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# Phospho-CDK7(T170) Antibody

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP3068a

## Product Information

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| **Application** | WB, IHC-P, DB, E |
| **Primary Accession** | P50613 |
| **Other Accession** | Q03147 |
| **Reactivity** | Human, Mouse |
| **Predicted** | Mouse, Rat, Bovine, Canine, Rabbit, Chicken |
| **Host** | Rabbit |
| **Clonality** | Polyclonal |
| **Isotype** | Rabbit IgG |
| **Calculated MW** | 39038 |

## Additional Information

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| **Gene ID** | 1022 |
| **Other Names** | Cyclin-dependent kinase 7, 39 kDa protein kinase, p39 Mo15, CDK-activating kinase 1, Cell division protein kinase 7, Serine/threonine-protein kinase 1, TFIIH basal transcription factor complex kinase subunit, CDK7, CAK, CAK1, CDKN7, MO15, STK1 |
| **Target/Specificity** | This CDK7 Antibody is generated from rabbits immunized with a KLH conjugated synthetic phosphopeptide corresponding to amino acid residues surrounding T170 of human CDK7. |
| **Dilution** | WB~~1:1000 IHC-P~~1:100~500 DB~~1:500 E~~Use at an assay dependent concentration. |
| **Format** | Purified polyclonal antibody supplied in PBS with 0.05% (V/V) Proclin 300. This antibody is purified through a protein A column, followed by peptide affinity purification. |
| **Storage** | Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles. |
| **Precautions** | Phospho-CDK7(T170) Antibody is for research use only and not for use in diagnostic or therapeutic procedures. |

## Protein Information

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| **Name** | CDK7 |
| **Synonyms** | CAK, CAK1, CDKN7, MO15, STK1 |

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| **Function** | Serine/threonine kinase involved in cell cycle control and in RNA polymerase II-mediated RNA transcription (PubMed:9852112, PubMed:19136461, PubMed:26257281, PubMed:28768201). As a cyclin-dependent kinase, CDK7 is activated by the binding to cyclin-H/CCNH and the CDK-activating kinase assembly factor MAT1 (PubMed:41100585). Catalytic subunit of the CDK-activating kinase (CAK) complex, a master regulator of CDK activity by catalyzing the activating threonine phosphorylation of CDKs (PubMed:41100585). CAK activates major mediators of cell cycle control, including CDK1, CDK2, CDK4 and CDK6, and plays a key role in regulating cell cycle progression (PubMed:41100585). CAK complexed to the core-TFIIH basal transcription factor activates RNA polymerase II by serine phosphorylation of the CTD of POLR2A, allowing its escape from the promoter and elongation of the transcripts (PubMed:9852112). Initiates transcription by RNA polymerase II by mediating phosphorylation of POLR2A at 'Ser-5' of the repetitive C-terminal domain (CTD) when POLR2A is in complex with DNA, promoting dissociation from DNA and initiation (PubMed:19136461, PubMed:26257281, PubMed:28768201). Phosphorylates SPT5/SUPT5H, SF1/NR5A1, POLR2A, p53/TP53, CDK1, CDK2, CDK4, CDK6 and CDK11B/CDK11 (PubMed:9372954, PubMed:9840937, PubMed:19136461, PubMed:26257281, PubMed:28768201, PubMed:41100585, PubMed:41100585). Its expression and activity are constant throughout the cell cycle. Upon DNA damage, triggers p53/TP53 activation by phosphorylation, but is inactivated in turn by p53/TP53; this feedback loop may lead to an arrest of the cell cycle and of the transcription, helping in cell recovery, or to apoptosis. Required for DNA-bound peptides-mediated transcription and cellular growth inhibition. |
| **Cellular Location** | Nucleus. Cytoplasm. Cytoplasm, perinuclear region. Note=Colocalizes with PRKCI in the cytoplasm and nucleus (PubMed:15695176). Translocates from the nucleus to cytoplasm and perinuclear region in response to DNA-bound peptides (PubMed:19071173). |
| **Tissue Location** | Ubiquitous. |

## Background

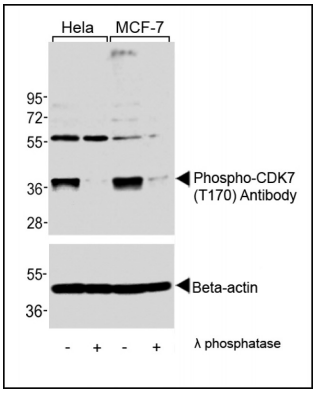
The protein encoded by this gene is a member of the cyclin-dependent protein kinase (CDK) family. CDK family members are highly similar to the gene products of Saccharomyces cerevisiae cdc28, and Schizosaccharomyces pombe cdc2, and are known to be important regulators of cell cycle progression. This protein forms a trimeric complex with cyclin H and MAT1, which functions as a Cdk-activating kinase (CAK). It is an essential component of the transcription factor TFIIH, that is involved in transcription initiation and DNA repair. This protein is thought to serve as a direct link between the regulation of transcription and the cell cycle.

## References

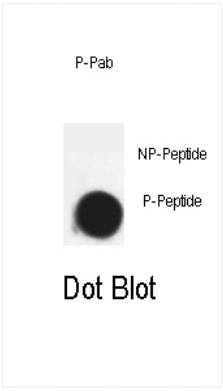
Zhou, M., et al., Proc. Natl. Acad. Sci. U.S.A. 100(22):12666-12671 (2003).
Kino, T., et al., Biochem. Biophys. Res. Commun. 298(1):17-23 (2002).
Schneider, E., et al., Oncogene 21(33):5031-5037 (2002).
Nekhai, S., et al., Virology 266(2):246-256 (2000).
Zhou, M., et al., Mol. Cell. Biol. 20(14):5077-5086 (2000).

## Images

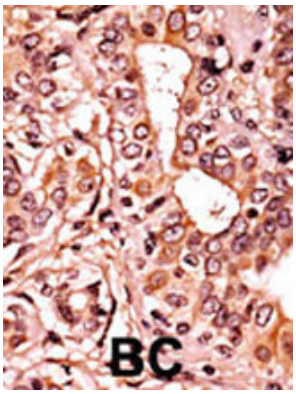
Western blot analysis of extracts from Hela and MCF-7 cells, untreated or lamda phosphatase-treated, using Phospho-CDK7(T170) Antibody (upper) or Beta-actin




(lower).




Dot blot analysis of Phospho-Cdk7-T170 Pab (Cat. #AP3068a) on nitrocellulose membrane. 50ng of Phospho-peptide or Non Phospho-peptide per dot were adsorbed. Antibody working concentrations are 0.5ug per ml.




Formalin-fixed and paraffin-embedded human cancer tissue reacted with the primary antibody, which was peroxidase-conjugated to the secondary antibody, followed by AEC staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated. BC = breast carcinoma; HC = hepatocarcinoma.

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.