

PRODUCT INFORMATION



Peroxiredoxin-6 (human, recombinant)

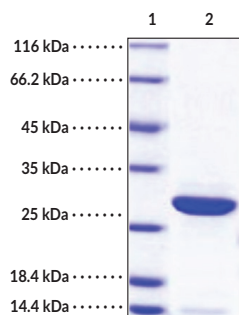
Item No. 43211

Overview and Properties

Synonyms:	1-Cys Peroxiredoxin, Acidic Calcium-independent Phospholipase A ₂ , aiPLA ₂ , Glutathione-dependent Peroxiredoxin, LPCAT5, Non-selenium Glutathione Peroxidase, NSGPx, PRDX6, Prx6
Source:	Recombinant human N-terminal His-tagged Prx6 expressed in <i>E. coli</i>
Amino Acids:	1-224
Uniprot No.:	P30041
Molecular Weight:	26.5 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥95% estimated by SDS-PAGE
Supplied in:	Lyophilized from sterile PBS, pH 7.4
Protein	
Concentration:	<i>batch specific</i> mg/ml

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

Image



Lane 1: MW Markers
Lane 2: Peroxiredoxin-6

SDS-PAGE Analysis of Peroxiredoxin-6. This protein has a calculated molecular weight of 25 kDa. It has an apparent molecular weight of approximately 26.5 kDa by SDS-PAGE.

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
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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Description

Peroxiredoxin-6 (Prx6) is a 1-Cys-containing Prx that is involved in the maintenance of cellular thiol redox homeostasis and phospholipid metabolism.¹ It exists as a homodimer and is composed of a thioredoxin fold-containing catalytic domain, which contains a peroxidatic cysteine (Cp), and a C-terminal arm.² Unlike 2-Cys-containing Prxs, Prx6 does not contain a resolving cysteine (Cr) and uses glutathione (GSH) instead. Prx6 is ubiquitously expressed and localizes to the cytosol, nucleus, mitochondria, and plasma membrane.^{1,3} It has three enzymatic activities: glutathione peroxidase (GPX), acidic calcium-independent phospholipase A₂ (aiPLA₂), and lysophosphatidylcholine acyltransferase (LPCAT).^{1,4,5} The LPCAT activity, which selectively uses palmitoyl-CoA as a substrate, is coupled to the aiPLA₂ activity and is selective for lysophosphatidylcholine over lysophosphatidylethanolamine, lysophosphatidylglycerol, lysophosphatidylinositol, and lysophosphatidylserine.⁵ These activities, coupled with the GPX activity, provide Prx6 the ability to repair oxidized cell membranes.¹ Prx6 is also involved in the activation of NADPH oxidase 2 (NOX2). Tumor levels of Prx6 are increased in patients with non-small cell lung cancer (NSCLC) and serum levels of Prx6 are decreased in patients with asthma.⁶ Cayman's Peroxiredoxin-6 (human, recombinant) protein consists of 235 amino acids and has a calculated molecular weight of approximately 25 kDa. By SDS-PAGE, under reducing conditions, the apparent molecular mass of the protein is 26.5 kDa.

References

1. Arevalo, J.A. and Vázquez-Medina, J.P. The role of peroxiredoxin 6 in cell signaling. *Antioxidants (Basel)* **7(12)**, 172 (2018).
2. Choi, H.J., Kang, S.W., Yang, C.H., et al. Crystal structure of a novel human peroxidase enzyme at 2.0 Å resolution. *Nat. Struct. Biol.* **5(5)**, 400-406 (1998).
3. Dammeyer, P. and Arnér, E.S. Human Protein Atlas of redox systems - What can be learnt? *Biochim. Biophys. Acta* **1810(1)**, 111-138 (2011).
4. Chen, J.W., Dodia, C., Feinstein, S.I., et al. 1-Cys peroxiredoxin, a bifunctional enzyme with glutathione peroxidase and phospholipase A₂ activities. *J. Biol. Chem.* **275(37)**, 28421-28427 (2000).
5. Fisher, A.B., Dodia, C., Sorokina, E.M., et al. A novel lysophosphatidylcholine acyl transferase activity is expressed by peroxiredoxin 6. *J. Lipid Res.* **57(4)**, 587-596 (2016).
6. Jia, W., Dong, C., and Li, B. Anti-oxidant and pro-oxidant effects of peroxiredoxin 6: A potential target in respiratory diseases. *Cells* **12(1)**, 181 (2023).

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