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Anti-AKR1C2 Antibody

Catalog # AP53284

Product Information

Application	WB, IHC
Primary Accession	P52895
Reactivity	Human, Mouse
Host	Rabbit
Clonality	Polyclonal
Calculated MW	36735

Additional Information

Gene ID	1646
Other Names	DDH2; Aldo-keto reductase family 1 member C2; 3-alpha-HSD3; Chlordecone reductase homolog HAKRD; DIHCydrodiol dehydrogenase 2; DD-2; DD2; DIHCydrodiol dehydrogenase/bile acid-binding protein; DD/BABP; Trans-1, 2-dIHCydrobenzene-1, 2-diol dehydrogenase; Type III 3-alpha-hydroxysteroid dehydrogenase
Target/Specificity	KLH-conjugated synthetic peptide encompassing a sequence within the center region of human AKR1C2. The exact sequence is proprietary.
Dilution	WB~~ 1:1000 IHC~~1:100~500
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	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.

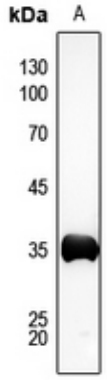
Tissue Location Expressed in fetal testes. Expressed in fetal and adult adrenal glands.

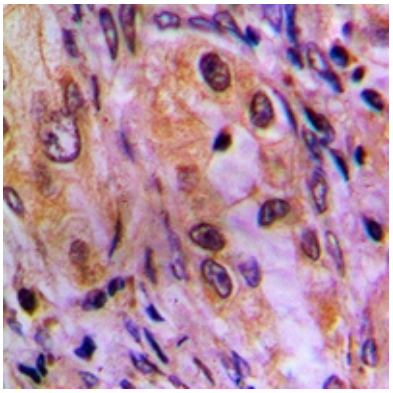
References

Qin K.-N.,et al.J. Steroid Biochem. Mol. Biol. 46:673-679(1993).
Ciaccio P.J.,et al.Biochim. Biophys. Acta 1186:129-132(1994).
Qin K.-N.,et al.Gene 149:357-361(1994).
Dufort I.,et al.Biochem. Biophys. Res. Commun. 228:474-479(1996).
Shiraishi H.,et al.Biochem. J. 334:399-405(1998).

Images

Western blot analysis of AKR1C2 expression in mouse liver (A) whole cell lysates. (Predicted band size: 36 kD; Observed band size: 37 kD)





Immunohistochemical analysis of AKR1C2 staining in human lung cancer 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.

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