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Rabbit Anti-Cytochrome P450 17A1 Polyclonal Antibody

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP52080

Product Information

Application	WB, IHC-P, E
Primary Accession	P05093
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Calculated MW	57371
Physical State	Liquid
Immunogen	KLH conjugated synthetic peptide derived from human P45017A1/Cytochrome P450 17A1
Epitope Specificity	24-65/508
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SUBCELLULAR LOCATION	Membrane.
SIMILARITY	Belongs to the cytochrome P450 family.
Post-translational modifications	Phosphorylation is necessary for 17,20-lyase, but not for 17-alpha-hydroxylase activity.
DISEASE	Defects in CYP17A1 are the cause of adrenal hyperplasia type 5 (AH5) [MIM:202110]. AH5 is a form of congenital adrenal hyperplasia, a common recessive disease due to defective synthesis of cortisol. Congenital adrenal hyperplasia is characterized by androgen excess leading to ambiguous genitalia in affected females, rapid somatic growth during childhood in both sexes with premature closure of the epiphyses and short adult stature. Four clinical types: "salt wasting" (SW, the most severe type), "simple virilizing" (SV, less severely affected patients), with normal aldosterone biosynthesis, "non-classic form" or late onset (NC or LOAH), and "cryptic" (asymptomatic).
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	Cytochrome P450 17A1 (CYP17A1) belongs to the cytochrome P450 family; it plays a role in the conversion of pregnenolone and progesterone into their 17-alpha-hydroxylated products and subsequently to dehydroepiandrosterone (DHEA) and androstenedione. CYP17A1 also catalyzes both the 17-alpha-hydroxylation and the 17,20-lyase reaction. CYP17A1 is involved in sexual development during fetal life and at puberty. Defects in CYP17A1 are the cause of adrenal hyperplasia type 5 (AH5). AH5 is a form of congenital adrenal hyperplasia, a common recessive disease due to defective synthesis of cortisol.

Additional Information

Gene ID	1586

Other Names	CPT7; CYP17; S17AH; P450C17; Steroid 17-alpha-hydroxylase/17, 20 lyase; 17-alpha-hydroxyprogesterone aldolase; CYPXVII; Cytochrome P450 17A1; Cytochrome P450-C17; Cytochrome P450c17; Steroid 17-alpha-monooxygenase; CYP17A1
Dilution	WB=1:500-2000,IHC-P=1:100-500,ELISA=1:5000-10000
Format	0.01M TBS(pH7.4) with 1% BSA, 0.09% (W/V) sodium azide and 50% Glyce
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

Protein Information

Name	CYP17A1 {ECO:0000303|PubMed:19793597, ECO:0000312|HGNC:HGNC:2593}
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).
Cellular Location	Endoplasmic reticulum membrane. Microsome membrane

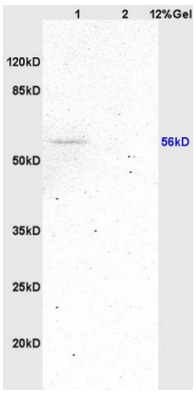
Background

Conversion of pregnenolone and progesterone to their 17- alpha-hydroxylated products and subsequently to dehydroepiandrosterone (DHEA) and androstenedione. Catalyzes both the 17-alpha-hydroxylation and the 17,20-lyase reaction. Involved in sexual development during fetal life and at puberty.

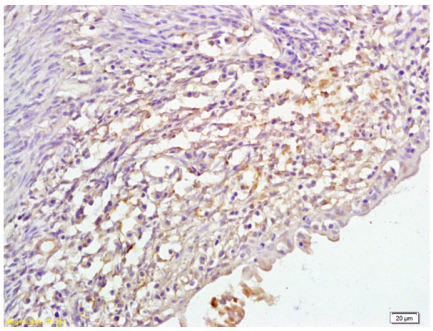
References

Chung B.-C.,et al.Proc. Natl. Acad. Sci. U.S.A. 84:407-411(1987).
Picado-Leonard J.,et al.DNA 6:439-448(1987).
Bradshaw K.D.,et al.Mol. Endocrinol. 1:348-354(1987).
Brentano S.T.,et al.Mol. Endocrinol. 4:1972-1979(1990).
Kagimoto M.,et al.Mol. Endocrinol. 2:564-570(1988).

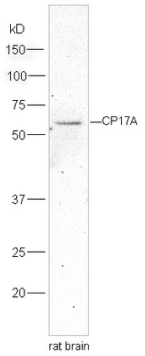
Images



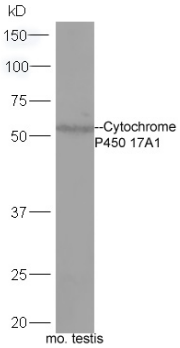
Lane 1: rat brain lysates Lane 2:rat heart lysates probed with Anti P45017A1/Cytochrome P450 17A1 Polyclonal Antibody, Unconjugated (AP52080) at 1:200 in 4˚C. Followed by conjugation to secondary antibody at 1:3000 90min in 37˚C. Predicted band 56kD. Observed band size: 56kD.



Formalin-fixed and paraffin embedded human cervical cancer labeled with Anti P45017A1 Polyclonal Antibody,Unconjugated (AP52080) at 1:200 followed by conjugation to the secondary antibody and DAB staining.



Lane 1:rat brain lysates probed with Rabbit Anti-Cytochrome P450 17A1 Polyclonal Antibody, Unconjugated (AP52080) at 1:300 overnight at 4˚C. Followed by conjugation to secondary antibody at 1:5000 for 90 min at 37˚C.



Mouse Testis lysates probed with Rabbit Anti-Cytochrome P450 17A1 Polyclonal Antibody, Unconjugated (AP52080) at 1:300 overnight at 4˚C. Followed by a conjugated secondary antibody at 1:5000 for 90 min at 37˚C.