



Qty: 100 µg/200 µl

Mouse anti-Plk (cocktail)

Catalog No. 33-1700

Lot No.

## Mouse anti-Plk (Polo-like Kinase) Cocktail

### FORM

The Plk monoclonal antibodies in this cocktail are purified from mouse ascites by Protein A-affinity chromatography and supplied as a 200 µl aliquot containing equal amounts of each antibody at a concentration of 0.5 mg/ml in PBS, pH 7.4, containing 0.1% NaN<sub>3</sub>.

**CLONE:** PL6      **ISOTYPE:** IgG<sub>1</sub>-kappa  
**CLONE:** PL2      **ISOTYPE:** IgG<sub>2b</sub>-kappa

### IMMUNOGEN

A His-tagged Plk fusion protein (C-term Plk1) containing amino acids 402-603 of the human Plk1 protein<sup>(7)</sup>.

### SPECIFICITY

This antibody cocktail reacts specifically with the ~68 kDa Plk1 protein from human, mouse, rat and *Xenopus* samples<sup>(7)</sup>. Cross-reactivity with a 110 kDa protein of unknown identity is sometimes observed<sup>(7)</sup>.

### REACTIVITY

Reactivity of this cocktail has been confirmed by Western blotting or Immunoprecipitation of the Plk protein from HeLa, A431, and NIH 3T3 cells.

### USAGE

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

	<b>ELISA:</b>	0.1-1 µg/ml
<b>Immunoprecipitation or IP kinase assays</b> <sup>(11)</sup> :	<b>Western Blotting</b> <sup>(7,12)</sup> :	5 µg
		1-2 µg/ml
	<b>Immunofluorescence</b> <sup>(7)</sup> :	2-5 µg/ml

### STORAGE

This antibody cocktail should be stored at 2-8°C for at least one month. For longer term storage, -20°C is recommended; however, repeated cycles of freezing and thawing should be avoided.

### BACKGROUND<sup>(1-10)</sup>

Plk is a serine/threonine kinase which is highly homologous to the *Drosophila* serine/threonine kinase encoded by the mutant *polo*<sup>(1,4,6-10)</sup>. Plk and *polo* encode proteins of similar size and possess a similar overall structure, with their catalytic domains located near the N-terminal region<sup>(1,4,6-10)</sup>. In *Drosophila*, the *polo* kinase appears to be involved in cell cycle regulation and chromosome segregation, and homozygous mutations in *polo* results in the appearance of aberrant chromosome segregation and frequently lethal mitosis<sup>(9,10)</sup>.

Studies on mammalian cells indicate that Plk expression is restricted to proliferating cells. Consistent with this finding, Plk mRNA can be detected in most tissues during mammalian development; however, in adult tissues, its expression is restricted to the thymus and ovaries<sup>(5-7)</sup>. Plk is related to several other serine/threonine kinases which include:

(cont'd)

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*Saccharomyces cerevisiae* CDC5, murine Snk (serum-inducible kinase), murine Fnk (FGF-inducible kinase), and murine Sak (Snk/Plk-akin kinase)<sup>(1-4,6-8)</sup>. Plk protein levels are cell-cycle regulated with low levels of detected in G1 phase and higher levels detected in S and G2-M<sup>(5-8)</sup>. Plk kinase activity is also cell-cycle regulated and is modulated, at least in part, by phosphorylation of Plk on one or more serine residues by an as yet unidentified kinase<sup>(5)</sup>. Phosphorylation on serine serves to stimulate Plk kinase activity and results in slower migration of the Plk protein when analyzed by SDS-PAGE. Interestingly, activation of the Plk kinase activity parallels that of Cdc2; however, Cdc2 kinase is not thought to be directly responsible for Plk phosphorylation<sup>(5)</sup>.

## REFERENCES

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## RELATED PRODUCTS

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Rb x Phosphothreonine	Z-PT1	71-8200
Ms x Phosphothreonine	PT5H5	13-9200
Phosphothreonine Ab Inhibitor	----	79-0002
Rb x PS/PT/PY (pan)	polyclonal	61-8300
Phospho-Amino Acid Sampler Pack (pSer, pThr, PY-Plus™ Cocktail)	3 antibodies	90-0200
Phosphotyrosine Sampler Pack	6 antibodies	90-0100
*polyclonal antibody designation		

<b>Conjugate</b>	<b>ZyMAX™ Goat x Rabbit IgG (H+L)</b>	<b>ZyMAX™ Goat x Mouse IgG (H+L)</b>
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TRITC	81-6114	81-6514
Cy™3	81-6115	81-6515
Cy™5	81-6116	81-6516
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