

DD3 (D-9): sc-398596

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. 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.

CHROMOSOMAL LOCATION

Genetic locus: AKR1C3 (human) mapping to 10p15.1; Ak1c18 (mouse) mapping to 13 A1.

SOURCE

DD3 (D-9) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 291-323 at the C-terminus of DD3 of human origin.

PRODUCT

Each vial contains 200 μ g IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-398596 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

APPLICATIONS

DD3 (D-9) is recommended for detection of DD3 of human origin and AKR1C18 of mouse and rat origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], 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 DD3 siRNA (h): sc-44464, AKR1C18 siRNA (m): sc-41504, DD3 shRNA Plasmid (h): sc-44464-SH, AKR1C18 shRNA Plasmid (m): sc-41504-SH, DD3 shRNA (h) Lentiviral Particles: sc-44464-V and AKR1C18 shRNA (m) Lentiviral Particles: sc-41504-V.

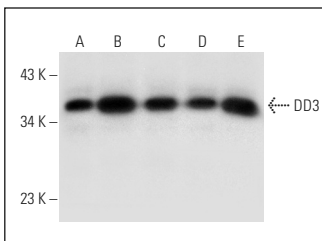
Molecular Weight of DD3: 37 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, Jurkat whole cell lysate: sc-2204 or MOLT-4 cell lysate: sc-2233.

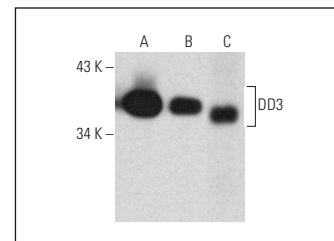
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



DD3 (D-9): sc-398596. Western blot analysis of DD3 expression in HeLa (A), MOLT-4 (B), Jurkat (C), K-562 (D) and MDA-MB-231 (E) whole cell lysates.



DD3 (D-9): sc-398596. Western blot analysis of DD3 expression in HeLa (A) and MCF7 (B) whole cell lysates and rat liver tissue extract (C).

SELECT PRODUCT CITATIONS

1. Kumar Sali, V., et al. 2020. Type 5 17-hydroxysteroid dehydrogenase/prostaglandin F synthase (AKR1C3) inhibition and potential anti-proliferative activity of cholest-4-ene-3,6-dione in MCF-7 breast cancer cells. *Steroids* 159: 108638.

RESEARCH USE

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