Recombinant Human CDK2/CCNE2 Protein (M1-L298/S2-H404), GST/Flag/His-tagged

Cat. No. CDK2/CCNE2-1621H **Lot. No.** (See product label)

SPECIFICATION

Product Overview	Recombinant Human GST-3C-CDK2(1-298end)/pFastBac1-Flag-6His-TEV-Cyclin E2 (S2-H404 end) protein with a GST/Flag/His was expressed in Insect cell
Species	Human
Source	Insect Cells
ProteinLength	M1-L298/S2-H404
Description	Cyclin-dependent kinase 2, Cell division protein kinase 2, p33 protein kinase; G1/S-specific cyclin-E2 Serine/threonine-protein kinase involved in the control of the cell cycle; essential for meiosis, but dispensable for mitosis. Phosphorylates CTNNB1, USP37, p53/TP53, NPM1, CDK7, RB1, BRCA2, MYC, NPAT, EZH2. Triggers duplication of centrosomes and DNA. Acts at the G1-S transition to promote the E2F transcriptional program and the initiation of DNA synthesis, and modulates G2 progression; controls the timing of entry into mitosis/meiosis by controlling the subsequent activation of cyclin B/CDK1 by phosphorylation, and coordinates the activation of cyclin B/CDK1 at the centrosome and in the nucleus. Crucial role in orchestrating a fine balance between cellular proliferation, cell death, and DNA repair in human embryonic stem cells (hESCs). Activity of CDK2 is maximal during S phase and G2; activated by interaction with cyclin E during the early stages of DNA synthesis to permit G1-S transition, and subsequently activated by cyclin A2 (cyclin A1 in germ cells) during the late stages of DNA replication to drive the transition from S phase to mitosis, the G2 phase. EZH2 phosph

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	orylation promotes H3K27me3 maintenance and epigenetic gene silencing. Phosphorylates CABLES1. Cyclin E/CDK2 prevents oxidative stress-mediated Ras-induced senescence by phosphorylating MYC. Involved in G1-S phase DNA damage checkpoint that prevents cells with damaged DNA from initiating mitosis; regulates homologous recombination-dependent repair by phosphorylating BRCA2, this phosphorylation is low in S phase when recombination is active, but increases as cells progress towards mitosis. In response to DNA damage, double-strand break repair by homologous recombination a reduction of CDK2-mediated BRCA2 phosphorylation. Phosphorylation of RB1 disturbs its interaction with E2F1. NPM1 phosphorylation by cyclin E/CDK2 promotes its dissociates from unduplicated centrosomes, thus initiating centrosome duplication. Cyclin E/CDK2-mediated phosphorylation of NPAT at G1-S transition and until prophase stimulates the NPAT-mediated activation of histone gene transcription during S phase. Required for vitamin D-mediated growth inhibition by being itself inactivated. Involved in the nitric oxide- (NO) mediated signaling in a nitrosylation/activation-dependent manner. USP37 is activated by phosphorylation and thus triggers G1-S transition. CTNNB1 phosphorylation regulates insulin internalization. Phosphorylates FOXP3 and negatively regulates its transcriptional activity and protein stability. Phosphorylates CDK2AP2. Phosphorylates ERCC6 which is essential for its chromatin remodeling activity at DNA double-strand breaks. Essential for the control of the cell cycle at the late G1 and early S phase.
Form	Liquid
Endotoxin	< 0.01 EU/μg of the protein
Purity	80%
Stability	Samples are stable for up to twelve months from date of receipt at -20 to -80 centigrade

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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.
Storage Buffer	Supplied as sterile 50 mM HEPES (pH 7.5), 150 mM NaCl, 5% glycerol.
Shipping	It is shipped out with blue ice.

GENE INFORMATION

Gene Name	CDK2 cyclin dependent kinase 2 [Homo sapiens (human)]
Official Symbol	CDK2
Synonyms	Cyclin-dependent kinase 2; Cell division protein kinase 2; p33 protein kinase; G1/S-specific cyclin-E2
Gene ID	1017
mRNA Refseq	NM_052827
Protein Refseq	NP_439892
MIM	116953
UniProt ID	P24941

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