

PRODUCT INFORMATION

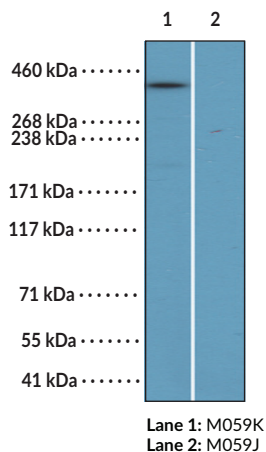
DNA-PKcs Rabbit Monoclonal Antibody (Clone RM505)

Item No. 42856

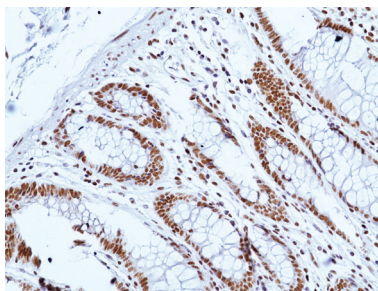
Overview and Properties

Contents:	This vial contains 100 µl of protein A-affinity purified antibody.
Synonyms:	DNA-dependent Protein Kinase Catalytic Subunit, DNA-PK Catalytic Subunit, p460
Immunogen:	A peptide corresponding to the C-terminus of human DNA-PKcs
Cross Reactivity:	(+) DNA-PKcs
Species Reactivity:	(+) Human
Form:	Liquid
Storage:	-20°C (as supplied)
Stability:	≥1 year
Storage Buffer:	PBS, pH 7.2, with 50% glycerol and 0.02% sodium azide
Clone:	RM505
Host:	Rabbit
Isotype:	IgG
Applications:	Immunohistochemistry (IHC) and Western blot (WB); the recommended starting dilution is 1:100-1:200 for IHC and 1:1,000-1:2,500 for WB. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

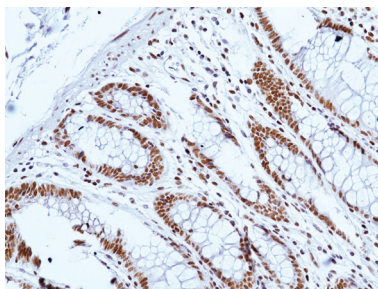
Images



WB of lysates of M059K (DNA-PKcs positive) and M059J (DNA-PKcs negative) cells using DNA-PKcs Rabbit Monoclonal Antibody (Clone RM505) at a 1:2,500 dilution.



Immunohistochemical staining of formalin-fixed and paraffin-embedded human normal colon tissue sections using DNA-PKcs Rabbit Monoclonal Antibody (Clone RM505).



Immunohistochemical staining of formalin-fixed and paraffin-embedded human breast cancer tissue sections using DNA-PKcs Rabbit Monoclonal Antibody (Clone RM505).

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

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 Rabbit Monoclonal Antibody (Clone RM505) 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. Dylgieri, E.K. and Karen, 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).

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