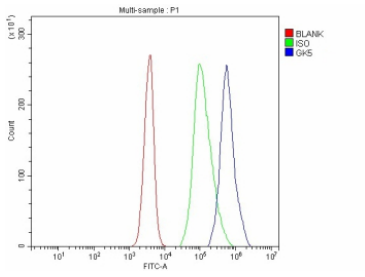
GK5 Antibody / Glycerol kinase 5 (FY12424)

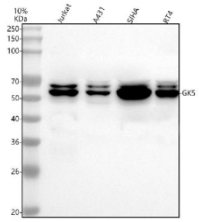
Catalog No.	Formulation	Size
FY12424	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Human
Format	Lyophilized
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	Q6ZS86
Applications	Western Blot : 0.25-0.5ug/ml Flow Cytometry : 1-3ug/million cells ELISA : 0.1-0.5ug/ml
Limitations	This GK5 antibody is available for research use only.



Flow Cytometry analysis of JK cells using anti-GK5 antibody. Overlay histogram showing JK cells stained with (Blue line). To facilitate intracellular staining, cells were fixed with 4% paraformaldehyde and permeabilized with permeabilization buffer. The cells were blocked with 10% normal goat serum. And then incubated with rabbit anti-GK5 antibody (1 ug/million cells) for 30 min at 20oC. DyLight 488 conjugated goat anti-rabbit IgG (5-10 ug/million cells) was used as secondary antibody for 30 minutes at 20oC. Isotype control antibody (Green line) was rabbit IgG (1 ug/million cells) used under the same conditions. Unlabelled sample without incubation with primary antibody and secondary antibody (Red line) was used as a blank control.



Western blot analysis of GK5 using anti-GK5 antibody. Lane 1: human Jurkat whole cell lysates, Lane 2: human whole cell lysates, Lane 3: human SiHa whole cell lysates, Lane 4: human RT4 whole cell 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-GK5 antibody at 0.5 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. GK5 (~61 kDa predicted) was detected between ~55-65 kDa, occasionally as a doublet, consistent with differential mitochondrial processing and post-translational modification reported in prior studies.

Description

The GK5 antibody targets Glycerol kinase 5, a mitochondrial and peroxisomal enzyme encoded by the GK5 gene. Glycerol kinase 5 phosphorylates glycerol to glycerol-3-phosphate, a key intermediate in lipid metabolism and energy homeostasis. As a member of the glycerol kinase family, this enzyme contributes to triglyceride synthesis, fatty-acid metabolism, and membrane lipid turnover. The GK5 antibody provides a reliable reagent for studying glycerol utilization, lipid signaling, and mitochondrial metabolic integration.

Glycerol kinase 5 is distinct from the canonical cytosolic glycerol kinase (GK1) in its subcellular localization and tissue specificity. It is highly expressed in testis and skin, where it may regulate lipid composition during spermatogenesis and barrier formation. The GK5 antibody allows detection of this enzyme in mitochondria-rich tissues, helping define its contribution to energy production and lipid biosynthesis. By phosphorylating glycerol, GK5 supports the glycerol phosphate shuttle and links carbohydrate metabolism with lipid anabolism.

Structurally, Glycerol kinase 5 shares conserved ATP-binding and catalytic residues with other glycerol kinases but contains mitochondrial targeting sequences. It associates with mitochondrial membranes, where it modulates local glycerol metabolism. The GK5 antibody supports subcellular localization studies that examine mitochondrial lipid synthesis and oxidative phosphorylation coupling. In skin and reproductive tissues, GK5 may play roles in lipid barrier maintenance and sperm energy metabolism.

Altered expression of Glycerol kinase 5 has been observed in metabolic disorders and certain cancers. Its involvement in lipid signaling suggests that GK5 activity could affect membrane dynamics and cellular energy balance. The GK5 antibody facilitates quantification of expression changes under metabolic stress, nutrient deprivation, or differentiation. Functional studies indicate that GK5 may participate in adaptive metabolic responses that sustain energy production under shifting substrate conditions.

The GK5 antibody performs effectively in western blotting, immunofluorescence, and immunohistochemistry, showing punctate mitochondrial staining consistent with its predicted localization. NSJ Bioreagents provides this antibody as a validated, high-specificity reagent for lipid metabolism and mitochondrial research. By enabling precise detection of Glycerol kinase 5, the GK5 antibody supports studies into glycerol utilization, energy regulation, and metabolic cross-talk between lipid and carbohydrate pathways.

Application Notes

Optimal dilution of the GK5 antibody should be determined by the researcher.

Immunogen

E.coli-derived human GK5 recombinant protein (Position: D37-K402) was used as the immunogen for the GK5 antibody.

Storage

After reconstitution, the GK5 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.