

CDK9 Antibody

Purified Mouse Monoclonal Antibody
Catalog # AO1562a

Product Information

Application	WB, IHC, E
Primary Accession	P50750
Reactivity	Human
Host	Mouse
Clonality	Monoclonal
Clone Names	1B5D10
Isotype	IgG1
Calculated MW	42778
Description	<p>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>S. cerevisiae</i> cdc28, and <i>S. pombe</i> cdc2, and known as important cell cycle regulators. This kinase was found to be a component of the multiprotein complex TAK/P-TEFb, which is an elongation factor for RNA polymerase II-directed transcription and functions by phosphorylating the C-terminal domain of the largest subunit of RNA polymerase II. This protein forms a complex with and is regulated by its regulatory subunit cyclin T or cyclin K. HIV-1 Tat protein was found to interact with this protein and cyclin T, which suggested a possible involvement of this protein in AIDS. (provided by RefSeq)Tissue specificity: Ubiquitous.</p>
Immunogen	Purified recombinant fragment of human CDK9 expressed in E. Coli.
Formulation	Ascitic fluid containing 0.03% sodium azide.

Additional Information

Gene ID	1025
Other Names	Cyclin-dependent kinase 9, 2.7.11.22, 2.7.11.23, C-2K, Cell division cycle 2-like protein kinase 4, Cell division protein kinase 9, Serine/threonine-protein kinase PITALRE, Tat-associated kinase complex catalytic subunit, CDK9, CDC2L4, TAK
Dilution	WB~~1/500 - 1/2000 IHC~~1/500 - 1/2000 E~~1/10000
Storage	Maintain refrigerated at 2-8°C for up to 6 months. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	CDK9 Antibody is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	CDK9 {ECO:0000303 PubMed:10903437, ECO:0000312 HGNC:HGNC:1780}
Function	Protein kinase involved in the regulation of transcription (PubMed: 10574912 , PubMed: 10757782 , PubMed: 11145967 , PubMed: 11575923 , PubMed: 11809800 , PubMed: 11884399 , PubMed: 14701750 , PubMed: 16109376 , PubMed: 16109377 , PubMed: 20930849 , PubMed: 28426094 , PubMed: 29335245). Member of the cyclin-dependent kinase pair (CDK9/cyclin-T) complex, also called positive transcription elongation factor b (P-TEFb), which facilitates the transition from abortive to productive elongation by phosphorylating the CTD (C-terminal domain) of the large subunit of RNA polymerase II (RNAP II) POLR2A, SUPT5H and RDBP (PubMed: 10574912 , PubMed: 10757782 , PubMed: 11145967 , PubMed: 11575923 , PubMed: 11809800 , PubMed: 11884399 , PubMed: 14701750 , PubMed: 16109376 , PubMed: 16109377 , PubMed: 16427012 , PubMed: 20930849 , PubMed: 28426094 , PubMed: 30134174). This complex is inactive when in the 7SK snRNP complex form (PubMed: 10574912 , PubMed: 10757782 , PubMed: 11145967 , PubMed: 11575923 , PubMed: 11809800 , PubMed: 11884399 , PubMed: 14701750 , PubMed: 16109376 , PubMed: 16109377 , PubMed: 20930849 , PubMed: 28426094). Phosphorylates EP300, MYOD1, RPB1/POLR2A and AR and the negative elongation factors DSIF and NELFE (PubMed: 10912001 , PubMed: 11112772 , PubMed: 12037670 , PubMed: 16427012 , PubMed: 20081228 , PubMed: 20980437 , PubMed: 21127351 , PubMed: 9857195). Regulates cytokine inducible transcription networks by facilitating promoter recognition of target transcription factors (e.g. TNF-inducible RELA/p65 activation and IL-6-inducible STAT3 signaling) (PubMed: 17956865 , PubMed: 18362169). Promotes RNA synthesis in genetic programs for cell growth, differentiation and viral pathogenesis (PubMed: 10393184 , PubMed: 11112772). P-TEFb is also involved in cotranscriptional histone modification, mRNA processing and mRNA export (PubMed: 15564463 , PubMed: 19575011 , PubMed: 19844166 , PubMed: 28539972). Modulates a complex network of chromatin modifications including histone H2B monoubiquitination (H2Bub1), H3 lysine 4 trimethylation (H3K4me3) and H3K36me3; integrates phosphorylation during transcription with chromatin modifications to control co-transcriptional histone mRNA processing (PubMed: 15564463 , PubMed: 19575011 , PubMed: 19844166). Also catalyzes phosphorylation of histone H1.4 (H1-4) at Ser-187' (H1.4S187Ph), a modification associated with transcription activation (PubMed: 28539972). The CDK9/cyclin-K complex has also a kinase activity towards CTD of RNAP II and can substitute for CDK9/cyclin-T P-TEFb in vitro (PubMed: 21127351). Replication stress response protein; the CDK9/cyclin-K complex is required for genome integrity maintenance, by promoting cell cycle recovery from replication arrest and limiting single-stranded DNA amount in response to replication stress, thus reducing the breakdown of stalled replication forks and avoiding DNA damage (PubMed: 20493174). In addition, probable function in DNA repair of isoform 2 via interaction with KU70/XRCC6 (PubMed: 20493174). Promotes cardiac myocyte enlargement (PubMed: 20081228). RPB1/POLR2A phosphorylation on 'Ser-2' in CTD activates transcription (PubMed: 21127351). AR phosphorylation modulates AR transcription factor promoter selectivity and cell growth. DSIF and NELF phosphorylation promotes transcription by inhibiting their negative effect (PubMed: 10912001 , PubMed: 11112772 , PubMed: 9857195). The phosphorylation of MYOD1 enhances its transcriptional activity and thus promotes muscle differentiation (PubMed: 12037670). Catalyzes phosphorylation of KAT5, promoting KAT5 recruitment to chromatin and histone acetyltransferase activity (PubMed: 29335245).

Cellular Location

Nucleus. Cytoplasm. Nucleus, PML body. Note=Accumulates on chromatin in response to replication stress Complexed with CCNT1 in nuclear speckles, but uncomplexed form in the cytoplasm. The translocation from nucleus to cytoplasm is XPO1/CRM1- dependent. Associates with PML body when acetylated

Tissue Location

Ubiquitous.

References

1. J Biol Chem. 2008 Mar 21;283(12):7368-78. 2. Mol Cell Biol. 2008 Apr;28(7):2201-12.

Images

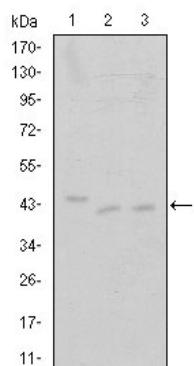


Figure 1: Western blot analysis using CDK9 mouse mAb against Jurkat (1), A431 (2) and HEK293 (3) cell lysate.

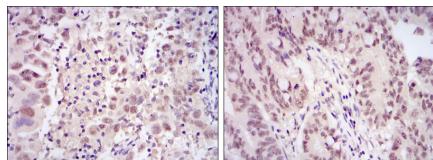


Figure 2: Immunohistochemical analysis of paraffin-embedded endometrial cancer tissues (left) and rectum cancer tissues (right) using CDK9 mouse mAb with DAB staining.

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