Antibody Picoband®
Reactive Species	Human, Mouse, Rat
Description	Boster Bio Anti-Tyrosine Hydroxylase/TH Antibody Picoband® catalog # PB9449. Tested in IF, IHC, WB applications. This antibody reacts with Human, Mouse, Rat. The brand Picoband indicates this is a premium antibody that guarantees superior quality, high affinity, and strong signals with minimal background in Western blot applications. Only our best-performing antibodies are designated as Picoband, ensuring unmatched performance.
Application	IF, IHC, WB
Clonality	Polyclonal
Formulation	Each vial contains antibody formulated with stabilizing components, 0.9 mg NaCl, 0.2 mg Na2HPO4, and 0.05 mg NaN3. *This antibody is supplied in a stabilized formulation. Compatibility with conjugation reactions depends on the chemistry of the conjugation method used. For conjugation methods that are not compatible with the stabilizing components present in this formulation, a carrier-free antibody format is required.
Storage Instructions	Store at -20˚C for one year from date of receipt. After reconstitution, at 4˚C for one month. It can also be aliquotted and stored frozen at -20˚C for six months. Avoid repeated freeze-thaw cycles.
Host	Rabbit
Uniprot ID	P07101

Technical Details

Immunogen	A synthetic peptide corresponding to a sequence in the middle region of human Tyrosine Hydroxylase, identical to the related mouse and rat sequences.
Recommended Detection Systems	Boster recommends Enhanced Chemiluminescent Kit with anti-Rabbit IgG (EK1002) for Western

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	blot, and HRP Conjugated anti-Rabbit IgG Super Vision Assay Kit (SV0002-1) for IHC(P) and ICC.
Cross Reactivity	No cross-reactivity with other proteins
Isotype	Rabbit IgG
Form	Lyophilized
Concentration	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml.
Purification	Immunogen affinity purified.
Suggested Dilutions	Western blot, 0.1-0.5ug/ml, Mouse, Rat Immunohistochemistry (Paraffin-embedded Section), 2-5ug/ml, Human, Mouse, Rat Immunofluorescence, 5ug/ml, Mouse, Rat

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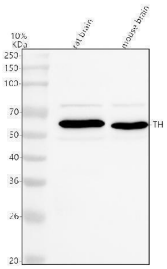
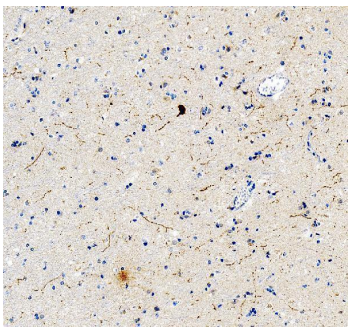
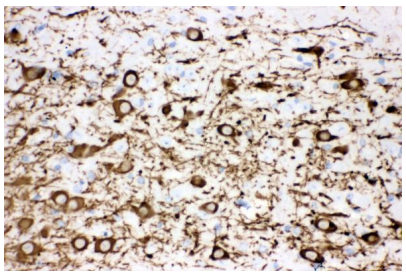
Anti-Tyrosine Hydroxylase/TH Antibody Picoband® (PB9449) Images



Western blot analysis of Tyrosine Hydroxylase/TH using anti-Tyrosine Hydroxylase/TH antibody (PB9449). Electrophoresis was performed on a 10% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. The sample well of each lane was loaded with 30 ug of sample under reducing conditions. Lane 1: rat brain tissue lysates, Lane 2: mouse brain tissue lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-Tyrosine Hydroxylase/TH antigen affinity purified polyclonal antibody (Catalog # PB9449) at 0.5 ug/mL overnight at 4°C, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal is developed using an ECL Plus Western Blotting Substrate (Catalog # AR1196-200) with Tanon 5200 system. A specific band was detected for Tyrosine Hydroxylase/TH at approximately 59 kDa. The expected band size for Tyrosine Hydroxylase/TH is at 59 kDa.



IHC analysis of Tyrosine Hydroxylase/TH using anti-Tyrosine Hydroxylase/TH antibody (PB9449). Tyrosine Hydroxylase/TH was detected in a paraffin-embedded section of human brain tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 ug/ml rabbit anti-Tyrosine Hydroxylase/TH Antibody (PB9449) overnight at 4°C. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37°C. The tissue section was developed using HRP Conjugated Rabbit IgG Super Vision Assay Kit (Catalog # SV0002) with DAB as the chromogen.



IHC analysis of Tyrosine Hydroxylase/TH using anti-Tyrosine Hydroxylase/TH antibody (PB9449). Tyrosine Hydroxylase/TH was detected in a paraffin-embedded section of mouse brain tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 ug/ml rabbit anti-Tyrosine Hydroxylase/TH Antibody (PB9449) overnight at 4°C. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37°C. The tissue section was developed using HRP Conjugated Rabbit IgG Super Vision Assay Kit (Catalog # SV0002) with DAB as the chromogen.

