

#13959

Phospho-Chk1 (Ser317) (D12H3) XP[®] Rabbit mAb (PE Conjugate)

100 µl (50 tests)

Support: 877-678-TECH (8324)
info@cellsignal.com

Orders: 877-616-CELL (2355)
orders@cellsignal.com

Entrez-Gene ID #1111
UniProt ID #014757

New 04/14

Store at 4°C

For Research Use Only. Not For Use In Diagnostic Procedures.

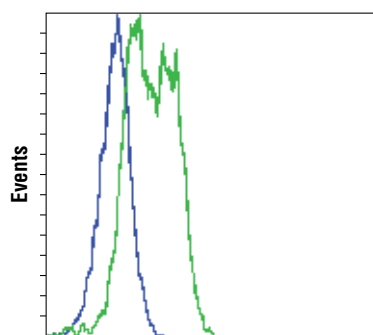
Applications	Species Cross-Reactivity*	Isotype
F Endogenous	H, M, Mk	Rabbit IgG

Description: This Cell Signaling Technology antibody is conjugated to phycoerythrin (PE) and tested in-house for direct flow cytometry analysis in human cells. The antibody is expected to exhibit the same species cross-reactivity as the unconjugated Phospho-Chk1 (Ser317) (D12H3) XP[®] Rabbit mAb #12302.

Background: Chk1 kinase acts downstream of ATM/ATR kinase and plays an important role in DNA damage checkpoint control, embryonic development, and tumor suppression (1). Activation of Chk1 involves phosphorylation at Ser317 and Ser345 by ATM/ATR, followed by autophosphorylation of Ser296. Activation occurs in response to blocked DNA replication and certain forms of genotoxic stress (2). While phosphorylation at Ser345 serves to localize Chk1 to the nucleus following checkpoint activation (3), phosphorylation at Ser317 along with site-specific phosphorylation of PTEN allows for re-entry into the cell cycle following stalled DNA replication (4). Chk1 exerts its checkpoint mechanism on the cell cycle, in part, by regulating the cdc25 family of phosphatases. Chk1 phosphorylation of cdc25A targets it for proteolysis and inhibits its activity through 14-3-3 binding (5). Activated Chk1 can inactivate cdc25C via phosphorylation at Ser216, blocking the activation of cdc2 and transition into mitosis (6). Centrosomal Chk1 has been shown to phosphorylate cdc25B and inhibit its activation of CDK1-cyclin B1, thereby abrogating mitotic spindle formation and chromatin condensation (7). Furthermore, Chk1 plays a role in spindle checkpoint function through regulation of aurora B and BubR1 (8). Research studies have implicated Chk1 as a drug target for cancer therapy as its inhibition leads to cell death in many cancer cell lines (9).

Specificity/Sensitivity: Phospho-Chk1 (Ser317) (D12H3) XP[®] Rabbit mAb (PE Conjugate) recognizes endogenous levels of Chk1 protein only when phosphorylated at Ser317. The unconjugated antibody also detects an 80 kDa protein of unknown origin in some cell lines by western blot analysis.

Source/Purification: Monoclonal antibody is produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Ser317 of human Chk1 protein.



Phospho-Chk1 (Ser317) (PE Conjugate)

Flow cytometric analysis of SK-MEL-28 cells, untreated (blue) or neocarzinostatin-treated (green), using Phospho-Chk1 (Ser317) (D12H3) XP[®] Rabbit mAb (PE Conjugate).

Storage: Supplied in PBS (pH 7.2), less than 0.1% sodium azide and 2 mg/ml BSA. Store at 4°C. Do not aliquot the antibodies. Protect from light. Do not freeze.

*Species cross-reactivity is determined by western blot using the unconjugated antibody.

Recommended Antibody Dilutions:

Flow Cytometry 1:50

For product 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 complementary products.

Background References:

- (1) Liu, Q. et al. (2000) *Genes Dev* 14, 1448-59.
- (2) Zhao, H. and Piwnicka-Worms, H. (2001) *Mol Cell Biol* 21, 4129-39.
- (3) Jiang, K. et al. (2003) *J Biol Chem* 278, 25207-17.
- (4) Martin, S.A. and Ouchi, T. (2008) *Mol Cancer Ther* 7, 2509-16.
- (5) Chen, M.S. et al. (2003) *Mol Cell Biol* 23, 7488-97.
- (6) Zeng, Y. et al. (1998) *Nature* 395, 507-10.
- (7) Löffler, H. et al. (2006) *Cell Cycle* 5, 2543-7.
- (8) Zachos, G. et al. (2007) *Dev Cell* 12, 247-60.
- (9) Garber, K. (2005) *J Natl Cancer Inst* 97, 1026-8.

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