ARG65680
anti-GAPDH antibody

Package: 100 µl, 50 µl
Store at: -20°C

Summary

Product Description	Rabbit Polyclonal antibody recognizes GAPDH
Tested Reactivity	Hu, Ms, Rat
Tested Application	ICC/IF, IHC-P, WB
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Target Name	GAPDH
Species	Human
Immunogen	Fusion protein of Human GAPDH.
Conjugation	Un-conjugated
Alternate Names	G3PD; GAPD; HEL-S-162eP; Peptidyl-cysteine S-nitrosylase GAPDH; HEL S162eP; Glyceraldehyde-3-phosphate dehydrogenase

Application Instructions

Application table

Application	Dilution
ICC/IF	1:20 - 1:50
IHC-P	1:50 - 1:100
WB	1:1000 - 1:10000

Application Note: * The dilutions indicate recommended starting dilutions and the optimal dilutions or concentrations should be determined by the scientist.

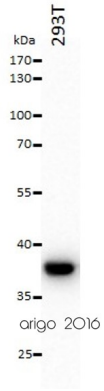
Properties

Form	Liquid
Purification	Affinity purification with immunogen.
Buffer	PBS (pH 7.3), 0.02% Sodium azide and 50% Glycerol
Preservative	0.02% Sodium azide
Stabilizer	50% Glycerol
Storage instruction	For continuous use, store undiluted antibody at 2-8°C for up to a week. For long-term storage, aliquot and store at -20°C. Storage in frost free freezers is not recommended. Avoid repeated freeze/thaw cycles. Suggest spin the vial prior to opening. The antibody solution should be gently mixed before use.
Note	For laboratory research only, not for drug, diagnostic or other use.

Bioinformation

Gene Symbol	GAPDH
Gene Full Name	glyceraldehyde-3-phosphate dehydrogenase
Background	GAPDH protein has been identified as a moonlighting protein based on its ability to perform mechanistically distinct functions. The product of this gene 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 encoded protein has additionally been identified to have uracil DNA glycosylase activity in the nucleus. Also, this protein contains a peptide that has antimicrobial activity against E. coli, P. aeruginosa, and C. albicans. Studies of a similar protein in mouse have assigned a variety of additional functions including nitrosylation of nuclear proteins, the regulation of mRNA stability, and acting as a transferrin receptor on the cell surface of macrophage. Many pseudogenes similar to this locus are present in the human genome. Alternative splicing results in multiple transcript variants. [provided by RefSeq, Nov 2014]
Function	GAPDH has both glyceraldehyde-3-phosphate dehydrogenase and nitrosylase activities, thereby playing a role in glycolysis and nuclear functions, respectively. Participates in nuclear events including transcription, RNA transport, DNA replication and apoptosis. Nuclear functions are probably due to the nitrosylase activity that mediates cysteine S-nitrosylation of nuclear target proteins such as SIRT1, HDAC2 and PRKDC. Modulates the organization and assembly of the cytoskeleton. Facilitates the CHP1-dependent microtubule and membrane associations through its ability to stimulate the binding of CHP1 to microtubules. 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. Component of the GAIT (gamma interferon-activated inhibitor of translation) complex which mediates interferon-gamma-induced transcript-selective translation inhibition in inflammation processes. 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. [UniProt]
Highlight	Related Antibody Duos and Panels: ARG30258 Loading Controls for Whole Cell Lysate Antibody Panel Related products: GAPDH antibodies; GAPDH Duos / Panels; Anti-Rabbit IgG secondary antibodies;
Research Area	Cancer antibody; Controls and Markers antibody; Metabolism antibody; Neuroscience antibody; Signaling Transduction antibody; Loading Control antibody; Loading Control antibody for Cytoplasmic Fractions; Organelle Marker antibody for Cytoplasm; Autophagy Study antibody
Calculated Mw	36 kDa
PTM	S-nitrosylation of Cys-152 leads to interaction with SIAH1, followed by translocation to the nucleus (By similarity). S-nitrosylation of Cys-247 is induced by interferon-gamma and LDL(ox) implicating the iNOS-S100A8/9 transnitrosylase complex and seems to prevent interaction with phosphorylated RPL13A and to interfere with GAIT complex activity. ISGylated. Sulfhydration at Cys-152 increases catalytic activity. Oxidative stress can promote the formation of high molecular weight disulfide-linked GAPDH aggregates, through a process called nucleocytoplasmic coagulation. Such aggregates can be observed in vivo in the affected tissues of patients with Alzheimer disease or alcoholic liver cirrhosis, or in cell cultures during necrosis. Oxidation at Met-46 may play a pivotal role in the formation of these insoluble structures. This modification has been detected in vitro following treatment with free radical donor (+/-)-(E)-4-ethyl-2-[(E)-hydroxyimino]-5-nitro-3-hexenamide. It has been proposed to destabilize nearby residues, increasing the likelihood of secondary oxidative damages, including oxidation of Tyr-45 and Met-105. This cascade of oxidations may augment GAPDH misfolding, leading to intermolecular disulfide cross-linking and aggregation.