IHC analysis of Tyrosine Hydroxylase/TH using anti-Tyrosine Hydroxylase/TH antibody (PB9449). Tyrosine Hydroxylase/TH

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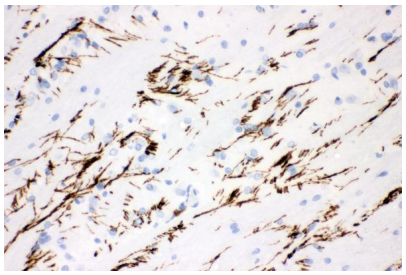
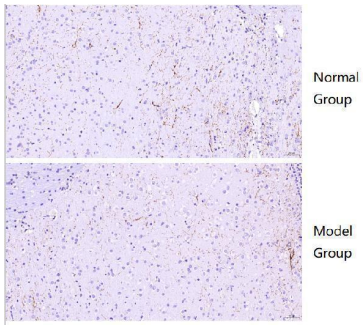
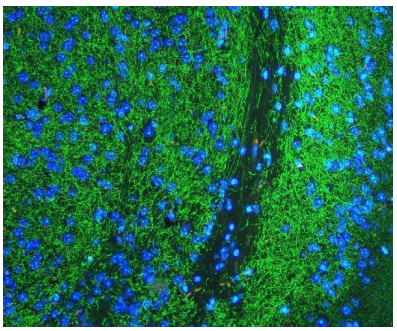


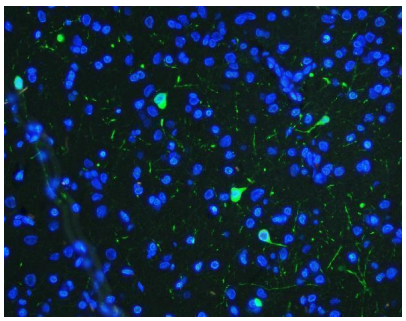
was detected in a paraffin-embedded section of rat brain tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 ug/ml rabbit anti-Tyrosine Hydroxylase/TH Antibody (PB9449) overnight at 4°C. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37°C. The tissue section was developed using HRP Conjugated Rabbit IgG Super Vision Assay Kit (Catalog # SV0002) with DAB as the chromogen.



IHC analysis of Tyrosine Hydroxylase/TH using anti-Tyrosine Hydroxylase/TH antibody (PB9449). Tyrosine Hydroxylase/TH was detected in a paraffin-embedded section of normal mouse brain (nomal group) and Alzheimer's model mouse brain (model group) tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1:500 rabbit anti-Tyrosine Hydroxylase/TH Antibody (PB9449) overnight at 4°C. A two-step IHC kit was used for 30 minutes at 37°C,The tissue section was developed using HRP Conjugated Rabbit IgG Super Vision Assay Kit (Catalog # SV0002) with DAB as the chromogen.



IF analysis of Tyrosine Hydroxylase/TH using anti-Tyrosine Hydroxylase/TH antibody (PB9449). Tyrosine Hydroxylase/TH was detected in a paraffin-embedded section of mouse brian tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 5 ug/mL rabbit anti-Tyrosine Hydroxylase/TH Antibody (PB9449) overnight at 4°C. Biotin conjugated goat anti-rabbit IgG (BA1003) was used as secondary antibody and incubated for 30 minutes at 37°C. The tissue section was developed using DyLight®488 Conjugated Avidin (BA1128). The section was counterstained with DAPI. Visualize using a fluorescence microscope and filter sets appropriate for the label used.



IF analysis of Tyrosine Hydroxylase/TH using antiTyrosine Hydroxylase/TH antibody (PB9449). Tyrosine Hydroxylase/TH was detected in a paraffin-embedded section of rat brian tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 5 ug/mL rabbit anti-Tyrosine Hydroxylase/TH Antibody (PB9449) overnight at 4°C. Biotin conjugated goat anti-rabbit IgG (BA1003) was used as secondary antibody and incubated for 30 minutes at 37°C. The tissue section was developed using DyLight®488 Conjugated Avidin (BA1128). The section was counterstained with DAPI. Visualize using a fluorescence microscope and filter sets appropriate for the label used.

