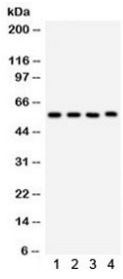
CYP1A1 Antibody / Xenobiotic Metabolism Enzyme Antibody (R31887)

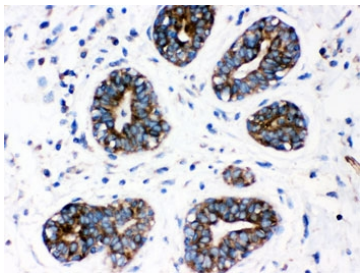
Catalog No.	Formulation	Size
R31887	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

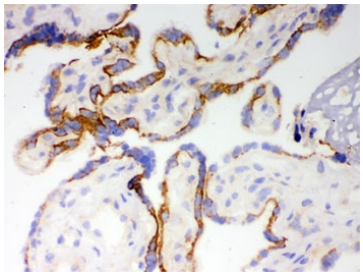
Availability	1-3 business days
Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen affinity
Buffer	Lyophilized from 1X PBS with 2.5% BSA and 0.025% sodium azide
UniProt	P04798
Localization	Cytoplasmic, membrane
Applications	Western blot: 0.1-0.5ug/ml Immunohistochemistry (Frozen): 0.5-1ug/ml Immunohistochemistry (FFPE): 0.5-1ug/ml Flow cytometry: 1-3ug/10^6 cells Immunofluorescence: 2ug/ml
Limitations	This CYP1A1 Antibody / Xenobiotic Metabolism Enzyme Antibody is available for research use only.



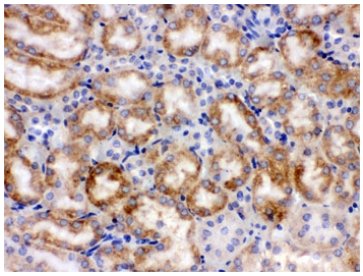
CYP1A1 Antibody Multi-Species WB. Western blot analysis of CYP1A1 expression was performed using anti-CYP1A1 antibody. Lane 1: rat lung lysate. Lane 2: mouse lung lysate. Lane 3: human placenta lysate. Lane 4: Jurkat cell lysate. CYP1A1 is a heme-containing cytochrome P450 monooxygenase that catalyzes Phase I xenobiotic metabolism and is strongly induced through aryl hydrocarbon receptor (AHR) signaling following exposure to environmental toxicants. A specific immunoreactive band is detected at approximately 58 kDa in all samples, consistent with the predicted molecular weight of CYP1A1. These results demonstrate cross-species reactivity and support the utility of CYP1A1 Antibody for studies of xenobiotic metabolism, drug metabolism, environmental toxicology, and AHR signaling.



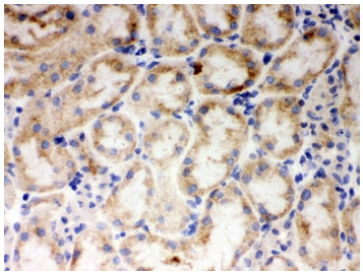
CYP1A1 Antibody Human Breast Cancer IHC. IHC staining of FFPE human breast cancer tissue with CYP1A1 antibody demonstrated strong cytoplasmic staining in malignant epithelial cells. CYP1A1 is a heme-containing cytochrome P450 monooxygenase that catalyzes Phase I xenobiotic metabolism and is induced through aryl hydrocarbon receptor (AHR) signaling following exposure to environmental toxicants. In addition to its role in chemical detoxification, CYP1A1 contributes to the metabolic activation of procarcinogens and has been implicated in tumor biology and therapeutic response. HIER was performed by boiling tissue sections in pH 6, 10 mM citrate buffer for 20 minutes followed by cooling prior to staining. These results support the utility of CYP1A1 Antibody for studies of xenobiotic metabolism, AHR signaling, environmental toxicology, and cancer research.



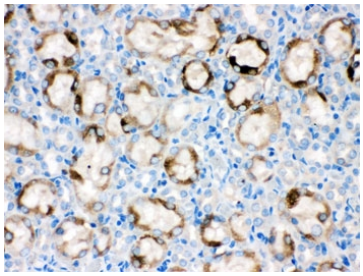
CYP1A1 Antibody Human Placenta IHC (Frozen). IHC staining of frozen human placenta tissue with CYP1A1 antibody demonstrated prominent cytoplasmic staining in trophoblastic cells. CYP1A1 is a heme-containing cytochrome P450 monooxygenase that catalyzes Phase I xenobiotic metabolism and is strongly induced through aryl hydrocarbon receptor (AHR) signaling in response to environmental chemicals. In the placenta, CYP1A1 contributes to the metabolism of xenobiotics at the maternal-fetal interface and is widely studied as a biomarker of environmental exposure during pregnancy. These results support the utility of CYP1A1 Antibody for studies of xenobiotic metabolism, placental biology, AHR signaling, developmental toxicology, and environmental health.



