

# Cdk7 Polyclonal Antibody

Catalog # AP69021

## Product Information

|                   |                        |
|-------------------|------------------------|
| Application       | WB, IHC-P              |
| Primary Accession | <a href="#">P50613</a> |
| Reactivity        | Human, Mouse           |
| Host              | Rabbit                 |
| Clonality         | Polyclonal             |
| Calculated MW     | 39038                  |

## Additional Information

|                    |  |
|--------------------|--|
| Gene ID            | 1022   |
| Other Names        | CDK7; CAK; CAK1; CDKN7; MO15; STK1; 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 subu |
| Dilution           | WB~~Western Blot: 1/500 - 1/2000. Immunohistochemistry: 1/100 - 1/300. ELISA: 1/20000. Not yet tested in other applications. IHC-P~~N/A  |
| Format             | Liquid in PBS containing 50% glycerol, 0.5% BSA and 0.09% (W/V) sodium azide.  |
| Storage Conditions | -20°C  |

## 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: <a href="#">9852112</a> , PubMed: <a href="#">19136461</a> , PubMed: <a href="#">26257281</a> , PubMed: <a href="#">28768201</a> ). 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: <a href="#">9372954</a> , PubMed: <a href="#">9840937</a> , PubMed: <a href="#">19136461</a> , PubMed: <a href="#">26257281</a> , PubMed: <a href="#">28768201</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:[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).

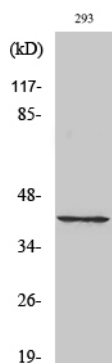
#### Tissue Location

Ubiquitous.

## Background

Serine/threonine kinase involved in cell cycle control and in RNA polymerase II-mediated RNA transcription. 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. 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 repetitive C-terminal domain (CTD) of its large subunit (POLR2A), allowing its escape from the promoter and elongation of the transcripts. Phosphorylation of POLR2A in complex with DNA promotes transcription initiation by triggering dissociation from DNA. 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.

## Images



Western Blot analysis of various cells using Cdk7 Polyclonal Antibody