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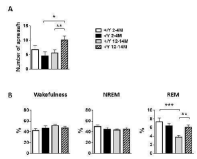
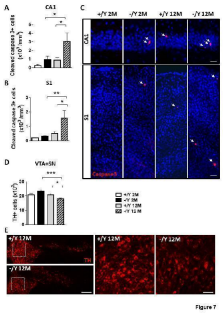
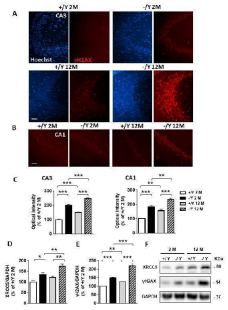


Sleep apnea and hypnic occurrence rate in Cdkl5 KO mice. (A) Apnea occurrence rate during non-rapid-eye-movement sleep (NREM) sleep period in young adult Cdkl5 -/Y (n = 8) and Cdkl5 +/Y (n = 9) mice, and middle-aged Cdkl5 -/Y (n = 14) and Cdkl5 +/Y (n = 14) mice. (B) Percentage of time spent in wakefulness, in NREM, and in rapid-eye-movement sleep (REM) during whole-body-plethysmography recordings in the same animals as in A. Values represent mean ± SEM. *p< 0.05, **p< 0.01, ***p< 0.001 (Fisher's LSD test after two-way ANOVA).Index in PubMed under a CC BY license. PMID: 34094641



Increased neuronal cell death in Cdkl5 KO mice. (A-B) Quantification of cells positive for cleaved caspase-3 in the CA1 layer of the hippocampus (A) and in layer II/III of the somatosensory cortex (S1, B) from young adult Cdkl5 +/Y (n = 4) and Cdkl5 -/Y (n = 4) mice, and middle-aged Cdkl5 +/Y (n = 4) and Cdkl5 -/Y (n = 4) mice. (C) Representative images, one from each group, of cells, in the hippocampal CA1 region (upper panel) and in layer II/III of the somatosensory cortex (S1 , lower panel), immunopositive for cleaved caspase-3 (red) and stained with Hoechst (blue). Scale bar = 50 um. (D) Quantification of the total number of TH-positive neurons in the substantia nigra (SN) and ventral tegmental area (VTA) from young adult Cdkl5 +/Y (n = 5) and Cdkl5 -/Y (n = 4) mice, and middle-aged Cdkl5 +/Y (n = 4) and Cdkl5 - /Y (n = 5) mice. (E) Representative images of tyrosine hydroxylase (TH) immunofluorescence staining in the VTA and SN of middle-aged Cdkl5 +/Y and Cdkl5 -/Y mice. Scale bar = 100 um. The dotted boxes indicate the VTA region shown at a higher magnification in the right panel. Scale bar = 40 um. Values are represented as means ± SE. *p



Increased DNA damage in the hippocampus of Cdkl5 KO mice. (A-B) Representative fluorescent images of the CA3 (A) and CA1 (B) hippocampal regions of adult and middle-aged Cdkl5 +/Y and Cdkl5 -/Y mice, immunostained for gammaH2AX and counterstained with Hoechst. Scale bar = 500 um (C) Quantification of gammaH2AX nuclear signal intensity in the CA3 and CA1 pyramidal layer of young adult Cdkl5 +/Y (n = 3) and Cdkl5 -/Y (n = 3) mice, and middle-aged Cdkl5 +/Y (n = 4) and Cdkl5 -/Y (n = 3) mice. (D) Western blot analysis of gammaH2AX levels normalized to GAPDH levels in the hippocampus of young adult Cdkl5 +/Y (n = 4) and Cdkl5 -/Y (n = 5) mice, and middle-aged Cdkl5 +/Y (n = 3) and Cdkl5 -/Y (n = 3) mice. (E) Western blot analysis of XRCC5 levels normalized to GAPDH levels in the hippocampus of young adult Cdkl5 +/Y (n = 4) and Cdkl5 -/Y (n = 5) mice, and middle-aged Cdkl5 +/Y (n = 4) and Cdkl5 -/Y (n = 3) mice. (F) Immunoblot images of gammaH2AX, XRCC5, and GAPDH levels in protein extracts from one animal of each experimental group. Data in Western blot analysis are expressed as a percentage of the values compared to young adult Cdkl5 +/Y mice. Values are represented as means ± SE. *p< 0.05 and **p< 0.01, ***p

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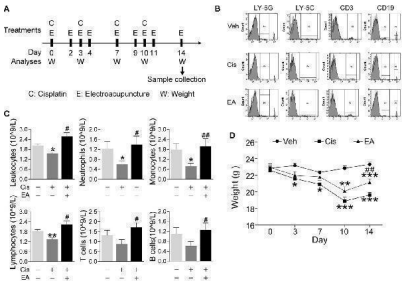
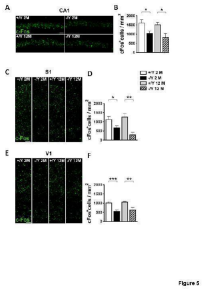
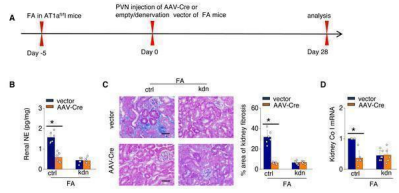