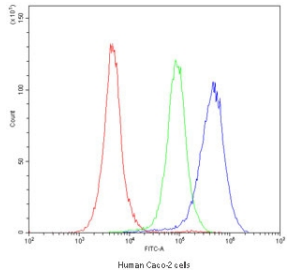
CYP1A1 Antibody Mouse Kidney IHC. IHC staining of FFPE mouse kidney with CYP1A1 antibody demonstrated cytoplasmic staining in renal tubular epithelial cells. CYP1A1 is a heme-containing cytochrome P450 monooxygenase that catalyzes Phase I xenobiotic metabolism and is induced through aryl hydrocarbon receptor (AHR) signaling following exposure to environmental chemicals. In the kidney, CYP1A1 contributes to the oxidative metabolism of endogenous compounds and xenobiotics, supporting detoxification and metabolic homeostasis. HIER was performed by boiling tissue sections in pH 6, 10 mM citrate buffer for 20 minutes followed by cooling prior to staining. These results support the utility of CYP1A1 Antibody for studies of xenobiotic metabolism, drug metabolism, AHR signaling, renal biology, and environmental toxicology.



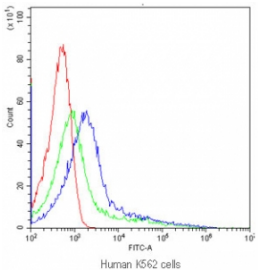
CYP1A1 Antibody Mouse Kidney IHC (Frozen). IHC staining of frozen mouse kidney tissue with CYP1A1 antibody demonstrated cytoplasmic staining in renal tubular epithelial cells. CYP1A1 is a heme-containing cytochrome P450 monooxygenase that catalyzes Phase I xenobiotic metabolism and is induced through aryl hydrocarbon receptor (AHR) signaling following exposure to environmental chemicals. In the kidney, CYP1A1 participates in the oxidative metabolism of endogenous substrates and xenobiotics, contributing to detoxification and metabolic homeostasis. These results support the utility of CYP1A1 Antibody for studies of xenobiotic metabolism, drug metabolism, AHR signaling, renal biology, and environmental toxicology.



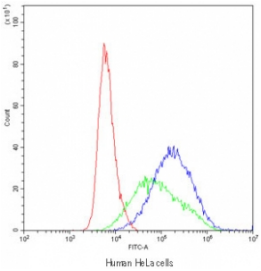
CYP1A1 Antibody Rat Kidney IHC. IHC staining of FFPE rat kidney with CYP1A1 antibody demonstrated cytoplasmic staining in renal tubular epithelial cells. CYP1A1 is a heme-containing cytochrome P450 monooxygenase that catalyzes Phase I xenobiotic metabolism and is induced through aryl hydrocarbon receptor (AHR) signaling following exposure to environmental chemicals. In the kidney, CYP1A1 contributes to the oxidative metabolism of endogenous compounds, drugs, and xenobiotics, supporting detoxification and metabolic homeostasis. HIER was performed by boiling tissue sections in pH 6, 10 mM citrate buffer for 20 minutes followed by cooling prior to staining. These results support the utility of CYP1A1 Antibody for studies of xenobiotic metabolism, drug metabolism, AHR signaling, renal biology, and environmental toxicology.



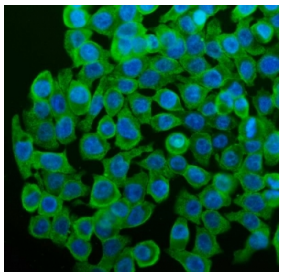
CYP1A1 Antibody Human Caco-2 Flow Cytometry. Flow cytometric analysis of human Caco-2 cells using CYP1A1 antibody demonstrated a clear rightward shift in fluorescence intensity (blue) compared with the isotype control (green) and unstained cells (red), indicating specific detection of CYP1A1 expression. CYP1A1 is a heme-containing cytochrome P450 monooxygenase that catalyzes Phase I xenobiotic metabolism and is induced through aryl hydrocarbon receptor (AHR) signaling in response to environmental toxicants. Caco-2 cells were incubated with CYP1A1 antibody at 1 ug/10^6 cells following goat serum blocking. These results support the utility of CYP1A1 Antibody for flow cytometric studies of xenobiotic metabolism, drug metabolism, AHR signaling, and environmental toxicology.



CYP1A1 Antibody Human K562 Flow Cytometry. Flow cytometric analysis of human K562 cells using CYP1A1 antibody demonstrated a rightward shift in fluorescence intensity (blue) compared with the isotype control (green) and unstained cells (red), indicating specific detection of CYP1A1 expression. CYP1A1 is a heme-containing cytochrome P450 monooxygenase that catalyzes Phase I xenobiotic metabolism and is induced through aryl hydrocarbon receptor (AHR) signaling following exposure to environmental toxicants. K562 cells were incubated with CYP1A1 antibody at 1 ug/10^6 cells following goat serum blocking. These results support the utility of CYP1A1 Antibody for flow cytometric studies of xenobiotic metabolism, AHR signaling, drug metabolism, and environmental toxicology.



