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Anti-CYP1B1 Antibody Picoband®

Catalog Number: PB9546

About CYP1B1

Cytochrome P450 1B1 is an enzyme that in humans is encoded by the CYP1B1 gene. CYP1B1 belongs to the the cytochrome P450 superfamily of enzymes. The cytochrome P450 proteins are monooxygenases which catalyze many reactions involved in drug metabolism and synthesis of cholesterol, steroids and other lipids. The enzyme encoded by this gene localizes to the endoplasmic reticulum and metabolizes procarcinogens such as polycyclic aromatic hydrocarbons and 17beta-estradiol. Mutations in this gene have been associated with primary congenital glaucoma; therefore it is thought that the enzyme also metabolizes a signaling molecule involved in eye development, possibly a steroid.

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Overview

Product Name	Anti-CYP1B1 Antibody Picoband®
Reactive Species	Human, Mouse, Rat
Description	Boster Bio Anti-CYP1B1 Antibody Picoband® catalog # PB9546. Tested in Flow Cytometry, 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	Flow Cytometry, 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	Q16678

Technical Details

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Immunogen	E.coli-derived human CYP1B1 recombinant protein (Position: R255-L480). Human CYP1B1 shares 85.4% and 84.5% amino acid (aa) sequence identity with mouse and rat CYP1B1, respectively.
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).
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, Human, Mouse, Rat Immunohistochemistry (Paraffin-embedded Section), 0.5-1ug/ml, Human, Mouse, Rat 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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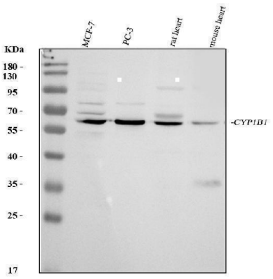
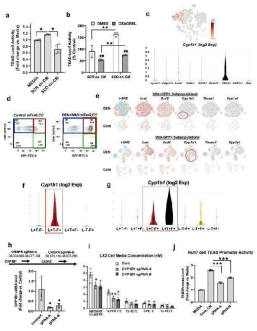
Anti-CYP1B1 Antibody Picoband® (PB9546) Images



Western blot analysis of CYP1B1 using anti-CYP1B1 antibody (PB9546). 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 MCF-7 whole cell lysates, Lane 2: human PC-3 whole cell lysates, Lane 3: rat heart tissue lysates, Lane 4: mouse heart 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-CYP1B1 antigen affinity purified polyclonal antibody (Catalog # PB9546) 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 CYP1B1 at approximately 61 kDa. The expected band size for CYP1B1 is at 61 kDa.



aHSC release LTB4R2 ligands in a manner dependent on CYP1B1. a TEAD-luciferase activity in Huh7 cells treated with conditioned medium (CM) from LX2 cells transduced with scrambled shRNA (SCRsh-CM) vs. SCD-shRNA (SCDsh-CM) as compared to the media without Huh7 cells (Media). * $p < 0.05$ by two-sided t-test. Data presented as means ± SEM (n = 4 separate experiments). b TEAD-luciferase activity in Huh7 cells exposed to SCRsh-CM vs. SCDsh-CM in the presence of the TBXAS1 inhibitor Ozagarel or vehicle DMSO. * $p < 0.001$ vs. Media, # $p < 0.001$ vs. DMSO by two-sided t-test. Data presented as means ± SEM (n = 3 experiments). c A scRNA - seq t-SNE plot showing Cyp1b1 + cells and violin plots revealing selective Cyp1b1 expression by Fbln2 + cells. Cell numbers for different cell type groups are provided in Supplementary Data . d Contour FACS plots of liver mesenchymal cells isolated from control vs. DEN + WAD treated Rosa26mTmG;Col1a1-Cre; (mTmG;CC) mouse, gated by DAPI (Y -axis) for Vit A fluorescence and FITC (X-axis) for Col1a1-GFP, revealing VitA + GFP - quiescent HSC (blue), VitA + GFP + aHSC (red), and VitA − GFP + cells (green). FACS gating strategies are provided in . e scRNA-seq analysis for expression of 12-HHTrE biosynthetic genes in VitA + GFP + (top) and VitA − GFP + (bottom) subpopulations from DEN+WAD mouse (DEN) vs. normal (Cont.) livers. f Violin plots for Cyp1b1 expression by subpopulations based on Lrat , Thy1 , and Fbln2 expression in VitA + GFP + cells from the DEN mouse and g in VitA − GFP + cells. (See Supplementary Data for parameter values for violin plots and cell numbers for different subpopulations). h CRISPR/Cas9 ablation of CYP1B1 in LX2 cells using the guide RNA-A (sgRNA-A) or -B (sgRNA-B) (top), represses CYP1B1 mRNA. * $p < 0.05$ vs. control by two-sided t-test. Data presented as means ± SEM (n = 3 separate

