



# SZABO SCANDIC

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## Produktinformation



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# PRODUCT INFORMATION



## PKC $\alpha$ (human, recombinant)

Item No. 32563

### Overview and Properties

**Synonyms:** PKCA, PKC-A, PRKCA, Protein Kinase C Alpha Type  
**Source:** Active recombinant human N-terminal GST-tagged PKC $\alpha$  expressed in insect cells  
**Amino Acids:** 1-672 (full length)  
**Uniprot No.:** P17252  
**Molecular Weight:** 102 kDa  
**Storage:** -80°C (as supplied)  
**Stability:**  $\geq 6$  months  
**Purity:**  $\geq 80\%$  estimated by SDS-PAGE  
**Supplied in:** Lyophilized from sterile 40 mM Tris-HCl, pH 8.0, with 110 mM sodium chloride, 2.2 mM potassium chloride, 0.04% Tween 20, 3 mM DTT, 20% glycerol, and 1.6 mM glutathione

### Protein

**Concentration:** *batch specific* mg/ml

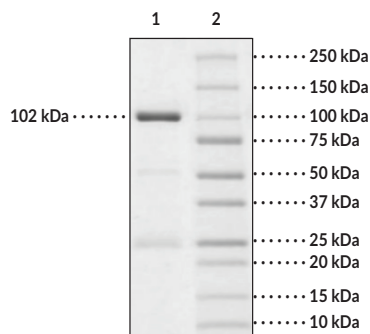
**Activity:** *batch specific* U/ml

**Specific Activity:** *batch specific* U/mg

**Unit Definition:** One unit is defined as the amount of enzyme required to produce 1 pmol of ADP per minute at 30°C in 0.1 mM CaCl<sub>2</sub>, 1 mg/ml phosphatidylserine, 0.02 mg/ml diacylglycerol, and 0.3% Triton X-100 using histone H1 (0.1 mg/ml) and 20  $\mu$ M ATP as substrates. Signal read after a 40 min reaction via luminescent detection.

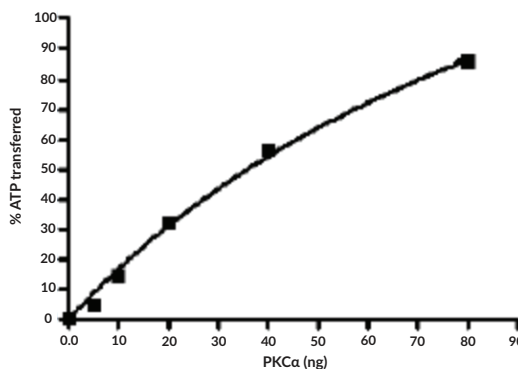
Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Images



Lane 1: PKC $\alpha$   
Lane 2: MW Markers

SDS-PAGE Analysis of PKC $\alpha$ . This protein has a calculated molecular weight of 102 kDa.



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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# PRODUCT INFORMATION



## Description

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PKC $\alpha$  is an  $\alpha$ -type conventional isoform of the PKC family of serine/threonine protein kinases, which includes the conventional isoforms PKC $\alpha$ , - $\beta$ , and - $\gamma$ , the novel isoforms PKC $\delta$ , - $\epsilon$ , - $\eta$ , and - $\theta$ , and the atypical isoforms PKC $\zeta$  and - $\lambda$ .<sup>1</sup> PKC $\alpha$  is composed of an N-terminal regulatory domain containing a pseudosubstrate binding site, a C1 domain that binds the cofactor diacylglycerol (DAG), a C2 domain that binds the cofactor calcium, and a C-terminal domain containing an ATP-binding domain, substrate binding site, and catalytic domain. PKC $\alpha$  is ubiquitously expressed and localized to the cytoplasm in an auto-inhibited conformation until activated by calcium and DAG, which are both required for activation of the conventional PKC isoforms.<sup>1,2</sup> Activation of PKC $\alpha$  occurs *via* an allosteric and temporal mechanism during which it is translocated primarily to the plasma membrane where it phosphorylates a wide variety of substrates.<sup>1</sup> PKC $\alpha$  is involved in the regulation of cell survival with anti- or pro-apoptotic effects and an increase or decrease in cell proliferation depending on the cellular context and cell type. It is also involved in cell differentiation and motility.<sup>2</sup> Protein levels of PKC $\alpha$  are either increased or decreased in cancer cells, indicating a complex role in oncogenesis.<sup>3</sup> Tumor levels of PKC $\alpha$  correlate positively to tumor grade and negatively to survival in patients with breast cancer.<sup>4</sup> A SNP in *PRKCA*, which encodes PKC $\alpha$ , is associated with an increased risk of post-traumatic stress disorder (PTSD) in survivors of genocide.<sup>5</sup> Cayman's PKC $\alpha$  (human, recombinant) protein can be used for enzyme assay applications. This protein consists of 672 amino acids and has a calculated molecular weight of 102 kDa.

## References

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1. Reyland, M. Protein kinase C isoforms: Multi-functional regulators of cell life and death. *Front. Biosci. (Landmark Ed.)* **14**, 2386-2399 (2009).
2. Nakashima, S. Protein kinase Ca (PKC $\alpha$ ): Regulation and biological function. *J. Biochem.* **132(5)**, 669-675 (2002).
3. Martiny-Baron, G. and Fabbro, D. Classical PKC isoforms in cancer. *Pharmacol. Res.* **55(6)**, 477-486 (2007).
4. Lønne, G.K., Cornmark, L., Zahirovic, I.O., *et al.* PKC $\alpha$  expression is a marker for breast cancer aggressiveness. *Mol. Cancer* **9**, 76 (2010).
5. de Quervain, D.J.-F., Kolassa, I.-T., Ackermann, S., *et al.* PKC $\alpha$  is genetically linked to memory capacity in healthy subjects and to risk for posttraumatic stress disorder in genocide survivors. *Proc. Nat. Acad. Sci. USA* **109(22)**, 8746-8751 (2012).

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