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GNPDA1 Antibody

Catalog # ASC10856

Product Information

Application	WB, IF, ICC, E
Primary Accession	P46926
Other Accession	AAC05123, 2935438
Reactivity	Human, Mouse, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Calculated MW	32669
Concentration (mg/ml)	1 mg/mL
Conjugate	Unconjugated
Application Notes	GNPDA1 antibody can be used for detection of GNPDA1 by Western blot at 1 - 2 g/mL. Antibody can also be used for immunocytochemistry starting at 5 g/mL. For immunofluorescence start at 20 g/mL.

Additional Information

Gene ID	10007
Other Names	Glucosamine-6-phosphate isomerase 1, 3.5.99.6, Glucosamine-6-phosphate deaminase 1, GNPDA 1, GlcN6P deaminase 1, Oscillin, GNPDA1, GNPI, HLN, KIAA0060
Target/Specificity	GNPDA1; GNPDA1 is predicted to not cross-react with GNPDA2.
Reconstitution & Storage	GNPDA1 antibody can be stored at 4℃ for three months and -20℃, stable for up to one year. As with all antibodies care should be taken to avoid repeated freeze thaw cycles. Antibodies should not be exposed to prolonged high temperatures.
Precautions	GNPDA1 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	GNPDA1 {ECO:0000303|PubMed:26887390, ECO:0000312|HGNC:HGNC:4417}
Function	Catalyzes the reversible conversion of alpha-D-glucosamine 6- phosphate (GlcN-6P) into beta-D-fructose 6-phosphate (Fru-6P) and ammonium ion, a regulatory reaction step in de novo uridine diphosphate-N-acetyl-alpha-D-glucosamine (UDP-GlcNAc) biosynthesis via hexosamine pathway. Deamination is coupled to aldo-keto isomerization mediating the metabolic flux from UDP-GlcNAc toward Fru-6P. At high ammonium level can drive amination and isomerization of Fru-6P toward

hexosamines and UDP-GlcNAc synthesis (PubMed:21807125, PubMed:26887390). Has a role in fine tuning the metabolic fluctuations of cytosolic UDP-GlcNAc and their effects on hyaluronan synthesis that occur during tissue remodeling (PubMed:26887390). Seems to trigger calcium oscillations in mammalian eggs. These oscillations serve as the essential trigger for egg activation and early development of the embryo (By similarity).

Cellular Location Cytoplasm {ECO:0000250|UniProtKB:O88958}.

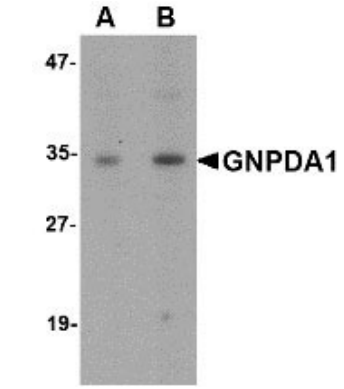
Background

GNPDA1 Antibody: Glucosamine-6-phosphate deaminase (GNPDA) is an allosteric enzyme that catalyzes the reversible conversion of D-glucosamine-6-phosphate into D-fructose-6-phosphate and ammonium. GNPDA1 is one of two mammalian glucosamine-6-phosphate deaminases that are thought to have arisen though gene duplication, with the GNPDA2 protein closer in structure and activity to the E. coli enzyme. GNPDA1 possesses greater affinity for ammonium than either GNPDA2 or the E. coli enzyme suggesting that the forward reaction of D-glucosamine-6-phosphate into D-fructose-6-phosphate and ammonium is catalyzed at a slower rate than GNPDA2.

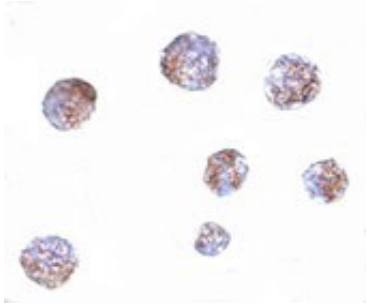
References

Wolosker H, Kline D, Bian Y, et al. Molecularly cloned mammalian glucosamine-6-phosphate deaminase localizes to transporting epithelium and lacks oscillin activity. FASEB J.1998; 12:91-9.
Zhang J, Zhang W, Zou D, et al. Cloning and functional characterization of GNPI, a novel human homolog of glucosamine-6-phosphate isomerase/oscillin. J. Cell Biochem.2003; 88:932-40.
Arreola R, Valderrama B, Morante ML, et al. Two mammalian glucosamine-6-phosphate deaminases: a structural and genetic study. FEBS Lett.2003; 551:63-70.

Images

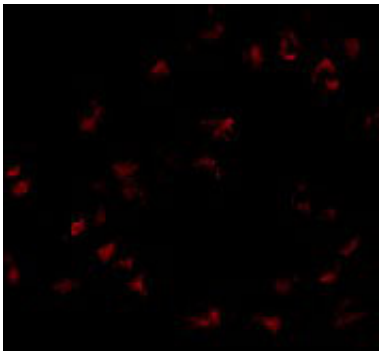


Western blot analysis of GNPDA1 in mouse kidney lysate with GNPDA1 antibody at (A) 1 and (B) 2 µg/mL.



Immunocytochemistry of GNPDA1 in 293 cells with GNPDA1 antibody at 5 µg/mL.

Immunofluorescence of GNPDA1 in 293 cells with GNPDA1 antibody at 20 µg/mL.



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