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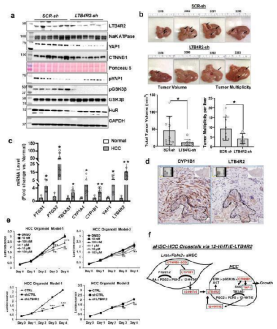
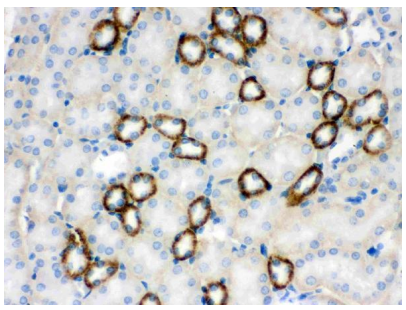
samples). i Oxylipin concentrations in CM from LX2 cells with CYP1B1 KD are described above. * $p < 0.05$ vs. control by two-sided t-test. Data presented as means ± SEM ($n = 4$ separate samples). (Raw data provided in Supplementary Data in Supplementary File). j Reduced stimulatory effects of CM from CYP1B1 ablated LX2 cells on the TEAD promoter activity in Huh7 cells (right). *** $p < 0.001$ vs. Control CM by two-sided t-test. Data presented as means ± SEM ($n = 3$ experiments). For all relevant figures, source data and exact p values are provided in the file. Index in PubMed under a CC BY license. PMID: 37156770



HCC growth is dependent on LTB4R2. a IB analysis of LTB4R2 and NaKATPase (membrane), pYAP1, pGSK3beta, GSK3beta, HuR, GAPDH (cytosolic), YAP1 and CTNNB1 (nuclear) proteins from B6 mice subjected to the DEN + WAD regimen and injected with AAV vector (4×10 11 GC per mouse) expressing SCR-shRNA (SCR-sh) vs. LTB4R2-shRNA (LTB4R2-sh) one month prior to the end of experiment ($n = 6$ mice per group). b Liver tumor development in the mice with SCR-sh vs. LTB4R2-sh treatment depicted by representative images and total tumor volume and multiplicity. * $p < 0.05$ vs. SCR-sh mice by two-sided t-test. Data presented as means ± SEM ($n = 9$ mice each). c qPCR data for oxylipin synthetic genes, LTB4R2 , and YAP1 in patient HCC ($n = 6$) vs. normal subject livers ($n = 6$). * $p < 0.05$, ** $p < 0.01$ vs. normal liver by two-sided t-test. Data presented as means ± SEM. d Representative IHC-HRP staining for CYP1B1 and LTB4R2 of patient HCC liver sections (×200) from four patient samples examined. Areas demarked by broken lines are HCC. e Top: Growth of patient HCC organoid (model-1 and model-2) in the presence of DMSO (vehicle) or the LTB4R2 antagonist LY255283. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.005$ vs. DMSO by two-way ANOVA with post hoc test. Data presented as means ± SEM ($n = 3$ experiments). Bottom: Growth of patient HCC organoid model-1 and model-2 without (CTRL) or with infection with adenovirus expressing scrambled shRNA (shCTRL) or LTB4R2 shRNA (shLTB4R2). * $p < 0.05$, *** $p < 0.005$ vs. DMSO ($n = 3$ experiments). f Schematic diagram of HCC promotion initiated by SCD-CYP1B1-dependent release of 12-HHTrE by Lart + Fbln2 + aHSC, activating LTB4R2-CTNNB1-YAP1 pathway in HCC cell. For all relevant figures , source data and exact p values are provided in the file. Index in PubMed under a CC BY license. PMID: 37156770



