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AKR1C2 Antibody (C-term)

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP12246B

Product Information

Application	WB, IHC-P, E
Primary Accession	P52895
Other Accession	Q95JH7, Q04828, NP_995317.1
Reactivity	Human
Predicted	Monkey
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB32249
Calculated MW	36735
Antigen Region	296-323

Additional Information

Gene ID	1646
Other Names	Aldo-keto reductase family 1 member C2, 1---, 3-alpha-HSD3, Chlordecone reductase homolog HAKRD, Dihydrodiol dehydrogenase 2, DD-2, DD2, Dihydrodiol dehydrogenase/bile acid-binding protein, DD/BABP, Trans-1, 2-dihydrobenzene-1, 2-diol dehydrogenase, Type III 3-alpha-hydroxysteroid dehydrogenase, AKR1C2, DDH2
Target/Specificity	This AKR1C2 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 296-323 amino acids from the C-terminal region of human AKR1C2.
Dilution	WB~~1:2000 IHC-P~~1:100~500 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	AKR1C2 Antibody (C-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	AKR1C2 {ECO:0000303|PubMed:9716498}

Synonyms	DDH2
Function	Cytosolic aldo-keto reductase that catalyzes NADPH-dependent reduction of ketosteroids to hydroxysteroids. Displays broad substrate specificity with distinct positional and stereochemistry, primarily generating 3alpha-hydroxysteroids, but also 3beta-, 17beta- and 20alpha-hydroxysteroids (PubMed:8920937, PubMed:9716498, PubMed:10998348, PubMed:12416991, PubMed:11995921, PubMed:12604236, PubMed:14672942, PubMed:19218247, PubMed:21802064, PubMed:11514561, PubMed:15929998, PubMed:17034817, PubMed:17442338, PubMed:24434280). Required for male sex determination as a component of the 'backdoor' androgen biosynthesis pathway that generates 5alpha-dihydrotestosterone (5alpha-DHT) via pregnanes. Acts together with AKR1C4 to convert 5alpha-dihydroprogesterone (5alpha-DHP) to 3alpha-hydroxy-5alpha- pregnan-20-one (3alpha,5alpha-THP/allopregnanolone), leading to 5alpha- DHT secretion necessary for embryonic gonad differentiation into testis (PubMed:12416991, PubMed:21802064). In androgen catabolism, may predominantly act as a phase I enzyme by introducing a hydroxyl group prior to conjugation. It can nevertheless participate in the alternative phase II pathway by directly reducing sulfate- or glucuronide-conjugated androgens (PubMed:10998348, PubMed:11514561, PubMed:14672942, PubMed:15929998, PubMed:19218247, PubMed:24434280). In neurosteroid biosynthesis, may preferentially reduce 5alpha- dihydroprogesterone (5-alpha-DHP) and 5alpha-dihydrodeoxycorticosterone (5-alpha-DHDOC) precursors to 3alpha-hydroxy-5alpha-pregnan-20-one (3alpha,5alpha-THP/allopregnanolone) and 3alpha,21-dihydroxy-5alpha-pregnane-20-one (3alpha,5alpha-THDOC) neuroactive steroids known to alter neural excitability via allosteric activation of gamma- aminobutyric acid type A receptors (GABAAR) (PubMed:11995921, PubMed:12416991, PubMed:12604236). Regulates ligand availability for steroid hormone receptors. Catalyzes the inactivation of 5alpha-DHT and progesterone converting them into 3alpha/beta-androstanediols and (20S)-hydroxypregn-4-en-3-one, respectively (PubMed:10998348, PubMed:24434280). Can form 17beta-hydroxysteroids such as testosterone and estradiol albeit with lower efficiency when compared to AKR1C3 (PubMed:10998348). May contribute to the metabolism of adrenal-derived androgens via reduction of 11-keto-5alpha-androstane-3,17-dione (11K-Adione) into 11-ketoandrosterone (11KAST) and of 11-ketodihydrotestosterone (11KDHT) into 11-keto-5alpha-androstane-3alpha/beta,17beta-diol (11K-A3alphadiol) (PubMed:31926269). May also play a role in prostaglandin (PG) metabolism by reducing PGD2 to 11beta-PGF2 (PubMed:9716498). Also able to metabolize xenobiotics (S)- indan-1-ol and trans-1,2-dihydrobenzene-1,2-diols (PubMed:8573067, PubMed:9716498). In vitro can efficiently catalyze bidirectional conversion between ketosteroids and hydroxysteroids using NADPH/NADP(+) or NADH/NAD(+) as cofactors. In vivo however, the reductase activity prevails since the major reducing cofactor NADPH inhibits NAD(+)- dependent oxidase activity (PubMed:14672942, PubMed:21802064).
Cellular Location	Cytoplasm, cytosol.
Tissue Location	Expressed in fetal testes. Expressed in fetal and adult adrenal glands.

Background

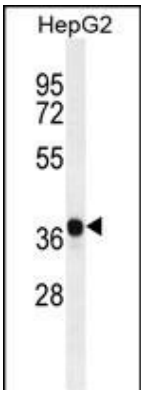
This gene encodes a member of the aldo/keto reductase superfamily, which consists of more than 40 known enzymes and proteins. These enzymes catalyze the conversion of aldehydes and ketones to their corresponding alcohols using NADH and/or NADPH as cofactors. The enzymes display overlapping but

distinct substrate specificity. This enzyme binds bile acid with high affinity, and shows minimal 3-alpha-hydroxysteroid dehydrogenase activity. This gene shares high sequence identity with three other gene members and is clustered with those three genes at chromosome 10p15-p14.

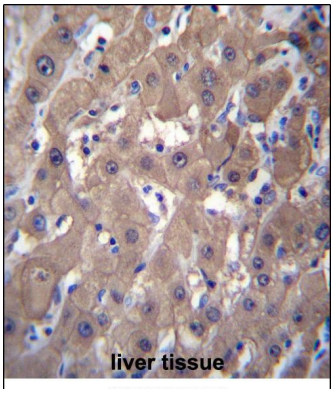
References

Setlur, S.R., et al. Cancer Epidemiol. Biomarkers Prev. 19(1):229-239(2010)
Wang, X., et al. PLoS ONE 5 (8), E11934 (2010) :
Reding, K.W., et al. Am. J. Epidemiol. 170(10):1241-1249(2009)
Cogliati, C., et al. FEBS J. 276(20):6011-6023(2009)
Davies, N.J., et al. Cancer Res. 69(11):4769-4775(2009)

Images



AKR1C2 Antibody (C-term) (Cat. #AP12246b) western blot analysis in HepG2 cell line lysates (35ug/lane).This demonstrates the AKR1C2 antibody detected the AKR1C2 protein (arrow).



AKR1C2 Antibody (C-term) (Cat. #AP12246b)immunohistochemistry analysis in formalin fixed and paraffin embedded human liver tissue followed by peroxidase conjugation of the secondary antibody and DAB staining.This data demonstrates the use of AKR1C2 Antibody (C-term) for immunohistochemistry. Clinical relevance has not been evaluated.

Citations

- Effects of Curcumin Combined With the 5-alpha Reductase Inhibitor Dutasteride on LNCaP Prostate Cancer Cells
- Modulation of AKR1C2 by curcumin decreases testosterone production in prostate cancer.