CYP1A1 Antibody Human HeLa Flow Cytometry. Flow cytometric analysis of human HeLa cells using CYP1A1 antibody demonstrated a clear rightward shift in fluorescence intensity (blue) compared with the isotype control (green) and unstained cells (red), indicating specific detection of CYP1A1 expression. CYP1A1 is a heme-containing cytochrome P450 monooxygenase that catalyzes Phase I xenobiotic metabolism and is induced through aryl hydrocarbon receptor (AHR) signaling following exposure to environmental toxicants. HeLa cells were incubated with CYP1A1 antibody at 1 ug/10^6 cells following goat serum blocking. These results support the utility of CYP1A1 Antibody for flow cytometric studies of xenobiotic metabolism, AHR signaling, drug metabolism, and environmental toxicology.



CYP1A1 Antibody Human Caco-2 IF. Immunofluorescent staining of FFPE human Caco-2 cells with CYP1A1 antibody (green) demonstrated predominantly cytoplasmic staining, consistent with the localization of CYP1A1 as a heme-containing cytochrome P450 monooxygenase involved in Phase I xenobiotic metabolism. CYP1A1 is induced through aryl hydrocarbon receptor (AHR) signaling and catalyzes the oxidative metabolism of environmental chemicals, drugs, and endogenous substrates. Nuclei were counterstained with DAPI (blue). HIER was performed by steaming sections in pH 6 citrate buffer for 20 minutes prior to staining. These results support the utility of CYP1A1 Antibody for studies of xenobiotic metabolism, AHR signaling, drug metabolism, and environmental toxicology.

Description

CYP1A1 Antibody / Xenobiotic Metabolism Enzyme Antibody recognizes CYP1A1, a heme-containing monooxygenase belonging to the cytochrome P450 superfamily of Phase I drug-metabolizing enzymes. CYP1A1 catalyzes the oxidative metabolism of numerous endogenous substrates as well as environmental xenobiotics, including polycyclic aromatic hydrocarbons, dioxins, heterocyclic amines, and other chemical carcinogens. As one of the principal downstream targets of aryl hydrocarbon receptor (AHR) signaling, CYP1A1 expression is rapidly induced following exposure to environmental toxicants, making it one of the most widely used biomarkers of xenobiotic exposure and toxicological response. CYP1A1 plays a central role in chemical detoxification while also participating in the metabolic activation of several

procarcinogens, making it highly relevant to toxicology, pharmacology, and cancer biology.

CYP1A1 is expressed primarily in extrahepatic tissues including lung, intestine, skin, placenta, and vascular endothelium, although expression can increase substantially following activation of AHR signaling. Through its catalytic activity, CYP1A1 introduces oxygen into lipophilic compounds, increasing their solubility and facilitating subsequent Phase II metabolism and elimination. In addition to xenobiotic metabolism, CYP1A1 contributes to the metabolism of fatty acids, steroid hormones, retinoids, and other endogenous signaling molecules. Because CYP1A1 integrates environmental sensing with metabolic adaptation, it has become an important biomarker for studies of environmental toxicology, chemical exposure, drug metabolism, and cellular stress responses.

Altered CYP1A1 expression or genetic polymorphisms have been associated with susceptibility to lung cancer, breast cancer, colorectal cancer, and other malignancies, as well as differences in individual responses to pharmaceuticals and environmental pollutants. CYP1A1 is also extensively studied in smoking-related disease, occupational toxicology, environmental health, and precision medicine because variations in enzyme activity influence both carcinogen activation and therapeutic drug metabolism. Consequently, CYP1A1 continues to serve as a valuable biomarker for assessing toxicant exposure, metabolic capacity, and disease risk.

CYP1A1 Antibody / Xenobiotic Metabolism Enzyme Antibody is an excellent tool for investigations of xenobiotic metabolism, AHR signaling, environmental toxicology, drug metabolism, cancer biology, and chemical safety assessment. Researchers frequently use CYP1A1 Antibody / Xenobiotic Metabolism Enzyme Antibody to study Phase I metabolism, toxicant responses, oxidative metabolism, and mechanisms linking environmental exposure to human disease. Its conserved catalytic function and robust inducibility make CYP1A1 one of the most informative biomarkers of environmental response and metabolic adaptation.

Explore our Metabolism Antibodies page to learn more about proteins involved in xenobiotic metabolism, drug metabolism, oxidative metabolism, and cellular homeostasis.

Application Notes

Optimal dilution of the CYP1A1 Antibody / Xenobiotic Metabolism Enzyme Antibody should be determined by the researcher.

Immunogen

Amino acids 183-320 of human CYP1A1 were used as the immunogen for the CYP1A1 antibody.

Storage

After reconstitution, the CYP1A1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

Alternate Names

CYP1A1 antibody, Cytochrome P450 1A1 antibody, Cytochrome P450 Family 1 Subfamily A Member 1 antibody, Aryl Hydrocarbon Hydroxylase antibody, Xenobiotic Metabolism Enzyme antibody, Phase I Drug Metabolism Enzyme antibody

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