SANTA CRUZ BIOTECHNOLOGY, INC.

G6PD (G-12): sc-373886

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Glucose-6-phosphate 1-dehydrogenase (G6PD) plays an important role in the pentose phosphate pathway. It is a member of the glucose-6-phosphate dehydrogenase family of proteins. G6PD is an ubiquitous enzyme that produces pentose sugars for nucleic acid synthesis, but is also involved in carbohydrate degradation, as it is one of the main producers of NADPH reducing power. G6PD has NADP as a co-factor and structural element. It can be found as a homodimer or homotetramer, and is primarily detected in lymphoblasts, granulocytes and sperm. Defects in G6PD can cause chronic non-spherocytic hemo-lytic anemia (CNSHA), especially in areas in which malaria is an epidemic. Individuals with a high level of G6PD-deficiency are at higher risk of acute hemolytic attacks.

CHROMOSOMAL LOCATION

Genetic locus: G6PD (human) mapping to Xq28.

SOURCE

G6PD (G-12) is a mouse monoclonal antibody raised against amino acids 356-515 mapping at the C-terminus of G6PD 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.

G6PD (G-12) is available conjugated to agarose (sc-373886 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-373886 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-373886 PE), fluorescein (sc-373886 FITC), Alexa Fluor® 488 (sc-373886 AF488), Alexa Fluor® 546 (sc-373886 AF546), Alexa Fluor® 594 (sc-373886 AF594) or Alexa Fluor® 647 (sc-373886 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-373886 AF680) or Alexa Fluor® 790 (sc-373886 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

G6PD (G-12) is recommended for detection of G6PD of 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).

Suitable for use as control antibody for G6PD siRNA (h): sc-60667, G6PD shRNA Plasmid (h): sc-60667-SH and G6PD shRNA (h) Lentiviral Particles: sc-60667-V.

Molecular Weight of G6PD: 58 kDa.

Positive Controls: MCF7 whole cell lysate: sc-2206, A549 cell lysate: sc-2413 or human testis extract: sc-363781.

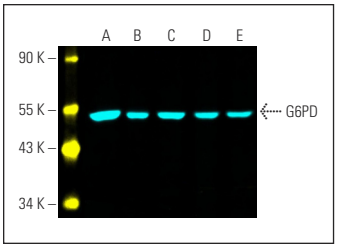
STORAGE

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

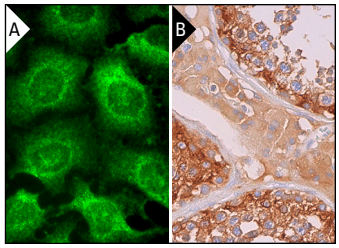
RESEARCH USE

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

DATA



G6PD (G-12) Alexa Fluor® 647: sc-373886 AF647. Direct fluorescent western blot analysis of G6PD expression in MCF7 (**A**), A549 (**B**), SK-BR-3 (**C**) and HeLa (**D**) whole cell lysates and human testis tissue extract (**E**). Blocked with UltraCruz® Blocking Reagent: sc-516214. Cruz Marker™ Molecular Weight Standards detected with Cruz Marker™ MW Tag-Alexa Fluor® 488: sc-516790.



G6PD (G-12): sc-373886. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human testis tissue showing cytoplasmic staining of cells in seminiferous ducts and Leydig cells (**B**).

SELECT PRODUCT CITATIONS

1. Bi, X., et al. 2013. Investigation of Pokemon-regulated proteins in hepatocellular carcinoma using mass spectrometry-based multiplex quantitative proteomics. Eur. J. Mass Spectrom. 19: 111-121.
2. Tao, R., et al. 2017. Genetically encoded fluorescent sensors reveal dynamic regulation of NADPH metabolism. Nat. Methods 14: 720-728.
3. Yu, Y.B., et al. 2018. Differentiation of umbilical cord mesenchymal stem cells into hepatocytes in comparison with bone marrow mesenchymal stem cells. Mol. Med. Rep. 18: 2009-2016.
4. Yang, H.Y., et al. 2019. Tankyrase promotes aerobic glycolysis and proliferation of ovarian cancer through activation of Wnt/β-catenin signaling. Biomed Res. Int. 2019: 2686340.
5. Zou, Y., et al. 2020. Illuminating NAD^+ metabolism in live cells and *in vivo* using a genetically encoded fluorescent sensor. Dev. Cell 53: 240-252.e7.
6. Hamza, M.S., et al. 2021. Glucose and fatty acid metabolism involved in the protective effect of metformin against ulipristal-induced endometrial changes in rats. Sci. Rep. 11: 8863.
7. Min, H.Y., et al. 2022. Targeting epidermal growth factor receptor in paclitaxel-resistant human breast and lung cancer cells with upregulated glucose-6-phosphate dehydrogenase. Br. J. Cancer 127: 661-674.
8. Shigeta, K., et al. 2023. IDH2 stabilizes HIF-1α-induced metabolic reprogramming and promotes chemoresistance in urothelial cancer. EMBO J. 42: e110620.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.