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antibody and ELISA experts

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Anti-Cytochrome P450 1A1/CYP1A1 Antibody Picoband®

Catalog Number: PB9544

About CYP1A1

CYP1A1 is involved in phase I xenobiotic and drug metabolism (one substrate of it is theophylline). It is inhibited by fluoroquinolones and macrolides and induced by aromatic hydrocarbons. CYP1A1 is also known as AHH (aryl hydrocarbon hydroxylase). It is involved in the metabolic activation of aromatic hydrocarbons (polycyclic aromatic hydrocarbons, PAH), for example, benzo (a)pyrene (BP), by transforming it to an epoxide. In this reaction, the oxidation of benzo[a]pyrene is catalysed by CYP1A1 to form BP-7,8-epoxide, which can be further oxidized by epoxide hydrolase (EH) to form BP-7,8-dihydrodiol. Finally CYP1A1 catalyses this intermediate to form BP-7,8-dihydrodiol-9,10-epoxide, which is the ultimate carcinogen. However, an in vivo experiment with gene-deficient mice has found that the hydroxylation of benzo (a)pyrene by CYP1A1 can have an overall protective effect on the DNA, rather than contributing to potentially carcinogenic DNA modifications. This effect is likely due to the fact that CYP1A1 is highly active in the intestinal mucosa, and thus inhibits infiltration of ingested benzo (a)pyrene carcinogen into the systemic circulation.

Overview

Product Name	Anti-Cytochrome P450 1A1/CYP1A1 Antibody Picoband®
Reactive Species	Human, Mouse, Rat
Description	Boster Bio Anti-Cytochrome P450 1A1/CYP1A1 Antibody Picoband® catalog # PB9544. Tested in Flow Cytometry, IF, IHC, IHC-F, 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, IHC-F, 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
Uniprot ID	P04798

Technical Details

Immunogen	E.coli-derived human CYP1A1 recombinant protein (Position: H183-D320). Human CYP1A1 shares 81.2% amino acid (aa) sequence identity with both mouse and rat CYP1A1.

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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), IHC(F) 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, Human, Mouse, Rat Immunohistochemistry (Paraffin-embedded Section), 0.5-1ug/ml, Human, Mouse, Rat Immunohistochemistry (Frozen Section), 0.5-1ug/ml, Human, Mouse, - Immunocytochemistry/Immunofluorescence, 2ug/ml, Human Flow Cytometry (Fixed), 1-3ug/1x10^6 cells, Human

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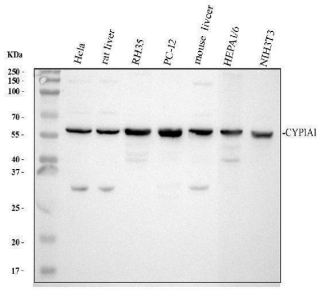
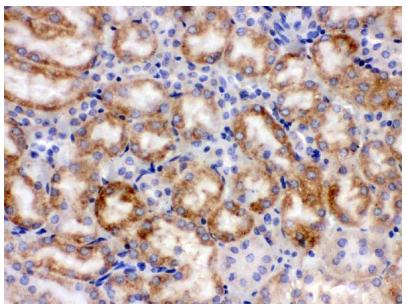
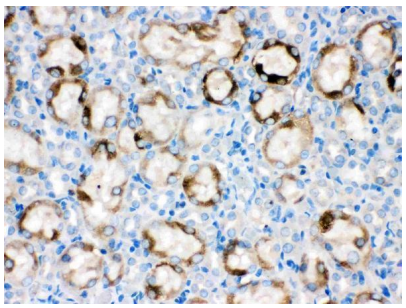
Anti-Cytochrome P450 1A1/CYP1A1 Antibody Picoband® (PB9544) Images



Western blot analysis of CYP1A1 using anti-CYP1A1 antibody (PB9544). 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: human Hela whole cell lysates, Lane 2: rat liver tissue lysates, Lane 3: rat RH-35 whole cell lysates, Lane 4: rat PC-12 whole cell lysates, Lane 5: mouse liver tissue lysates, Lane 6: mouse HEPA1/6 whole cell lysates, Lane 7: mouse NIH/3T3 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-CYP1A1 antigen affinity purified polyclonal antibody (Catalog # PB9544) 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 CYP1A1 at approximately 58 kDa. The expected band size for CYP1A1 is at 58 kDa.



