abcam

ab214800

Anti-CYP27A1 antibody [EPR7529] - BSA and Azide free

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	EPR7529
Purification technique	Affinity purification Protein A
Dissociation constant	6 x 10^{-11} M
Concentration	1.017 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human

Dilution info	-
Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

WB

Tested

Species	Mouse, Human, Rat
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-

Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Target data

See full target information CYP27A1

Function	Cytochrome P450 monooxygenase that catalyzes regio- and stereospecific hydroxylation of cholesterol and its derivatives. Hydroxylates (with R stereochemistry) the terminal methyl group of cholesterol side-chain in a three step reaction to yield at first a C26 alcohol, then a C26 aldehyde and finally a C26 acid (PubMed:12077124, PubMed:21411718, PubMed:28190002, PubMed:9660774). Regulates cholesterol homeostasis by catalyzing the conversion of excess cholesterol to bile acids via both the 'neutral' (classic) and the 'acid' (alternative) pathways (PubMed:11412116, PubMed:1708392, PubMed:2019602, PubMed:7915755, PubMed:9186905, PubMed:9660774, PubMed:9790667). May also regulate cholesterol homeostasis via generation of active oxysterols, which act as ligands for NR1H2 and NR1H3 nuclear receptors, modulating the transcription of genes involved in lipid metabolism (PubMed:12077124, PubMed:9660774). Plays a role in cholestanol metabolism in the cerebellum. Similarly to cholesterol, hydroxylates cholestanol and may facilitate sterol diffusion through the blood-brain barrier to the systemic circulation for further degradation (PubMed:28190002). Also hydroxylates retinal 7-ketocholesterol, a noxious oxysterol with pro-inflammatory and pro-apoptotic effects, and may play a role in its elimination from the retinal pigment epithelium (PubMed:21411718). May play a redundant role in vitamin D biosynthesis. Catalyzes 25-hydroxylation of vitamin D3 that is required for its conversion to a functionally active form (PubMed:15465040).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

ab214800 is the carrier-free version of ab126785.

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Conjugation ready
Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

Compatibility
This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	CYP27A1 also known as sterol 27-hydroxylase is a member of the cytochrome P450 superfamily. It functions as a mitochondrial enzyme with a mass of approximately 59 kDa localized in the liver and various other tissues. CYP27A1 hydroxylates its substrates playing an important role in cholesterol metabolism. This process involves the conversion of cholesterol to bile acids an essential step in enabling the excretion of cholesterol from the body. High expression levels of CYP27A1 can be observed in hepatic tissue reflecting its central role in lipid metabolism.
Biological function summary	CYP27A1 participates in cholesterol catabolism. While it does not form large protein complexes it interacts with other enzymes in metabolic pathways. This enzyme initiates the acidic pathway of bile acid synthesis by converting cholesterol into 27-hydroxycholesterol. These transformations are important for maintaining cholesterol homeostasis and for producing bile acids that aid in fat digestion and nutrient absorption.
Pathways	CYP27A1 is central to the bile acid biosynthesis and cholesterol metabolism pathways. It collaborates with other enzymes such as CYP7A1 which is known for initiating the classic pathway of bile acid synthesis. Together they regulate

	cholesterol levels by metabolizing cholesterol into bile acids. Such pathways are critical in preventing cholesterol accumulation which could lead to various metabolic disorders.
Associated diseases and disorders	Impairment of CYP27A1 function links to cerebrotendinous xanthomatosis (CTX) marked by the accumulation of cholestanol in tissues leading to neurological dysfunction. Mutations in the CYP27A1 gene disrupt cholesterol metabolism resulting in the accumulation of cholesterol derivatives. Furthermore there is a connection to cardiovascular disease due to the role of CYP27A1 in maintaining cholesterol balance linked with proteins like ApoE impacting lipid transport.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

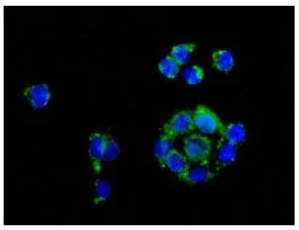
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

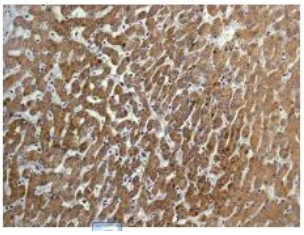
7 product images



Immunocytochemistry/ Immunofluorescence - Anti-CYP27A1 antibody [EPR7529] - BSA and Azide free (ab214800)

CYP27A1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-CYP27A1 antibody

ab126785, at a 1/50 dilution, staining CYP27A1 in HepG2 cells by Immunofluorescence. This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab126785).

