

# Anti-Cytochrome P450 4A11/22 Antibody

Catalog # AP51150

## Product Information

|                   |                        |
|-------------------|------------------------|
| Application       | WB, IHC, IF/IC         |
| Primary Accession | <a href="#">Q02928</a> |
| Other Accession   | <a href="#">Q5TCH4</a> |
| Reactivity        | Human, Mouse, Rat      |
| Host              | Rabbit                 |
| Clonality         | Polyclonal             |
| Calculated MW     | 59348                  |

## Additional Information

|                    |                                                                                                                                                                                                                                                                                                                                          |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Gene ID            | 1579                                                                                                                                                                                                                                                                                                                                     |
| Other Names        | CYP4A11; CYP4A2; Cytochrome P450 4A11; 20-hydroxyeicosatetraenoic acid synthase; 20-HETE synthase; CYP4AII; CYP4A11; Cytochrome P-450HK-omega; Cytochrome P450HL-omega; Fatty acid omega-hydroxylase; Lauric acid omega-hydroxylase; CYP4A22; Cytochrome P450 4A22; CYP4A22; Fatty acid omega-hydroxylase; Lauric acid omega-hydroxylase |
| Target/Specificity | KLH-conjugated synthetic peptide encompassing a sequence within the center region of human Cytochrome P450 4A11/22. The exact sequence is proprietary.                                                                                                                                                                                   |
| Dilution           | WB~~WB (1/500 - 1/1000) IHC~~1:100~500 IF/IC~~N/A                                                                                                                                                                                                                                                                                        |
| Format             | Liquid in 0.42% Potassium phosphate, 0.87% Sodium chloride, pH 7.3, 30% glycerol, and 0.01% sodium azide.                                                                                                                                                                                                                                |
| Storage            | Store at -20 °C.Stable for 12 months from date of receipt                                                                                                                                                                                                                                                                                |

## Protein Information

|          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name     | CYP4A11 {ECO:0000303 PubMed:8274222, ECO:0000312 HGNC:HGNC:2642}                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Function | A cytochrome P450 monooxygenase involved in the metabolism of fatty acids and their oxygenated derivatives (oxylipins) (PubMed: <a href="#">10553002</a> , PubMed: <a href="#">10660572</a> , PubMed: <a href="#">15611369</a> , PubMed: <a href="#">1739747</a> , PubMed: <a href="#">7679927</a> , PubMed: <a href="#">8914854</a> ). Mechanistically, uses molecular oxygen inserting one oxygen atom into a substrate, and reducing the second into a water molecule, with two electrons provided by NADPH via cytochrome P450 reductase (CPR; NADPH-ferrihemoprotein reductase) (PubMed: <a href="#">10553002</a> , PubMed: <a href="#">10660572</a> , PubMed: <a href="#">15611369</a> , PubMed: <a href="#">1739747</a> , PubMed: <a href="#">7679927</a> , PubMed: <a href="#">8914854</a> ). Catalyzes predominantly the oxidation of the terminal carbon |