Electroacupuncture prevented cisplatin-induced leukopenia. (A) Experimental flowchart depicting the time of the treatments of Cisplatin (C), electroacupuncture (E), and the analyses of body weight (W) and sample collection. (B) Representative peripheral blood flow cytometry analyses of neutrophils (LY6G +), monocytes (LY6C +), T (CD3 +), and B (CD19 +) lymphocytes and (C) Blood counts of specific subpopulation of leukocytes of mice with control (Veh), cisplatin alone (Cis; 3 mg/kg), or with electroacupuncture (EA) treatment (leukocytes, lymphocytes: n =6 per group; neutrophils, monocytes, T and B lymphocytes: Veh, n =6; Cis, n =6; EA, n =7). (D) Mice body weight curves treatment at day 0, 3, 7, 10, 14 (n =6 per group), P values were calculated using two-way repeated-measures ANOVA. Data are mean ± SEM, * P < 0.05, ** P < 0.01, *** P < 0.001 vs Veh; # P < 0.05, ## P < 0.01 vs Cis.Index in PubMed under a CC BY license. PMID: 34552585



Cdkl5 KO mice exhibit a reduction of the number of c-fos. (A, C, E) Representative examples of c-Fos staining obtained from the pyramidal cell layer of the hippocampal CA1 (A), and from the primary somatosensory S1 (C) and primary visual cortices V1 (E) of young adult and middle-aged Cdkl5 +/Y and Cdkl5 -/Y mice. Scale bar = 50um. (B) Quantification of the density of c-Fos immunoreactive cells in the CA1 layer from young adult Cdkl5 +/Y (n = 6) and Cdkl5 -/Y (n = 7) mice, and middle-aged Cdkl5 +/Y (n = 3) and Cdkl5 -/Y (n = 4) mice. (D) Quantitative analysis of the density of c-Fos positive cells in the S1 cortex of young adult Cdkl5 +/Y (n = 8) and Cdkl5 -/Y (n = 10) mice, and middle-aged Cdkl5 +/Y (n = 4) and Cdkl5 - /Y (n = 3) mice. (F) Quantification of c-Fos positive cells in the V1 cortex of young adult Cdkl5 +/Y (n = 5) and Cdkl5 -/Y (n = 5) mice, and middle-aged Cdkl5 +/Y (n = 3) and Cdkl5 -/Y (n = 3) mice. Values are represented as means ± SE. *p



Localized Ang II in the PVN triggers fibrosis in the FA-CKD model via SNS activation. Outline of experimental design: PVN-specific deletion of Ang II type 1a receptor (AT1a) was achieved by injecting AAV-Cre into PVN of AT1a fl/fl mice. Blockade of sympathetic outflow was achieved by denervation of the post-obstructed kidney (kdn). (B) Kidney norepinephrine (NE) level in homogenates of the FA-CKD mice. (C) Kidney fibrosis was visualized by Masson trichrome staining in FA-CKD mice: representative images (left) and quantitative data (right). Scale bar, 50 um. (D) Level of collagen I (Co I) mRNA in kidney homogenates of the FA-CKD mice. Error bars, mean ± standard deviation (n = 6 in each group). *, p

Ang II signaling in PVN activates the PVN-RVLM pathway that enhances SNS discharge to the kidney. (A) Schematic showing the injection of a retrograde tracer, CTb-555, into the RVLM and retrograde labeling of PVN (→RVLM) neurons. The source for the component is from . (B) Expression of c-fos was detected in CTb-555 PVN neurons: representative images and summary of percentage of c-fos+ cell in

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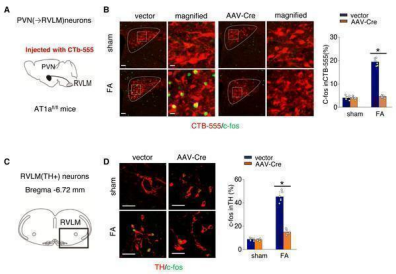
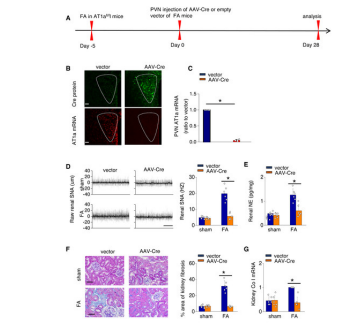
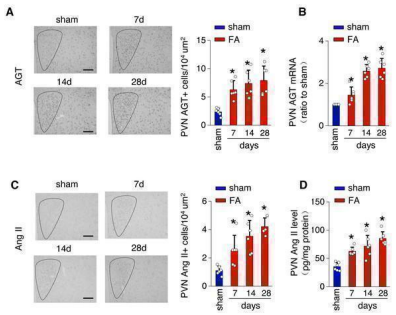


