

PRODUCT INFORMATION



Chk2 (human, recombinant)

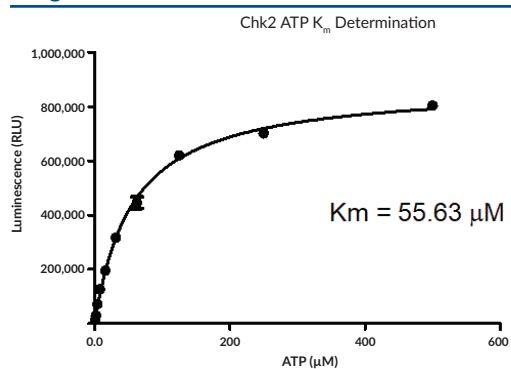
Item No. 43753

Overview and Properties

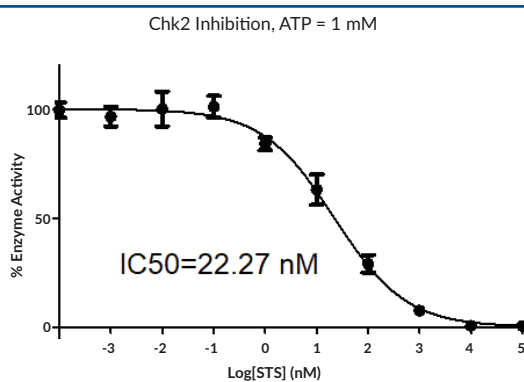
Synonyms:	Cell Cycle Checkpoint Kinase 2, Checkpoint Kinase 2, CHK2 Checkpoint Homolog, Serine/threonine-protein Kinase Chk2
Source:	Active recombinant human N-terminal GST-tagged Chk2 expressed in insect cells
Amino Acids:	1-543 (full length)
Uniprot No.:	O96017
Molecular Weight:	88 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥90% estimated by SDS-PAGE
Supplied in:	50 mM Tris-HCl, pH 7.5, with 50-300 mM sodium chloride, 10 mM glutathione, 0.1 mM EDTA, 0.25-1.0 mM DTT, 0-0.1 mM PMSF, and 10-25% glycerol
Bioactivity:	See figures for details
Specific Activity:	Batch specific

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

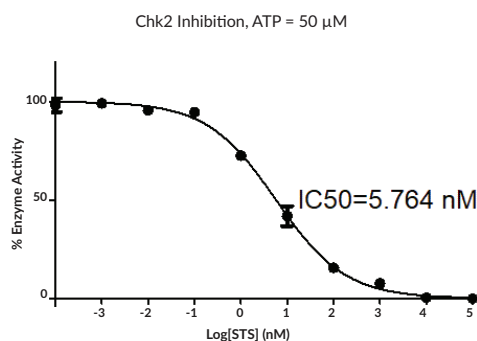
Images



Determination of ATP K_m for Chk2 (human, recombinant) using ADP-Glo™ Assay. With saturating substrate concentration, the relative luminescence values were plotted against various ATP concentrations. The Michaelis-Menten equation was then used to generate the K_m values.



Determination of staurosporine IC_{50} value for Chk2 (human, recombinant) at 1 mM ATP.



Determination of staurosporine IC_{50} value for Chk2 (human, recombinant) at 50 µM ATP.

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

Checkpoint kinase 2 (Chk2) is a serine/threonine kinase and downstream effector of ataxia-telangiectasia mutated kinase (ATM) in the cellular DNA damage response.^{1,2} It is composed of an N-terminal serine-glutamine/threonine-glutamine cluster domain (SCD), a central forkhead-associated (FHA) domain, and a C-terminal serine/threonine kinase domain.² Chk2 is ubiquitously expressed and localized to the nucleus. In response to double-stranded breaks (DSBs) generated by genotoxins or radiation, Chk2 is phosphorylated and activated by ATM, inducing cell cycle arrest at the S or G₂/M phase.¹ Chk2 also has roles in various mitotic processes, including spindle formation, cytokinesis, checkpoint signaling, and chromosome segregation.^{1,3} Overexpression of *Chk2* is associated with disease progression in papillary thyroid cancer.⁴ Cayman's Chk2 (human, recombinant) protein can be used for enzyme activity assay and Western blot (WB) applications. This protein consists of 543 amino acids and has a calculated molecular weight of 88 kDa.

References

1. Smith, J., Tho, L.M., Xu, N., *et al.* The ATM-Chk2 and ATR-Chk1 pathways in DNA damage signaling and cancer. *Adv. Cancer Res.* **108**, 73-112 (2010).
2. Cai, Z., Chehab, N.H., and Pavletich, N.P. Structure and activation mechanism of the CHK2 DNA damage checkpoint kinase. *Mol. Cell.* **35(6)**, 818-829 (2009).
3. Black, E.M., Parrado, C.A.R., Trier, I., *et al.* Chk2 sustains PLK1 activity in mitosis to ensure proper chromosome segregation. *Nat. Commun.* **15(1)**, 10782 (2024).
4. Zhao, W., Chen, S., Hou, X., *et al.* CHK2 promotes anoikis and is associated with the progression of papillary thyroid cancer. *Cell. Physiol. Biochem.* **45(4)**, 1590-1602 (2018).

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