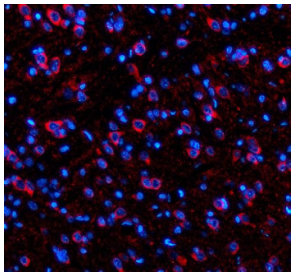
SIK2 Antibody / Salt-inducible kinase 2 (FY13008)

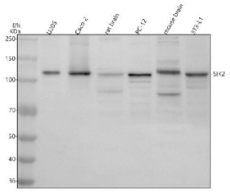
Catalog No.	Formulation	Size
FY13008	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

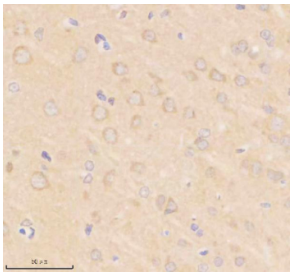
Availability	1-2 days
Species Reactivity	Human, Mouse, Rat
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q9H0K1
Localization	Cytoplasm (ER), Nucleus
Applications	Western Blot : 0.25-0.5ug/ml Immunohistochemistry : 2-5ug/ml Immunofluorescence : 5ug/ml Immunocytochemistry/Immunofluorescence : 5ug/ml Flow Cytometry : 1-3ug/million cells ELISA : 0.1-0.5ug/ml
Limitations	This SIK2 antibody is available for research use only.



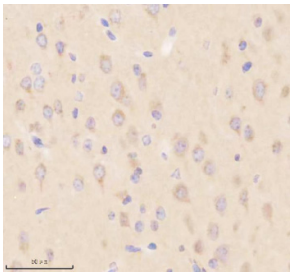
Immunofluorescent staining of SIK2 using anti-SIK2 antibody (red). SIK2 was detected in a paraffin-embedded section of rat brain tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 5 ug/ml rabbit anti-SIK2 antibody overnight at 4oC. Cy3 Conjugated Goat Anti-Rabbit IgG was used as secondary antibody at 1:500 dilution and incubated for 30 minutes at 37oC. The section was counterstained with DAPI nuclear stain (blue). Visualize using a fluorescence microscope and filter sets appropriate for the label used.



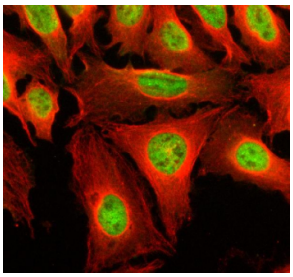
Western blot analysis of SIK2 using anti-SIK2 antibody. Electrophoresis was performed on a 8% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: human U2OS whole cell lysates, Lane 2: human Caco-2 whole cell lysates, Lane 3: rat brain tissue lysates, Lane 4: rat PC-12 whole cell lysates, Lane 5: mouse brain tissue lysates, Lane 6: mouse 3T3-L1 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-SIK2 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 an ECL Plus Western Blotting Substrate. A predominant band is detected at ~120 kDa, higher than the ~104 kDa prediction. The slower migration is consistent with multi-site phosphorylation of SIK2 (including LKB1-dependent activation and PKA sites), which produces an apparent mass of ~115-125 kDa on SDS-PAGE.



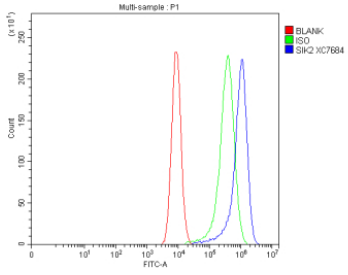
Immunohistochemical staining of SIK2 using anti-SIK2 antibody. SIK2 was detected in a paraffin-embedded section of rat brain tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 ug/ml rabbit anti-SIK2 antibody overnight at 4oC. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37oC. The tissue section was developed using an HRP secondary and DAB substrate.



Immunohistochemical staining of SIK2 using anti-SIK2 antibody. SIK2 was detected in a paraffin-embedded section of mouse brain tissue. Heat mediated antigen retrieval was performed in EDTA buffer (pH 8.0, epitope retrieval solution). The tissue section was blocked with 10% goat serum. The tissue section was then incubated with 2 ug/ml rabbit anti-SIK2 antibody overnight at 4oC. Peroxidase Conjugated Goat Anti-rabbit IgG was used as secondary antibody and incubated for 30 minutes at 37oC. The tissue section was developed using an HRP secondary and DAB substrate.



