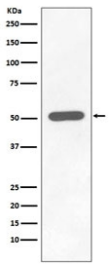
Phospho-CHK1 (pSer296) Antibody / DNA Damage Checkpoint Activation Marker [clone FEO-3] (RQ4710)

Catalog No.	Formulation	Size
RQ4710	Antibody in PBS with 0.02% sodium azide, 50% glycerol and 0.4-0.5mg/ml BSA	100 ul

Bulk quote request

Availability	1-2 weeks
Species Reactivity	Human
Format	Purified
Host	Rabbit
Clonality	Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	FEO-3
Purity	Affinity purified
UniProt	O14757
Applications	Western Blot : 1:500-1:2000
Limitations	This Phospho-CHK1 (pSer296) Antibody / DNA Damage Checkpoint Activation Marker is available for research use only.



Phospho-CHK1 Antibody HEK293 WB. Western blot analysis of human HEK293 cell lysate treated with Calyculin A using phospho-CHK1 antibody detecting CHK1 phosphorylated at Ser296, clone FEO-3. A band is observed at approximately 54 kDa, consistent with the predicted molecular weight of CHK1. Detection under phosphatase inhibition conditions is consistent with phosphorylation-associated activation of DNA damage checkpoint signaling.

Description

Checkpoint kinase 1 (CHEK1), commonly referred to as CHK1, is a central regulator of the DNA damage response that maintains genomic stability by coordinating cell cycle checkpoints and DNA repair processes. Phospho-CHK1 (pSer296) Antibody, clone FEO-3, is designed to detect CHK1 phosphorylated at serine 296, a key autophosphorylation site associated with activation of the DNA damage checkpoint pathway. Phosphorylation at Ser296 is widely used as a direct

readout of CHK1 kinase activity and functional engagement in response to replication stress and DNA damage.

Upon activation by upstream kinases such as ATR in response to DNA replication stress or genotoxic insult, CHK1 undergoes phosphorylation at multiple regulatory sites. While phosphorylation at Ser317 and Ser345 reflects upstream ATR signaling, phosphorylation at Ser296 represents an autophosphorylation event that directly indicates activation of CHK1 kinase activity. Detection of Ser296 phosphorylation therefore provides a highly specific marker of checkpoint activation and downstream signaling engagement.

Activated CHK1 plays a critical role in regulating cell cycle progression by inhibiting CDC25 phosphatases, thereby preventing activation of cyclin-dependent kinases and enforcing cell cycle arrest. This allows cells time to repair DNA damage before progressing through S phase or mitosis. Phosphorylation at Ser296 is closely associated with these checkpoint functions and reflects active participation of CHK1 in maintaining genomic integrity.

Unlike total CHK1 detection, which reflects overall protein expression, phospho-specific detection at Ser296 provides insight into functional activation of the checkpoint pathway. Increased phosphorylation is typically observed in response to replication stress, DNA damage, or treatment with chemotherapeutic agents, making this site a valuable marker for assessing pathway activity in experimental systems.

Subcellularly, activated CHK1 is localized in both the nucleus and cytoplasm depending on cellular context and signaling state. Nuclear accumulation is commonly observed during DNA damage response, consistent with its role in regulating replication and checkpoint control. Immunodetection often reveals nuclear or pan-cellular staining patterns reflecting activation status.

Dysregulation of CHK1 signaling is associated with genomic instability and cancer progression. As a result, CHK1 is a major target in cancer therapeutics, and monitoring phosphorylation at Ser296 provides a useful readout for evaluating checkpoint activation and response to targeted inhibitors.

Phospho-CHK1 (pSer296) Antibody, clone FEO-3, enables selective detection of activated CHK1, supporting studies of DNA damage response, replication stress, and checkpoint signaling dynamics. This antibody is part of our full phospho antibody collection which can be explored for additional phosphorylation-specific targets and pathway markers.

Application Notes

Optimal dilution of the Phospho-CHK1 (pSer296) Antibody / DNA Damage Checkpoint Activation Marker should be determined by the researcher.

Immunogen

A synthetic peptide human Chk1 / CHEK1 (surrounding pS296) was used as the immunogen for the Phospho-CHK1 (pSer296) Antibody.

Storage

Store the Phospho-CHK1 (pSer296) Antibody at -20oC.

Alternate Names

Phospho CHK1 antibody, CHK1 pSer296 antibody, CHK1 Ser296 antibody, CHEK1 phospho antibody, CHEK1 Ser296 antibody, phosphorylated CHK1 antibody, CHK1 checkpoint activation antibody, DNA damage checkpoint CHK1 antibody, clone FEO-3 antibody