

# GAPDH Antibody

Purified Mouse Monoclonal Antibody

Catalog # AO1033a

## Product Information

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<b>Application</b>	WB, IHC, ICC, E
<b>Primary Accession</b>	<a href="#">P04406</a>
<b>Reactivity</b>	Human
<b>Host</b>	Mouse
<b>Clonality</b>	Monoclonal
<b>Clone Names</b>	1A10
<b>Isotype</b>	IgG1
<b>Calculated MW</b>	36053
<b>Description</b>	Glyceraldehyde-3-phosphate dehydrogenase (GAPDH) is well known as one of the key enzymes involved in glycolysis. It catalyzes an important energy-yielding step in carbohydrate metabolism, the reversible oxidative phosphorylation of glyceraldehyde-3-phosphate in the presence of inorganic phosphate and nicotinamide adenine dinucleotide (NAD). The enzyme exists as a tetramer of identical chains. Besides its functioning as a glycolytic enzyme in cytoplasm, recent evidence suggests that mammalian GAPDH is also involved in a great number of intracellular processes such as membrane fusion, microtubule bundling, phosphotransferase activity, nuclear RNA export, DNA replication, and DNA repair. During the last decade a lot of findings appeared concerning the role of GAPDH in different pathologies including prostate cancer progression, programmed neuronal cell death, age-related neuronal diseases, such as Alzheimer's and Huntington's disease.
<b>Immunogen</b>	Purified recombinant fragment of human GAPDH expressed in E. Coli.
<b>Formulation</b>	Ascitic fluid containing 0.03% sodium azide.

## Additional Information

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<b>Gene ID</b>	2597
<b>Other Names</b>	Glyceraldehyde-3-phosphate dehydrogenase, GAPDH, 1.2.1.12, Peptidyl-cysteine S-nitrosylase GAPDH, 2.6.99.-, GAPDH, GAPD
<b>Dilution</b>	WB~~1/500 - 1/2000 IHC~~1/200 - 1/1000 ICC~~N/A E~~N/A
<b>Storage</b>	Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
<b>Precautions</b>	GAPDH 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	<p>Has both glyceraldehyde-3-phosphate dehydrogenase and nitrosylase activities, thereby playing a role in glycolysis and nuclear functions, respectively (PubMed:<a href="#">11724794</a>, PubMed:<a href="#">3170585</a>).</p> <p>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:<a href="#">11724794</a>, PubMed:<a href="#">3170585</a>). 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:<a href="#">23071094</a>). 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:<a href="#">23071094</a>). 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:<a href="#">23332158</a>, PubMed:<a href="#">27387501</a>). 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).</p>
Cellular Location	<p>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}</p>

## References

1. Allen R.W. J. Biol. Chem. 1987.262:649-653.
2. Sumner CJ. Ann Neurol 2003.54:6 47-54.

## Images

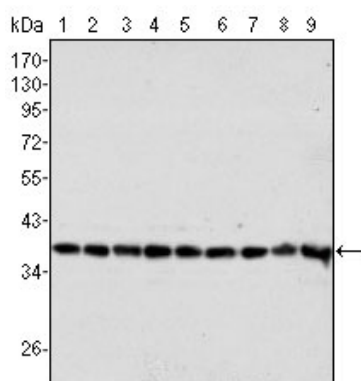


Figure 1: Western blot analysis using GAPDH mouse mAb against Hela (1), A549 (2), A431 (3), MCF-7 (4), K562 (5), Jurkat (6), HL60 (7), SKN-SH (8) and SKBR-3 (9) cell lysate.

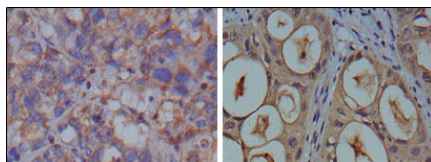


Figure 2: Immunohistochemical analysis of paraffin-embedded human breast carcinoma (left) and kidney carcinoma (right), showing cytoplasmic localization using GAPDH mouse mAb with DAB staining.

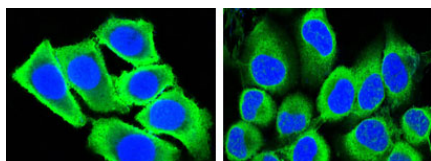


Figure 3: Confocal immunofluorescence analysis of methanol-fixed HepG2 (left) and Hela (right) cells using GAPDH mouse mAb (green), showing cytoplasmic localization. Blue: DRAQ5 fluorescent DNA dye.

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