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Anti-Peroxiredoxin 1/PRDX1 Antibody Picoband®

Catalog Number: PB9348

About PRDX1

PRDX1 (Peroxiredoxin 1), also called PRX1, PAGA or NKEFA, is a thiol reductase that plays critical roles in oxidative and thermal stress defense mechanisms through its abilities to metabolize H2O2 and act as a molecular chaperone, respectively. This gene encodes a member of the peroxiredoxin family of antioxidant enzymes, which reduce hydrogen peroxide and alkyl hydroperoxides. The PRDX1 gene is mapped on 1p34.1. Prdx1 was expressed in differentiating motor neuron cells in developing embryonic chicken and mouse spinal cords. mmunoprecipitation analysis showed that GDE2 interacted directly with PRDX1 in embryonic chicken spinal cord extracts and in transfected HEK293T cells. This protein may have a proliferative effect and play a role in cancer development or progression. In differentiating spinal cord, Prdx1 was required to activate Gde2 by reducing an intramolecular cystine bridge between the Gde2 N- and C-terminal domains. An intramolecular disulfide bond between the GDE2 N- and C-terminal domains inhibits GDE2 function, and that reduction of this cystine by PRDX1 activates GDE2 for the induction of motor neuron differentiation.

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Overview

Product Name	Anti-Peroxiredoxin 1/PRDX1 Antibody Picoband®
Reactive Species	Human, Mouse, Rat
Description	Boster Bio Anti-Peroxiredoxin 1/PRDX1 Antibody Picoband® catalog # PB9348. Tested in Flow Cytometry, IF, IHC, ICC, 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	Flow Cytometry, IF, IHC, ICC, 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

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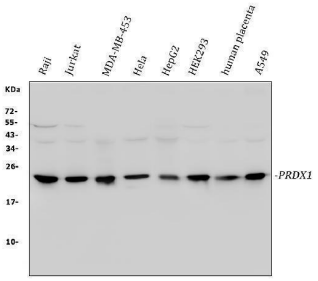
Uniprot ID	Q06830

Technical Details

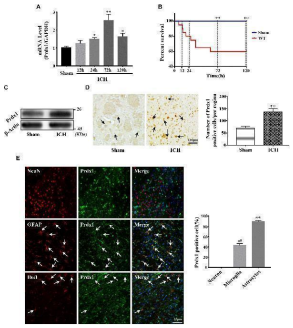
Immunogen	A synthetic peptide corresponding to a sequence in the middle region of human Peroxiredoxin 1, different from the related mouse sequence by one amino acid, and identical to the related rat sequence.
Recommended Detection Systems	Boster recommends Enhanced Chemiluminescent Kit with anti-Rabbit IgG (EK1002) for Western 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	Immunocytochemistry , 0.5-1ug/ml, Human, - Immunohistochemistry (Paraffin-embedded Section), 0.5-1ug/ml, Human, Mouse, Rat Western blot, 0.1-0.5ug/ml, Human, Mouse, Rat Immunocytochemistry/Immunofluorescence, 2ug/ml, Human Flow Cytometry (Fixed), 1-3ug/1x10^6 cells, Human Note: For flow cytometry (FCM), suitable for fixed cells only. Not suitable for FACS or surface flow cytometry using live cells.

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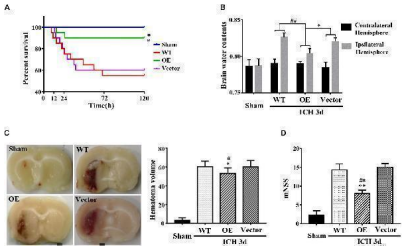
Anti-Peroxiredoxin 1/PRDX1 Antibody Picoband® (PB9348) Images



Western blot analysis of Peroxiredoxin 1 using anti-Peroxiredoxin 1 antibody (PB9348). Electrophoresis was performed on a 5-20% SDS-PAGE gel at 70V (Stacking gel) / 90V (Resolving gel) for 2-3 hours. The sample well of each lane was loaded with 30 ug of sample under reducing conditions. Lane 1: human Raji whole cell lysates, Lane 2: human Jurkat whole cell lysates, Lane 3: human MDA-MB-453 whole cell lysates, Lane 4: human Hela whole cell lysates, Lane 5: human HepG2 whole cell lysates, Lane 6: human HEK293 whole cell lysates, Lane 7: human placenta tissue lysates, Lane 8: human A549 whole cell 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-Peroxiredoxin 1 antigen affinity purified polyclonal antibody (Catalog # PB9348) 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 Enhanced Chemiluminescent detection (ECL) kit (Catalog # EK1002) with Tanon 5200 system. A specific band was detected for Peroxiredoxin 1 at approximately 24 kDa. The expected band size for Peroxiredoxin 1 is at 22 kDa.



