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DD2 Polyclonal Antibody

Catalog # AP69488

Product Information

Application	WB, IHC-P, IF, ICC, E
Primary Accession	P52895
Reactivity	Human, Rat, Mouse
Host	Rabbit
Clonality	Polyclonal
Calculated MW	36735

Additional Information

Gene ID	1646
Other Names	AKR1C2; DDH2; Aldo-keto reductase family 1 member C2; 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
Dilution	WB~~Western Blot: 1/500 - 1/2000. Immunohistochemistry: 1/100 - 1/300. ELISA: 1/20000. Not yet tested in other applications. IHC-P~~N/A IF~~1:50~200 ICC~~N/A E~~N/A
Format	Liquid in PBS containing 50% glycerol, 0.5% BSA and 0.09% (W/V) sodium azide.
Storage Conditions	-20°C

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

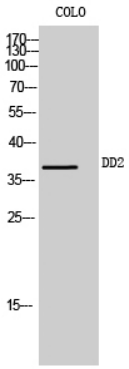
	3alpha-hydroxy-5alpha- pregnan-20-one (3alpha,5alpha-THP/allopregnanolone), leading to 5alpha- DHT secretion necessary for embryonic gonad differentiation into testis (PubMed:12416991, PubMed:21802064). In androgen catabolism, may predominantly act as a phase I enzyme by introducing a hydroxyl group 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

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.

Images

Western Blot analysis of COLO cells using DD2 Polyclonal Antibody



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