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Anti-cdk9 (PITALRE) (RABBIT) Antibody
CDK9 Antibody
Catalog # ASR3671

Specification

Anti-cdk9 (PITALRE) (RABBIT) Antibody - Product Information

Host	**Rabbit**
Conjugate	**Unconjugated**
Target Species	**Human**
Reactivity	**Human, Mouse**
Clonality	**Polyclonal**
Application	**WB, IHC, E, IP, I, LCI**
Application Note	**This antibody has been tested for use in ELISA, immunoprecipitation, immunocytochemistry, and by western blot. Specific conditions for reactivity should be optimized by the end user. Expect a band at approximately 43 kDa corresponding to CDK9 (PITALRE) by western blotting in the appropriate cell lysate or extract. HeLa cells may be used as a positive control.**
Physical State	**Liquid (sterile filtered)**
Buffer	**0.02 M Potassium Phosphate, 0.15 M Sodium Chloride, pH 7.2**
Immunogen	**Multiple synthetic peptides corresponding to C-terminal and N-terminal domains of the protein coded by the human gene cdk9 (PITALRE).**
Preservative	**0.01% (w/v) Sodium Azide**

Anti-cdk9 (PITALRE) (RABBIT) Antibody - Additional Information

Gene ID 1025

Other Names
1025

Purity
This product was prepared from monospecific antiserum by delipidation and defibrination. Antiserum will specifically react with a 43 kDa cdk9 (PITALRE) protein from human, rat and mouse tissue. No reaction was observed against other related cyclin dependent kinases. Cross reactivity with cdk9 (PITALRE) from other species may also occur. The murine cDNA is shown to be 98% identical with human. For immunohistochemistry use paraffin embedded tissue.

Storage Condition
Store vial at -20° C prior to opening. Aliquot contents and freeze at -20° C or below for extended storage. Avoid cycles of freezing and thawing. Centrifuge product if not completely clear after standing at room temperature. This product is stable for several weeks at 4° C as an undiluted liquid. Dilute only prior to immediate use.

Precautions Note
This product is for research use only and is not intended for therapeutic or diagnostic applications.

Anti-cdk9 (PITALRE) (RABBIT) Antibody - 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:<a href="http://www.uniprot.org/citations/20081228"

target="_blank">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). 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). 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

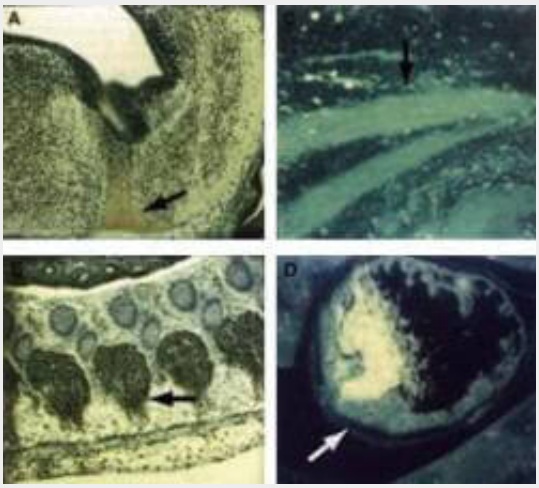
Tissue Location
Ubiquitous.

Anti-cdk9 (PITALRE) (RABBIT) 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 Cytomety
- Cell Culture

Anti-cdk9 (PITALRE) (RABBIT) Antibody - Images



Immunocytochemical staining of mouse tissue using anti-cdk9 (PITALRE) antiserum. The staining shows the location of mcdk9/PITALRE protein in developing mouse tissue. Arrows indicate areas of high expression. Panel A: Peroxidase-DAB immunostaining of mcdk9/PITALRE protein in the developing mouse brain in the differentiated region of the medulla oblongata just below the fourth ventricle. Similar staining is shown in Panel B in the dorsal root ganglia. Panel C: Fluorescein immunofluorescence of mcdk9IPITALRE in skeletal muscle. Similar staining is shown in Panel D in cardiac muscle. Other detection systems should yield similar results. Sections from each specimen were cut at 5-7 µm, mounted on glass and dried overnight at 37°C. All sections then were deparaffinized in xylene, rehydrated through a graded alcohol series and washed in phosphate-buffered saline (PBS). PBS was used for all subsequent washes and for antiserum dilution. Tissue sections were quenched sequentially in 0.5% hydrogen peroxide and blocked with diluted 10% normal goat anti-rabbit serum. Slides were incubated at 20° C for 1 h with rabbit anti-cdk9 (1:500) dilution, washed, and then reacted with diluted goat anti-rabbit biotinylated antibody for 30 min. All the slides were then reacted with streptavidin-peroxidase conjugate for 30 min at 20° C. Diaminobenzidine was used as the final chromogen and hematoxylin was used as the nuclear counterstain. Negative controls for each tissue section were prepared by substituting the primary antiserum with pre-immune serum.

Anti-cdk9 (PITALRE) (RABBIT) Antibody - Background

CDK9 (PITALRE) (also known as cyclin-dependent kinase 9, Serine/threonine-protein kinase PITALRE, C-2K and Cell division cycle 2-like protein kinase 4) is a member of the cyclin-dependent protein kinase (CDK) family. CDK family members are highly similar to the gene products of S. cerevisiae cdc28, and S. pombe cdc2, and known as important cell cycle regulators. CDK9 (PITALRE) interacts with a conserved domain in the TRAF-C region of the tumor necrosis factor signal transducer TRAF2. This kinase also 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. Tat stimulates human HIV-1 viral transcription elongation. This suggests that cyclin T1/cdk9(PITALRE) is one of the HIV-1 required host cellular cofactors generated during T cell activation. Cyclin T1/cdk9(PITALRE) is shown to interact with Tat to restore Tat activation in HeLa nuclear extracts depleted of P-TEFb. The cdk9(PITALRE) activity and cyclin T1 are essential for activation of transcription when tethered to the heterologous Rev response element RNA via the regulator of expression of virion Rev. CDK9 (PITALRE) is a ubiquitously expressed nuclear protein.