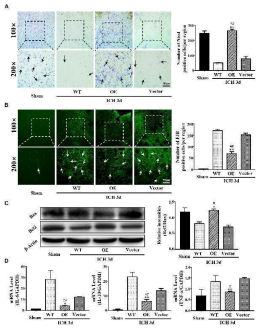
Prdx1 expression was significantly increased in rats after ICH. (A) Prdx1 expression in the perihematomal area was detected by qRT-PCR (df = 4, F = 35.945, ∗ P < 0.05 versus sham, ∗∗ P < 0.01 versus sham, n = 3). (B) Survival statistics of the sham group and WT group (chi2 = 10.457, df = 1, ∗∗ P = 0.01, n = 20). (C) Prdx1 expression in the perihematomal area was detected by western blot analysis (F = 2.014, t = –3.432, ∗∗ P < 0.01 versus sham, n = 3). (D) Prdx1 expression in perihematomal tissue was detected by immunohistochemistry (scale bars, 100 um, F = 1.225, t = –7.288, ∗∗ P < 0.01 versus sham, n = 3). (E) Prdx1 expression in perihematomal tissue was determined by immunofluorescence, and the percentage of positive Prdx1/NeuN, Prdx1/Ibalpha-1 and Prdx1/GFAP in three randomly chosen fields within the perihematomal area was counted (scale bars, 25 um, F = 10.964, t = –11.790, ## P < 0.01 versus Prdx1/NeuN. F = 12.000, t = –60.228, ∗∗ P < 0.01 versus Prdx1/NeuN, n = 3).Index in PubMed under a CC BY license. PMID: 32210752



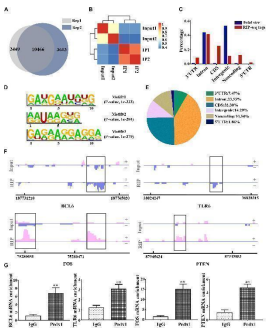
Prdx1 overexpression alleviated the symptoms of rats after ICH. (A) Survival statistics of the sham group, WT group, Vector group, and Prdx1-OE group (chi2 = 14.310, df = 3, ∗ P < 0.05 versus Vector, # P < 0.05 versus WT, n = 20). (B) Brain water content of the four groups (df = 3, F = 9.324, ∗ P < 0.05 versus Vector, ## P < 0.01 versus WT, n = 6). (C) Hematoma volume of the sham group, the WT group, the

