

Recombinant CHK2 protein

Catalog No: 31148

Lot No: 29215003

Expressed In: Baculovirus

Quantity: 20 µg

Concentration: 0.4 µg/µl

Source: Human

Buffer Contents: 20 µg of Recombinant CHK2 protein in 50 mM Tris-HCl, 150 mM NaCl, 1 mM DTT, 0.1 mM EGTA, 270 mM sucrose and Protease Inhibitor Cocktail, pH 7.5.

Background: **CHK2** (Checkpoint Kinase 2) is a serine/threonine-protein kinase which is required for checkpoint-mediated cell cycle arrest, activation of DNA repair and apoptosis in response to the presence of DNA double-strand breaks. May also negatively regulate cell cycle progression during unperturbed cell cycles. Following activation, phosphorylates numerous effectors preferentially at the consensus sequence [L-X-R-X-X-S/T]. Regulates cell cycle checkpoint arrest through phosphorylation of CDC25A, CDC25B and CDC25C, inhibiting their activity. Inhibition of CDC25 phosphatase activity leads to increased inhibitory tyrosine phosphorylation of CDK-cyclin complexes and blocks cell cycle progression. May also phosphorylate NEK6 which is involved in G2/M cell cycle arrest. Regulates DNA repair through phosphorylation of BRCA2, enhancing the association of RAD51 with chromatin which promotes DNA repair by homologous recombination. Also stimulates the transcription of genes involved in DNA repair (including BRCA2) through the phosphorylation and activation of the transcription factor FOXM1. Regulates apoptosis through the phosphorylation of p53/TP53, MDM4 and PML. Phosphorylation of p53/TP53 at Ser-20 by CHEK2 may alleviate inhibition by MDM2, leading to accumulation of active p53/TP53. Phosphorylation of MDM4 may also reduce degradation of p53/TP53. Also controls the transcription of pro-apoptotic genes through phosphorylation of the transcription factor E2F1. Tumor suppressor, it may also have a DNA damage-independent function in mitotic spindle assembly by phosphorylating BRCA1. Its absence may be a cause of the chromosomal instability observed in some cancer cells.

Protein Details: Recombinant human CHK2 kinase is highly active and is suitable for labeling CHK2 kinase substrates. The accession number is BC0004207. This protein has a C-terminal His-Tag and had been purified by Ni-NTA agarose chromatography to > 95% by SDS-PAGE.

Application Notes: Recombinant CHK2 is suitable for kinase assays. The molecular weight of the protein is ~66 kDa. The activity of the protein is ~ 142,600 units/mg with 1 unit defined as the amount of enzyme that will catalyze the transfer of 1 pmol phosphate to synthetic peptide substrate KKKVSRSGLYRSPSPENLNRPR per minute at 30°C.

Recommended kinase reaction buffer: 40 mM MOPS pH 7.5, 2 mM EDTA

Kinase activity may vary depending on the substrate and reaction conditions used.

Storage and Guarantee: Recombinant proteins in solution are temperature sensitive and must be stored at -80°C to prevent degradation. Avoid repeated freeze/thaw cycles and keep on ice when not in storage. This product is guaranteed for 6 months from date of receipt.

This product is for research use only and is not for use in diagnostic procedures.

