abcam

ab226009

Anti-Cytochrome P450 17A1/CYP17A1 antibody [EPR6293] - Low endotoxin, 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	EPR6293
Purification technique	Affinity purification Protein A

Reactivity data

IP

Tested

Species	Human
Dilution info	-
Notes	-

WB

Expected

Species	Human
Dilution info	Use at an assay dependent concentration.
Notes	-

IHC-P

Not recommended

Species	Human
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	ab199376 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Target data

See full target information CYP17A1

Function	A cytochrome P450 monooxygenase involved in corticoid and androgen biosynthesis (PubMed:22266943, PubMed:25301938, PubMed:27339894, PubMed:9452426). Catalyzes 17-alpha hydroxylation of C21 steroids, which is common for both pathways. A second oxidative step, required only for androgen

synthesis, involves an acyl-carbon cleavage. The 17-alpha hydroxy intermediates, as part of adrenal glucocorticoids biosynthesis pathway, are precursors of cortisol (Probable) (PubMed:25301938, PubMed:9452426). Hydroxylates steroid hormones, pregnenolone and progesterone to form 17-alpha hydroxy metabolites, followed by the cleavage of the C17-C20 bond to form C19 steroids, dehydroepiandrosterone (DHEA) and androstenedione (PubMed:22266943, PubMed:25301938, PubMed:27339894, PubMed:36640554, PubMed:9452426). Has 16-alpha hydroxylase activity. Catalyzes 16-alpha hydroxylation of 17-alpha hydroxy pregnenolone, followed by the cleavage of the C17-C20 bond to form 16-alpha-hydroxy DHEA (PubMed:36640554). Also 16-alpha hydroxylates androgens, relevant for estriol synthesis (PubMed:25301938, PubMed:27339894). 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:22266943, PubMed:25301938, PubMed:27339894, PubMed:9452426).

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

ab226009 is the carrier-free version of ab125022.

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.

What does low endotoxin mean?
Our low endotoxin, azide-free formats have low endotoxin level (1 EU/mg, determined by the TAL assay) and are free from azide, to achieve consistent experimental results in functional assays.

Supplementary info

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

Activity summary	Cytochrome P450 17A1 also known as CYP17A1 is an essential enzyme in the steroidogenic pathway. Its molecular mass is approximately 57 kDa. It is part of the cytochrome P450 family and shows expression primarily in the adrenal glands and gonads. This enzyme catalyzes two key reactions: the 17α-hydroxylation of pregnenolone and progesterone and the subsequent 1720-lyase reaction. These reactions are critical for the production of steroid hormones such as glucocorticoids and sex steroids.
Biological function summary	CYP17A1 plays a central role in hormone biosynthesis. The enzyme exists as a single protein and does not form part of a larger complex. By facilitating the conversion of progestogens into androgens it directly impacts the balance and levels of steroid hormones in the body. This function supports vital processes like the development of secondary sexual characteristics and the regulation of metabolism therefore affecting multiple physiological functions.
Pathways	CYP17A1 integrates into both the steroidogenesis and biosynthesis pathways of adrenal and sex hormones. It links directly with proteins such as steroidogenic acute regulatory protein (StAR) and cytochrome P450 oxidoreductase (POR) which assist in enabling its enzymatic function. These pathways regulate the levels of hormones influencing biological processes including stress responses and reproductive functions.
Associated diseases and disorders	CYP17A1 is associated with conditions like congenital adrenal hyperplasia and prostate cancer. In congenital adrenal hyperplasia CYP17A1 mutations disrupt the steroidogenesis pathway leading to cortisol production deficiency. In prostate cancer CYP17A1 is often upregulated contributing to increased androgen levels that fuel cancer progression. Proteins such as 3β-hydroxysteroid dehydrogenase (3β-HSD) and androgen receptor (AR) interact with CYP17A1 in these disorders demonstrating its importance in disease mechanisms.

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.

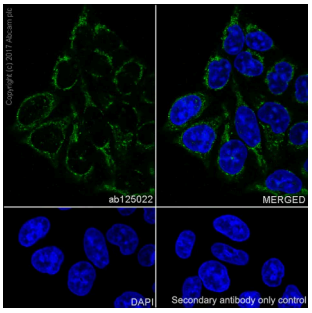
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

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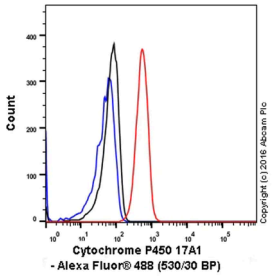
3 product images



Immunocytochemistry/ Immunofluorescence - Anti-Cytochrome P450 17A1/CYP17A1 antibody [EPR6293] - Low endotoxin, Azide free (ab226009)

Cytochrome P450 17A1/CYP17A1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Cytochrome P450 17A1/CYP17A1 antibody

Immunocytochemistry/ Immunofluorescence analysis of HeLa (Human cervix adenocarcinoma epithelial cell) cells labeling Cytochrome P450 17A1/CYP17A1 with Purified ab125022 at 1:100 dilution (3.4 µg/ml). Cells were fixed in 4% Paraformaldehyde and permeabilized with 0.1% tritonX-100. Cells were counterstained with none. Goat anti rabbit IgG (Alexa Fluor® 488 ab150077) was used as the secondary antibody at 1:1000 (2 µg/ml) dilution. DAPI nuclear counterstain. PBS instead of the primary antibody was used as the secondary antibody only control.
This data was developed using the same antibody clone in a different buffer formulation containing PBS BSA glycerol and sodium azide (ab125022).

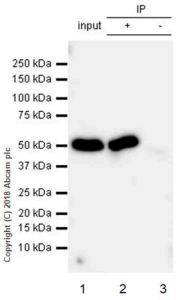


Flow Cytometry (Intracellular) - Anti-Cytochrome P450 17A1/CYP17A1 antibody [EPR6293] - Low endotoxin, Azide free (ab226009)

Cytochrome P450 17A1/CYP17A1 Flow Cytometry (Intracellular) staining using rabbit Anti-Cytochrome P450 17A1/CYP17A1 antibody

Intracellular Flow Cytometry analysis of HeLa (human cervix adenocarcinoma) cells labeling Cytochrome P450 17A1/CYP17A1 with purified ab125022 at 1/220 dilution (10ug/ml) (red). Cells were fixed with 4% paraformaldehyde and permeabilised with 90% methanol. A Goat anti rabbit IgG (Alexa Fluor® 488) (1/2000 dilution) was used as the secondary antibody. Rabbit monoclonal IgG (Black) was used as the isotype control, cells without incubation with primary antibody and secondary antibody (Blue) were used as the unlabeled control.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab125022).



Immunoprecipitation - Anti-Cytochrome P450 17A1/CYP17A1 antibody [EPR6293] - Low endotoxin, Azide free (ab226009)

ab125022 (purified) at 1:30 dilution (2µg) immunoprecipitating Cytochrome P450 17A1/CYP17A1 in Human fetal heart lysate.
Lane 1 (input): Human fetal heart lysate 10µg
Lane 2 (+): ab125022 & Human fetal heart lysate
Lane 3 (-): Rabbit monoclonal IgG (ab172730) instead of ab125022 in Human fetal heart lysate
For western blotting, VeriBlot for IP Detection Reagent (HRP) (ab131366) was used for detection at 1:1000 dilution.
Blocking and diluting buffer: 5% NFDM/TBST.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab125022).

All lanes:
Immunoprecipitation - Anti-Cytochrome P450 17A1/CYP17A1 antibody [EPR6293] (ab125022)

Predicted band size: 57 kDa

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