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Produktinformation

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Lieferung & Zahlungsart

siehe unsere Liefer- und Versandbedingungen

Zuschläge

- Mindermengenzuschlag
- Trockeneiszuschlag
- Gefahrgutzuschlag
- Expressversand

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PRODUCT INFORMATION

PDK1 (human, recombinant)

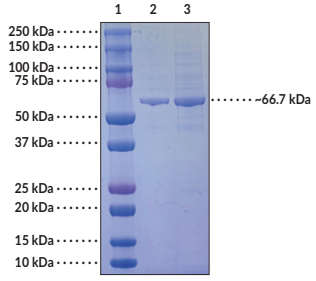
Item No. 37315

Overview and Properties

Synonym:	3-Phosphoinositide-dependent Protein Kinase 1
Source:	Active recombinant human PDK1 expressed in insect cells
Amino Acids:	1-556 (full length)
Uniprot No.:	O15530
Molecular Weight:	66.7 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥85% estimated by SDS-PAGE
Supplied in:	50 mM Tris-HCl, pH 7.4, with 150 mM sodium chloride and 10% glycerol
Concentration:	***batch specific*** mg/ml
Activity:	***batch specific*** U/ml
Specific Activity:	***batch specific*** U/mg
Unit Definition:	One unit is defined as the amount of enzyme required to produce 1 µmol of ADP per minute at 25°C in 20 mM HEPES, pH 7.4, containing 50 mM sodium chloride, 10 mM magnesium chloride, 1 mM EGTA, and 0.02% Triton™ X-100, and 108 µM PDKtide substrate.

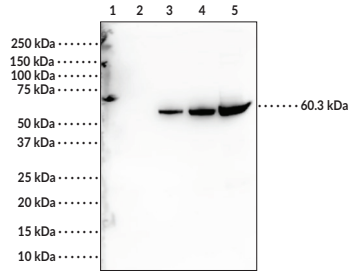
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Images



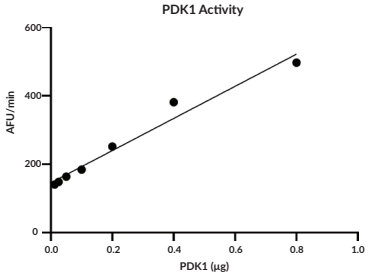
Lane 1: MW Markers
Lane 2: PDK1 (2 µg)
Lane 3: PDK1 (4 µg)

SDS-PAGE Analysis of PDK1.

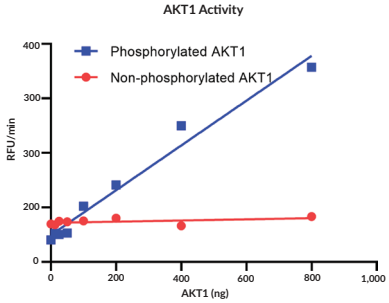


Lane 1: Protein Standards (4 µl)
Lane 2: AKT1 (1 µg)
Lane 3: pAKT1 (50 ng)
Lane 4: pAKT1 (200 ng)
Lane 5: pAKT1 (500 ng)

Western blot of IMAC-purified phosphorylated AKT by FPLC. Antibody does not detect unphosphorylated AKT1. Blot probed with Recombinant Anti-AKT1 (phospho S473) antibody [EP2109Y] from Abcam (Item No. ab81283) at 1:1,000 for one hour. Goat Anti-Rabbit IgG HRP (Item No. 10004301) used as secondary antibody at 1:7,000 for one hour. Developed blot with Femto.



PDK1 activity was determined using a coupled-kinase assay. HRP readily combines with hydrogen peroxide, a by-product, and this complex is detected by 110-Acetyl-3,7-dihydroxy-phenoxazine (ADHP; Item No. 10010469), thereby allowing activity to be monitored by measuring the increase in fluorescence.



AKT1 activity was determined using a coupled-kinase assay. HRP readily combines with hydrogen peroxide, a by-product, and this complex is detected by 10-Acetyl-3,7-dihydroxyphenoxazine (ADHP; Item No. 10010469), thereby allowing activity to be monitored by measuring the increase in fluorescence. AKT1 only shows activity after being phosphorylated by PDK1.

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PRODUCT INFORMATION

Description

3-Phosphoinositide-dependent protein kinase 1 (PDK1) is a serine/threonine kinase with roles in cell survival, differentiation, and proliferation, metabolic regulation, and immune development.[1-3] It is composed of an N-terminal bilobular kinase domain, with the small lobe housing a PIF-pocket/αC-helix region and the large lobe containing an activation loop, and a C-terminal PH domain.[1] PDK1 is activated by autophosphorylation of serine 241 in the activation loop, a residue that is poorly accessible to phosphatases, and is considered constitutively active.[1] It phosphorylates and activates various members of the AGC protein kinase family, including Akt, p70 ribosomal S6 kinase (p70S6K), serum/glucocorticoid regulated kinase (SGK), and PKC to regulate the PI3K/Akt, Ras/MAPK, and Myc signaling pathways.[1,2] Gene amplification of *PDPK1*, the gene encoding PDK1, is associated with poor prognosis in patients with breast cancer and metastasis in patients with prostate cancer.[1] Knockdown of *Pdpk1* promotes axon regeneration in a mouse model of sciatic nerve injury and inhibits T follicular helper (Tfh) cell differentiation and germinal center responses in a mouse model of acute lymphocytic choriomeningitis virus (LCMV) infection.[2,3] Cayman's PDK1 (human, recombinant) protein is expressed with an N-terminal His-TEV tag, which is removed during the protein purification process, leaving behind an N-terminal glycine residue on the full-length protein. This protein can be used for the phosphorylation of other proteins, such as Akt, and Western blot (WB).

References

1. Gagliardi, P.A., Puliafito, A., and Primo, L. PDK1: At the crossroad of cancer signaling pathways. *Semin. Cancer Biol.* **48**, 27-35 (2018).
2. Kim, H., Lee, J., and Cho, Y. PDK1 is a negative regulator of axon regeneration. *Mol. Brain* **14(1)**, 31 (2021).
3. Sun, Z., Yao, Y., You, M., *et al.* The kinase PDK1 is critical for promoting T follicular helper cell differentiation. *Elife* **10**, e61406 (2021).

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