

UDP-GlcDH (D-2): sc-137005

BACKGROUND

UDP-GlcDH (also called UDP-glucose 6-dehydrogenase, UGDH or UDPGDH) is a member of the UDP-glucose/GDP-mannose dehydrogenase family. UDP-GlcDH converts UDP-glucose to UDP-glucuronic acid, which is a crucial component in the biosynthesis of the glycosaminoglycans, hyaluronan, heparan sulfate and chondroitin sulfate. Found as common components of the extracellular matrix, these glycosaminoglycans are significant in signal transduction, cell migration, cancer growth and cancer metastasis. UDP-glucuronic acid (UDP-GlcA) is needed in the liver for the excretion of toxic compounds. UDP-GlcDH is an ubiquitously expressed protein most abundant in the liver. The protein structure of UDP-GlcDH was first analyzed in cow liver and found to be a homo-hexamer. This structure is well conserved between species and phyla with an overall 97% sequence identity shared between different species of mammals. Research indicates that UDP-GlcDH expression is upregulated by TGF β and downregulated by hypoxia.

REFERENCES

- Hempel, J., et al. 1994. UDP-glucose dehydrogenase from bovine liver: primary structure and relationship to other dehydrogenases. *Protein Sci.* 3: 1074-1080.
- Spicer, A.P., et al. 1998. Molecular cloning and characterization of the human and mouse UDP-glucose dehydrogenase genes. *J. Biol. Chem.* 273: 25117-25124.
- Marcu, O., et al. 1999. Assignment of the UGDH locus encoding UDP-glucose dehydrogenase to human chromosome band 4p15.1 by radiation hybrid mapping. *Cytogenet. Cell Genet.* 86: 244-245.
- Johansson, H., et al. 2002. Molecular cloning and characterization of a cDNA encoding poplar UDP-glucose dehydrogenase, a key gene of hemi-cellulose/pectin formation. *Biochim. Biophys. Acta* 1576: 53-58.
- Bontemps, Y., et al. 2003. Specific protein-1 is a universal regulator of UDP-glucose dehydrogenase expression: its positive involvement in transforming growth factor β signaling and inhibition in hypoxia. *J. Biol. Chem.* 278: 21566-21575.

CHROMOSOMAL LOCATION

Genetic locus: UGDH (human) mapping to 4p14; Ugdh (mouse) mapping to 5 C3.1.

SOURCE

UDP-GlcDH (D-2) is a mouse monoclonal antibody raised against amino acids 195-494 mapping at the C-terminus of UDP-GlcDH of human origin.

PRODUCT

Each vial contains 200 μ g IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

APPLICATIONS

UDP-GlcDH (D-2) is recommended for detection of UDP-glucose-6 dehydrogenase of mouse, rat and human 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), immunohistochemistry (including paraffin-embedded sections) (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 UDP-GlcDH siRNA (h): sc-44709, UDP-GlcDH siRNA (m): sc-44710, UDP-GlcDH shRNA Plasmid (h): sc-44709-SH, UDP-GlcDH shRNA Plasmid (m): sc-44710-SH, UDP-GlcDH shRNA (h) Lentiviral Particles: sc-44709-V and UDP-GlcDH shRNA (m) Lentiviral Particles: sc-44710-V.

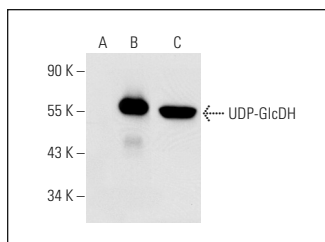
Molecular Weight of UDP-GlcDH: 57 kDa.

Positive Controls: UDP-GlcDH (h): 293T Lysate: sc-113665, Hep G2 cell lysate: sc-2227 or HeLa whole cell lysate: sc-2200.

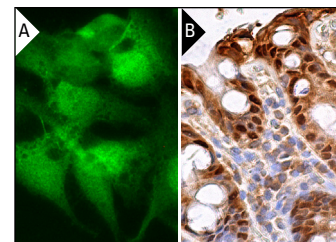
RECOMMENDED SUPPORT REAGENTS

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. 4) Immunohistochemistry: use m-IgG κ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



UDP-GlcDH (D-2): sc-137005. Western blot analysis of UDP-GlcDH expression in non-transfected 293T: sc-117752 (A), human UDP-GlcDH transfected 293T: sc-113665 (B) and Hep G2 (C) whole cell lysates.



UDP-GlcDH (D-2): sc-137005. Immunofluorescence staining of formalin-fixed Hep G2 cells showing nuclear and cytoplasmic localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded human rectum tissue showing nuclear and cytoplasmic staining of glandular cells (B).

RESEARCH USE

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