SANTA CRUZ BIOTECHNOLOGY, INC.

UDP-GlcDH (B-4): sc-137058

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 bovine liver and found to be a homohexamer. 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 TGFβ and downregulated by hypoxia.

REFERENCES

1. Hempel, J., et al. 1994. UDP-glucose dehydrogenase from bovine liver: primary structure and relationship to other dehydrogenases. Protein Sci. 3: 1074-1080.
2. 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.

CHROMOSOMAL LOCATION

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

SOURCE

UDP-GlcDH (B-4) 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 µg IgG_{2a} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

UDP-GlcDH (B-4) is available conjugated to agarose (sc-137058 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-137058 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-137058 PE), fluorescein (sc-137058 FITC), Alexa Fluor® 488 (sc-137058 AF488), Alexa Fluor® 546 (sc-137058 AF546), Alexa Fluor® 594 (sc-137058 AF594) or Alexa Fluor® 647 (sc-137058 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-137058 AF680) or Alexa Fluor® 790 (sc-137058 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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 (B-4) 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 µg per 100-500 µg 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).

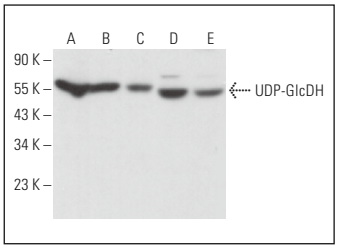
UDP-GlcDH (B-4) is also recommended for detection of UDP-glucose-6 dehydrogenase in additional species, including equine.

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.

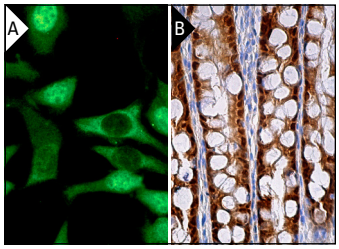
Molecular Weight of UDP-GlcDH: 57 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, c4 whole cell lysate: sc-364186 or NIH/3T3 whole cell lysate: sc-2210.

DATA



UDP-GlcDH (B-4): sc-137058. Western blot analysis of UDP-GlcDH expression in Hep G2 (**A**), NTERA-2 cl.D1 (**B**), RT-4 (**C**), c4 (**D**) and NIH/3T3 (**E**) whole cell lysates.



UDP-GlcDH (B-4): sc-137058. Immunofluorescence staining of methanol-fixed NIH/3T3 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**).

SELECT PRODUCT CITATIONS

1. Boj, S.F., et al. 2015. Organoid models of human and mouse ductal pancreatic cancer. Cell 160: 324-338.
2. Wen, Y., et al. 2020. GR/Sp3/HDAC1/UGDH signaling participated in the maternal dexamethasone-induced dysplasia of the rat fetal growth plate. FASEB J. 34: 12834-12846.
3. Fan, M., et al. 2024. UDP-glucose dehydrogenase supports autophagy-deficient PDAC growth via increasing hyaluronic acid biosynthesis. Cell Rep. 43: 113808.

RESEARCH USE

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