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CDK9 Rabbit mAb

Catalog # AP75247

Product Information

Application	WB, IHC-P, IHC-F, FC, IP
Primary Accession	P50750
Reactivity	Rat, Human, Mouse
Host	Rabbit
Clonality	Monoclonal Antibody
Isotype	IgG
Conjugate	Unconjugated
Purification	Affinity Purified
Calculated MW	42778

Additional Information

Gene ID	1025
Other Names	CDK9
Dilution	WB~~1:1000-1:5000 IHC-P~~N/A IHC-F~~N/A FC~~1:50-1:100 IP~~1:20
Format	Liquid in 50mM Tris-Glycine(pH 7.4), 0.15M NaCl, 40%Glycerol, 0.01% sodium azide and 0.05% BSA.
Storage	Store at 4°C short term. Aliquot and store at -20°C long term. Avoid freeze/thaw cycles.

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

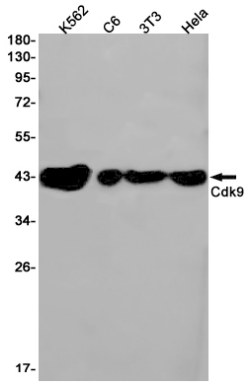
Tissue Location

Ubiquitous.

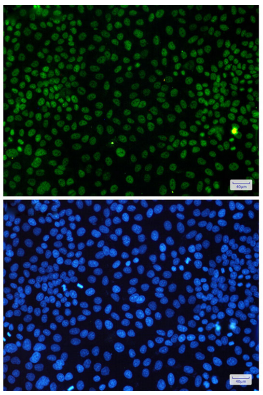
Background

CDK9(Cyclin-dependent kinase 9) is a member of the Cdc2-like family of kinases. Its cyclin partners are members of the family of cyclin T (T1, T2a and T2b) and cyclin K. The CDK9/cyclin T complexes appear to be involved in regulating several physiological processes. CDK9 has also been described as the kinase of the TAK complex, which is homologous to the P-TEFb complex and involved in HIV replication. In addition, CDK9 seems to have an anti-apoptotic function in monocytes, that may be related to its control over differentiation of monocytes (PMID: 12432243). CDK9 has two isoforms with the molecular mass of 42 kDa and 55 kDa, and the relative abundance of Cdk9(42kDa) and Cdk9(55kDa) changes in different cell types (PMID: 12706900, 15780980).

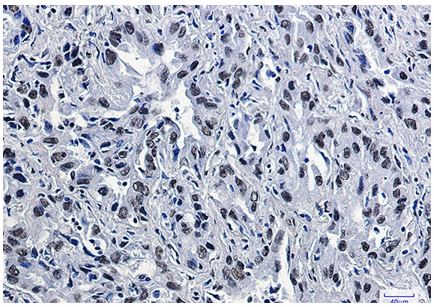
Images



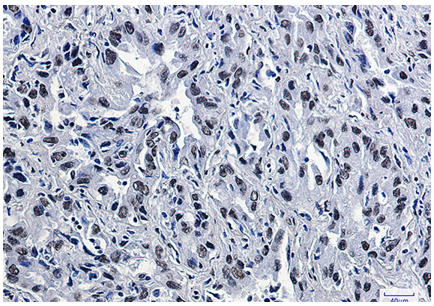
Western blot analysis of Cdk9 in K562, C6, 3T3, Hela lysates using CDK9 antibody.

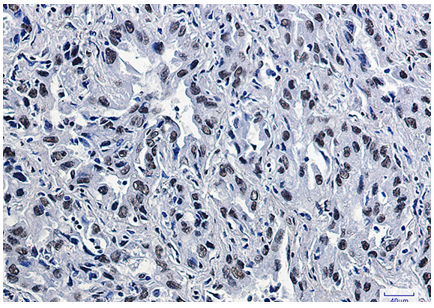


Immunocytochemistry analysis of Cdk9(green) in Hela using Cdk9 antibody,and DAPI(blue)



Immunohistochemistry analysis of paraffin-embedded Human lung cancer using Cdk9 antibody. High-pressure and temperature Sodium Citrate pH 6.0 was used for antigen retrieval.





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