Immunofluorescent staining of SIK2 using anti-SIK2 antibody (green) and anti-Beta Tubulin antibody (red). SIK2 was detected in an immunocytochemical section of U2OS cells. Enzyme antigen retrieval was performed using IHC enzyme antigen retrieval reagent for 15 mins. The cells were blocked with 10% goat serum. And then incubated with 5 ug/ml rabbit anti-SIK2 antibody and mouse anti-Beta Tubulin antibody overnight at 4oC. DyLight 488 Conjugated Goat Anti-Rabbit IgG and Cy3 Conjugated Goat Anti-Mouse IgG were used as secondary antibody at 1:500 dilution and incubated for 30 minutes at 37oC. Visualize using a fluorescence microscope and filter sets appropriate for the label used.



Flow Cytometry analysis of Caco-2 cells using anti-SIK2 antibody. Overlay histogram showing Caco-2 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-SIK2 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.

Description

SIK2 antibody detects Salt-inducible kinase 2, a serine/threonine kinase that regulates metabolism, stress response, and cell cycle progression. The UniProt recommended name is Salt-inducible kinase 2 (SIK2). This enzyme is part of the AMP-activated protein kinase (AMPK) family and functions as a signaling integrator controlling glucose metabolism, lipolysis, and mitotic regulation in both normal and tumor cells.

Functionally, SIK2 antibody identifies a 926-amino-acid cytoplasmic protein containing an N-terminal kinase domain, an autoinhibitory region, and regulatory phosphorylation sites. SIK2 phosphorylates transcriptional coactivators such as CRTC2 and HDAC4, repressing cAMP-response element-binding protein (CREB)-mediated transcription. Through this action, SIK2 coordinates the response to metabolic hormones and nutrient availability, ensuring energy balance under varying physiological conditions.

The SIK2 gene is located on chromosome 11q23.3 and is expressed in adipose tissue, skeletal muscle, and brain. It plays a critical role in insulin signaling by modulating the expression of gluconeogenic and lipogenic enzymes. In adipocytes, SIK2 regulates hormone-sensitive lipase activity and lipid mobilization. It also influences mitochondrial biogenesis and oxidative metabolism, linking it to overall energy homeostasis. In the nervous system, SIK2 participates in neuronal differentiation and synaptic plasticity through phosphorylation of CREB cofactors.

In the cell cycle, SIK2 acts as a mitotic regulator. It localizes to centrosomes and controls spindle orientation and cytokinesis. Overexpression of SIK2 promotes centrosome separation and mitotic progression, while its inhibition disrupts mitosis and sensitizes cancer cells to chemotherapeutic agents. Elevated SIK2 expression has been reported in ovarian and breast cancers, where it supports cell proliferation and metabolic adaptation.

SIK2 antibody is widely used in studies of metabolism, kinase signaling, and cancer biology. It is suitable for western blotting, immunofluorescence, and kinase assay applications to detect endogenous SIK2 and phosphorylated substrates. In metabolic research, this antibody aids in evaluating AMPK-related signaling, energy regulation, and hormonal control of gene expression. In oncology, SIK2 serves as a potential therapeutic target due to its dual role in metabolism and mitotic control.

Structurally, SIK2 contains a conserved activation loop that undergoes phosphorylation by upstream kinases such as LKB1, essential for catalytic activation. Its activity is negatively regulated by cAMP-dependent protein kinase (PKA)-mediated phosphorylation, which induces 14-3-3 protein binding and cytoplasmic sequestration. NSJ Bioreagents provides SIK2 antibody reagents validated for use in metabolic, signal transduction, and mitotic regulation research.

Application Notes

Optimal dilution of the SIK2 antibody should be determined by the researcher.

Immunogen

E.coli-derived human SIK2 recombinant protein (Position: Q278-H919) was used as the immunogen for the SIK2 antibody.

Storage

After reconstitution, the SIK2 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.