



Product Information

ANTI-CDK8

Developed in Rabbit, Affinity Isolated Antibody

Product Number **C 0238**

Product Description

Anti-Cyclin-Dependent Kinase 8 (CDK8) is developed in rabbit using a synthetic peptide corresponding to the C-terminal region (aa 451-464) of human CDK8. The antibody is purified by protein A affinity chromatography. Anti-CDK8 specifically recognizes a 54 kDa protein identified as cyclin-dependent kinase 8 (CDK8). Anti-CDK8 does not crossreact with the other members of CDK family. It detects human, mouse and rat CDK8. It is used in immunoblotting, immunoprecipitation and immunofluorescence applications.

Cyclin-dependent kinase 8 (CDK8) is a 464-amino acid protein containing the sequence motifs and 11 subdomains characteristic of a serine/threonine-specific kinase.¹ CDKs become activated through binding to cyclins, formation of cyclin-CDK complexes and reversible phosphorylation reactions. Cyclin-CDK complexes directly control progression through G₁, S, G₂ and M phases of the cell division cycle.

Mammalian CDK8 is the catalytic partner of cyclin C, homologues of yeast Srb10 and Srb11, respectively, which are components of the RNA polymerase II holoenzyme complex. CDK8/cyclin C inhibits a subset of genes involved in control of cell type specificity, meiosis, and sugar metabolism. The human gene for cyclin C is localized on a region frequently deleted in acute lymphoblastic leukemia.^{2,3}

Co-immunoprecipitation experiments demonstrate that CDK8 interacts with cyclin C both *in vitro* and *in vivo*. It was proposed that CDK8/cyclin C does not regulate the cell cycle directly but instead inhibits transcription by phosphorylating the hypophosphorylated carboxy-terminal domain (CTD) of mammalian RNA polymerase II large subunit (RNAP II-LS) before the RNAP II holoenzyme has associated with the general initiation transcription factor IIH (TFIIH). Phosphorylation of the C-terminal domain of RNAP II by CDK8/cyclin C prevents its binding to the promoter and subsequent phosphorylation by TFIIH, which in turn inhibits the ability of TFIIH to activate transcription.^{4,5}

Reagent

Anti-CDK8, at approximately 1 mg/ml, is supplied as a solution in phosphate buffered saline, pH 7.4 containing 0.2% BSA and 15 mM sodium azide.

Precautions and Disclaimer

Due to the sodium azide content, a material safety data sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazardous and safe handling practices.

Storage/Stability

Store at -20 °C. For extended storage, upon initial thawing, freeze the solution in working aliquots. Avoid repeated freezing and thawing to prevent denaturing the antibody. Storage in "frost-free" freezers is also not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. The antibody is stable for at least 12 months when stored appropriately. Working dilutions should be discarded if not used within 12 hours.

Product Profile

A recommended working dilution of 1:100 to 1:200 is determined by immunoblotting using HEK-293 cells. For immunoprecipitation, a recommended working concentration is 10 µl/mg of protein lysate.

Note: In order to obtain best results in different techniques and preparations we recommend determining optimal working dilutions by titration test.

References

1. Tassan, J. -P., et al., Identification of human cyclin-dependent kinase 8, a putative protein kinase partner for cyclin C. Proc. Nat. Acad. Sci. USA, **92**, 8871-8875 (1995).
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3. Leclerc, V. and Leopold, P., The cyclin C/CDK8 kinase. *Prog. Cell. Cycle Res.*, **2**, 197-204 (1996).
4. Bregman, D. B., et al., Cell cycle regulation and RNA polymerase II. *Front. Biosci.*, **5**, D244-D257 (2000).
5. Akoulitchev, S., et al., TFIIF is negatively regulated by CDK8-containing mediator complexes. *Nature*, **407**, 102-106 (2000).

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