Images

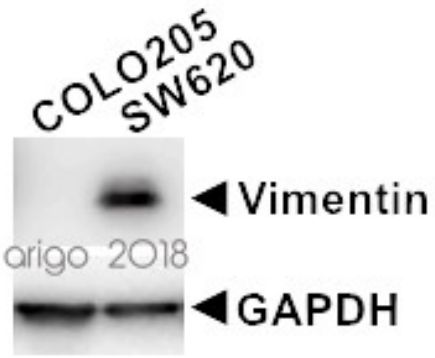


ARG65680 anti-GAPDH antibody WB image

Western blot: 20 µg of 293T cell lysate stained with ARG65680 anti-GAPDH antibody at 1:10000 dilution.

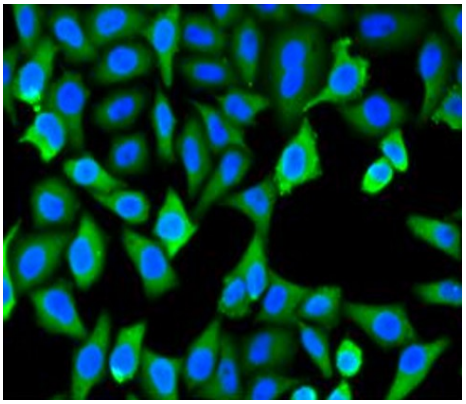
ARG65680 anti-GAPDH antibody WB image

Western blot: 20 µg of 22RV1 and DU145 cell lysates stained with ARG66302 anti-Vimentin antibody [SQab1859] at 1:2000 dilution and ARG65680 anti-GAPDH antibody at 1:10000 dilution.



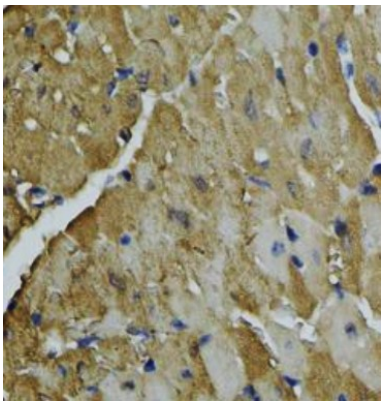
ARG65680 anti-GAPDH antibody WB image

Western blot: 20 µg of COLO205 and SW620 cell lysates stained with ARG66302 anti-Vimentin antibody [SQab1859] at 1:2000 dilution and ARG65680 anti-GAPDH antibody at 1:10000 dilution.