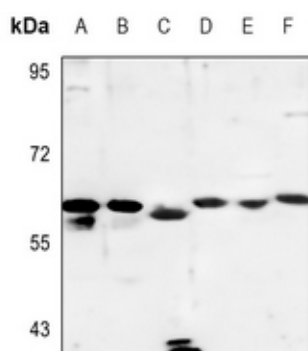
(omega-oxidation) of saturated and unsaturated fatty acids, the catalytic efficiency decreasing in the following order: dodecanoic > tetradecanoic > (9Z)-octadecenoic > (9Z,12Z)- octadecadienoic > hexadecanoic acid (PubMed:[10553002](#), PubMed:[10660572](#)). Acts as a major omega-hydroxylase for dodecanoic (lauric) acid in liver (PubMed:[15611369](#), PubMed:[1739747](#), PubMed:[7679927](#), PubMed:[8914854](#)). Participates in omega-hydroxylation of (5Z,8Z,11Z,14Z)-eicosatetraenoic acid (arachidonate) to 20-hydroxyeicosatetraenoic acid (20-HETE), a signaling molecule acting both as vasoconstrictive and natriuretic with overall effect on arterial blood pressure (PubMed:[10620324](#), PubMed:[10660572](#), PubMed:[15611369](#)). Can also catalyze the oxidation of the penultimate carbon (omega-1 oxidation) of fatty acids with lower efficiency (PubMed:[7679927](#)). May contribute to the degradation of saturated very long-chain fatty acids (VLCFAs) such as docosanoic acid, by catalyzing successive omega-oxidations to the corresponding dicarboxylic acid, thereby initiating chain shortening (PubMed:[18182499](#)). Omega-hydroxylates (9R,10S)-epoxy-octadecanoate stereoisomer (PubMed:[15145985](#)). Plays a minor role in omega-oxidation of long-chain 3-hydroxy fatty acids (PubMed:[18065749](#)). Has little activity toward prostaglandins A1 and E1 (PubMed:[7679927](#)).

|                          |                                                                                                                                                                                                                         |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Cellular Location</b> | Endoplasmic reticulum membrane; Peripheral membrane protein. Microsome membrane; Peripheral membrane protein                                                                                                            |
| <b>Tissue Location</b>   | Expressed in liver (PubMed: <a href="#">7679927</a> ). Expressed in S2 and S3 segments of proximal tubules in cortex and outer medulla of kidney (PubMed: <a href="#">10660572</a> , PubMed: <a href="#">7679927</a> ). |

## References

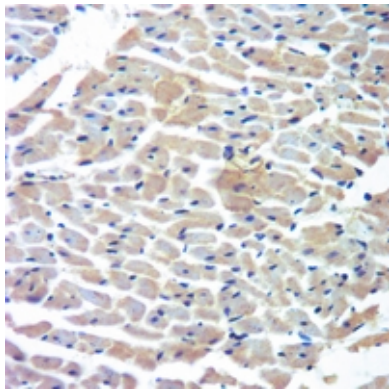
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## Images

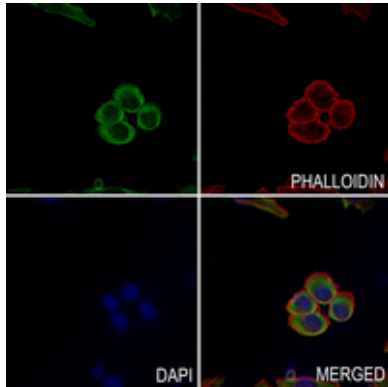


Western blot analysis of Cytochrome P450 4A11/22 expression in U2OS (A), DLD (B), mouse liver (C), mouse kidney (D), rat liver (E), rat kidney (F) whole cell lysates. (Predicted band size: 59 kD; Observed band size: 59 kD)

Immunohistochemical analysis of Cytochrome P450 4A11/22 staining in rat heart formalin fixed paraffin embedded tissue section. The section was pre-treated using heat mediated antigen retrieval with sodium citrate buffer (pH 6.0). The section was then incubated with the antibody at room temperature and detected using an



HRP conjugated compact polymer system. DAB was used as the chromogen. The section was then counterstained with haematoxylin and mounted with DPX.



Immunofluorescent analysis of Cytochrome P450 4A11/22 staining in MCF7 cells. Formalin-fixed cells were permeabilized with 0.1% Triton X-100 in TBS for 5-10 minutes and blocked with 3% BSA-PBS for 30 minutes at room temperature. Cells were probed with the primary antibody in 3% BSA-PBS and incubated overnight at 4 °C in a humidified chamber. Cells were washed with PBST and incubated with a AF488-conjugated secondary antibody (green) in PBS at room temperature in the dark. Phalloidin - AF594 was used to stain Actin filaments (red). DAPI was used to stain the cell nuclei (blue).

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