

ARG58408
anti-CDK9 antibodyPackage: 100 µl
Store at: -20°C

Summary

Product Description	Rabbit Polyclonal antibody recognizes CDK9
Tested Reactivity	Hu, Ms, Rat
Tested Application	ICC/IF, IHC-P, WB
Host	Rabbit
Clonality	Polyclonal
Isotype	IgG
Target Name	CDK9
Species	Human
Immunogen	Recombinant fusion protein corresponding to aa. 153-372 of Human CDK9 (NP_001252.1).
Conjugation	Un-conjugated
Alternate Names	CTK1; C-2K; Tat-associated kinase complex catalytic subunit; EC 2.7.11.23; PITALRE; EC 2.7.11.22; CDC2L4; Cyclin-dependent kinase 9; Cell division cycle 2-like protein kinase 4; Cell division protein kinase 9; C-2k; Serine/threonine-protein kinase PITALRE; TAK

Application Instructions

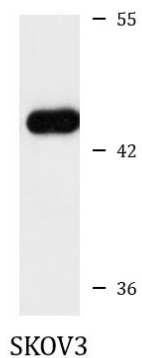
Application table	Application	Dilution
	ICC/IF	1:50 - 1:200
	IHC-P	1:50 - 1:200
	WB	1:500 - 1:1000
Application Note	* The dilutions indicate recommended starting dilutions and the optimal dilutions or concentrations should be determined by the scientist.	
Positive Control	SKOV3	
Observed Size	45 kDa	

Properties

Form	Liquid
Purification	Affinity purified.
Buffer	PBS (pH 7.3), 0.02% Sodium azide and 50% Glycerol.
Preservative	0.02% Sodium azide
Stabilizer	50% Glycerol
Storage instruction	For continuous use, store undiluted antibody at 2-8°C for up to a week. For long-term storage, aliquot and store at -20°C. Storage in frost free freezers is not recommended. Avoid repeated freeze/thaw cycles. Suggest spin the vial prior to opening. The antibody solution should be gently mixed before use.

Bioinformation

Gene Symbol	CDK9
Gene Full Name	cyclin-dependent kinase 9
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 <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, Jul 2008]
Function	Protein kinase involved in the regulation of transcription. 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. This complex is inactive when in the 7SK snRNP complex form. Phosphorylates EP300, MYOD1, RPB1/POLR2A and AR, and the negative elongation factors DSIF and NELF. 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). Promotes RNA synthesis in genetic programs for cell growth, differentiation and viral pathogenesis. P-TEFb is also involved in cotranscriptional histone modification, mRNA processing and mRNA export. 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. 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. 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. In addition, probable function in DNA repair of isoform 2 via interaction with KU70/XRCC6. Promotes cardiac myocyte enlargement. RPB1/POLR2A phosphorylation on 'Ser-2' in CTD activates transcription. AR phosphorylation modulates AR transcription factor promoter selectivity and cell growth. DSIF and NELF phosphorylation promotes transcription by inhibiting their negative effect. The phosphorylation of MYOD1 enhances its transcriptional activity and thus promotes muscle differentiation. [UniProt]
Calculated Mw	43 kDa
PTM	<p>Autophosphorylation at Thr-186, Ser-347, Thr-350, Ser-353, Thr-354 and Ser-357 triggers kinase activity by promoting cyclin and substrate binding (e.g. HIV TAT) upon conformational changes. Thr-186 phosphorylation requires the calcium Ca(2+) signaling pathway, including CaMK1D and calmodulin. This inhibition is relieved by Thr-29 dephosphorylation. However, phosphorylation at Thr-29 is inhibitory within the HIV transcription initiation complex. Phosphorylation at Ser-175 inhibits kinase activity. Can be phosphorylated on either Thr-362 or Thr-363 but not on both simultaneously (PubMed:18566585).</p> <p>Dephosphorylation of Thr-186 by PPM1A and PPM1B blocks CDK9 activity and may lead to CDK9 proteasomal degradation. However, PPP1CA-mediated Thr-186 dephosphorylation is required to release P-TEFb from its inactive P-TEFb/7SK snRNP complex. Dephosphorylation of C-terminus Thr and Ser residues by protein phosphatase-1 (PP1) triggers CDK9 activity, contributing to the activation of HIV-1 transcription.</p> <p>N6-acetylation of Lys-44 by CBP/p300 promotes kinase activity, whereas acetylation of both Lys-44 and Lys-48 mediated by PCAF/KAT2B and GCN5/KAT2A reduces kinase activity. The acetylated form associates with PML bodies in the nuclear matrix and with the transcriptionally silent HIV-1 genome; deacetylated upon transcription stimulation.</p> <p>Polyubiquitinated and thus activated by UBR5. This ubiquitination is promoted by TFIIS/TCEA1 and favors 'Ser-2' phosphorylation of RPB1/POLR2A CTD. [UniProt]</p>
Cellular Localization	Cytoplasm, Nucleus, PML body. [UniProt]



ARG58408 anti-CDK9 antibody WB image

Western blot: 25 µg of SKOV3 cell lysate stained with ARG58408 anti-CDK9 antibody at 1:1000 dilution.