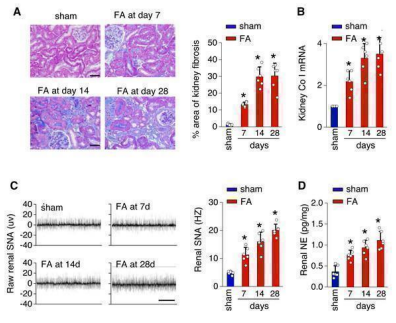
CTb-555+ cells. Scale bar, 50 um. *, p



Activated Ang II signaling in PVN enhances SNS discharge that promotes fibrosis in the FA-CKD mice. (A) Outline of experimental design: PVN-specific deletion of Ang II type 1a receptor (AT1a) was achieved by injecting AAV-Cre into PVN of AT1a fl/fl mice. (B) Immunostaining of Cre protein and in situ hybridization of AT1a mRNA in PVN. Scale bar, 50 um. (C) Level of AT1a mRNA in PVN homogenates. (D) Sympathetic nerve activity (SNA) in the kidney: representative raw records (left) and quantitative data (right). Scale bar, 1 s. (E) Kidney norepinephrine (NE) level in homogenates of the FA-CKD mice. (F) Kidney fibrosis was visualized by Masson trichrome staining in FA-CKD mice: representative images (left) and quantitative data (right). Scale bar, 50 um. (G) Level of collagen I (Co I) mRNA in kidney homogenates of the FA-CKD mice. Error bars, mean G standard deviation (n = 6 in each group). *, p



Folic acid-induced kidney injury in mice is accompanied by activity of the local renin-angiotensin system in the PVN. (A) Immunostaining for angiotensinogen (AGT) in paraventricular nucleus (PVN, Bregma −0.94 mm): representative images (left) and quantitative data (right). Scale bar, 100 um. (B) Level of AGT mRNA in PVN homogenates. (C) Immunostaining for angiotensin II (Ang II) in PVN (Bregma −0.94 mm): representative images (left) and quantitative data (right). Scale bar, 50 um (D) Concentration of Ang II in PVN homogenates. Download full-size image DOI:Index in PubMed under a CC BY license. PMID: 39346076



Kidney fibrosis in folic acid-induced kidney is accompanied by enhanced sympathetic nervous system (SNS) discharge to the kidney. (A) Kidney fibrosis was visualized by Masson trichrome staining in folic acid-induced kidney injury from mice at various time points: representative images (left) and quantitative data (right). Scale bar, 50 um. (B) Level of collagen I (Co I) mRNA in kidney homogenates of the folic acid-induced kidney injury mice. (C) Sympathetic nerve activity (SNA) in the folic acid-induced kidney: representative raw records (left) and quantitative data (right). Scale bar, 2s. (D) Levels of norepinephrine (NE) in kidney homogenates of the folic acid-induced kidney. *, p

Impaired dendritic morphology in Cdkl5 KO mice. (A) Example of a Golgi-stained brain slice. The dotted boxes

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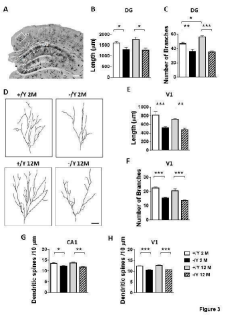
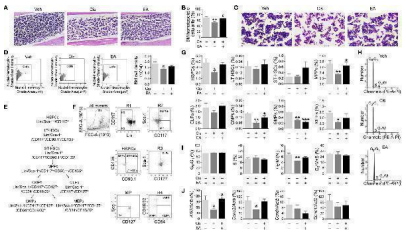


highlight the brain regions of the hippocampal formation (granular layer (DG) and hippocampal CA1 region (CA1)) and the visual cortex (V1) where dendritic length and spine density and maturation were evaluated. Scale bar = 500 um. (B-C) Mean total dendritic length (B) and mean number of dendritic segments (C) of Golgi-stained granule cells of the dentate gyrus (DG) in adult Cdkl5 -/Y (n = 3) and Cdkl5 +/Y (n = 3) mice, and middle-aged Cdkl5 -/Y (n = 3) and Cdkl5 +/Y (n = 3) mice. (D) Examples of the reconstructed dendritic tree of Golgi-stained mature granule neurons of one animal from each experimental group. Scale bar = 100 um. (E-F) Mean total dendritic length (E) and mean number of basal dendritic segments (F) of Golgi-stained pyramidal neurons of the primary visual cortex (V1, layer II/III) in adult Cdkl5 -/Y (n = 4) and Cdkl5 +/Y (n = 4) mice, and middle-aged Cdkl5 -/Y (n = 4) and Cdkl5 +/Y (n = 4) mice. (G-H) Dendritic spine density (number of spines per 10 um) on apical dendrites of pyramidal neurons of the CA1 layer of the hippocampus (G) and pyramidal neurons of V1 (layer II/III; H) from adult Cdkl5 -/Y (n = 4 or 5, respectively) and Cdkl5 +/Y (n = 4) mice, and middle-aged Cdkl5 -/Y (n = 4) and Cdkl5 +/Y (n = 4) mice. Values are represented as means ± SE. *p< 0.05, **p< 0.01, ***p< 0.001 (Fisher's LSD after two-way ANOVA).Index in PubMed under a CC BY license. PMID: 34094641



