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# PAK1 Protein (AA 2-545) (His tag)



## Overview

Quantity:	1 mg
Target:	PAK1
Protein Characteristics:	AA 2-545
Origin:	Mouse
Source:	Insect Cells
Protein Type:	Recombinant
Purification tag / Conjugate:	This PAK1 protein is labelled with His tag.
Application:	SDS-PAGE (SDS), Western Blotting (WB), ELISA, Crystallization (Crys)

### **Product Details**

## Sequence:

SNNGVDIQDK PPAPPMRNTS TMIGAGSKDT GTLNHGSKPL PPNPEEKKKK DRFYRSILPG
DKTNKKREKE RPEISLPSDF EHTIHVGFDA VTGEFTGMPE QWARLLQTSN ITKSEQKKNP
QAVLDVLEFY NSKKTSNSKK YMSFTDKSAE DYNSSNTLNV KTVSETPAVP PVSEDDEDDD
DDATPPPVIA PRPEHTKSVY TRSVIEPLPV TPTRDVATSP ISPTENNTTP PDALTRNTEK
QKKKPKMSDE EILEKLRSIV SVGDPKKKYT PFEKIGQGAS GTVYTAMDVA TGQEVAIKQM
NLQQQPKKEL IINEILVMRE NKNPNIVNYL DSYLVGDELW VVMEYLAGGS LTDVVTETCM
DEGQIAAVCR ECLQALEFLH SNQVIHRDIK SDNILLGMDG SVKLTDFGFC AQITPEQSKR
STMVGTPYWM APEVVTRKAY GPKVDIWSLG IMAIEMIEGE PPYLNENPLR ALYLIATNGT
PELQNPEKLS AIFRDFLQCC LEMDVEKRGS AKELLQHQFL KIAKPLSSLT PLMHAAKEAT KNNH
Sequence without tag. Tag location is at the discretion of the manufacturer. If you have a special request, please contact us.

#### Characteristics:

- Made in Germany from design to production by highly experienced protein experts.
- Mouse Pak1 Protein (raised in Insect Cells) purified by multi-step, protein-specific process to ensure crystallization grade.
- State-of-the-art algorithm used for plasmid design (Gene synthesis).

This protein is a made to order protein and will be made for the first time for your order. Our experts in the lab will ensure that you receive a correctly folded protein.

The big advantage of ordering our made-to-order proteins in comparison to ordering custom made proteins from other companies is that there is no financial obligation in case the protein cannot be expressed or purified.

In the unlikely event that the protein cannot be expressed or purified we do not charge anything (other companies might charge you for any performed steps in the expression process for custom-made proteins, e.g. fees might apply for the expression plasmid, the first expression experiments or purification optimization).

When you order this made-to-order protein you will only pay upon receival of the correctly folded protein. With no financial risk on your end you can rest assured that our experienced protein experts will do everything to make sure that you receive the protein you ordered.

The concentration of our recombinant proteins is measured using the absorbance at 280nm.

The protein's absorbance will be measured in several dilutions and is measured against its specific reference buffer.

The concentration of the protein is calculated using its specific absorption coefficient. We use the Expasy's protparam tool to determine the absorption coefficient of each protein.

#### Purification:

Two step purification of proteins expressed in baculovirus infected SF9 insect cells:

- 1. In a first purification step, the protein is purified from the cleared cell lysate using three different His-tag capture materials: high yield, EDTA resistant, or DTT resistant. Eluate fractions are analyzed by SDS-PAGE.
- 2. Protein containing fractions of the best purification are subjected to second purification step through size exclusion chromatography. Eluate fractions are analyzed by SDS-PAGE and Western blot.

Purity: >95 % as determined by SDS PAGE, Size Exclusion Chromatography and Western Blot.

Sterility: 0.22 µm filtered

Endotoxin Level: Protein is endotoxin free.

