

# GNPDA2 (N-12): sc-137505

## 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 testis, 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.
- Parrington, J., et al. 1998. A novel protein for Ca<sup>2+</sup> signaling at fertilization. *Curr. Top. Dev. Biol.* 39: 215-243.
- 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., et al. 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: GNPDA2 (human) mapping to 4p12; Gnpda2 (mouse) mapping to 5 C3.1.

## SOURCE

GNPDA2 (N-12) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of GNPDA2 of human origin.

## STORAGE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.

## PRODUCT

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

Blocking peptide available for competition studies, sc-137505 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

## APPLICATIONS

GNPDA2 (N-12) is recommended for detection of GNPDA2 of human and, to a lesser extent, mouse and rat 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); non cross-reactive with GNPDA1.

GNPDA2 (N-12) is also recommended for detection of GNPDA2 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for GNPDA2 siRNA (h): sc-89091, GNPDA2 siRNA (m): sc-145657, GNPDA2 shRNA Plasmid (h): sc-89091-SH, GNPDA2 shRNA Plasmid (m): sc-145657-SH, GNPDA2 shRNA (h) Lentiviral Particles: sc-89091-V and GNPDA2 shRNA (m) Lentiviral Particles: sc-145657-V.

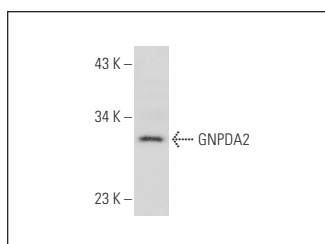
Molecular Weight of GNPDA2: 31 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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 donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## DATA



GNPDA2 (N-12): sc-137505. Western blot analysis of GNPDA2 expression in Jurkat whole cell lysate.

## RESEARCH USE

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