

# phospho-CDK7 (Thr170) Rabbit pAb

Catalog # AP100193

## Product Information

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| <b>Application</b>                      | WB, IHC-P, IHC-F, IF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Primary Accession</b>                | <a href="#">P50613</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Other Accession</b>                  | <a href="#">P50613</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Host</b>                             | Rabbit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Clonality</b>                        | Polyclonal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Calculated MW</b>                    | 39038                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Physical State</b>                   | Liquid                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Immunogen</b>                        | KLH conjugated Synthesised phosphopeptide derived from human CDK7 around the phosphorylation site of Thr170                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Epitope Specificity</b>              | AY(p-T)HQ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Isotype</b>                          | IgG                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Purity</b>                           | affinity purified by Protein A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Buffer</b>                           | 0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>SIMILARITY</b>                       | Belongs to the protein kinase superfamily. CMGC Ser/Thr protein kinase family. CDC2/CDKX subfamily. Contains 1 protein kinase domain.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>SUBUNIT</b>                          | Associates primarily with cyclin-H (CCNH) and MAT1 to form the CAK complex. CAK can further associate with the core-TFIIH to form the TFIIH basal transcription factor; this complex is sensitive to UV light. The CAK complex binds to p53/TP53 in response to DNA damage. Interacts with CDK2, SF1/NR5A1, PUF60 and PRKCI.                                                                                                                                                                                                                                                                                                                                                     |
| <b>Post-translational modifications</b> | Phosphorylation of Ser-164 during mitosis inactivates the enzyme. Phosphorylation of Thr-170 is required for activity. Phosphorylated at Ser-164 and Thr-170 by CDK2.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Important Note</b>                   | This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Background Descriptions</b>          | 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 <i>Saccharomyces cerevisiae</i> cdc28, and <i>Schizosaccharomyces pombe</i> 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. |

## Additional Information

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| <b>Gene ID</b>     | 1022                                                                                                                                                                                                                                                                                                   |
| <b>Other Names</b> | CAK; CAK1; CDKN7; HCAK; MO15; STK1; p39MO15; CDK7_HUMAN; CDK7; 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; 2.7.11.22; 2.7.11.23; cyclin dependent kinase 7; |

cyclin-dependent kinase 7 (homolog of Xenopus MO15 cdk-activating kinase); cyclin-dependent kinase 7 (MO15 homolog, Xenopus laevis, cdk-activating kinase); CDK7 (phospho-T170); p-CDK7; phospho-CDK7; CDK7 (phospho-Thr170)

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| <b>Dilution</b> | WB=1:500-2000,IHC-P=1:100-500,IHC-F=1:100-500,ICC/IF=1:100-500,IF=1:100-500                                                                                                                     |
| <b>Storage</b>  | Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C. |

## Protein Information

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| <b>Name</b>              | CDK7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Synonyms</b>          | CAK, CAK1, CDKN7, MO15, STK1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Function</b>          | <p>Serine/threonine kinase involved in cell cycle control and in RNA polymerase II-mediated RNA transcription (PubMed:<a href="#">9852112</a>, PubMed:<a href="#">19136461</a>, PubMed:<a href="#">26257281</a>, PubMed:<a href="#">28768201</a>). As a cyclin- dependent kinase, CDK7 is activated by the binding to cyclin-H/CCNH and the CDK-activating kinase assembly factor MAT1 (PubMed:<a href="#">41100585</a>). Catalytic subunit of the CDK-activating kinase (CAK) complex, a master regulator of CDK activity by catalyzing the activating threonine phosphorylation of CDKs (PubMed:<a href="#">41100585</a>). 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:<a href="#">41100585</a>). CAK complexed to the core-TFIIF 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:<a href="#">9852112</a>). 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:<a href="#">19136461</a>, PubMed:<a href="#">26257281</a>, PubMed:<a href="#">28768201</a>). Phosphorylates SPT5/SUPT5H, SF1/NR5A1, POLR2A, p53/TP53, CDK1, CDK2, CDK4, CDK6 and CDK11B/CDK11 (PubMed:<a href="#">9372954</a>, PubMed:<a href="#">9840937</a>, PubMed:<a href="#">19136461</a>, PubMed:<a href="#">26257281</a>, PubMed:<a href="#">28768201</a>, PubMed:<a href="#">41100585</a>, PubMed:<a href="#">41100585</a>). 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.</p> |
| <b>Cellular Location</b> | 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).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Tissue Location</b>   | Ubiquitous.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

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