SANTA CRUZ BIOTECHNOLOGY, INC.

# DD (N-19): sc-20425

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 activity. DD1 is also designated AKR1C1, DDH or DDH1 while DD2 also can be designated AKR1C2, dDD, BABP or DDH2. AKR1C3 and 3αHSD are alternate designations for DD3 while DD4 also can be called AKR1C4, CD or CHDR. DD1 and DD2 are 20α-hydroxysteroid dehydrogenases, whereas DD3 and DD4 are the 3α-hydroxysteroid dehydrogenases. 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-hydroxysteroid dehydrogenase catalyzes the reaction of progesterone to the inactive form 20α-hydroxyprogesterone. The 3α-hydroxysteroid dehydrogenase 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 an 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. 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.


## CHROMOSOMAL LOCATION

Genetic locus: AKR1C1/AKR1C4/AKR1C3/AKR1C2 (human) mapping to 10p15.1; Akr1c6/Akr1c18 (mouse) mapping to 13 A1.

## SOURCE

DD (N-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of DD3 of human origin.

## PRODUCT

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

Blocking peptide available for competition studies, sc-20425 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

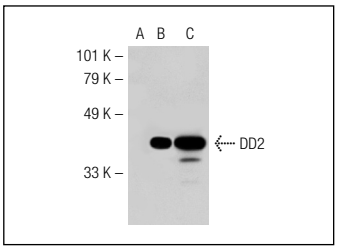
DD (N-19) is recommended for detection of DD1-4 of human origin and AKR1C6 and AKR1C18 of mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

DD (N-19) is also recommended for detection of DD1-4 in additional species, including equine, bovine and porcine.

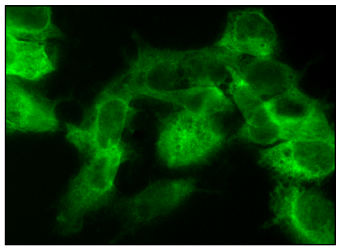
Molecular Weight of DD: 34-39 kDa.

Positive Controls: DD2 (h): 293T Lysate: sc-116682, Hep G2 cell lysate: sc-2227 or mouse liver extract: sc-2256.

## DATA




DD (N-19): sc-20425. Western blot analysis of DD2 expression in non-transfected 293T: sc-117752 (**A**), human DD2 transfected 293T: sc-116682 (**B**) and Hep G2 (**C**) whole cell lysates.



DD (N-19): sc-20425. Immunofluorescence staining of formalin-fixed Hep G2 cells showing cytoplasmic localization.

## SELECT PRODUCT CITATION


1. Petrak, J., et al. 2007. Proteomic analysis of hepatic iron overload in mice suggests dysregulation of urea cycle, impairment of fatty acid oxidation, and changes in the methylation cycle. Am. J. Physiol. Gastrointest. Liver Physiol. 292: G1490-G1498.
2. Ishaq, M., et al. 2014. Atmospheric pressure gas plasma-induced colorectal cancer cell death is mediated by Nox2-ASK1 apoptosis pathways and oxidative stress is mitigated by Srx-Nrf2 anti-oxidant system. Biochim. Biophy. Acta 1843: 2827-2837.


## 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.