SANTA CRUZ BIOTECHNOLOGY, INC.

GNPDA2 (A-12): sc-137503

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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

1. Parrington, J., et al. 1996. Calcium oscillations in mammalian eggs triggered by a soluble sperm protein. Nature 379: 364-368.
2. Parrington, J., et al. 1998. A novel protein for Ca^{2+} signaling at fertilization. Curr. Top. Dev. Biol. 39: 215-243.
3. 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.
4. 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.
5. Montag, M., et al. 1999. Characterization of testicular mouse glucosamine 6-phosphate deaminase (GNPDA). FEBS Lett. 458: 141-144.
6. Amireault, P., et al. 2000. Cloning, sequencing, and expression analysis of mouse glucosamine-6-phosphate deaminase (GNPDA/oscillin). Mol. Reprod. Dev. 56: 424-435.
7. 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.

SOURCE

GNPDA2 (A-12) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of GNPDA2 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.

Blocking peptide available for competition studies, sc-137503 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

RESEARCH USE

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

APPLICATIONS

GNPDA2 (A-12) is recommended for detection of GNPDA2 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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 (A-12) is also recommended for detection of GNPDA2 in additional species, including equine, canine, bovine, porcine and avian.

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

Molecular Weight of GNPDA2: 31 kDa.

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) 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.

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 or our catalog for detailed protocols and support products.