

## CDK12-CCNK Heterodimer Protein, Human (Sf9, GST, FLAG)

Cat. No.:	HY-P701361
Synonyms:	CDK12; CCNK; Cyclin-dependent kinase 12; Cdc2-related kinase; arginine/serine-rich; CrkRS; Cell division cycle 2-related protein kinase 7; CDC2-related protein kinase 7; Cell division protein kinase 12; hCDK12; Cyclin-K
Species:	Human
Source:	Sf9 insect cells
Accession:	Q9NYV4-1 (Q696-S1082)&O75909-1 (M1-S300)
Gene ID:	51755&8812
Molecular Weight:	71.4 kDa & 36.9 kDa

### PROPERTIES

Biological Activity	The activity was measured by off-chip mobility shift assay(MSA). The enzyme was incubated with fluorescence-labeled substrate and Mg(or Mn)/ATP. The phosphorylated and unphosphorylated substrates were separated and detected by MSA device. The Km of CDK12-CCNK for its substrate is 30 $\mu$ M.
Appearance	Solution.
Formulation	Supplied as a 0.22 $\mu$ m filtered solution of 20 mM HEPES, pH 7.5, 200 mM NaCl, 5% glycerol, 1 mM DTT.
Endotoxin Level	<1 EU/ $\mu$ g, determined by LAL method.
Reconstitution	Please use rapid thawing with running water to thaw the protein.
Storage & Stability	Stored at -80°C for 1 year. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles.
Shipping	Shipping with dry ice.

### DESCRIPTION

Background	The CDK12-CCNK heterodimer protein functions as a cyclin-dependent kinase, playing a crucial role in transcription elongation by phosphorylating the C-terminal domain (CTD) of the large subunit of RNA polymerase II (POLR2A). This kinase is a key regulator of gene expression, particularly involved in DNA repair processes and the maintenance of genomic stability. Its phosphorylation activity is selective, preferring 'Ser-5' in CTD repeats already phosphorylated at 'Ser-7,' but it can also target 'Ser-2.' CDK12-CCNK is essential for RNA splicing, potentially through the phosphorylation of SRSF1/SF2. Additionally, it participates in the regulation of MAP kinase activity, suggesting its involvement in influencing responses to estrogen inhibitors.
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**Caution: Product has not been fully validated for medical applications. For research use only.**

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