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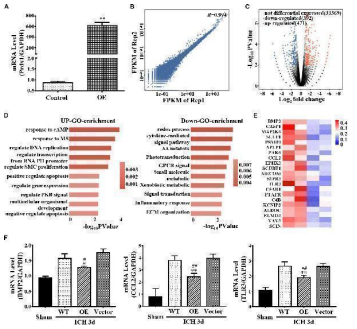
Vector group, and the Prdx1-OE group (df = 3, F = 151.467, ∗ P < 0.05 versus Vector, # P < 0.05 versus WT, n = 6). (D) The mNSS was determined for four groups 3 days after ICH (df = 3, F = 75.196, ∗∗ P < 0.01 versus Vector, ## P < 0.01 versus WT, n = 5).Index in PubMed under a CC BY license.
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Prdx1 overexpression inhibited inflammation and apoptosis after ICH. (A) Representative Nissl staining in sham, WT, Prdx1-OE and Vector rats. The number of Nissl-positive cells was assessed (scale bars, 50 um, df = 3, F = 174.206, ∗∗ P < 0.01 versus Vector; ## P < 0.01 versus WT, n = 3). (B) Representative FJB staining in sham, WT, Prdx1-OE, and Vector rats. The number of FJB-positive cells was assessed (scale bars, 50 um, df = 3, F = 435.050, ∗∗ P < 0.01 versus Vector; ## P < 0.01 versus WT, n = 3). (C) Western blotting was used to detect Bcl2 and Bax expression in the four groups (df = 3, F = 32.759, ∗ P < 0.05 versus Vector; # P < 0.05 versus WT, n = 3). (D) Comparison of the expression of inflammatory factors in the four groups using qRT-PCR: IL-6 (df = 3, F = 27.046, ∗ P < 0.05 versus Vector; ## P < 0.01 versus WT, n = 3), IL-10 (df = 3, F = 79.041, ∗∗ P < 0.01 versus Vector, ## P < 0.01 versus WT, n = 3), TNF-alpha (df = 3, F = 10.274, ∗∗ P < 0.01 versus Vector; # P < 0.05 versus WT, n = 3).Index in PubMed under a CC BY license.
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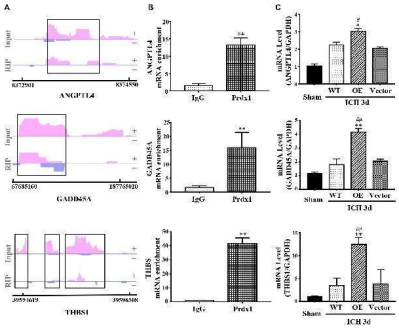
The genome-wide landscape of Prdx1 binding sites on RNA. (A) Venn diagram of Prdx1 RIP-seq genes from two biological replicates. (B) Heat map showing the correlation coefficient of two biological replicates. (C) The Prdx1 RIP-seq peaks are predominantly enriched in the CDS region, the 3′ UTR and the 5′ UTR. All RIP-seq peaks were classified according to their distribution on the RNA elements and compared to the genomic background. (D) De novo motif analysis identified GA repeat and GA-enriched sequences as Prdx1 binding motifs. (E) Prdx1 RIP-seq peak distribution proportion. (F) Prdx1 RIP-seq peaks are shown as track signals. The peak area is indicated by the black frame. (G) RIP-qPCR analysis of Prdx1 binding RNAs, IgG RIP was negative RIP control (BCL6: F = 3.745, t = –6.708, ∗∗ P < 0.01 versus IgG, n = 3; TLR6: F = 1.668, t = –7.065, ∗∗ P < 0.01 versus IgG, n = 3; FOS: F = 5.224, t = –10.432, ∗∗ P < 0.01 versus IgG, n = 3; PTEN: F = 0.000, t = –6.998, ∗∗ P < 0.01 versus IgG, n = 3).Index in PubMed under a CC BY license. PMID: 32210752



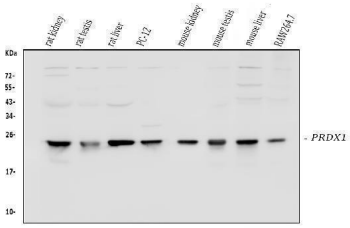
Prdx1 affects inflammation- and apoptosis-related mRNA stability. (A) Prdx1 expression in control HeLa cells and in the Prdx1-OE group was detected by qRT-PCR (F = 8.494, t = 40.635, ∗∗ P < 0.01 versus Control). (B) Scatter plots and correlation coefficients of two biological replicates of RNA-seq. (C) Volcano map: red dot indicates a gene that is upregulated after Prdx1 overexpression, black dot indicates a gene with no significant change, and blue dot indicates a downregulated gene. (D) Gene ontology (GO) analysis of Prdx1-dependent DEGs. Significantly enriched GO terms of genes. The x -axis indicates the enrichment P -value on a

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−log10 scale; the y -axis indicates terms. (E) Heat map showing that apoptosis- and inflammation-related genes were significantly decreased after Prdx1 was upregulated in HeLa cells. (F) qRT-PCR was performed in four groups 3 days after ICH (BMP2: F = 8.949, df = 3, ∗ P < 0.05 versus Vector, # P < 0.05 versus WT, n = 3; CCL2: F = 33.103, df = 3, ∗∗ P < 0.01 versus Vector, ## P < 0.01 versus WT, n = 3; TLR3: F = 39.330, df = 3, ∗∗ P < 0.01 versus Vector, ## P < 0.01 versus WT, n = 3).Index in PubMed under a CC BY license. PMID: 32210752