Grade: Crystallography grade

## **Target Details**

Target:	PAK1
Alternative Name:	Pak1 (PAK1 Products)
Background:	Protein kinase involved in intracellular signaling pathways downstream of integrins and
	receptor-type kinases that plays an important role in cytoskeleton dynamics, in cell adhesion,
	migration, proliferation, apoptosis, mitosis, and in vesicle-mediated transport processes. Can
	directly phosphorylate BAD and protects cells against apoptosis. Activated by interaction with
	CDC42 and RAC1. Functions as GTPase effector that links the Rho-related GTPases CDC42 and
	RAC1 to the JNK MAP kinase pathway. Phosphorylates and activates MAP2K1, and thereby
	mediates activation of downstream MAP kinases. Involved in the reorganization of the actin
	cytoskeleton, actin stress fibers and of focal adhesion complexes. Phosphorylates the tubulin
	chaperone TBCB and thereby plays a role in the regulation of microtubule biogenesis and
	organization of the tubulin cytoskeleton. Plays a role in the regulation of insulin secretion in
	response to elevated glucose levels. Part of a ternary complex that contains PAK1, DVL1 and
	MUSK that is important for MUSK-dependent regulation of AChR clustering during the
	formation of the neuromuscular junction (NMJ). Activity is inhibited in cells undergoing
	apoptosis, potentially due to binding of CDC2L1 and CDC2L2. Phosphorylates MYL9/MLC2.
	Phosphorylates RAF1 at 'Ser-338' and 'Ser-339' resulting in: activation of RAF1, stimulation of
	RAF1 translocation to mitochondria, phosphorylation of BAD by RAF1, and RAF1 binding to
	BCL2. Phosphorylates SNAI1 at 'Ser-246' promoting its transcriptional repressor activity by
	increasing its accumulation in the nucleus. In podocytes, promotes NR3C2 nuclear localization.
	Required for atypical chemokine receptor ACKR2-induced phosphorylation of LIMK1 and cofilin
	(CFL1) and for the up-regulation of ACKR2 from endosomal compartment to cell membrane,
	increasing its efficiency in chemokine uptake and degradation. In synapses, seems to mediate
	the regulation of F-actin cluster formation performed by SHANK3, maybe through CFL1
	phosphorylation and inactivation. Plays a role in RUFY3-mediated facilitating gastric cancer
	cells migration and invasion. {EC0:0000269 PubMed:10611223,
	ECO:0000269 PubMed:12165471, ECO:0000269 PubMed:12176334,
	ECO:0000269 PubMed:22669945, ECO:0000269 PubMed:23633677}.
Molecular Weight:	61.6 kDa Including tag.
UniProt:	088643
Pathways:	MAPK Signaling, RTK Signaling, TCR Signaling, Fc-epsilon Receptor Signaling Pathway,
	Intracellular Steroid Hormone Receptor Signaling Pathway, Regulation of Intracellular Steroid
	Hormone Receptor Signaling, Skeletal Muscle Fiber Development, CXCR4-mediated Signaling
	Fuents Cignoling Fuents modisted by VECER1 and VECER2 Cignoling of Henotopyte Crowth

Events, Signaling Events mediated by VEGFR1 and VEGFR2, Signaling of Hepatocyte Growth

## Factor Receptor, Embryonic Body Morphogenesis

# **Application Details**

Application Notes:	In addition to the applications listed above we expect the protein to work for functional studies as well. As the protein has not been tested for functional studies yet we cannot offer a gurantee though.
Comment:	Protein has not been tested for activity yet. In cases in which it is highly likely that the recombinant protein with the default tag will be insoluble our protein lab may suggest a higher molecular weight tag (e.g. GST-tag) instead to increase solubility. We will discuss all possible options with you in detail to assure that you receive your protein of interest.
Restrictions:	For Research Use only
Handling	
Format:	Liquid
Buffer:	100 mM NaCL, 20 mM Hepes, 10% glycerol. pH value is at the discretion of the manufacturer.
Handling Advice:	Avoid repeated freeze-thaw cycles.
Storage:	-80 °C
Storage Comment:	Store at -80°C.
Expiry Date:	Unlimited (if stored properly)