

**Phospho-CDK7(T170) Antibody**  
**Affinity Purified Rabbit Polyclonal Antibody (Pab)**  
**Catalog # AP3068a**

**Specification**

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**Phospho-CDK7(T170) Antibody - Product Information**

Application	IHC-P, DB, WB,E
Primary Accession	<a href="#">P50613</a>
Other Accession	<a href="#">Q03147</a>
Reactivity	Human, Mouse
Predicted	Mouse
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG

**Phospho-CDK7(T170) Antibody - Additional Information**

**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, TFIIF 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**

IHC-P~~1:50~100

DB~~1:500

WB~~1:1000

E~~Use at an assay dependent concentration.

**Format**

Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. 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.

**Phospho-CDK7(T170) Antibody - Protein Information**

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

**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](#)). Cyclin-dependent kinases (CDKs) are activated by the binding to a cyclin and mediate the progression through the cell cycle. Each different complex controls a specific transition between 2 subsequent phases in the cell cycle. Required for both activation and complex formation of CDK1/cyclin-B during G2-M transition, and for activation of CDK2/cyclins during G1-S transition (but not complex formation). CDK7 is the catalytic subunit of the CDK-activating kinase (CAK) complex. 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](#)). 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](#)). CAK activates the cyclin-associated kinases CDK1, CDK2, CDK4 and CDK6 by threonine phosphorylation, thus regulating cell cycle progression. 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:[9852112](#)). 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).

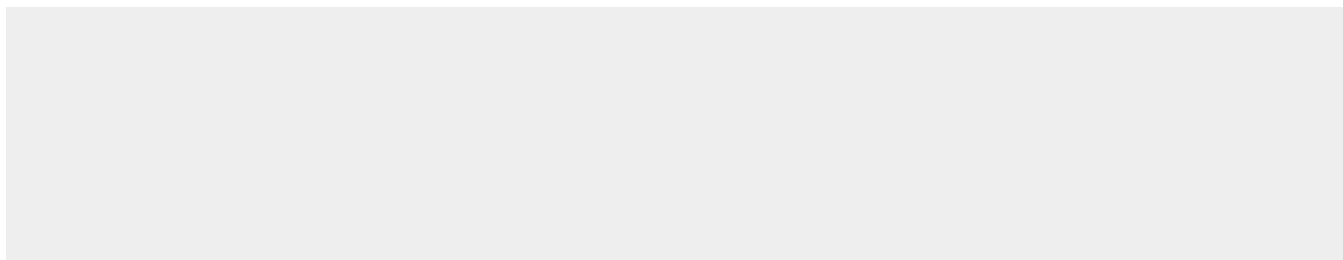
**Tissue Location**

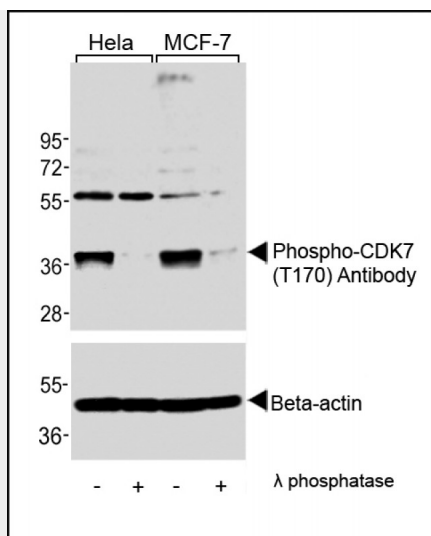
Ubiquitous.

**Phospho-CDK7(T170) Antibody - Protocols**

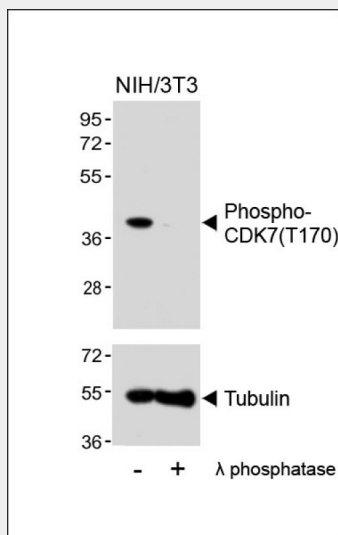
Provided below are standard protocols that you may find useful for product applications.

- [Western Blot](#)
- [Blocking Peptides](#)
- [Dot Blot](#)
- [Immunohistochemistry](#)
- [Immunofluorescence](#)
- [Immunoprecipitation](#)
- [Flow Cytometry](#)
- [Cell Culture](#)

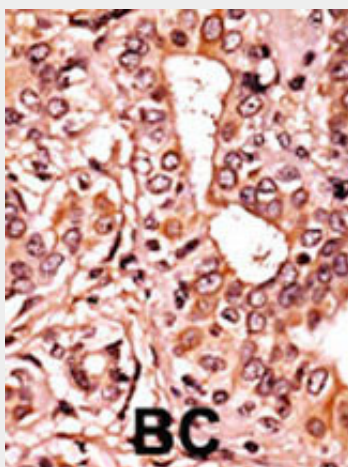
**Phospho-CDK7(T170) Antibody - Images**



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

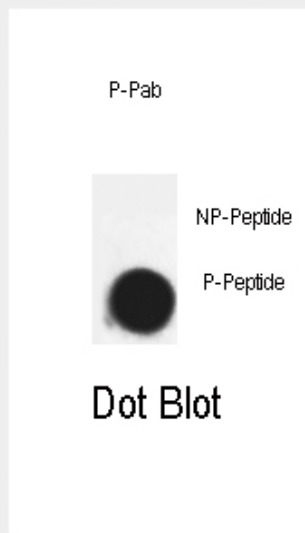


Western blot analysis of lysates from NIH/3T3 cell line, untreated or treated with lambda phosphatase, using 459667101(Cat. #AP3068a)(upper) or Tubulin (lower).



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.



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.

#### **Phospho-CDK7(T170) Antibody - 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.

#### **Phospho-CDK7(T170) Antibody - 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).