

GNPDA1 (FL-289): sc-134705

BACKGROUND

During fertilization in mammals, the sperm activates the egg by causing an increase in the level of free cytoplasmic calcium concentration. This increased calcium concentration induces a characteristic series of oscillations that trigger egg activation and early embryo development. A hamster protein named oscillin is thought to be involved in this pathway. The enzyme glucosamine-6-phosphate isomerase (GNPI) or deaminase (GNPDA1) and the related protein GNPDA2 are the human homologs of hamster oscillin. GNPDA1 and GNPDA2 catalyze the conversion of GNP to fructose-6-phosphate and ammonia. Both proteins exist as homohexamers and are ubiquitously expressed with highest expression in testes, ovary and heart. Three isoforms of GNPDA2 are expressed due to alternative splicing events.

REFERENCES

- Parrington, J., et al. 1996. Calcium oscillations in mammalian eggs triggered by a soluble sperm protein. *Nature* 379: 364-368.
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- Wolosker, H., et al. 1998. Molecularly cloned mammalian glucosamine-6-phosphate deaminase localizes to transporting epithelium and lacks oscillin activity. *FASEB J.* 12: 91-99.
- Shevchenko, V., et al. 1998. The human glucosamine-6-phosphate deaminase gene: cDNA cloning and expression, genomic organization and chromosomal localization. *Gene* 216: 31-38.
- Montag, M., et al. 1999. Characterization of testicular mouse glucosamine-6-phosphate deaminase (GNPDA). *FEBS Lett.* 458: 141-144.
- Amireault, P. and Dube, F. 2000. Cloning, sequencing, and expression analysis of mouse glucosamine-6-phosphate deaminase (GNPDA/oscillin). *Mol. Reprod. Dev.* 56: 424-435.
- Zhang, J., et al. 2003. Cloning and functional characterization of GNPI2, a novel human homolog of glucosamine-6-phosphate isomerase/oscillin. *J. Cell. Biochem.* 88: 932-940.

CHROMOSOMAL LOCATION

Genetic locus: GNPDA1 (human) mapping to 5q31.3; *Gnpda1* (mouse) mapping to 18 B3.

SOURCE

GNPDA1 (FL-289) is a rabbit polyclonal antibody raised against amino acids 1-289 representing full length GNPDA1 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

GNPDA1 (FL-289) is recommended for detection of GNPDA1 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); may cross-react with GNPDA2.

GNPDA1 (FL-289) is also recommended for detection of GNPDA1 in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for GNPDA1 siRNA (h): sc-91867, GNPDA1 siRNA (m): sc-145656, GNPDA1 shRNA Plasmid (h): sc-91867-SH, GNPDA1 shRNA Plasmid (m): sc-145656-SH, GNPDA1 shRNA (h) Lentiviral Particles: sc-91867-V and GNPDA1 shRNA (m) Lentiviral Particles: sc-145656-V.

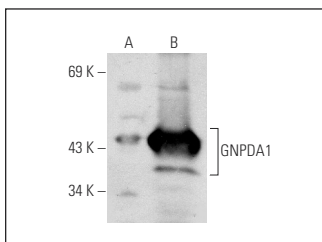
Molecular Weight of GNPDA1: 33 kDa.

Positive Controls: MIA PaCa-2 cell lysate: sc-2285, GNPDA1 (h): 293 Lysate: sc-113051 or COLO 320DM cell lysate: sc-2226.

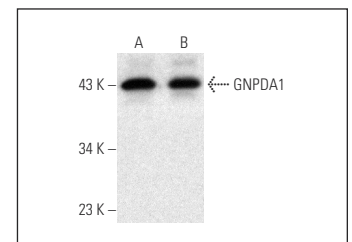
RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

DATA



GNPDA1 (FL-289): sc-134705. Western blot analysis of GNPDA1 expression in non-transfected: sc-117752 (A) and human GNPDA1 transfected: sc-113051 (B) 293T whole cell lysates.



GNPDA1 (FL-289): sc-134705. Western blot analysis of GNPDA1 expression in MIA PaCa-2 (A) and COLO 320DM (B) whole cell lysates.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.