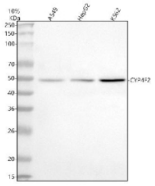
CYP4F2 Antibody / Cytochrome P450 4F2 (FY12148)

Catalog No.	Formulation	Size
FY12148	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
Format	Lyophilized
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	P78329
Applications	Western Blot : 0.25-0.5ug/ml
Limitations	This CYP4F2 antibody is available for research use only.



Western blot analysis of CYP4F2 using anti-CYP4F2 antibody. Lane 1: human whole cell lysates, Lane 2: human HepG2 whole cell lysates, Lane 3: human K562 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-CYP4F2 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. The expected molecular weight of CYP4F2 is ~60 kDa (preprocessed form) and ~50 kDa (cleaved mature form).

Description

CYP4F2 antibody detects Cytochrome P450 4F2, encoded by the CYP4F2 gene on chromosome 19p13.12. CYP4F2 antibody is widely used to study this endoplasmic reticulum-anchored monooxygenase belonging to the cytochrome P450 superfamily. CYP4F2 catalyzes hydroxylation of bioactive lipids, including leukotriene B4, arachidonic acid, and vitamin K, connecting it to inflammation, vascular tone, and coagulation. Its expression is highest in the liver and kidney, but it is also detected in vascular tissues and immune cells, reflecting diverse physiological roles.

Structurally, CYP4F2 is a 60 kDa heme-containing protein. Its conserved P450 fold positions the heme prosthetic group for electron transfer from NADPH-cytochrome P450 reductase, enabling substrate hydroxylation. Substrate specificity is determined by the hydrophobic active site pocket, which accommodates long-chain fatty acids and lipid mediators. Regulatory input from nuclear receptors such as PXR, CAR, and VDR ensures CYP4F2 responds dynamically to xenobiotics, hormones, and metabolic cues.

Functionally, CYP4F2 terminates leukotriene B4 signaling by omega-hydroxylation, preventing excessive inflammation. It also converts arachidonic acid to 20-HETE, a metabolite regulating vascular tone, renal sodium handling, and blood pressure. Hydroxylation of vitamin K affects coagulation factor activity, directly influencing anticoagulant therapy with warfarin. Genetic polymorphisms in CYP4F2, such as V433M, alter enzymatic activity and are clinically important in warfarin dosing and cardiovascular disease susceptibility. Researchers employ CYP4F2 antibody to analyze these pathways in pharmacogenetics and vascular biology.

Clinically, CYP4F2 variants are linked to hypertension, stroke, and altered warfarin sensitivity. Dysregulation may also contribute to metabolic syndrome and chronic kidney disease through disrupted lipid mediator balance. In oncology, altered CYP4F2 expression modulates tumor microenvironment signaling, influencing angiogenesis and progression. Its integration of lipid metabolism with vascular and immune function underscores its significance in health and disease. NSJ Bioreagents supplies CYP4F2 antibody as a validated reagent for pharmacology, cardiovascular, and metabolic research.

Experimentally, CYP4F2 antibody is used in western blotting to detect protein levels, in immunohistochemistry to visualize tissue distribution, and in immunofluorescence to track subcellular localization. Immunoprecipitation with CYP4F2 antibody confirms interactions with P450 reductase and cytochrome b5. These approaches support investigations into lipid metabolism and drug response. NSJ Bioreagents provides CYP4F2 antibody to ensure consistent results in research and clinical studies.

Application Notes

Optimal dilution of the CYP4F2 antibody should be determined by the researcher.

Immunogen

A synthetic peptide corresponding to a sequence at the N-terminus of human CYP4F2 was used as the immunogen for the CYP4F2 antibody.

Storage

After reconstitution, the CYP4F2 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.