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Product Information

PAK7, Active

Human, recombinant, expressed in *E. coli*

Product Number **P 7373**

Storage Temperature: -70 °C

Synonym: p21-activated Kinase-7; PAK5

Product Description

The p21-activated kinase (PAK) family of protein kinases is an effector of the Rho family of small G proteins¹ and an upstream regulator of MAPK signalling pathways during cellular events, such as re-arrangement of the cytoskeleton and apoptosis. PAKs are categorized into two subgroups: Group I (PAK1, PAK2, PAK3) is involved in the regulation of cellular processes such as gene transcription, cell morphology, motility, and apoptosis, and Group II (PAK4, PAK5, PAK6) is involved in cell morphology, motility and transformation.^{1,2}

PAK7 is a novel human PAK family kinase that contains a CDC42/Rac1 interactive binding (CRIB) motif at the N-terminus and a Ste20-like kinase domain at the C-terminus. Cloned PAK7 was also designated PAK5.³ PAK7 is most homologous to PAK4, and the 2 proteins share 85% amino acid identity within the kinase domain. PAK7, like the other PAKs has been implicated in the regulation of cell morphology, motility and transformation. PAK7 is moderately expressed in adult and fetal whole brain and in all specific adult brain regions tested. *In vitro* kinase assays demonstrate that PAK5 could autophosphorylate and phosphorylate a test substrate. Overexpression of PAK7 activated the JNK pathway, but not the p38 or ERK pathways.

The product is active recombinant, full-length human PAK7 containing an N-terminal GST tag. It is supplied at a concentration of approximately 100 µg/mL in 50 mM Tris-HCl, pH 7.5, 150 mM NaCl, 0.25 mM DTT, 0.1 mM EGTA and 30% glycerol.

Purity: ≥ 75% (SDS-PAGE)

Molecular weight: ~116 kDa

Specific Activity: ≥ 10 units/mg protein (Bradford). Please refer to the Certificate of Analysis for the lot-specific activity.

Unit Definition: One unit will incorporate one nanomole of phosphate into the peptide substrate CKRPRAASFAE per minute at 30 °C at pH 7.2 using a final concentration of 50 µM [³²P] ATP.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation instructions

For maximum product recovery, after thawing, centrifuge the vial before removing the cap

Storage/Stability

Stable for at least 12 months when stored as undiluted stock at -70 °C. After initial thawing, store in smaller, working aliquots at -70 °C. Use the working aliquots immediately upon thawing. Avoid repeated freeze-thaw cycles to prevent denaturing of the protein. Do not store in a frost-free freezer.

References

1. Jaffer, Z.M. and Chernoff, J., p21-activated kinases: three more join the Pak., *Int. J. Biochem. Cell Biol.*, **34**, 713-717 (2002).
2. Bagrodia, S. and Cerione, R.A., Pak to the future., *Trends Cell Biol.* **9**, 350-355 (1999).
3. Pandey, A., et al., Cloning and characterization of PAK5, a novel member of mammalian p21-activated kinase-II subfamily that is predominantly expressed in brain., *Oncogene* **21**, 3939-3948 (2002).

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