Qty: 200 µg/400 µl
Mouse anti-p34cdc2
Catalog No. 33-1800
Lot No.

Mouse anti-p34^{cdc2}

FORM
This monoclonal antibody is highly purified from mouse ascites by protein A-affinity chromatography. The antibody is supplied as a 400 µl aliquot at a concentration of 0.5 mg/ml in phosphate buffered saline (PBS), pH 7.4 containing 0.1% sodium azide (NaN_3).

CLONE: A17

ISOTYPE: IgG_{2a}-kappa

IMMUNOGEN
Recombinant protein consisiting of the carboxy-terminal two-thirds of the Xenopus p34^{cdc2}.

SPECIFICITY
This monoclonal antibody is specific for p34^{cdc2} and does not appear to cross-react with the related p33^{cdk2} protein. The epitope core residues are thought to reside within amino acids 220-227 of the mouse p34^{cdc2} protein corresponding to the sequence LGTPNNEV. The A17 antibody is capable of immunoprecipitating cyclin protein associated with p34^{cdc2}. Further, this antibody can inhibit the activation of p34^{cdc2} kinase by cyclin proteins.

REACTIVITY
Species Reactivity: human, rodent, amphibian, chicken
Lysates Tested: Positive control cell lysates for Western blotting includes A431, Hela 3T3 and *Xenopus* egg extracts. For immunohistochemistry, this antibody has been tested on a variety of human tissues including tonsil (germinal center), spermatogonia, and skin (basal layer).

USAGE
The concentrations below are only starting recommendations. Optimal concentrations of this antibody should be determined by the investigator for each specific application.

ELISA:	0.1-1 µg/ml
Western Blotting[(1)]:	0.5- 1 µg/ml
Immunohistochemistry[(2)] (frozen):	5-10 µg/ml
Immunoprecitation[(1)]:	5 µg
Immunohistostaining[(2)]	

STORAGE
This antibody should be stored at 2-8°C for up to one month. For long term storage, -20°C is recommended; however, repeated freezing and thawing cycles should be avoided.

BACKGROUND
The eukaryotic cell cycle involves two coordinated events: 1) duplication of cellular DNA, and 2) physical division of the cell into two daughter cells. The cell cycle itself is divided into four distinct phases: G1, S (DNA synthesis), G2, and M (mitosis). At the molecular level, the cell cycle is regulated by the sequential activation of a specific group of serine/threonine kinases termed cyclin-dependent kinases or CDKs. The activity of various CDK family members is regulated by multiple mechanisms which include: binding to specific regulatory sub-units call cyclins, binding to specific small molecular weight inhibitory proteins, and reversible phosphorylation. CDK activation is typically accomplished by interaction with specific cyclin family members and by phosphorylation on a conserved threonine residue.

(cont'd)

$p34^{cdc2}$ was originally identified as the catalytic subunit of maturation promoting factor (MPF). Active MPF was found to induce all of the events of mitosis in eukaryotic cells, and the regulatory subunit of MPF was subsequently identified as cyclin B. The formation of active $p34^{cdc2}$-cyclin B complexes is essential for the G2/M phase transition of the cell cycle and occurs following the completion of DNA replication. Phosphorylation of Thr-161 by CDK-activating kinase (CAK) is required for the catalytic activity of $p34^{cdc2}$-cyclin B complexes. However, $p34^{cdc2}$ is also negatively regulated by phosphorylation on Tyr-15 by the Wee-1 tyrosine kinase and on Thr-14 by the Myt-1 kinase. Dephosphorylation of Tyr-15 and Thr-14 occurs just prior to entry into mitosis and is accomplished by the dual specificity phosphatase CDC25. Following dephosphorylation of these regulatory sites, active $p34^{cdc2}$-cyclinB complexes trigger specific events of mitosis including nuclear envelope breakdown and chromosome condensation. These events are accomplished by $p34^{cdc2}$ mediated phosphorylation of specific substrate proteins such as nuclear lamins, histones, pp60c-src, nucleolin, and RNA polymerase II.

REFERENCES

1. Kobayashi, H. et al. (1992) *Mol. Biol. Cell.* 3: 1279-1294.
2. Doussis-Anagnostopoulou, I.A. et al. (1994) *Histopathology* 24: 335-340.

RELATED PRODUCTS

Product	***Conjugate***	***Cat. No.***
Goat anti-Mouse IgG (H+L)	Purified	81-6500
(ZyMAX™ Grade)	FITC	81-6511
	TRITC	81-6514
	Cy™3	81-6515
	Cy™5	81-6516
	HRP	81-6520
	AP	81-6522
	Biotin	81-6540
Protein A	Sepharose® 4B	10-1041
rec-Protein G	Sepharose® 4B	10-1241

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