Recombinant Human CDK2/CCNE2 Protein (M1-L298/S2-H404)

Cat. No. CDK2/CCNE2-1620H **Lot. No.** (See product label)

SPECIFICATION

Product Overview	Recombinant Human CDK2(1-298end)/Cyclin E2 (S2-H404 end) protein without tag 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 phosphorylation promotes H3K27me3 maintenance and epigenetic gene silencing. Phosphor

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	ylates CABLES1. Cyclin E/CDK2 prevents oxidative stress-mediated Ras-induced se nescence by phosphorylating MYC. Involved in G1-S phase DNA damage checkpoint that prevents cells with damaged DNA from initiating mitosis; regulates homologous r ecombination-dependent repair by phosphorylating BRCA2, this phosphorylation is lo w in S phase when recombination is active, but increases as cells progress towards m itosis. In response to DNA damage, double-strand break repair by homologous recom bination a reduction of CDK2-mediated BRCA2 phosphorylation. Phosphorylation of RB1 disturbs its interaction with E2F1. NPM1 phosphorylation by cyclin E/CDK2 prom otes its dissociates from unduplicated centrosomes, thus initiating centrosome duplica tion. Cyclin E/CDK2-mediated phosphorylation of NPAT at G1-S transition and until pr ophase 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-depe ndent manner. USP37 is activated by phosphorylation and thus triggers G1-S transitio n. CTNNB1 phosphorylation regulates insulin internalization. Phosphorylates FOXP3 and negatively regulates its transcriptional activity and protein stability. Phosphorylate s CDK2AP2. Phosphorylates ERCC6 which is essential for its chromatin remodeling a ctivity at DNA double-strand breaks. Essential for the control of the cell cycle at the lat e G1 and early S phase.
Form	Liquid
Endotoxin	< 0.01 EU/μg of the protein
Purity	90%
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

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	protein be aliquoted for optimal storage. Avoid repeated freeze-thaw cycles.
Storage Buffer	Supplied as sterile 50 mM Tris-HCl (pH 7.5), 200 mM NaCl, 20% 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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