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Anti-Cyclin-Dependent Kinase 9 (CDK9) pT29 [RABBIT] Antibody

CDK9 phospho T29 Antibody
Catalog # ASR5395

Specification

Anti-Cyclin-Dependent Kinase 9 (CDK9) pT29 [RABBIT] Antibody - Product Information

Host	**Rabbit**
Conjugate	**Unconjugated**
Target Species	**Human**
Reactivity	**Rat, Human, Mouse**
Clonality	**Polyclonal**
Application	**WB, E, IP, I, LCI**
Application Note	**This affinity purified antibody has been tested for use in ELISA and western blotting. Specific conditions for reactivity should be optimized by the end user. Expect a band approximately 42 kDa in size corresponding to phosphorylated CDK9 protein by western blotting in the appropriate cell lysate or extract. This phospho-specific polyclonal antibody reacts with human CDK9 pT29 and shows minimal reactivity by ELISA against the non-phosphorylated form of the immunizing peptide.**
Physical State	**Liquid (sterile filtered)**
Buffer	**0.02 M Potassium Phosphate, 0.15 M Sodium Chloride, pH 7.2**
Immunogen	**This affinity purified antibody was prepared from whole rabbit serum produced by repeated immunizations with a synthetic peptide corresponding to residues surrounding T29 in the human CDK9 protein.**
Preservative	**0.01% (w/v) Sodium Azide**

Anti-Cyclin-Dependent Kinase 9 (CDK9) pT29 [RABBIT] Antibody - Additional Information

Gene ID 1025

Other Names
1025

Purity
This product was affinity purified from monospecific antiserum by immunoaffinity chromatography using phospho-peptide coupled to agarose beads followed by solid phase adsorption against nonphospho-peptide. This antibody is specific for human CDK9 protein phosphorylated at T29. A BLAST analysis was used to suggest cross-reactivity with CDK9 from human, mouse and rat based on 100% homology with the immunizing sequence. Cross-reactivity with CDK9 from other sources has not been determined.

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-Cyclin-Dependent Kinase 9 (CDK9) pT29 [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: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: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

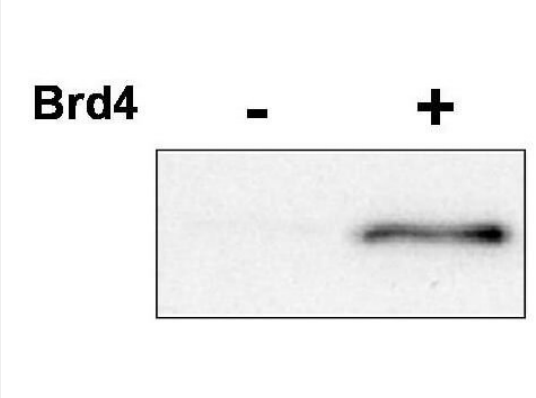
Ubiquitous.

Anti-Cyclin-Dependent Kinase 9 (CDK9) pT29 [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-Cyclin-Dependent Kinase 9 (CDK9) pT29 [RABBIT] Antibody - Images



Western blot using Rockland's affinity purified anti-CDK9 pT29 antibody shows detection of phosphorylated CDK9. 100 ng of purified P-TEFb, which contains CDK9 and its regulatory cyclin T1 subunit, was incubated with ATP in the presence or absence of Brd4, a protein known to induce CDK9 phosphorylation at T29. The primary antibody was used at a 1:1000 dilution. Personal Communication, J. Brady, NCI, Bethesda, MD.

Anti-Cyclin-Dependent Kinase 9 (CDK9) pT29 [RABBIT] Antibody - Background

This antibody is designed, produced, and validated as part of a collaboration between Rockland and the National Cancer Institute (NCI). CDK9 (PITALRE) 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 are known as important cell cycle regulators. CDKs are heteromeric serine/threonine kinases that control progression through the cell cycle in concert with their regulatory subunits, the cyclins. Although there are 12 different cdk genes, only 5 have been shown to directly drive the cell cycle. CDK9 (PITALRE) interacts with a conserved domain in the TRAF-C region of the tumor necrosis factor signal transducer TRAF2. This kinase was also 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. It promotes RNA synthesis in genetic programs for cell growth, differentiation and viral pathogenesis. P-TEFb is also involved in co-transcriptional histone modification, mRNA processing, and mRNA export. It modulates a complex network of chromatin modifications including histone H2B mono-ubiquitination (H2Bub1), H3 lysine 4 trimethylation (H3K4me3) and H3K36me3. It integrates phosphorylation during transcription with chromatin modifications to control co-transcriptional histone mRNA processing. CDK9 forms a complex with,

and is regulated by, its regulatory subunit, cyclin T or cyclin K. 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. 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. In addition, probable function in DNA repair of isoform 2 via interaction with KU70/XRCC6. CDK9 promotes cardiac myocyte enlargement. The phosphorylation of MYOD1 enhances its transcriptional activity and thus promotes muscle differentiation. HIV-1 Tat protein has been found to interact with this protein and cyclin T, which suggested a possible involvement of this protein in AIDS.