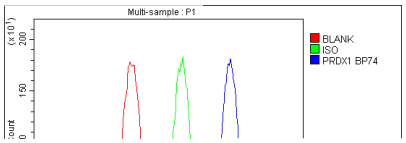
Prdx1 plays similar roles in vitro and in vivo . (A) Prdx1 RIP-seq peaks are shown as track signals of ANGPTL4, GADD45A and THBS1. The peak area is indicated by the black frame. (B) RIP-qPCR analysis of Prdx1 binding RNAs in astrocytes with IgG RIP as a negative RIP control (ANGPTL4: F = 4.297, t = –13.551, ∗∗ P < 0.01 versus IgG, n = 3; GADD45A: F = 12.277, t = –8.909, ∗∗ P < 0.01 versus IgG, n = 3; THBS: F = 4.072, t = –20.619, ∗∗ P < 0.01 versus IgG, n = 3). (C) qRT-PCR was performed in four groups of ANGPTL4, GADD45A, and THBS1 mRNA (ANGPTL4: F = 87.049, df = 3, ∗ P < 0.05 versus Vector, # P < 0.05 versus WT, n = 3; GADD45A: F = 73.252, df = 3, ∗∗ P < 0.01 versus Vector, ## P < 0.01 versus WT, n = 3; THBS: F = 20.553, df = 3, ∗∗ P < 0.01 versus Vector, ## P < 0.01 versus WT, n = 3).Index in PubMed under a CC BY license. PMID: 32210752



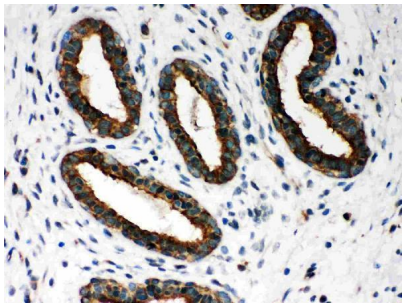
Western blot analysis of Peroxiredoxin 1 using anti-Peroxiredoxin 1 antibody (PB9348). Electrophoresis was performed on a 5-20% SDS-PAGE gel at 70V (Stacking gel) / 90V (Resolving gel) for 2-3 hours. The sample well of each lane was loaded with 30 ug of sample under reducing conditions. Lane 1: rat kidney tissue lysates, Lane 2: rat testis tissue lysates, Lane 3: rat liver tissue lysates, Lane 4: rat PC-12 whole cell lysates, Lane 5: mouse kidney tissue lysates, Lane 6: mouse testis tissue lysates, Lane 7: mouse liver tissue lysates, Lane 8: mouse RAW264.7 whole cell 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-Peroxiredoxin 1 antigen affinity purified polyclonal antibody (Catalog # PB9348) 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 Enhanced Chemiluminescent detection (ECL) kit (Catalog # EK1002) with Tanon 5200 system. A specific band was detected for Peroxiredoxin 1 at approximately 24 kDa. The expected band size for Peroxiredoxin 1 is at 22 kDa.

Flow Cytometry analysis of HEPG2 cells using anti-Peroxiredoxin 1 antibody (PB9348). Overlay histogram showing HEPG2 cells stained with PB9348 (Blue line). To facilitate intracellular staining, cells were fixed with 4% paraformaldehyde and permeabilized with permeabilization

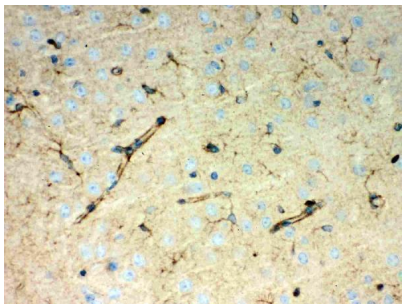
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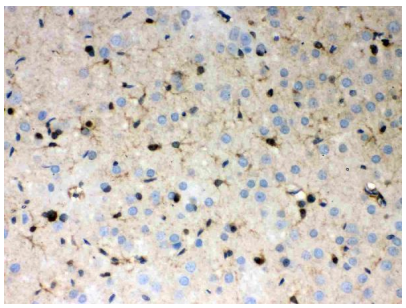
buffer. The cells were blocked with 10% normal goat serum. And then incubated with rabbit anti-Peroxiredoxin 1 Antibody (PB9348, 1ug/1x106 cells) for 30 min at 20°C. DyLight®488 conjugated goat anti-rabbit IgG (BA1127, 5-10ug/1x106 cells) was used as secondary antibody for 30 minutes at 20°C. Isotype control antibody (Green line) was rabbit IgG (1ug/1x106) used under the same conditions. Unlabelled sample without incubation with primary antibody and secondary antibody (Red line) was used as a blank control.



