

CDK7 Blocking Peptide (Center)
Synthetic peptide
Catalog # BP7254c**Specification**

CDK7 Blocking Peptide (Center) - Product InformationPrimary Accession [P50613](#)**CDK7 Blocking Peptide (Center) - 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

Format

Peptides are lyophilized in a solid powder format. Peptides can be reconstituted in solution using the appropriate buffer as needed.

Storage

Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C.

Precautions

This product is for research use only. Not for use in diagnostic or therapeutic procedures.

CDK7 Blocking Peptide (Center) - 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](http://www.uniprot.org/citations/9852112)), PubMed: [19136461](http://www.uniprot.org/citations/19136461), PubMed: [26257281](http://www.uniprot.org/citations/26257281), PubMed: [28768201](http://www.uniprot.org/citations/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](http://www.uniprot.org/citations/9372954), PubMed: [9840937](http://www.uniprot.org/citations/9840937), PubMed: [9840937](http://www.uniprot.org/citations/9840937)).

href="http://www.uniprot.org/citations/19136461" target="_blank">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.

CDK7 Blocking Peptide (Center) - Protocols

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

- [Blocking Peptides](#)

CDK7 Blocking Peptide (Center) - Images

CDK7 Blocking Peptide (Center) - 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 TFIIF, 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.

CDK7 Blocking Peptide (Center) - 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).