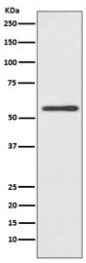
Cytochrome P450 2E1 Antibody / CYP2E1 [clone AADC-3] (RQ5118)

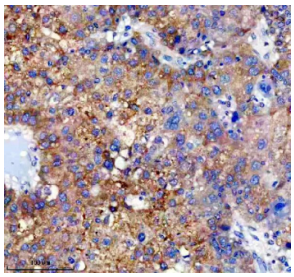
Catalog No.	Formulation	Size
RQ5118	Antibody in PBS with 0.02% sodium azide, 50% glycerol and 0.4-0.5mg/ml BSA	100 ul

Bulk quote request

Availability	1-2 weeks
Species Reactivity	Human, Mouse, Rat
Format	Purified
Host	Rabbit
Clonality	Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	AADC-3
Purity	Affinity purified
UniProt	P05181
Localization	Cytoplasm (ER)
Applications	Western Blot : 1:500-1:2000 Immuohistochemistry : 1:50-1:200
Limitations	This Cytochrome P450 2E1 antibody is available for research use only.



Western blot testing of human HeLa cell lysate with Cytochrome P450 2E1 antibody. Predicted molecular weight ~57 kDa.



Immunohistochemical staining of FFPE human liver cancer tissue with Cytochrome P450 2E1 antibody, HRP-secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.

Description

Cytochrome P450 2E1 antibody targets Cytochrome P450 2E1 (CYP2E1), a member of the cytochrome P450 superfamily of enzymes that catalyze the oxidative metabolism of a wide range of endogenous and exogenous compounds. CYP2E1 is primarily localized to the endoplasmic reticulum membrane, with a portion also associated with mitochondria, reflecting its role in cellular detoxification and metabolic processing. The enzyme is highly expressed in the liver, where it contributes to xenobiotic metabolism and bioactivation of small organic molecules. Its membrane-associated localization positions CYP2E1 to interact efficiently with electron transfer partners required for catalytic activity.

CYP2E1 plays a key role in the metabolism of low-molecular-weight substrates, including alcohols, ketones, fatty acids, and numerous environmental chemicals. Through its monooxygenase activity, CYP2E1 introduces reactive oxygen species and metabolic intermediates that can influence cellular redox balance. This functional property distinguishes CYP2E1 from other P450 family members and makes it an important contributor to oxidative stress under certain physiological and pathological conditions. A Cytochrome P450 2E1 antibody supports studies investigating metabolic enzyme regulation and xenobiotic processing.

Expression of CYP2E1 is tightly regulated and inducible by various metabolic states, including fasting, diabetes, and exposure to specific substrates such as ethanol. Beyond hepatocytes, CYP2E1 expression has been detected in extrahepatic tissues, including kidney, lung, and brain, where it may contribute to localized metabolic activity and tissue-specific responses to toxic compounds. Analysis of CYP2E1 expression and localization provides insight into how metabolic capacity adapts to environmental and physiological changes.

From a biological and disease-relevance perspective, CYP2E1 has been extensively studied in the context of liver injury, metabolic disorders, and toxicology. Its ability to generate reactive intermediates links CYP2E1 activity to oxidative damage, lipid peroxidation, and cellular stress responses. Elevated CYP2E1 expression has been associated with alcohol-related liver disease, drug-induced hepatotoxicity, and susceptibility to chemical-induced tissue injury. Understanding CYP2E1 regulation and distribution is therefore important for studies examining mechanisms of metabolic toxicity and liver pathophysiology.

At the molecular level, CYP2E1 is encoded by the CYP2E1 gene and produces a protein of approximately 57 kDa. The enzyme contains conserved cytochrome P450 motifs required for heme binding and catalytic activity. Proper function depends on membrane integration and interaction with NADPH-cytochrome P450 reductase. A Cytochrome P450 2E1 antibody supports research applications focused on drug metabolism, toxicology, oxidative stress, and liver biology, with NSJ Bioreagents providing reagents intended for research use.

Application Notes

Optimal dilution of the Cytochrome P450 2E1 antibody should be determined by the researcher.

Immunogen

A synthetic peptide specific to human CYP2E1 protein was used as the immunogen for the Cytochrome P450 2E1 antibody.

Storage

Store the Cytochrome P450 2E1 antibody at -20oC.