IHC analysis of CYP1A1 using anti-CYP1A1 antibody (PB9544). CYP1A1 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-CYP1A1 Antibody (PB9544) 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 CYP1A1 using anti-CYP1A1 antibody (PB9544). CYP1A1 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-CYP1A1 Antibody (PB9544) 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 CYP1A1 using anti-CYP1A1 antibody (PB9544). CYP1A1 was detected in paraffin-embedded section of Human Mammary Cancer Tissue. Heat mediated

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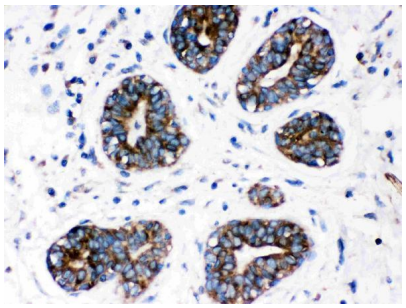
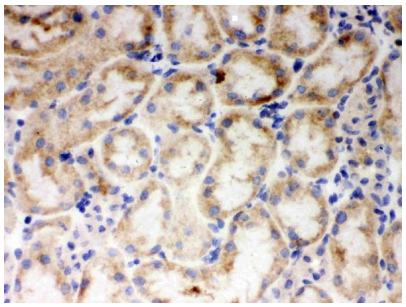
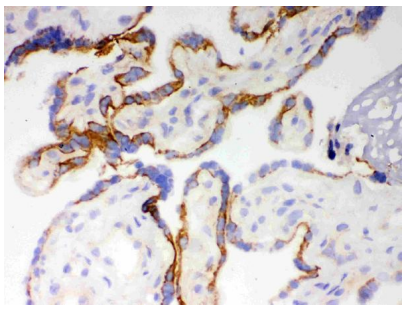


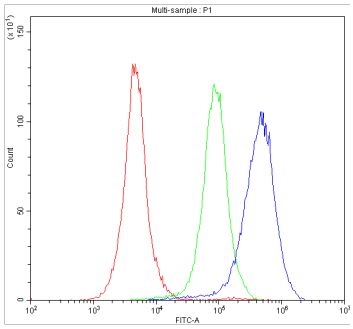
antigen retrieval was performed in citrate buffer (pH6, epitope retrieval solution) for 20 mins. The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1ug/ml rabbit anti-CYP1A1 Antibody (PB9544) overnight at 4°C. Biotinylated goat anti-rabbit IgG was used as secondary 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.



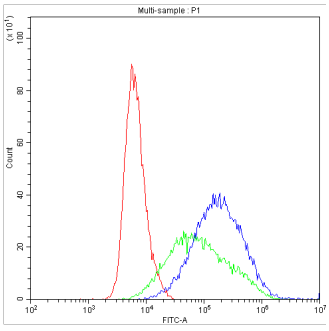
IHC analysis of CYP1A1 using anti-CYP1A1 antibody (PB9544). CYP1A1 was detected in frozen section of Mouse Kidney Tissue. The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1ug/ml rabbit anti-CYP1A1 Antibody (PB9544) overnight at 4°C. Biotinylated goat anti-rabbit 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 CYP1A1 using anti-CYP1A1 antibody (PB9544). CYP1A1 was detected in frozen section of Human Placenta Tissue. The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 1ug/ml rabbit anti-CYP1A1 Antibody (PB9544) 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 CACO-2 cells using anti-CYP1A1 antibody (PB9544).Overlay histogram showing CACO-2 cells stained with PB9544 (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-CYP1A1 Antibody (PB9544,1ug/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.



Flow Cytometry analysis of Hela cells using anti-CYP1A1 antibody (PB9544).Overlay histogram showing Hela cells stained with PB9544 (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-CYP1A1 Antibody (PB9544,1ug/1x106 cells) for 30 min at 20°C. DyLight®488 conjugated goat anti-rabbit IgG (BA1127, 5-10ug/1x106 cells) was used as secondary

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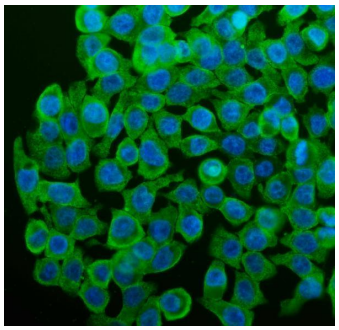
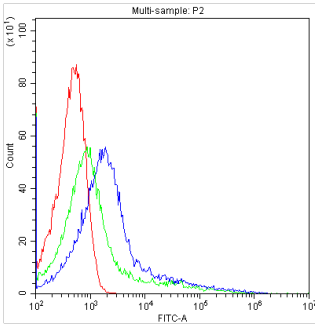
antibody for 30 minutes at 20°C. Isotype control antibody (Green line) was rabbit IgG (1ug/1x106) used under the same conditions. Unlabelled sample without incubation with primary antibody and secondary antibody (Red line) was used as a blank control.



IF analysis of CYP1A1 using anti-CYP1A1 antibody (PB9544). CYP1A1 was detected in immunocytochemical section of Caco-2 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-CYP1A1 Antibody (PB9544) 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.



Flow Cytometry analysis of K562 cells using anti-CYP1A1 antibody (PB9544).Overlay histogram showing K562 cells stained with PB9544 (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-CYP1A1 Antibody (PB9544,1ug/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.

1 Publications Citing This Product

1. PubMed ID: 30942466 , Prenatal nicotine exposure induces depression‐like behavior in adolescent female rats via modulating neurosteroid in the hippocampus.

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Anti-Cytochrome P450 1A1/CYP1A1 Antibody

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