SANTA CRUZ BIOTECHNOLOGY, INC.

GAPDH (G-9): sc-365062

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

GAPDH antibody (G-9) specifically detects glyceraldehyde-3-phosphate dehydrogenase (GAPDH), also called uracil DNA glycosylase. The GAPDH protein catalyzes the reversible oxidative phosphorylation of glyceraldehyde-3-phosphate in the presence of inorganic phosphate and nicotinamide adenine dinucleotide (NAD), an important energy-yielding step in carbohydrate metabolism. While GAPDH has long been recognized as playing an integral role in glycolysis, additional functions of GAPDH include acting as a uricil DNA glycosylase, activating transcription, binding RNA and involvement in nuclear RNA export, DNA replication and DNA repair. Expression of GAPDH is upregulated in liver, lung and prostate cancers, suggesting these tissues are suitable positive controls for the GAPDH antibody (G-9). GAPDH translocates to the nucleus during apoptosis. Thus, immunostaining by the GAPDH antibody (G-9) may result in either cytoplasmic or nuclear localization. GAPDH complexes with neuronal proteins implicated in human neuro-degenerative disorders including the β-Amyloid precursor, Huntingtin and other triplet repeat neuronal disorder proteins.

CHROMOSOMAL LOCATION

Genetic locus: GAPDH (human) mapping to 12p13.31, GAPDHS (human) mapping to 19q13.12; Gapdh (mouse) mapping to 6 F3, Gapdhs (mouse) mapping to 7 B1.

SOURCE

GAPDH (G-9) is a mouse monoclonal antibody raised against amino acids 1-335 representing full length GAPDH 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.

GAPDH (G-9) is available conjugated to agarose (sc-365062 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-365062 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365062 PE), fluorescein (sc-365062 FITC), Alexa Fluor® 488 (sc-365062 AF488), Alexa Fluor® 546 (sc-365062 AF546), Alexa Fluor® 594 (sc-365062 AF594) or Alexa Fluor® 647 (sc-365062 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365062 AF680) or Alexa Fluor® 790 (sc-365062 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

GAPDH (G-9) is recommended for detection of GAPDH and GAPDH-2 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).

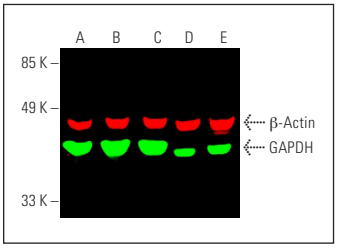
Molecular Weight of GAPDH: 37 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, HeLa whole cell lysate: sc-2200 or A549 cell lysate: sc-2413.

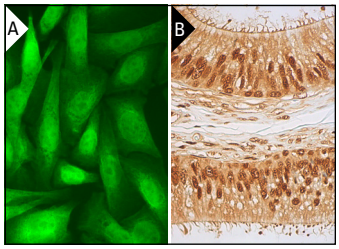
STORAGE

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

DATA



Simultaneous direct near-infrared western blot analysis of GAPDH expression, detected with GAPDH (G-9) Alexa Fluor® 680: sc-365062 AF680 and β-Actin expression, detected with β-Actin (C4) Alexa Fluor® 790: sc-47778 AF790 in Hep G2 (**A**), HeLa (**B**), A549 (**C**), RAW 264.7 (**D**) and KNRK (**E**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214.



GAPDH (G-9) Alexa Fluor® 488: sc-365062 AF488. Direct immunofluorescence staining of formalin-fixed SW480 cells showing membrane, cytoplasmic and nuclear localization (**A**) and GAPDH (G-9) HRP: sc-365062 HRP. Direct immunoperoxidase staining of formalin fixed, paraffin-embedded human epididymis tissue showing cytoplasmic and nuclear staining of glandular cells (**B**). Blocked with 0.25X UltraCruz® Blocking Reagent: sc-516214.

SELECT PRODUCT CITATIONS

1. Tang, L., et al. 2006. Potent activation of mitochondria-mediated apoptosis and arrest in S and M phases of cancer cells by a broccoli sprout extract. Mol. Cancer Ther. 5: 935-944.
2. Xiong, R., et al. 2019. Disease-related responses induced by cadmium in an *in vitro* human airway tissue model. Toxicol. Lett. 303: 16-27.
3. Bosso, M., et al. 2020. Nuclear PYHIN proteins target the host transcription factor Sp1 thereby restricting HIV-1 in human macrophages and $CD4^+$ T cells. PLoS Pathog. 16: e1008752.
4. Zhang, X., et al. 2021. BATF2 prevents glioblastoma multiforme progression by inhibiting recruitment of myeloid-derived suppressor cells. Oncogene 40: 1516-1530.
5. Fang, Y., et al. 2022. MS4A15 acts as an oncogene in ovarian cancer through reprogramming energy metabolism. Biochem. Biophys. Res. Commun. 598: 47-54.
6. Wang, Q., et al. 2023. Genetic susceptibility to diabetic kidney disease is linked to promoter variants of XOR. Nat. Metab. 5: 607-625.
7. Guo, Y., et al. 2024. St-N, a novel alkaline derivative of stevioside, reverses docetaxel resistance by targeting lysosomes *in vitro* and *in vivo.* PLoS ONE 19: e0316268.
8. Dsouza, L., et al. 2025. Vaccinia growth factor-dependent modulation of the mTORC1-CAD axis upon nutrient restriction. J. Virol. 99: e0211024.

RESEARCH USE

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