

PRODUCT INFORMATION



PDK1 (human, recombinant)

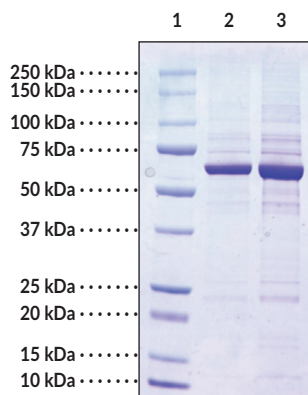
Item No. 37315

Overview and Properties

Synonym:	3-Phosphoinositide-dependent Protein Kinase 1
Source:	Active recombinant human N-terminal His-tagged 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:	<i>batch specific</i> mg/ml
Activity:	<i>batch specific</i> U/ml
Specific Activity:	<i>batch specific</i> 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 26.25 μM PDKtide substrate.

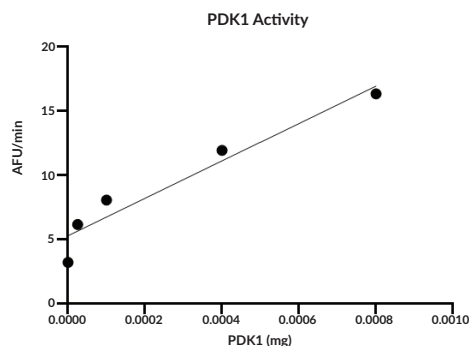
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Images



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

SDS-PAGE Analysis of PDK1.



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.

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
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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/ α C-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}

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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