CDK9 (C12F7) Rabbit mAb

**Background:** P-TEFb is a general transcription factor that regulates transcription elongation through phosphorylation of the C-terminal tail domain (CTD) of RNA polymerase II (RNAP II). The P-TEFb complex is composed of a catalytic subunit, CDK9, and its regulatory cyclin partner, which can be cyclin T1, T2a, T2b or K (reviewed in 1,2). CDK9 is recruited by HIV Tat protein to allow transcriptional elongation, and subsequent replication of the viral genome. Inhibition of P-TEFb function therefore has potential for HIV therapy.

CDK9 exists as two isoforms, an abundant 42 kDa isoform, and a less abundant 55 kDa isoform, which contains an amino-terminal extension (3). The two forms likely have distinct purposes based on differential expression during lymphocyte activation (4,5) and on their localization within the nucleus (5).

Cyclin dependent kinases (CDKs) are activated in part by cyclin binding and by phosphorylation of a conserved threonine in the T-loop domain. Phosphorylation of CDK9 at the T-loop Thr186 by an unidentified nuclear kinase may be important in P-TEFb activation (6) and regulation of HIV transcription (7). Acetylation of CDK9 at Lys44 affects its ability to phosphorylate the RNAPII CTD (8).

**Specificity/Sensitivity:** CDK9 (C12F7) Rabbit mAb detects endogenous levels of total CDK9 protein, both 42 kDa and 55 kDa isoforms.

**Source/Purification:** Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues near the carboxy terminus of human CDK9.

**Applications:** Western Blotting 1:1000
Immunoprecipitation 1:100
Immunohistochemistry (Paraffin) 1:200†
Immunofluorescence (Frozen) 1:200†
Immunohistochemistry (Paraffin) 1:200†
Flow Cytometry 1:200

**Species Cross-Reactivity:** H, M, R, Mk, Hm, B, Dg

**Molecular Wt.** 42, 55 kDa

**Isotype** Rabbit IgG**

**Storage:** Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at −20°C. Do not aliquot the antibody.

**Recommended Antibody Dilutions:**
Western Blotting 1:1000
Immunoprecipitation 1:100
Immunohistochemistry (Paraffin) 1:200†
Unmasking buffer: Citrate
Antibody diluent: SignalStain® Antibody Diluent #8112
Detection reagent: SignalStain® Boost (HRP, Rabbit) #8114
Immunochemistry (Frozen) 1:200†
Fixative: 3% Formaldehyde
Detection reagent: SignalStain® Boost (HRP, Rabbit) #8114
†Optimal IHC dilutions determined using SignalStain® Boost IHC Detection Reagent.

**For application specific protocols please see the web page for this product at www.cellsignal.com.**

Please visit www.cellsignal.com for a complete listing of recommended companion products.

**Background References:**
(2) De Falco, G. and Giordano, A. Cancer Biol Ther 1, 342–7.
(7) Ammosova, T. et al. (2005) Retrovirology 2, 47.

**Important:** For western blots, incubate membrane with diluted antibody in 5% w/v BSA, 1X TBS, 0.1% Tween®20 at 4°C with gentle shaking, overnight.

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**Applications Key:**
W — Western
IP — Immunoprecipitation
IHC — Immunohistochemistry
ChIP — Chromatin Immunoprecipitation
IF — Immunofluorescence
F — Flow cytometry
E — ELISA-Peptide

**Species Cross-Reactivity Key:**
H — Human
M — Mouse
R — Rat
Hm — Hamster
Mk — Monkey
B — Bovine
Dg — Dog
Pig — Pig
Sc — S. cerevisiae
Ce — C. elegans
Hr — Horse
All — All species expected

Species enclosed in parentheses are predicted to react based on 100% homology.
Immunohistochemical analysis of paraffin-embedded human breast carcinoma using CDK9 (C12F7) Rabbit mAb in the presence of control peptide (left) or antigen specific peptide (right).

Flow cytometric analysis of Jurkat cells using CDK9 (C12F7) Rabbit mAb (blue) compared to a nonspecific negative control antibody (red).

Immunoprecipitation of CDK9 from HeLa cells using CDK9 (C12F7) Rabbit mAb. Western blot detection was performed using the same antibody. Lane 1 is 5% input.