Glyceraldehyde 3-Phosphate Dehydrogenase (GAPDH, GAPD, HGNC:4141, G3PD, MGC88685)

Catalog number

G8140-16N

Supplier

United States Biological

GAPDH is a 146kD tetramer composed of four 30-40kD subunits. Glyceraldehyde 3-Phosphate Dehydrogenase (GAPDH) is a metabolic enzyme responsible for catalyzing one step in the glycolytic pathway, the reversible oxidative phosphorylation of glyceraldehyde 3-phosphate. Because GAPDH as a protein expressed in large amounts and which is required at all times for an important house keeping functions, levels of GAPDH mRNA are often used as standards in studies of mRNA expression. Increasingly, scientists are making use of specific antibodies to GAPDH as loading controls for western blotting experiments. Apart from a role in glycolysis, GAPDH may have other roles such as in the activation of transcription. GAPDH is reported to bind to a variety of other proteins, including the amyloid precursor protein, mutations in which cause some forms of Alzheimer's disease, and the polyglutamine tracts of Huntingtin, the protein product aberrant forms of which are causative of Huntington's disease. Associations with actin and tubulin have also be reported. The protein may also have a role in the regulation of apoptosis, and interestingly migrates from the cytoplasm into the nucleus when cells become apoptotic.

Applications

Suitable for use in Immunofluorescence and Western Blot. Other applications not tested.

Recommended Dilution

Optimal dilutions to be determined by the researcher.

Storage and Stability

May be stored at 4°C for short-term only. For long-term storage and to avoid repeated freezing and thawing, aliquot Store at -20°C. Aliquots are stable for at least 12 months at -20°C. For maximum recovery of product, centrifuge the original vial after thawing and prior to removing the cap. Further dilutions can be made in assay buffer.

Immunogen

The immunogen used to produce this antibody is full length bovine GAPDH purifed from bovine brain.

Formulation

As reported

Purity

Serum

Specificity

Reacts with GAPDH from human, bovine, porcine, mouse, rat, and bird. Though not tested on any other species, GAPDH is one of the most conserved proteins known, it is likely that the antibody is effective on other species also.

Product Type

Pab

Source

bovine

Isotype

IgG

Grade

Serum

Applications

IF WB

Crossreactivity

Av Bo Hu Mo Po Rt

Storage

-20°C

Reference

1. Morgenegg G, Winkler GC, Hubscher U, Heizmann CW, Mous J, Kuenzle CC. Glyceraldehyde-3-phosphate dehydrogenase is a nonhistone protein and a possible activator of transcription in neurons. J Neurochem. 47:54-62 1986
2. Schulze H, Schuler A, Stuber D, Dobeli H, Langern H & Huber G. Rat brain glyceraldehyde-3-phosphate dehydrogenase interacts with the recombinant cytoplasmic domain of Alzheimer's beta-amyloid precursor protein. J Neurochem. 60:1915-22 1993
3. Burke JR, Enghild JJ, Martin ME, Jou Y-S, Myers RM, Roses AD, Vance JM & Strittmatter WJ. Huntingtin and DRPLA proteins selectively interact with the enzyme GAPDH. Nature Med. 2: 347-350, 1996.
4. Dastoor Z. & Dreyer, J-L. Potential role of nuclear translocation of glyceraldehyde-3-phosphate dehydrogenase in apoptosis and oxidative stress. J. Cell Sci. 114:1643-1653 2001.
5. Fortun J, Dunn WA, Joy S, Li J. & Notterpek, L. Emerging Role for Autophagy in the Removal of Aggresomes in Schwann Cells. J. Neurosci. 23:10672-10680 2003.