SANTA CRUZ BIOTECHNOLOGY, INC.

DD3 (D-9): sc-398596

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 20α- or 3α-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 3α-HSD are alternate designations for DD3, while DD4 also can be called AKR1C4, CD or CHDR. DD1 and DD2 are 20α-HSDs, whereas DD3 and DD4 are the 3α-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 20α-HSD catalyzes the reaction of progesterone to the inactive form 20α-hydroxyprogesterone. The 3α-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 3α-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; Akr1c18 (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 µg IgG_1 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 µg 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 µg per 100-500 µg 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.

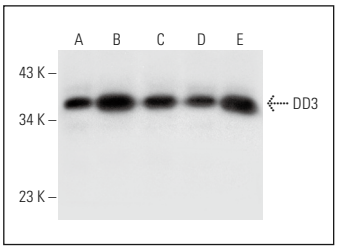
Molecular Weight of DD3: 37 kDa.

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

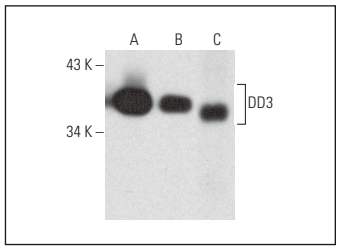
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 MCF7 breast cancer cells. Steroids 159: 108638.

RESEARCH USE

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