Revision 2

#3654 Store at -80C

Phospho-cdc25A (Thr506) Antibody

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For Research Use Only. Not for Use in Diagnostic Procedures.

MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
70	Rabbit	#P30304	993

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.

Specificity/Sensitivity

Phospho-cdc25A (Thr506) Antibody detects endogenous levels of cdc25A only when phosphorylated at threonine 506.

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Thr506 of murine cdc25A. Antibodies are purified by protein A and peptide affinity chromatography.

Background

The cdc25 protein phosphatase family plays a critical role in activating cyclin-dependent kinases (CDKs) via dephosphorylation of conserved Thr14/Tyr15 inhibitory phosphorylation sites. While cdc25C is primarily responsible for activating CDK1 to overcome the G2/M checkpoint and allow mitotic entry, the primary substrate of cdc25A is CDK2, which, when active, allows progression through the G1/S and intra-S checkpoints (1). Abundance, subcellular localization and activity of cdc25A is tightly controlled by a variety of mechanisms, including phosphorylation, ubiquitination, and inhibitory binding to 14-3-3 proteins. During normal cell cycle progression, elevated c-Myc and E2F transcription factor levels lead to increased cdc25A expression (2). When conditions are favorable for DNA synthesis, cdc25A and CDK2 form an activation loop, wherein each activates the other enzyme (1). DNA damage, on the other hand, leads to multisite phosphorylation at inhibitory sites (Ser123, Ser177, Ser278, Ser292, and Thr506) by Chk1 and Chk2, which result in 14-3-3 binding and ubiquitin-mediated degradation (3,4).

Background References

1. Hoffmann, I. et al. (1994) *EMBO J* 13, 4302-10.
2. Vigo, E. et al. (1999) *Mol Cell Biol* 19, 6379-95.
3. Chen, M. et al. (2003) *Mol. Cell. Biol.* 23, 7488-7497.
4. Chen, M. et al. (2003) *Mol. Cell. Biol.* 23, 7488-7497.
5. Sørensen, C.S. et al. (2003) *Cancer Cell* 3, 247-58.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

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