Electroacupuncture preserved hematopoiesis in mice with cisplatin chemotherapy. (A) Representative H&E staining of tibia BM from mice with control (Veh), cisplatin alone (Cis; 3 mg/kg), or with electroacupuncture (EA) treatment (scale bar=20.0 um) and (B) Histogram representation of BM hematopoietic cellularity of H&E staining analyzed by Image-Pro Plus 6.0 software (n= 4 per group). (C) Representative H&E staining of tibia BM from mice with Veh, cisplatin alone or with EA treatment at high configuration (scale bar=10.0 um). (D) Representative HistoFAXS Tissue Analysis of BM cell nuclei hematoxylin-shade-mean intensity, and quantitative analysis of BM cell density (n =4 per group). (E) Flowchart of hematopoiesis and hematopoietic cells markers. (F) Representative flow cytometry analyses and (G) quantification of hematopoietic BM cell subpopulations (Positive cells events (%) = (the events in target gate/the total cell) × 100) (n =6 per group). (H) Representative PI nuclear staining flow cytometry analyses in BM cell cycle (G 0 /G 1 , S, G 2 /M phases) and (I) Quantification of PI nuclear staining of BM cells in G 0 /G 1 , S, G 2 /M phases by ModFit 3.1 software (n =6 per group). (J) Expression of cell cycle related genes in BM cells (Ki67 : Veh, n =7; Cis, n =5; EA, n =7. Ccna2 : n =7 per group. Ccnd1 : Veh, n =5; Cis, n =4; EA, n =6. Ccne1 : Veh, n =6; Cis, n =4; EA, n =5). Data are mean ± SEM, * P < 0.05, ** P < 0.01, *** P < 0.001 vs Veh; # P < 0.05 vs Cis.Index in PubMed under a CC BY license. PMID: 34552585

Analyses of expression and enrichment of electroacupuncture in the bone marrow of mice with cisplatin. (A) Scatter plots of differentially expressed genes (DEG)s in Cis vs Veh and EA vs Cis group Each probe is

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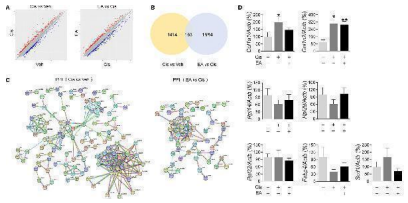
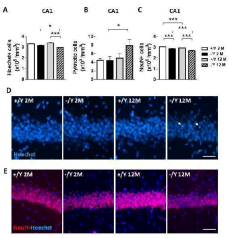
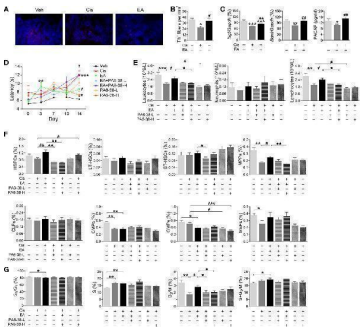


represented by a point with red and blue points showing up- and down-regulated genes defined above Log2 FC > 2. (B) Venn diagram and (C) PPI network analyses of DEGs results. (D) RT-qPCR analyses of factors related to extracellular matrix (Col1a1 , Col1a2), ribosome (Rpl14 , Rpl29 , Rpl32) , and PPAR signaling (Fabp4 , Scd1) (Col1a1 , Col1a2 : n =7 per group. Rpl14 , Rpl29 , Scd1 : n =6 per group. Rpl32 , Fabp4 : Veh, n =6; Cis, n =5; EA, n =6). Data are mean ± SEM, * P < 0.05, ** P < 0.01 vs Veh.Index in PubMed under a CC BY license. PMID: 34552585

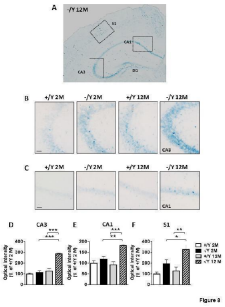


Reduced neuronal survival in Cdkl5 KO mice. (A) Quantification of Hoechst-positive cells in CA1 of hippocampal sections from young adult Cdkl5 +/Y (n = 4) and Cdkl5 -/Y (n = 4) mice, and middleaged Cdkl5 +/Y (n = 4) and Cdkl5 -/Y (n = 4) mice. (B) Quantification of pyknotic cells in the CA1 layer of the hippocampus from mice as in B. (C) Quantification of NeuN-positive cells in CA1 of hippocampal sections from young adult Cdkl5 +/Y (n = 4) and Cdkl5 -/Y (n = 4) mice, and middle-aged Cdkl5 +/Y (n = 5) and Cdkl5 -/Y (n = 4) mice. (D) Representative fluorescence images of cell layers in the hippocampal CA1 region from young adult and middle-aged Cdkl5 +/Y and Cdkl5 -/Y mice. Arrows indicate pyknotic nuclei. Scale bar = 100 um. E) Representative fluorescence images of sections immunopositive for NeuN (red) and counterstained with Hoechst (blue) in the hippocampal CA1 region of one animal from each group. Scale bar = 100 um. Values are represented as means ± SE. *p

