Recombinant Human CHEK1 Protein (A2-T476), GST tagged

Cat. No. CHEK1-1187H **Lot. No.** (See product label)

SPECIFICATION

Product Overview	Recombinant Human GST-TEV-GG-CHK1(A2-T476 end) Protein was expressed in Insect cell.
Species	Human
Source	Insect Cells
ProteinLength	A2-T476
Description	Serine/threonine-protein kinase which is required for checkpoint-mediated cell cycle arrest and activation of DNA repair in response to the presence of DNA damage or unreplicated DNA. May also negatively regulate cell cycle progression during unperturbed cell cycles. This regulation is achieved by a number of mechanisms that together help to preserve the integrity of the genome. Recognizes the substrate consensus sequence [R-X-X-S/T]. Binds to and phosphorylates CDC25A, CDC25B and CDC25C. Phosphorylation of CDC25A at 'Ser-178' and 'Thr-507' and phosphorylation of CDC25C at 'Ser-216' creates binding sites for 14-3-3 proteins which inhibit CDC25A and CDC25C. Phosphorylation of CDC25A at 'Ser-76', 'Ser-124', 'Ser-178', 'Ser-279' and 'Ser-293' promotes proteolysis of CDC25A. Phosphorylation of CDC25A at 'Ser-76' primes the protein for subsequent phosphorylation at 'Ser-79', 'Ser-82' and 'Ser-88' by NEK11, which is required for polyubiquitination and degradation of CDCD25A. Inhibition of CDC25 leads to increased inhibitory tyrosine phosphorylation of CDK-cyclin complexes and blocks cell cycle progression. Also phosphorylates NEK6. Binds to and phosphorylates RAD51

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	at 'Thr-309', which promotes the release of RAD51 from BRCA2 and enhances the association of RAD51 with chromatin, thereby promoting DNA repair by homologous recombination. Phosphorylates multiple sites within the C-terminus of TP53, which promotes activation of TP53 by acetylation and promotes cell cycle arrest and suppression of cellular proliferation. Also promotes repair of DNA cross-links through phosphorylation of FANCE. Binds to and phosphorylates TLK1 at 'Ser-743', which prevents the TLK1-dependent phosphorylation of the chromatin assembly factor ASF1A. This may enhance chromatin assembly both in the presence or absence of DNA damage. May also play a role in replication fork maintenance through regulation of PCNA. May regulate the transcription of genes that regulate cell-cycle progression through the phosphorylation of histones. Phosphorylates histone H3.1 (to form H3T11ph), which leads to epigenetic inhibition of a subset of genes. May also phosphorylate RB1 to promote its interaction with the E2F family of transcription factors and subsequent cell cycle arrest. Phosphorylates SPRTN, promoting SPRTN recruitment to chromatin. Reduces replication stress and activates the G2/M checkpoint, by phosphorylating and inactivating PABIR1/FAM122A and promoting the serine/threonine-protein phosphatase 2A-mediated dephosphorylation and stabilization of WEE1 levels and activity.
Form	Liquid
Endotoxin	< 0.01 EU per μg of the protein
Purity	80%
Stability	Samples are stable for up to twelve months from date of receipt at -20 to -80 centigrade.
Storage	Store it under sterile conditions at -20 to -80 centigrade. It is recommended that the protein be aliquoted for optimal storage. Avoid repeated freeze-thaw cycles.

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Storage Buffer	Supplied as sterile 50 mM Tris-HCl (pH 7.5), 150 mM NaCl, 5% glycerol, 5mM DTT, 0.1M Trehalose
Shipping	It is shipped out with blue ice.

GENE INFORMATION

Gene Name	CHEK1 checkpoint kinase 1 [Homo sapiens (human)]
Official Symbol	CHEK1
Synonyms	CHEK1; checkpoint kinase 1; CHK1 (checkpoint, S.pombe) homolog, CHK1 checkpoint homolog (S. pombe); serine/threonine-protein kinase Chk1; CHK1; Chk1-S; checkpoint kinase-1; CHK1 checkpoint homolog; cell cycle checkpoint kinase; Checkpoint, S. pombe, homolog of, 1;
Gene ID	1111
mRNA Refseq	NM_001114121
Protein Refseq	NP_001107593
MIM	603078
UniProt ID	O14757

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