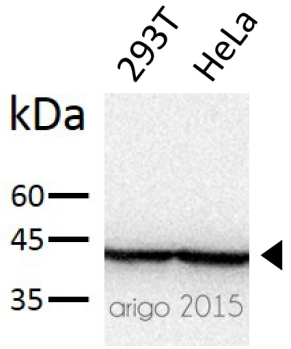
ARG65680 anti-GAPDH antibody ICC/IF image

Immunofluorescence: MCF-7 stained with ARG65680 anti-GAPDH antibody. Blue: DAPI for nuclear staining.



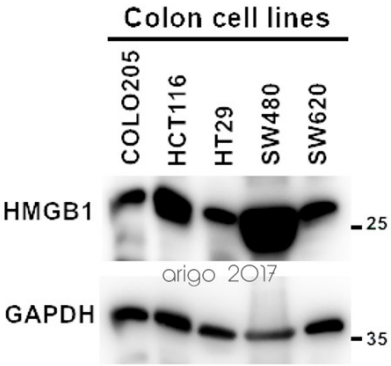
ARG65680 anti-GAPDH antibody IHC-P image

Immunohistochemistry: Paraffin-embedded Mouse heart stained with ARG65680 anti-GAPDH antibody at 1:100 dilution.



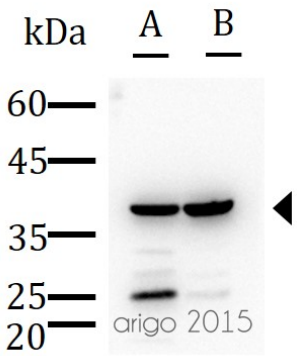
ARG65680 anti-GAPDH antibody WB image

Western blot: 20 µg of 293T and HeLa cell lysate stained with ARG65680 anti-GAPDH antibody at 1:3000 dilution.



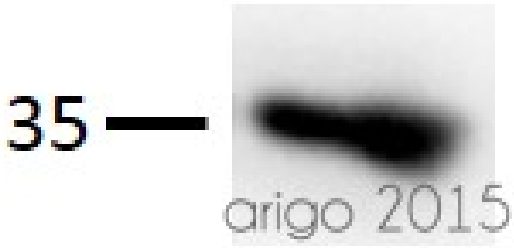
ARG65680 anti-GAPDH antibody WB image

Western blot: 20 µg of COLO205, HCT116, HT29, SW480 and SW620 cell lysates stained with ARG10756 anti-HMGB1 antibody [1F3] (1:2000) and ARG65680 anti-GAPDH antibody (1:10000).



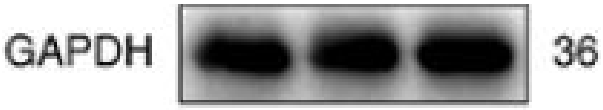
ARG65680 anti-GAPDH antibody WB image

Western blot: 30 µg of 1) MDA-MB-231, and 2) MCF-7 lysates stained with ARG65680 anti-GAPDH antibody at 1:5000 dilution.



ARG65680 anti-GAPDH antibody WB image

Western blot: 30 µg of HeLa cell lysate stained with ARG65680 anti-GAPDH antibody at 1:500 dilution.



ARG65680 anti-GAPDH antibody WB image

Western blot: A549 cells stained with ARG65680 anti-GAPDH antibody at 1:10000 dilution.

From Youwei Huang et al. Oncol Rep (2022), doi: 10.3892/or.2022.8396, Fig. 4. C.

ARG65680 anti-GAPDH antibody WB image

Western blot: Patient-derived GBM cells stained with ARG65680 anti-GAPDH antibody at 1:5000 dilution.

From Xueqin Chen et al. Nat Commun (2023), doi: 10.1038/s41467-023-42545-3, Fig. 7. A.

ARG65680 anti-GAPDH antibody WB image

Western blot: CRC cell lines stained with ARG65680 anti-GAPDH antibody at 1:10000 dilution.

From Yuqing Yang et al. Oncol Rep (2024), doi: 10.3892/or.2024.8813, Fig. 4. A.
