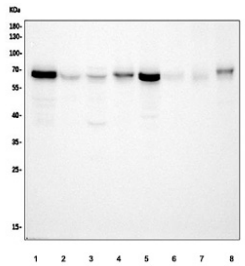
PAK1 Antibody / p21-activated kinase 1 (R30640)

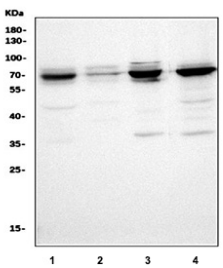
Catalog No.	Formulation	Size
R30640	0.5mg/ml if reconstituted with 0.2ml sterile DI water	100 ug

Bulk quote request

Availability	1-3 business days
Species Reactivity	Human, Mouse, Rat
Format	Antigen affinity purified
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Antigen affinity
Buffer	Lyophilized from 1X PBS with 2% Trehalose
UniProt	Q13153
Applications	Western Blot : 0.5-1ug/ml
Limitations	This PAK1 antibody is available for research use only.



Western blot analysis using PAK1 antibody. Lane 1: rat brain tissue lysates; Lane 2: rat lung tissue lysates; Lane 3: rat stomach tissue lysates; Lane 4: rat PC-12 whole cell lysates; Lane 5: mouse brain tissue lysates; Lane 6: mouse lung tissue lysates; Lane 7: mouse stomach tissue lysates; Lane 8: mouse NIH/3T3 whole cell lysates. The predicted molecular weight of p21-activated kinase 1 is ~60.6 kDa, and a predominant band is observed at ~68 kDa, consistent with the apparent molecular weight of phosphorylated PAK1. Stronger band intensity in brain samples is consistent with higher PAK1 expression in neural tissues.



Western blot testing of 1) human HeLa, 2) human A431, 3) human HEK293 and 4) human Jurkat cell lysate with PAK1 antibody. The observed molecular weight of p21-activated kinase 1 is approximately 68-70 kDa.

Description

PAK1 antibody targets p21-activated kinase 1, encoded by the PAK1 gene. p21-activated kinase 1 is a serine-threonine protein kinase that functions as a key downstream effector of the small Rho family GTPases RAC1 and CDC42. PAK1 plays an important role in transducing signals from cell surface receptors to intracellular pathways that regulate cytoskeletal dynamics, gene expression, and cell survival. The protein is primarily localized in the cytoplasm but can associate with the plasma membrane and other subcellular compartments in response to upstream signaling cues.

Functionally, p21-activated kinase 1 regulates actin cytoskeleton remodeling, cell shape, and motility through phosphorylation of multiple cytoskeletal and signaling substrates. Activation of PAK1 occurs upon binding to GTP-bound RAC1 or CDC42, which relieves autoinhibitory interactions within the kinase and promotes catalytic activity. Through these mechanisms, PAK1 influences processes such as cell migration, adhesion turnover, and directional movement. A PAK1 antibody supports studies focused on signal transduction pathways that control cytoskeletal organization and cellular behavior.

PAK1 is broadly expressed across many tissues and cell types, including epithelial cells, neurons, immune cells, and cells of the cardiovascular system. Its activity is dynamically regulated in response to growth factors, extracellular matrix interactions, and cellular stress. In the nervous system, PAK1 has been linked to synaptic structure and neuronal plasticity, while in non-neuronal cells it contributes to proliferation and survival signaling. This widespread expression underscores the importance of PAK1 as a central signaling node integrating multiple upstream inputs.

From a disease-relevance perspective, dysregulation of PAK1 signaling has been implicated in cancer, neurological disorders, and cardiovascular disease. Elevated PAK1 expression or activity has been reported in several tumor types, where it can promote cell proliferation, survival, and invasive behavior. PAK1 has also been studied in the context of neurodevelopmental and neurodegenerative conditions, reflecting its role in cytoskeletal regulation and signal integration. These associations have positioned PAK1 as a molecule of interest in studies of aberrant signaling and disease-associated cellular remodeling.

At the molecular level, p21-activated kinase 1 has an observed molecular weight of approximately 60 to 70 kDa. The protein contains an N-terminal regulatory region with a p21-binding domain and a C-terminal kinase domain responsible for its catalytic activity. Phosphorylation and other post-translational modifications modulate PAK1 activation state, localization, and substrate specificity. A PAK1 antibody supports research applications focused on kinase signaling, cytoskeletal regulation, and disease-associated signaling pathways, with NSJ Bioreagents providing reagents intended for research use.

Application Notes

The stated application concentrations are suggested starting amounts. Titration of the PAK1 antibody may be required due to differences in protocols and secondary/substrate sensitivity.

Immunogen

Amino acids 1-14 (MSNNGLDIQDKPPA-human) were used as the immunogen for this PAK1 antibody.

Storage

After reconstitution, the PAK1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.