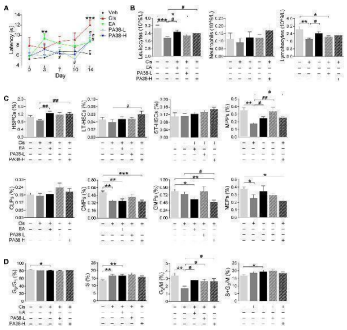


Neurogenic PACAP mediated electroacupuncture-induced protection to cisplatin. (A) Representative immunofluorescence images (Scale bar=20.0 um) and (B) Quantification of sympathetic Th + fibers (red) and nuclear (blue) in the BM of the experimental mice (n= 4 per group). (C) Expression analyses of neurotrophic factors (Ngf , Bndf : Veh, n =7; Cis, n =6; EA, n =7. PACAP: Veh, n =5; Cis, n =6; EA, n =6). (D) Representation of the latency time (seconds) in hot-plate tests of mice treated with control (Veh), cisplatin (Cis; 3mg/kg), and cisplatin + electroacupuncture (EA) without or with PACAP6-38 (a blocker for PACAP receptor, PAC1) at low (10 ug/kg) or high (100 ug/kg) concentrations (Cis, n =7; other groups, n =8), P values were calculated using two-way repeated-measures ANOVA. (E) Peripheral blood counts of specific subpopulation of leukocytes (Veh, Cis, EA: n =6; other groups, n =7). (F) Analyses of hematopoietic BM subpopulation cells (Veh, Cis, EA, EA+PA6-38-L, EA+PA6-38-H: n =7; PA6-38-L, n =8, PA6-38-H, n =6). (G) Quantification of PI nuclear staining of BM cells (Veh, n =8; Cis, n =7; EA, n =8; EA+PA6-38-L, n =8; EA+PA6-38-H, n =7; PA6-38-L, n =8; PA6-38-H, n =7). Data are mean ± SEM * P < 0.05, ** P < 0.01, *** P < 0.001 vs Veh; # P < 0.05, ## P < 0.01, ### P < 0.001 vs Cis; ⋆ P < 0.05, ⋆⋆ P < 0.01 vs EA.Index in PubMed under a CC BY license. PMID: 34552585

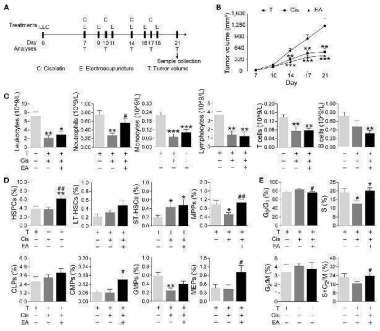
Senescence-associated-beta-galactosidase (SA-beta-gal)



activity in Cdkl5 KO mice. (A) Representative image at low magnification of a hippocampus of a middle-aged Cdkl5 -/Y mouse. Scale bar = 500 um. The dotted boxes indicate the regions used for quantification in (D-F). (B-C) Higher magnification shows representative images of SA-beta-gal staining in the hippocampal CA3 (B) and CA1 (C) region from adult and middle-aged Cdkl5 +/Y and Cdkl5 -/Y mice. Scale bar = 50 um. (D-F) Quantification of SA-beta-gal intensity in CA3 (D) and CA1 (E) hippocampal layers, and in layer II/III of the S1 cortex (F) from young adult Cdkl5 +/Y (n = 3) and Cdkl5 -/Y (n = 4) mice, and middle-aged Cdkl5 +/Y (n = 4) and Cdkl5 -/Y (n = 3) mice. Values are represented as means ± SE. *p< 0.05, **p< 0.01, ***p< 0.001 (Fisher's LSD test after two-way ANOVA).Index in PubMed under a CC BY license. PMID: 34094641



PAC1-agonist mimics electroacupuncture-induced protection to cisplatin. (A) Representation of the latency time (seconds) in hot-plate tests of mice with control (Veh), cisplatin (Cis; 3 mg/kg), EA (cisplatin + electroacupuncture), cisplatin mice were treated with low (10 ug/kg) or high (50 ug/kg) concentrations PAC1-agonist, PACAP1-38 (Veh, n =8; Cis, n =7; EA, n =8; PA38-L, n =8; PA38-H, n =7), P values were calculated using two-way repeated-measures ANOVA. (B) Peripheral blood counts of specific subpopulation of leukocytes ((Veh, Cis, EA: n =6; other groups, n =7). (C) Analyses of hematopoietic BM cell subpopulation (Veh, Cis, EA: n =7; PA38-L, PA38-H: n =8). (D) Quantification of PI nuclear staining of BM cells (Veh, n =8; Cis, n =7; EA, n =8; PA38-L, n =8; PA38-H, n =7). Data are mean ± SEM, * P < 0.05, ** P < 0.01, *** P < 0.001 vs Veh; # P < 0.05, ## P < 0.01 vs Cis.Index in PubMed under a CC BY license. PMID: 34552585



