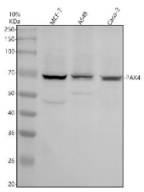
PAK4 Antibody / P21-activated kinase 4 (FY12162)

Catalog No.	Formulation	Size
FY12162	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
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	O96013
Applications	Western Blot : 0.25-0.5ug/ml
Limitations	This PAK4 antibody is available for research use only.



Western blot analysis of PAK4 using anti-PAK4 antibody. Electrophoresis was performed on a 10% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: human MCF-7 whole cell lysates, Lane 2: human whole cell lysates, Lane 3: human Caco-2 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-PAK4 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 specific band was detected for PAK4 at approximately 64 kDa. The expected band size for PAK4 is at 64 kDa.

Description

PAK4 antibody detects P21-activated kinase 4, encoded by the PAK4 gene on chromosome 19q13.2. PAK4 antibody is used to study this serine/threonine kinase belonging to the group II PAK family, which also includes PAK5 and PAK6. PAK4 is an effector of the small GTPase Cdc42 and plays critical roles in cytoskeletal regulation, cell survival, and oncogenic signaling. It is ubiquitously expressed, with high abundance in brain, pancreas, and prostate. Its deregulation

has been strongly linked to tumorigenesis and metastatic progression.

Structurally, PAK4 contains an N-terminal Cdc42/Rac interactive binding (CRIB) domain, which mediates activation by GTP-bound Cdc42, and a C-terminal kinase domain that phosphorylates downstream targets. Distinct from group I PAKs, PAK4 is constitutively active but further stimulated by Cdc42 binding. Its substrates include LIM kinase, BAD, and beta-catenin, reflecting roles in actin remodeling, apoptosis inhibition, and Wnt signaling. The modular structure of PAK4 positions it as both a kinase and a scaffolding protein in signaling complexes.

Functionally, PAK4 regulates actin cytoskeleton dynamics, influencing lamellipodia and filopodia formation. It promotes cell survival by phosphorylating BAD and inhibiting apoptosis, and it enhances Wnt/beta-catenin signaling by phosphorylating beta-catenin. PAK4 is essential for embryonic development; knockout mice die early due to defects in cardiovascular and neuronal development. Researchers use PAK4 antibody to analyze its role in cytoskeletal dynamics, survival signaling, and tumor progression.

Clinically, PAK4 is an oncogene frequently overexpressed in cancers including pancreatic, gastric, ovarian, and colorectal tumors. Its overexpression promotes migration, invasion, and resistance to apoptosis. PAK4 has been explored as a therapeutic target, with small-molecule inhibitors under investigation in preclinical models. Elevated PAK4 expression also correlates with poor prognosis in several cancers, underscoring its diagnostic potential. Beyond cancer, PAK4 contributes to neuronal development and may influence psychiatric disorders.

Experimentally, PAK4 antibody is used in western blotting to detect the ~68 kDa protein, in immunohistochemistry to assess tumor expression, and in immunofluorescence microscopy to visualize cytoskeletal remodeling. Immunoprecipitation with PAK4 antibody identifies interacting partners such as Cdc42 and LIM kinase. NSJ Bioreagents supplies PAK4 antibody for cancer research, cell biology, and developmental studies.

Application Notes

Optimal dilution of the PAK4 antibody should be determined by the researcher.

Immunogen

A synthetic peptide corresponding to a sequence at the C-terminus of human PAK4 was used as the immunogen for the PAK4 antibody.

Storage

After reconstitution, the PAK4 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.