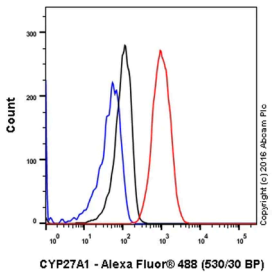


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CYP27A1 antibody [EPR7529] - BSA and Azide free (ab214800)

CYP27A1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-CYP27A1 antibody

ab126785, at a 1/100 dilution, staining CYP27A1 in paraffin embedded Human liver tissue by Immunohistochemistry.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab126785).

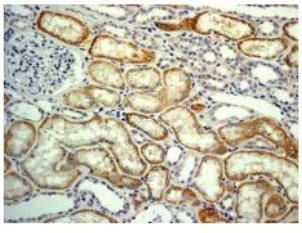
Perform heat mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.



Flow Cytometry (Intracellular) - Anti-CYP27A1 antibody [EPR7529] - BSA and Azide free (ab214800)

CYP27A1 Flow Cytometry (Intracellular) staining using rabbit Anti-CYP27A1 antibody

Intracellular Flow Cytometry analysis of HepG2 (human hepatocellular carcinoma) cells labeling CYP27A1 (red) with ab126785 at a 1/120 dilution. Cells were fixed with 4% paraformaldehyde and permeabilized with 90% methanol. A goat anti-rabbit IgG (Alexa Fluor® 488) (ab150077) was used as the secondary antibody at a 1/2000 dilution. Black - Rabbit monoclonal IgG (ab172730). Blue (unlabeled control) - Cells without incubation with primary and secondary antibodies.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab126785).

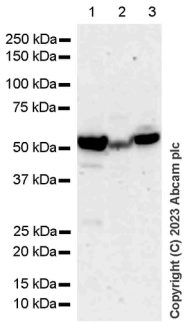


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-CYP27A1 antibody [EPR7529] - BSA and Azide free (ab214800)

CYP27A1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-CYP27A1 antibody

ab126785, at a 1/100 dilution, staining CYP27A1 in paraffin embedded Human kidney tissue by Immunohistochemistry.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab126785).

Perform heat mediated antigen retrieval with citrate buffer pH 6 before commencing with IHC staining protocol.



Western blot - Anti-CYP27A1 antibody [EPR7529] - BSA and Azide free (ab214800)

This data was developed using ab126785, the same antibody clone in a different buffer formulation.

Blocking and Diluting buffer and concentration: 5% NFDM/TBST.

All lanes:
Western blot - Anti-CYP27A1 antibody [EPR7529] (ab126785) at 1/1000 dilution

Lane 1:
Rat heart tissue lysate at 20 µg

Lane 2:
Rat kidney tissue lysate at 20 µg

Lane 3:
Rat spleen tissue lysate at 20 µg

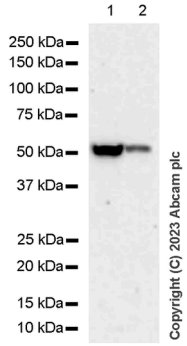
Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 60 kDa

Observed band size: 60 kDa

Exposure time: 180s



Western blot - Anti-CYP27A1 antibody [EPR7529] - BSA and Azide free (ab214800)

This data was developed using ab126785, the same antibody clone in a different buffer formulation.

Blocking and Diluting buffer and concentration: 5% NFDM/TBST.

All lanes:
Western blot - Anti-CYP27A1 antibody [EPR7529] (ab126785) at 1/1000 dilution

Lane 1:
Mouse kidney tissue lysate at 20 µg

Lane 2:
Mouse spleen tissue lysate at 20 µg

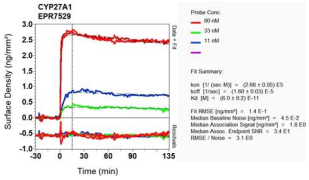
Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 60 kDa

Observed band size: 60 kDa

Exposure time: 180s



OI-RD Scanning - Anti-CYP27A1 antibody [EPR7529] - BSA and Azide free (ab214800)

We have systematically measured KD (the equilibrium dissociation constant between the antibody and its antigen), of more than 840 recombinant antibodies to assess not only their individual KD values but also to see the average affinity of antibody. Based on the comparison with published literature values for mouse monoclonal antibodies, Recombinant antibodies appear to be on average 1-2 order of magnitude higher affinity.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.