

AKR1C2 Antibody

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP53284

Product Information

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

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, 1.3.1.20, Type III 3-alpha-hydroxysteroid dehydrogenase, 1.1.1.357, AKR1C2, DDH2
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
Format	Rabbit IgG in phosphate buffered saline , pH 7.4, 150mM NaCl, 0.09% (W/V) sodium azide and 50% glycerol
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-androstane diols 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.

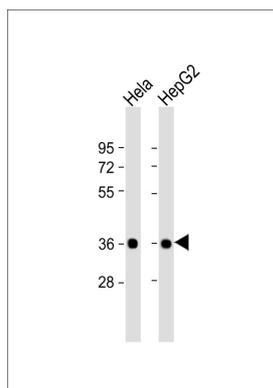
Background

Works in concert with the 5-alpha/5-beta-steroid reductases to convert steroid hormones into the 3-alpha/5-alpha and 3-alpha/5-beta-tetrahydrosteroids. Catalyzes the inactivation of the most potent androgen 5-alpha-dihydrotestosterone (5-alpha-DHT) to 5-alpha-androstane-3-alpha,17-beta-diol (3-alpha-diol). Has a high bile-binding ability.

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



All lanes : Anti-AKR1C2 Antibody at 1:1000 dilution Lane 1: HeLa whole cell lysate Lane 2: HepG2 whole cell lysate Lysates/proteins at 20 µg per lane. Secondary Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/10000 dilution. Predicted band size : 37 kDa Blocking/Dilution buffer: 5% NFDN/TBST.

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