

DD4 (F-16): sc-27920

BACKGROUND

Human liver contains isoforms of dihydrodiol dehydrogenase (DD1, DD2, DD3 and DD4), which belong to the aldo-oxo reductase/aldo-keto reductase (AKR) superfamily, have 20 α - or 3 α -hydroxysteroid dehydrogenase (HSD) activity. DD1 is also designated AKR1C1, DDH or DDH1 while DD2 also can be designated AKR1C2, dDD, BABP or DDH2. AKR1C3 and 3 α -HSD are alternate designations for DD3, while DD4 also can be called AKR1C4, CD or CHDR. DD1 and DD2 are 20 α -HSDs, whereas DD3 and DD4 are the 3 α -HSDs. The multiple human cytosolic dihydrodiol dehydrogenases are involved in the metabolism of xenobiotics, such as polycyclic aromatic hydrocarbons, pesticides and steroid hormones, and are responsible for the reduction of ketone-containing drugs by using NADH or NADPH as a cofactor. The 20 α -HSD catalyzes the reaction of progesterone to the inactive form 20 α -hydroxyprogesterone. The 3 α -HSD is a cytosolic, monomeric, NADPH-dependent oxidoreductase that reduces 3-keto-5-dihydrosteroids to their tetrahydro products. DD1 and DD2 are ubiquitously expressed, whereas DD4 mRNA is restricted to the liver. DD3 is a unique enzyme that can specifically catalyze the dehydrogenation of trans-benzenedihydrodiol and trans-naphthalenedihydrodiol.

REFERENCES

1. Binstock, J.M., et al. 1992. Human hepatic 3 α -hydroxysteroid dehydrogenase: possible identity with human hepatic chlordecone reductase. *Biochem. Biophys. Res. Commun.* 187: 760-766.
2. Mizoguchi, T., et al. 1992. A novel dihydrodiol dehydrogenase in bovine liver cytosol: purification and characterization of multiple forms of dihydrodiol dehydrogenase. *J. Biochem.* 12: 523-529.
3. Nanjo, H., et al. 1995. Enzymatic characterization of a novel bovine liver dihydrodiol dehydrogenase—reaction mechanism and bile acid dehydrogenase activity. *Biochim. Biophys. Acta* 1244: 53-61.
4. Khanna, M., et al. 1995. Localization of multiple human dihydrodiol dehydrogenase (DDH1 and DDH2) and chlordecone reductase (CHDR) genes in chromosome 10 by the polymerase chain reaction and fluorescence *in situ* hybridization. *Genomics* 25: 588-590.
5. Hara, A., et al. 1996. Relationship of human liver dihydrodiol dehydrogenase to hepatic bile-acid-binding protein and an oxidoreductase of human colon cells. *Biochem. J.* 313: 373-376.
6. Shiraishi, H., et al. 1998. Sequence of the cDNA of a human dihydrodiol dehydrogenase isoform (AKR1C2) and tissue distribution of its mRNA. *Biochem. J.* 334: 399-405.
7. Kume, T., et al. 1999. Characterization of a novel variant (S145C/L311V) of 3 α -hydroxysteroid/dihydrodiol dehydrogenase in human liver. *Pharmacogenetics* 9: 763-771.
8. Nishizawa, M., et al. 2000. Close kinship of human 20 α -hydroxysteroid dehydrogenase gene with three aldo-keto reductase genes. *Genes Cells* 5: 111-125.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

CHROMOSOMAL LOCATION

Genetic locus: AKR1C4 (human) mapping to 10p15.1.

SOURCE

DD4 (F-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of Dihydrodiol dehydrogenase 4 of human origin.

PRODUCT

Each vial contains 200 μ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-27920 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

DD4 (F-16) is recommended for detection of DD4 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for DD4 siRNA (h): sc-44463, DD4 shRNA Plasmid (h): sc-44463-SH and DD4 shRNA (h) Lentiviral Particles: sc-44463-V.

Molecular Weight of DD4: 37 kDa.

Positive Controls: MCF7 whole cell lysate: sc-2206, Hep G2 cell lysate: sc-2227 or human liver tissue.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.