IHC analysis of Peroxiredoxin 1 using anti-Peroxiredoxin 1 antibody (PB9348). Peroxiredoxin 1 was detected in a paraffin-embedded section of Human Mammary Cancer 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 ug/ml rabbit anti-Peroxiredoxin 1 Antibody (PB9348) 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.



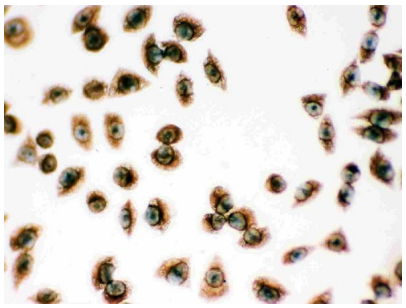
IHC analysis of Peroxiredoxin 1 using anti-Peroxiredoxin 1 antibody (PB9348). Peroxiredoxin 1 was detected in a paraffin-embedded section of Mouse Brain tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1 ug/ml rabbit anti-Peroxiredoxin 1 Antibody (PB9348) 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.



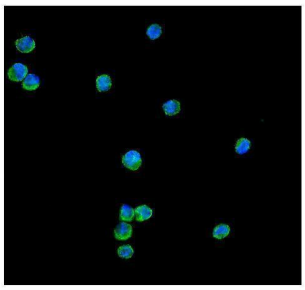
IHC analysis of Peroxiredoxin 1 using anti-Peroxiredoxin 1 antibody (PB9348). Peroxiredoxin 1 was detected in a paraffin-embedded section of Rat Brain tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1 ug/ml rabbit anti-Peroxiredoxin 1 Antibody (PB9348) 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 Peroxiredoxin 1 using anti-Peroxiredoxin 1 antibody (PB9348). Peroxiredoxin 1 was detected in immunocytochemical section of SMMC-7721 Cell. Enzyme antigen retrieval was performed using IHC enzyme antigen

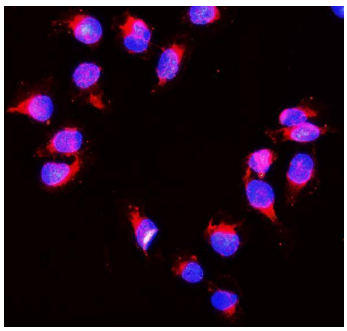
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retrieval reagent (AR0022) for 15 mins. The cells were blocked with 10% goat serum. And then incubated with 1ug/ml rabbit anti-Peroxiredoxin 1 Antibody (PB9348) overnight at 4°C. Biotinylated goat anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37°C. The section was developed using Strepavidin-Biotin-Complex (SABC)(Catalog # SA1022) with DAB as the chromogen.



IF analysis of Peroxiredoxin 1 using anti-Peroxiredoxin 1 antibody (PB9348). Peroxiredoxin 1 was detected in immunocytochemical section of Hela cells. Enzyme antigen retrieval was performed using IHC enzyme antigen retrieval reagent (AR0022) for 15 mins. The cells were blocked with 10% goat serum. And then incubated with 2ug/mL rabbit anti-Peroxiredoxin 1 Antibody (PB9348) overnight at 4°C. DyLight®488 Conjugated Goat Anti-Rabbit IgG (BA1127) was used as secondary antibody at 1:100 dilution and incubated for 30 minutes at 37°C. The section was counterstained with DAPI. Visualize using a fluorescence microscope and filter sets appropriate for the label used.



IF analysis of Peroxiredoxin 1 using anti- Peroxiredoxin 1 antibody (PB9348). Peroxiredoxin 1 was detected in immunocytochemical section of U20S cells. Enzyme antigen retrieval was performed using IHC enzyme antigen retrieval reagent (AR0022) for 15 mins. The cells were blocked with 10% goat serum. And then incubated with 2ug/mL rabbit anti-Peroxiredoxin 1 Antibody (PB9348) overnight at 4°C. DyLight®594 Conjugated Goat Anti-Rabbit IgG (BA1142) was used as secondary antibody at 1:100 dilution and incubated for 30 minutes at 37°C. The section was counterstained with DAPI. Visualize using a fluorescence microscope and filter sets appropriate for the label used.

1 Publications Citing This Product

1. PubMed ID: 10.3389/fnins.2020.00181, Prdx1 Reduces Intracerebral Hemorrhage-Induced Brain Injury via Targeting Inflammation- and Apoptosis-Related mRNA Stability

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