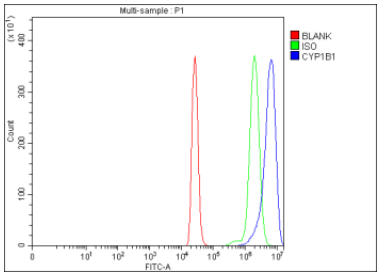
CYP1B1 Antibody / Cytochrome P450 1B1 (FY12951)

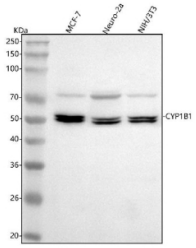
Catalog No.	Formulation	Size
FY12951	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Human, Mouse
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q16678
Applications	Western Blot : 0.25-0.5ug/ml Flow Cytometry : 1-3ug/million cells ELISA : 0.1-0.5ug/ml
Limitations	This CYP1B1 antibody is available for research use only.



Flow Cytometry analysis of THP-1 cells using anti-CYP1B1 antibody. Overlay histogram showing THP-1 cells stained with (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 (1 ug/million cells) for 30 min at 20oC. DyLight 488 conjugated goat anti-rabbit IgG (5-10 ug/million cells) was used as secondary antibody for 30 minutes at 20oC. Isotype control antibody (Green line) was rabbit IgG (1 ug/million cells) used under the same conditions. Unlabelled sample (Red line) was also used as a control.



Western blot analysis of CYP1B1 using anti-CYP1B1 antibody. Lane 1: human MCF-7 whole cell lysates, Lane 2: mouse Neuro-2a whole cell lysates, Lane 3: 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-CYP1B1 antibody at 0.5 ug/ml overnight at 4oC, 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 was developed using enhanced chemiluminescent. A prominent doublet is detected at ~50 kDa, running below the ~61 kDa prediction and consistent with known N-terminal processing or partial proteolysis of ER-anchored P450s. A weaker species just above the 70 kDa marker is observed, consistent with ubiquitinated CYP1B1 associated with ERAD.

Description

CYP1B1 antibody detects Cytochrome P450 1B1, a member of the cytochrome P450 superfamily of monooxygenases involved in xenobiotic metabolism, steroid synthesis, and carcinogen activation. The UniProt recommended name is Cytochrome P450 1B1 (CYP1B1). This enzyme catalyzes oxidative reactions that introduce oxygen atoms into lipophilic substrates, enhancing their solubility and excretion. It is localized in the endoplasmic reticulum and expressed in various tissues, including liver, lung, eye, and reproductive organs.

Functionally, CYP1B1 antibody identifies a 543-amino-acid heme-binding enzyme that catalyzes hydroxylation reactions using NADPH and cytochrome P450 reductase as cofactors. CYP1B1 metabolizes diverse substrates such as estrogens, fatty acids, retinoids, and xenobiotics including polycyclic aromatic hydrocarbons (PAHs). Its activity contributes to detoxification as well as bioactivation of environmental procarcinogens. The enzyme's ability to generate reactive intermediates links it to oxidative DNA damage and tumor initiation.

The CYP1B1 gene is located on chromosome 2p22.2 and contains multiple polymorphisms influencing enzyme activity and disease susceptibility. Mutations in CYP1B1 are a primary cause of primary congenital glaucoma (PCG), due to impaired metabolism of signaling molecules essential for ocular development. In adults, altered CYP1B1 expression is associated with various cancers, including breast, ovarian, and prostate carcinoma, where it modulates estrogen metabolism and tumor progression.

CYP1B1 antibody is used to study xenobiotic metabolism, hormonal regulation, and oxidative stress responses. The enzyme catalyzes 4-hydroxylation of estradiol, producing metabolites that influence estrogen receptor signaling and carcinogenesis. CYP1B1 expression is inducible by environmental toxins such as dioxins and polyaromatic compounds through activation of the aryl hydrocarbon receptor (AhR) pathway. As a result, CYP1B1 serves as a biomarker of chemical exposure and detoxification capacity.

Structurally, CYP1B1 contains a conserved heme-binding domain (Cys-Gly-Gly-His motif) and a hydrophobic membrane anchor. It functions as a monooxygenase by inserting one atom of molecular oxygen into the substrate while reducing the other to water. Regulation occurs via transcriptional control, particularly through AhR-mediated gene induction. Post-translational modifications and redox conditions further modulate its catalytic activity.

A CYP1B1 antibody is suitable for immunoblotting, immunohistochemistry, and enzyme activity assays to investigate tissue-specific expression and regulation. Its detection assists in understanding how xenobiotic metabolism impacts oxidative balance, endocrine signaling, and cancer susceptibility. NSJ Bioreagents offers CYP1B1 antibody reagents validated for applications in toxicology, endocrinology, and molecular pharmacology.

Application Notes

Optimal dilution of the CYP1B1 antibody should be determined by the researcher.

Immunogen

E.coli-derived human CYP1B1 recombinant protein (Position: R255-E540) was used as the immunogen for the CYP1B1 antibody.

Storage

After reconstitution, the CYP1B1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.