Data Sheet (Cat.No.TMPY-04397)

TargetMol

PAK-3 Protein, Human, Recombinant (His)

General Information

Synonyms:	PAK3β;hPAK3;bPAK;PAK3beta;MRX30;MRX47;CDKN1A;p21 protein (Cdc42/Rac)-activated kinase 3;OPHN3
Protein Construction:	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. Predicted N terminal: Met 1
Species:	Human
Expression Host:	Baculovirus Insect Cells
Accession:	O75914-2
Molecular Weight:	62 kDa (predicted); 60 kDa (reducing conditions)

QC Testing

Biological Activity:	The specific activity was determined to be 98 nmol/min/mg using MBP as substrate.
Purity:	> 80 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/μg of the protein as determined by the LAL method.
Formulation:	Supplied as sterile 20 mM Tris, 500 mM NaCl, pH 7.4, 10% glycerol.

Preparation and Storage

Reconstitution:

A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

Stability & Storage:

It is recommended to store the product under sterile conditions at -20°C to -80°C. Samples are stable for up to 12 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

Shipping:

Proteins are shipped with blue ice.

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.

Reference

Whale A,et al. (2011) Signalling to cancer cell invasion through PAK family kinases. Front Biosci. 16: 849-64.
Deleris P,et al. (2011) Activation loop phosphorylation of ERK3/ERK4 by group I p21-activated kinases (PAKs) defines a novel PAK-ERK3/4-MAPK-activated protein kinase 5 signaling pathway. J Biol Chem. 286 (8): 6470-8.
Canet B,et al. (2011) Ovarian clear cell carcinomas: RHO GTPases may contribute to explain their singular biologic behavior. Hum Pathol. 42 (6): 833-9.