

PRODUCT INFORMATION

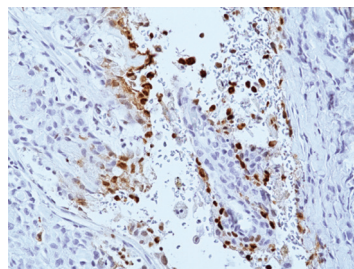
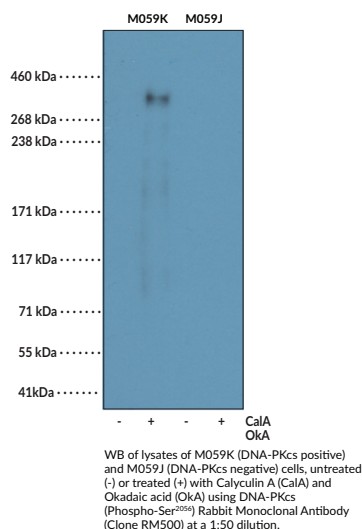
DNA-PKcs (Phospho-Ser²⁰⁵⁶) Rabbit Monoclonal Antibody (Clone RM500)

Item No. 42852

Overview and Properties

Contents:	This vial contains 100 µl of protein A-affinity purified monoclonal antibody.
Synonyms:	DNA-dependent Protein Kinase Catalytic Subunit, DNA-PK Catalytic Subunit, p460
Immunogen:	A phosphopeptide corresponding to human DNA-PKcs (phospho-Ser ²⁰⁵⁶)
Cross Reactivity:	(+) DNA-PKcs (phospho-Ser ²⁰⁵⁶); (-) Unmodified DNA-PKcs
Species Reactivity:	(+) Human
Form:	Liquid
Storage:	-20°C (as supplied)
Stability:	≥1 year
Storage Buffer:	PBS, with 50% glycerol, 1% BSA, and 0.09% sodium azide
Clone:	RM500
Host:	Rabbit
Isotype:	IgG
Applications:	Immunohistochemistry (IHC) and Western blot (WB); the recommended starting dilution is 1:100-1:500 for IHC and 1:50-1:200 for WB. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Images



Immunohistochemical staining of formalin-fixed and paraffin-embedded human lung cancer tissue using DNA-PKcs (Phospho-Ser²⁰⁵⁶) Rabbit Monoclonal Antibody (Clone RM500).

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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CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM

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Description

DNA-dependent protein kinase catalytic subunit (DNA-PKcs) is a member of the PI3K-related kinase (PIKK) family.¹⁻³ It is composed of an N-terminal domain, which consists of two domains of HEAT repeats, a FAT homology domain, a FKBP12-rapamycin-binding (FRB) domain, a kinase domain, a PIKK regulatory domain, and a C-terminal FAT domain (FATC). DNA-PKcs localizes to the nucleus, cytoplasm, plasma membrane, cytoskeleton, and lipid rafts.^{2,4} It is involved in DNA double-strand break (DSB) repair through non-homologous end-joining (NHEJ) and homologous recombination (HR) pathways and contains numerous phosphorylation sites that modify its activity, such as Ser²⁰⁵⁶, which must be autophosphorylated for NHEJ to occur in response to DSBs.¹⁻³ DNA-PKcs also plays a role in mitosis, telomere maintenance, transcriptional regulation, innate and adaptive immunity, and senescence, among many other processes. DNA-PKcs interacts with Ku70/Ku80 to form the DNA-PK holoenzyme, which acts on various substrates, including histone H2AX, heat shock protein 90 (Hsp90), and Artemis.^{2,3} High expression or increased activity of DNA-PKcs is associated with metastasis, poor prognosis, and radio- and chemoresistance in various cancers.² Cayman's DNA-PKcs (Phospho-Ser²⁰⁵⁶) Rabbit Monoclonal Antibody (Clone RM500) can be used for immunohistochemistry (IHC) and Western blot (WB) applications.

References

1. Mohiuddin, I.S. and Kang, M.H. DNA-PK as an emerging therapeutic target in cancer. *Front. Oncol.* **9**, 635 (2019).
2. Dylgjeri, E. and Knudsen, K.E. DNA-PKcs: A targetable protumorigenic protein kinase. *Cancer Res.* **82**(4), 523-533 (2022).
3. Wu, J., Song, L., Lu, M., *et al.* The multifaceted functions of DNA-PKcs: Implications for the therapy of human diseases. *MedComm* (2020) **5**(7), e613 (2024).
4. Carter, T., Vancurová, I., Sun, I., *et al.* A DNA-activated protein kinase from HeLa cell nuclei. *Mol. Cell Biol.* **10**(12), 6460-6471 (1990).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
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WWW.CAYMANCHEM.COM