Electroacupuncture restores hematopoiesis in cancer mice during cisplatin chemotherapy. (A) Experimental flowchart depicting the time of treatments of tumor (LLC) cells at day 0, cisplatin (C), electroacupuncture (E), and analyses of tumor volume (T) and sample collection. (B) Tumor growth curve (n =9 per group), P values were calculated using two-way repeated-measures ANOVA. (C) Peripheral blood counts of specific subpopulation of leukocytes (leukocytes, lymphocytes: T, n =8; Cis, n =6; EA, n =8. neutrophils, monocytes, T and B lymphocytes: T, n =8; Cis, n =6; EA, n =7). (D) Analyses of hematopoietic BM cell subpopulation (n =9 per group). (E) Quantification of PI nuclear staining of BM cells (n =9 per group). Data are mean ± SEM, * P < 0.05, ** P < 0.01, *** P < 0.001 vs Veh; # P < 0.05, ## P < 0.01 vs Cis.Index in PubMed under a CC BY license. PMID: 34552585

Age-dependent deterioration of behavior in Cdkl5 KO mice. (A) Marble burying test in young adult Cdkl5 -/Y (n = 38) and Cdkl5 +/Y (n = 31) mice, and middle-aged Cdkl5 -/Y (n = 29) and Cdkl5 +/Y (n = 22) mice. (B) Fear conditioning paradigm, measuring time spent freezing in response to a mild footshock, upon the return to the testing chamber (context) and upon hearing the testing tone (cue) in adult

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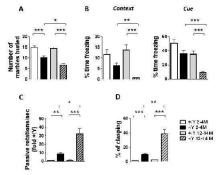
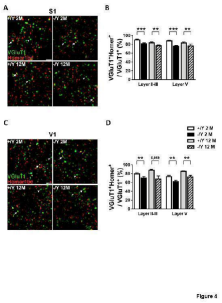


Cdkl5 -/Y (n = 29) and Cdkl5 +/Y (n = 28) mice, and middle-aged Cdkl5 -/Y (n = 22) and Cdkl5 +/Y (n = 20) mice. (C) Frequency of passive rotations (rotations in which the does not perform any coordinated movement but is passively transported on the rotating apparatus) in adult Cdkl5 -/Y (n = 30) and Cdkl5 +/Y (n = 19) mice, and middle-aged Cdkl5 -/Y (n = 13) and Cdkl5 +/Y (n = 10) mice. The mean frequency of passive rotations was expressed as fold of the wild-type counterparts of the same age. (D) Percentage of time spent hind-limb clasping during a 2-min interval in adult Cdkl5 -/Y (n = 29) and Cdkl5 +/Y (n =19) mice, and middle-aged Cdkl5 -/Y (n = 27) and Cdkl5 +/Y (n = 19) mice. Values represent mean ± SEM. *p< 0.05, **p< 0.01, ***p< 0.001 (Dunn's test after Kruskal-Wallis).Index in PubMed under a CC BY license. PMID: 34094641



Cdkl5 KO mice exhibit a decrease in the number of excitatory synaptic contacts. (A, C) Representative confocal micrographs of the neuropil in layer II-III of both S1 (A) and V1 (C) cortices showing immunofluorescence staining for VGluT1 (green) and Homer1bc (red) in young adult and middleaged Cdkl5 +/Y and Cdkl5 -/Y mice. Scale bar 5 um. Arrows point to examples of VGluT1-Homer1bc coappositions. Arrowheads point to examples of solitary VGluT1+ terminals. (B, D) Quantitative analysis of the percentage of VGluT1+ terminals juxtaposed to Homer1bc+ in cerebral cortex from young adult Cdkl5 -/Y (n = 4) and Cdkl5 +/Y (n = 5) mice, and middle-aged Cdkl5 -/Y (n = 3) and Cdkl5 +/Y (n = 4) mice. Values are represented as means ± SE. **p

23 Publications Citing This Product

1. PubMed ID: 10.3389/fimmu.2021.714244, PAC1 Receptor Mediates Electroacupuncture-Induced Neuro and Immune Protection During Cisplatin Chemotherapy

2. PubMed ID: 10.14336/AD.2020.0827, Age-Related Cognitive and Motor Decline in a Mouse Model of CDKL5 Deficiency Disorder is Associated with Increased Neuronal Senescence and Death

3. PubMed ID: 10.1186/s12872-016-0375-3, Autonomic remodeling may be responsible for decreased incidence of aortic dissection in STZ-induced diabetic rats via down-regulation of matrix metalloprotease 2

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