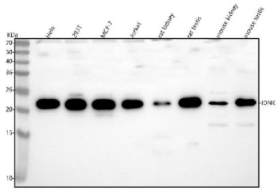
IDNK Antibody / Gluconokinase (FY13007)

Catalog No.	Formulation	Size
FY13007	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Human, Mouse, Rat
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q5T6J7
Applications	Western Blot: 0.25-0.5ug/ml ELISA: 0.1-0.5ug/ml
Limitations	This IDNK antibody is available for research use only.



Western blot analysis of IDNK using anti-IDNK antibody. Lane 1: human Hela whole cell lysates, Lane 2: human 293T whole cell lysates, Lane 3: human MCF-7 whole cell lysates, Lane 4: human Jurkat whole cell lysates, Lane 5: rat kisney tissue lysates, Lane 6: rat testis tissue lysates, Lane 7: mouse kidney tissue lysates, Lane 8: mouse testis tissue lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-IDNK antibody at 0.25 ug/ml overnight at 4oC, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal was developed using enhanced chemiluminescent. A specific band was detected for IDNK at approximately 21 kDa. The expected molecular weight of IDNK is ~21 kDa.

Description

IDNK antibody detects Gluconokinase, an enzyme that catalyzes the phosphorylation of D-gluconate to 6-phosphogluconate in the alternative pentose phosphate pathway. The UniProt recommended name is Gluconokinase

(IDNK). This cytosolic enzyme links carbohydrate metabolism with NADPH generation and oxidative stress defense by feeding intermediates into the pentose phosphate shunt.

Functionally, IDNK antibody identifies a 314-amino-acid enzyme that catalyzes the ATP-dependent phosphorylation of gluconate. The reaction product, 6-phosphogluconate, enters the oxidative branch of the pentose phosphate pathway, contributing to NADPH production and ribose biosynthesis. These processes are vital for maintaining redox balance and supporting anabolic metabolism in proliferating cells.

The IDNK gene is located on chromosome 1p36.11 and encodes a kinase belonging to the gluconokinase family. IDNK functions primarily in tissues with active glucose metabolism, such as liver and kidney, where it provides an alternative route for pentose phosphate pathway intermediates. The enzyme's activity is regulated by substrate availability and energy status, integrating carbohydrate metabolism with cellular redox needs.

In metabolic regulation, IDNK contributes to the detoxification of gluconate derived from glucose oxidation and polyol pathway intermediates. It also plays a role in microbial defense and oxidative stress adaptation by maintaining adequate NADPH pools. Altered IDNK expression has been observed in metabolic disorders, cancer, and diabetic tissues, reflecting its role in redox homeostasis and biosynthetic metabolism.

IDNK antibody is widely used in enzymology, metabolism, and redox biology research. It is suitable for immunoblotting, enzyme activity assays, and metabolic flux studies to analyze IDNK expression and function. This antibody supports investigations into pentose phosphate pathway regulation, antioxidant defense, and carbohydrate catabolism. In cancer studies, IDNK detection helps elucidate metabolic rewiring associated with elevated NADPH demand.

Structurally, IDNK adopts an alpha/beta-fold typical of sugar kinases, with conserved ATP-binding and substrate recognition motifs. Its catalytic mechanism involves a sequential binding of ATP and gluconate, followed by phosphoryl transfer. NSJ Bioreagents provides IDNK antibody reagents validated for use in carbohydrate metabolism, redox regulation, and energy balance research.

Application Notes

Optimal dilution of the IDNK antibody should be determined by the researcher.

Immunogen

E.coli-derived human IDNK recombinant protein (Position: Q56-E182) was used as the immunogen for the IDNK antibody.

Storage

After reconstitution, the IDNK antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

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