

Store at
-20°C

#51664

PhosphoPlus® Chk1 (Ser317) Antibody Duet



Cell Signaling
TECHNOLOGY®

Support: +1-978-867-2388 (U.S.)
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Entrez-Gene ID #1111
UniProt ID #O14757

New 05/21

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

Products Included	Product #	Quantity	Mol. Wt.	Isotype
Chk1 (2G1D5) Mouse mAb	2360	100 µl	56 kDa	Mouse IgG1
Phospho-Chk1 (Ser317) (D12H3) XP® Rabbit mAb	12302	100 µl	56 kDa	Rabbit IgG

See www.cellsignal.com for individual component applications, species cross-reactivity, dilutions, and additional application protocols.

Description: PhosphoPlus® Duets from Cell Signaling Technology (CST) provide a means to assess protein activation status. Each Duet contains an activation-state and total protein antibody to your target of interest. These antibodies have been selected from CST's product offering based upon superior performance in specified applications.

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: Chk1 (2G1D5) Mouse mAb recognizes endogenous levels of total Chk1 protein. Phospho-Chk1 (Ser317) (D12H3) XP® Rabbit mAb recognizes endogenous levels of Chk1 protein only when phosphorylated at Ser317. This antibody also detects an 80 kDa protein of unknown origin in some cell lines.

Source/Purification: Monoclonal antibodies are produced by immunizing animals with purified recombinant Chk1 protein and a synthetic phosphopeptide corresponding to residues surrounding Ser317 of human Chk1 protein.

Storage: Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at -20°C. Do not aliquot the antibodies.

For product specific protocols and a complete listing of recommended companion products please see the product web page at www.cellsignal.com.

Background References:

- (1) Liu, Q. et al. (2000) *Genes Dev* 14, 1448-59.
- (2) Zhao, H. and Piwnica-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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Applications: W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA-Peptide **Species Cross-Reactivity:** H—human M—mouse R—rat Hm—hamster Mk—monkey Mi—mink C—chicken Dm—D. melanogaster X—Xenopus Z—zebrafish B—bovine Dg—dog Pg—pig Sc—S. cerevisiae Ce—C. elegans Hr—Horse All—all species expected **Species enclosed in parentheses are predicted to react based on 100% homology.**