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Product Data Sheet: Purified anti-phospho-Chk1 (Ser317) (F10) rabbit mAb

Catalog Number:	2151
Clone:	Chk1S317-F10
Isotype:	Rabbit IgG1κ
Immunogen:	A synthetic phospho-peptide corresponding to residues surrounding Ser317 of human phospho Chk1
Reactivity:	Mouse,Human
Cross Reactivity:	Predicted to work with mouse, rat and other homologues.
Preparation:	Protein A+G
Formulation:	1X PBS, 0.02% NaN3, 50% Glycerol, 0.1% BSA
Applications:	Flow Cytometry
Recommended Usage:	1.0 - 0.1 µg/ml. Optimum concentration should be determined by the user.
Product Configuration:	200 ul (0.5mg/ml)
Detection:	Anti-Rabbit IgG

Description

The act of DNA damaged response and cell cycle checkpoints requires the activation of four protein kinases that form the canonical ATR-Chk1 and ATM-Chk2 pathways. ATR activation requires the generation of structures containing single strand DNA (ssDNA) adjacent to double strand DNA (dsDNA). Such ssDNA is coated with replication protein A complex and attracts ATR (1,2). The accumulation of ATR to damage sites results in initial activation of ATR. ATR phosphorylates proteins at the ssDNA which are called checkpoint regulators. The accumulation and phosphorylation of these checkpoint regulators further stimulates the catalytic activity of ATR. ATR-induced Chk1 phosphorylation likely occurs at the sites of DNA damage on chromatin (3-5). The activated ATR phosphorylates Chk1 at Ser317 and Ser345 in its C-terminal regulatory domain. Phospho Chk1 is critical for DNA damage checkpoint activation, replication control, and cell viability (6-8). Functionally, ATR-mediated phosphorylation elevates phospho Chk1 catalytic activity. The N-terminal catalytic domain of Chk1 adopts an open kinase conformation and the deletion of C-terminal domain increases Chk1 catalytic activity.

References

1. Caprelli ML, et al. (2013) Cell Cycle, 12: 916-22.

2. Capasso H, et al. (2002) J. Cell Sci. 115: 4555-64.

3. Carrassa L, et al. (2011) Cell Cycle 10: 2121-8.

4. Chen MS, et al. (2003) Mol. Cell Biol. 23: 7488-97.

5. Ciccia A, et al. Mol. Cell 40: 179-204.

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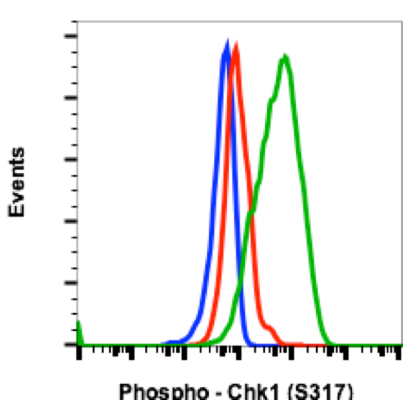
6. Cimprich CA, (2014) Oncogene 33: 3351-60

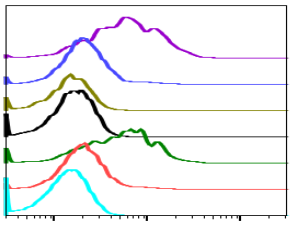
7. Cremona CA, et al. (2014) Oncogene 33: 3351-60.

8. Niida H, et al. (2007) Mol. Cell Biol. 27: 2572-81.

Purified anti-phospho-Chk1 (Ser317) (F10) rabbit mAb Images



Flow cytometric analysis of Hela cells, secondary antibody only negative control (blue) or treated imatinib (red) or treated with pervanadate (green) using Phospho-Chk1 (S317) antibody Chk1S317-F10, 0.1 µg/mL. Cat. #2151.



SampleID	Median : BL1-A
IFN F10 N	5661
Ctrl F10 N	2010
IFN F10 P	1461
Ctrl F10 P	1582
IFN F10	5160
Ctrl F10	1963
Ctrl 2' only	1355

Peptide blocking flow cytometric analysis of NIH3T3 cells, secondary antibody only negative control (light blue) or untreated (red) or treated with IFNα + IL4 + pervanadate (green) or untreated and blocked with phospho-peptide (black) or treated and blocked with phospho peptide (gold) or untreated and blocked with non-phospho peptide (dark blue) or treated and blocked with non-phospho peptide (purple) using Phospho-Chk1 (S317) antibody Chk1S317-F10, 0.1 µg/mL. Cat. #2151.

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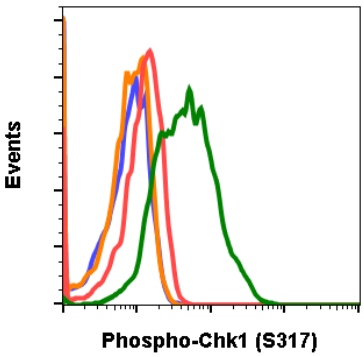

Flow cytometric analysis of NIH3T3 cells, secondary antibody only negative control (blue) or 0.1 µg/mL of isotype control Cat. #2141 (orange), or treated with imatinib (red) or with pervanadate (green) using Phospho-Chk1 (S317) antibody Chk1S317-F10 at 0.1 µg/mL. Cat #2151.