IHC analysis of CYP1B1 using anti-CYP1B1 antibody (PB9546). CYP1B1 was detected in paraffin-embedded section of Mouse Kidney Tissue. Heat mediated antigen retrieval was performed in citrate buffer (pH6, epitope retrieval solution) for 20 mins. The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1ug/ml rabbit anti-CYP1B1 Antibody (PB9546) overnight at 4°C. Biotinylated goat anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37°C. The tissue section was developed using Strepavidin-Biotin-Complex (SABC)(Catalog # SA1022) with DAB as the chromogen.

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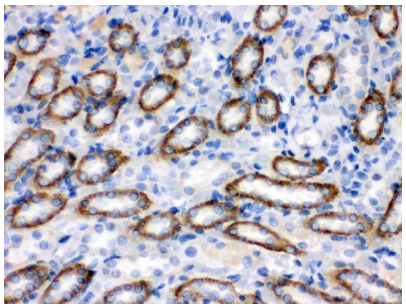
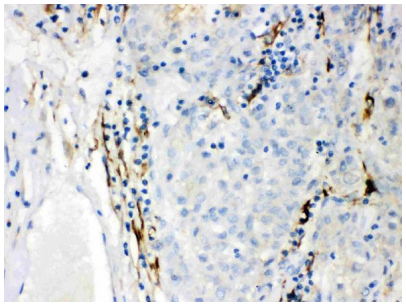
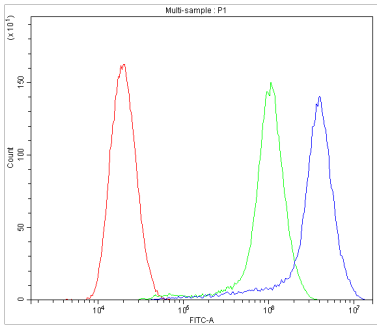


IHC analysis of CYP1B1 using anti-CYP1B1 antibody (PB9546). CYP1B1 was detected in paraffin-embedded section of Rat Kidney Tissue. Heat mediated antigen retrieval was performed in citrate buffer (pH6, epitope retrieval solution) for 20 mins. The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1ug/ml rabbit anti-CYP1B1 Antibody (PB9546) overnight at 4°C. Biotinylated goat anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37°C. The tissue section was developed using Strepavidin-Biotin-Complex (SABC)(Catalog # SA1022) with DAB as the chromogen.



IHC analysis of CYP1B1 using anti-CYP1B1 antibody (PB9546). CYP1B1 was detected in paraffin-embedded section of Human Liver Cancer Tissue. Heat mediated antigen retrieval was performed in citrate buffer (pH6, epitope retrieval solution) for 20 mins. The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1ug/ml rabbit anti-CYP1B1 Antibody (PB9546) overnight at 4°C. Biotinylated goat anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37°C. The tissue section was developed using Strepavidin-Biotin-Complex (SABC)(Catalog # SA1022) with DAB as the chromogen.



Flow Cytometry analysis of SiHa cells using anti-CYP1B1 antibody (PB9546). Overlay histogram showing SiHa cells stained with PB9546 (Blue line). To facilitate intracellular staining, cells were fixed with 4% paraformaldehyde and permeabilized with permeabilization buffer. The cells were blocked with 10% normal goat serum. And then incubated with rabbit anti-CYP1B1 Antibody (PB9546,1ug/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.

Anti-CYP1B1 Antibody

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