

GAPDH [12D3H9] Antibody

Catalog # ASC12025

Product Information

Application WB, E **Primary Accession** P04406

Other Accession NP_002037, 7669492
Reactivity Human, Mouse, Rat

Host Mouse Clonality Monoclonal

IsotypeIgGCalculated MW36053Concentration (mg/ml)1 mg/mLConjugateUnconjugated

Application Notes GAPDH antibody can be used for detection of GAPDH by Western blot at 1 - 2

□g/ml.

Additional Information

Gene ID 2597

Other Names Glyceraldehyde-3-phosphate dehydrogenase, GAPDH, 1.2.1.12,

Peptidyl-cysteine S-nitrosylase GAPDH, 2.6.99.-, GAPDH, GAPD

Target/Specificity GAPDH; GAPDH antibody is human, mouse, and rat reactive.

Reconstitution & Storage GAPDH antibody can be stored at 4°C for three months and -20°C, stable for

up to one year.

Precautions GAPDH [12D3H9] Antibody is for research use only and not for use in

diagnostic or therapeutic procedures.

Protein Information

Name GAPDH {ECO:0000303 | PubMed:2987855, ECO:0000312 | HGNC:HGNC:4141}

Function Has both glyceraldehyde-3-phosphate dehydrogenase and nitrosylase

activities, thereby playing a role in glycolysis and nuclear functions,

respectively (PubMed: 11724794, PubMed: 3170585).

Glyceraldehyde-3-phosphate dehydrogenase is a key enzyme in glycolysis that catalyzes the first step of the pathway by converting D- glyceraldehyde 3-phosphate (G3P) into 3-phospho-D-glyceroyl phosphate (PubMed: 11724794,

PubMed:3170585). Modulates the organization and assembly of the

cytoskeleton (By similarity). Facilitates the CHP1- dependent microtubule and membrane associations through its ability to stimulate the binding of CHP1 to

microtubules (By similarity). Component of the GAIT (gamma

interferon-activated inhibitor of translation) complex which mediates interferon-gamma-induced transcript-selective translation inhibition in

inflammation processes (PubMed:23071094). Upon interferon-gamma treatment assembles into the GAIT complex which binds to stem loop-containing GAIT elements in the 3'-UTR of diverse inflammatory mRNAs (such as ceruplasmin) and suppresses their translation (PubMed:23071094). Also plays a role in innate immunity by promoting TNF-induced NF-kappa-B activation and type I interferon production, via interaction with TRAF2 and TRAF3, respectively (PubMed:23332158, PubMed:27387501). Participates in nuclear events including transcription, RNA transport, DNA replication and apoptosis (By similarity). Nuclear functions are probably due to the nitrosylase activity that mediates cysteine S-nitrosylation of nuclear target proteins such as SIRT1, HDAC2 and PRKDC (By similarity).

Cellular Location

Cytoplasm, cytosol. Nucleus {ECO:0000250 | UniProtKB:P04797}. Cytoplasm, perinuclear region. Membrane Cytoplasm, cytoskeleton {ECO:0000250 | UniProtKB:P04797} Note=Translocates to the nucleus following S-nitrosylation and interaction with SIAH1, which contains a nuclear localization signal (By similarity). Postnuclear and Perinuclear regions (PubMed:12829261) {ECO:0000250 | UniProtKB:P04797, ECO:0000269 | PubMed:12829261}

Background

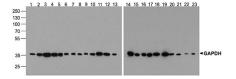
Glyceraldehyde-3-phosphate dehydrogenase (GAPDH) catalyzes the reversible oxidative phosphorylation of glyceraldehyde-3-phosphate in the presence of inorganic phosphate and nicotinamide adenine dinucleotide (NAD), an important energy-yielding step in carbohydrate metabolism. It also is involved in a number of cellular processes such as membrane fusion, phosphotransferase activity, DNA replication and repair, and nuclear RNA export (1). GAPDH also plays a role in different pathologies such as cancer progression, apoptosis, and neuronal diseases such as Alzheimer's and Huntington's disease (2). GAPDH is constitutively expressed at high levels in almost all tissues and cell lines making it ideal for use as a loading control marker in immunoblots.

References

Sirover MA. New nuclear functions of the glycolytic protein, glyceraldehyde-3-phosphate dehydrogenase, in mammalian cells. J. Cell. Biochem. 2005; 95:45-52.

Glyceraldehyde-3-phosphate dehydrogenase, apoptosis, and neurodegenerative diseases. Annu. Rev. Pharmacol. Toxicol. 2005; 45:269-90.

Images



Western blot analysis of GAPDH in multiple cell and tissue lysates with GAPDH antibody at 1 µg/ml. Lanes 1-23, 293, A431, A549, Daudi, HeLa, HepG2, Jurkat, K562, MOLT, 3T3, Raji, Ramos, U937, human brain, mouse brain, rat brain, rabbit brain, human heart, rat heart, human liver, mouse liver, rat liver, rabbit liver, respectively.

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