PAK3 Human Recombinant Protein

PRODUCT OVERVIEW

Product Name	PAK3, Recombinant Protein
Full Product Name	Recombinant Human PAK3 Protein (His tag)
Product Gene Name	PAK3 recombinant protein
Product Synonym Names	RP5-914P14.3, CDKN1A, MRX30, MRX47, OPHN3, PAK3beta, bPAK, Hpak3
Host	Baculovirus-Insect Cells
Form/Format	Supplied as sterile 20mM Tris, 500mM NaCl, pH 7.4, 10% glycerol
Purity/Purification	> 97 % as determined by SDS-PAGE
Preparation and Storage	Samples are stable for up to twelve months from date of receipt at -70 degree C
Molecular Weight	62,913 Da
OMIM	AF068864 mRNA
3D Structure	ModBase 3D Structure for O75914
Predicted N Terminal	Met 1
Endotoxin	< 1.0 EU per mug of the protein as determined by the LAL method
ISO Certification	Manufactured in an ISO 9001:2015 Certified Laboratory.
Application Notes for PAK3 recombinant protein	The recombinant human PAK3 consists of 554 amino acids and predicts a molecular mass of 62 kDa. It migrates as an approximately 60 kDa band in SDS-PAGE in SDS-PAGE under reducing conditions.
Related Product Information for PAK3 recombinant protein	Background: PAK3 is a member of PAK proteins, a family of serine/threonine p21-activating kinases, serve as effectors of small Rho GTPases Cdc42 and RAC and have been implicated in a wide range of biological activities. There are six mammalian PAKs which can be divided into two groups: group I PAKs (PAK1-3) and group II PAKs (PAK4-6). Although the two PAK groups are architecturally similar there are differences in their mode of regulation suggesting their cellular functions are likely to be different. Group I p21-activated kinases (PAK1/2/3) is demonstrated as ERK3/ERK4 activation loop kinases. It has been shown that group I PAKs phosphorylate ERK3 and ERK4 on Ser-189 and Ser-186, respectively, both in vitro and in vivo, and that expression of activated Rac1 augments this response. Besides regulation enzymatic activation of ERK3/ERK4, PAKs can also play roles in downstream activation of MAP kinase-activated protein kinase 5 (MK5) in vivo. Thus, the group I PAKs act as upstream activators of ERK3 and ERK4 and unravel a novel PAK-ERK3/ERK4-MK5 signaling pathway. In clinical, PAK has been proposed as a potential therapeutic target in schwannomas. Description: A DNA sequence encoding the human PAK3 isoform 2 (O75914-2) (Met 1-Arg 544) was fused with a polyhistidine tag at the C-terminus.
Other Notes	Small volumes of PAK3 recombinant protein vial(s) may occasionally become entrapped in the seal of the product vial during shipment and storage. If necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the container`s cap. Certain products may require to ship with dry ice and additional dry ice fee may apply.
Searchable Terms for PAK3 purchase	MBS2545066 is a recombinant protein targeting PAK3. Also known as Recombinant Human PAK3 Protein (His tag). Host: Baculovirus-Insect Cells.

ADDITIONAL DETAILS

NCBI/Uniprot data below describe general gene information for PAK3. It may not necessarily be applicable to this product.

NCBI GI #	189491751

NCBI GeneID	5063
NCBI Accession #	NP_001121638.1
UniProt Primary Accession #	O75914
UniProt Secondary Accession #	Q5JWX1; Q5JWX2; Q7Z2D6; Q7Z2E4; Q7Z3Z8; Q8WWK5; Q8WX23; A8K389; B1GX77; B1GX78; B1GX79
UniProt Related Accession #	O75914
GenBank Nucleotide #	NM_001128166.2
NCBI Official Full Name	serine/threonine-protein kinase PAK 3 isoform a
NCBI Official Synonym Full Names	p21 (RAC1) activated kinase 3
NCBI Official Symbol	PAK3
NCBI Official Synonym Symbols	ARA; bPAK; MRX30; MRX47; OPHN3; PAK-3; PAK3beta; beta-PAK
UniProt Protein Name	Serine/threonine-protein kinase PAK 3
UniProt Synonym Protein Names	Beta-PAK; Oligophrenin-3; p21-activated kinase 3; PAK-3
Protein Family	Serine/threonine-protein kinase
UniProt Gene Name	PAK3
UniProt Synonym Gene Names	OPHN3; PAK-3
NCBI Protein Information	serine/threonine-protein kinase PAK 3
NCBI Summary for PAK3	The protein encoded by this gene is a serine-threonine kinase and forms an activated complex with GTP-bound RAS-like (P21), CDC2 and RAC1. This protein may be necessary for dendritic development and for the rapid cytoskeletal reorganization in dendritic spines associated with synaptic plasticity. Defects in this gene are the cause of non-syndromic mental retardation X-linked type 30 (MRX30), also called X-linked mental retardation type 47 (MRX47). Alternatively spliced transcript variants encoding different isoforms have been identified. [provided by RefSeq, Apr 2016]
UniProt Comments for PAK3	PAK3: a protein kinase of the STE20 family that regulates synapse formation and plasticity in the hippocampus. May be necessary for dendritic development and for the rapid cytoskeletal reorganization in dendritic spines associated with synaptic plasticity. Forms an activated complex with GTP-bound P21, CDC2 and RAC1 proteins. Missense and truncation mutations linked to nonsyndromic mental retardation type 30 (MRX30). Two alternatively spliced human isoforms have been reported. Protein type: EC 2.7.11.1; Kinase, protein; PAKA subfamily; Protein kinase, STE; Protein kinase, Ser/Thr (non-receptor); STE group; STE20 family Chromosomal Location of Human Ortholog: Xq23 Cellular Component: cytoplasm; cytosol; plasma membrane Molecular Function: MAP kinase kinase activity; protein binding; protein serine/threonine kinase activity; receptor signaling protein serine/threonine kinase activity Biological Process: axonogenesis; dendrite development; ephrin receptor signaling pathway; mitotic cell cycle; regulation of actin filament polymerization; stimulatory C-type lectin receptor signaling pathway; synapse organization and biogenesis; T cell costimulation; T cell receptor signaling pathway Disease: Mental Retardation, X-linked 30
Research Articles on PAK3	**1.** This study showed that PARK3 messenger RNA levels was significantly upregulated in subjects with schizophrenia in laminar and cellular samples.

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