

ProQinase™ CDK12 wt/CycK

cyclin dependent kinase 12

Recombinant Human Active Protein Kinase

HGNC Symbol: CDK12

Synonyms: CRK7, CRKR, CrkRS, CRKRS, hCDK12

Product No.: 1483-1484-1

Lot: 008

Description: Human CDK12, amino acids Q696-S1082 (as in [NCBI/Protein](#) entry NP_057591.2), N-terminal GST-HIS6 fusion protein with a 3C cleavage site and human CycK, amino acids M1-S300 (as in [NCBI/Protein](#) entry NP_001092872.1), N-terminally fused to GST-HIS6 3C cleavage site, co-expressed in Sf9 insect cells

Product identity: CDK12 wt/CycK Lot 008, was confirmed as CDK12/CycK by mass spectroscopy LC-ESI-MS/MS

Theoretical MW_{GST-CDK12 wt}: 73,066 Da

Theoretical MW_{CycK}: 63,031 Da

Expression host: Sf9 insect cells

Purification: GST-Affinity Chromatography

Activation: With CAK

Storage buffer: 50 mM HEPES pH 7.5, 100 mM NaCl, 5 mM DTT, 15 mM reduced glutathione, 20 % glycerol

Storage temperature: -80°C

For complete recovery, mix well and spin before use. Product must not be stored in diluted solutions, aliquots below 10µl are not advisable. Avoid repeated freeze-thaw cycles!

Protein concentration: 0.556 µg/µl

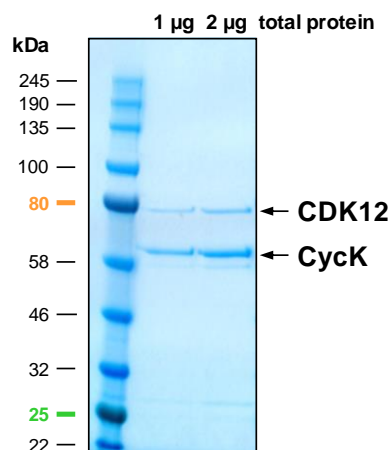
(Bradford method using BSA [Sigma, cat# A-7638, Lot 79H7641] as standard protein)

Biochemical Parameters:

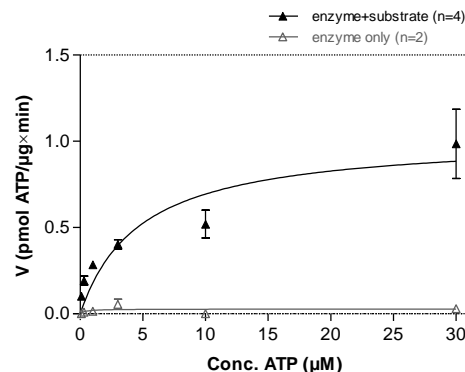
Specific kinase activity (P_i transfer): 1 pmol/µg × min

ATP-K_M: 4.8 µM

CDK12 wt/CycK Lot 008:
Coomassie stain



CDK12 wt/CycK Lot 008:
Determination of V_{max} and K_M value for ATP



- Assay conditions:
60 mM HEPES-NaOH, pH 7.5
3 mM MgCl₂
3 mM MnCl₂
3 µM Na-orthovanadate
1.2 mM DTT
50 µg/ml PEG_{20,000}
ATP (variable)
Substrate: RBER-IRStide 80 µg/ml
Kinase: 4 µg/ml
- Filter binding assay
MSFC membrane (Millipore)

ProQinase™ CDK12 wt/CycK

Product No.: 1483-1484-1

GST-CDK12 Recombinant Fusion Protein Amino Acid Sequence							
1	MSPILGYWKI	KGLVQPTRL	LEYLEEKYEE	HLYERDEGDK	WRNKKFELGL	EFPNLPYYID	60
61	GDVKLTQSM	IIRYIADKHN	MLGGCPKERA	EISMLEGAVL	DIRYGVSRIA	YSKDFETLKV	120
121	DFLSKLP	KMFKDRLCHK	TYLNGDHVTH	PDFMLYDALD	VVLYMDPMCL	DAFPKLVCFK	180
181	KRIEAI	PQID KYLKSSKYIA	WPLQGWA	TFGGGDHPKSD	PMG	HHHHHG RDS	240
241	PQQPYK	RRPK ICCPRYGERR	QTESD	WGKRC VDKFDIIGII	GE	GTYGQVYK AKDKDTGELV	300
301	ALKK	VRLDNE KEGFPITAIR	EIKILRQLIH	RSVNMKEIV	TDKQDALDFK	KDKGAFYLVF	360
361	EYMDH	DLMGL LESGLVHFSE	DHIKSF	FMKQL MEGLEYCHKK	NFLHRDIKCS	NILLNNSGQI	420
421	KLAD	FGLARL YNSEESRPT	NKVITLWYRP	PELLLGEERY	TPAIDVWSCG	CILGELFTKK	480
481	PIFQ	ANLELA QLELISRLCG	SPCPAVWPDV	IKLPYFNTMK	PKKQYRRRLR	EEFSFIPSA	540
541	LDLLD	HMLTL DPSKRCTAEQ	TLQSDFLKDV	ELSKMAPDDL	PHWQDCHELW	SKKRRRQRQS	600
601	GVVVEE	PPPS KTSRKETTSG	TSTEPV	KNS			660

1-218: GST Red: HIS6-tag Green: 3C cleavage site blue: CDK12 fragment

CDK12 wt ¹ Amino Acid Sequence							
1	MPNSERHG	GK KDGSGGASGT	LQPSSGGGSS	NSRERHRLVS	KHKRHKSKHS	KDMGLVTP	60
61	ASLGTVIK	PL VEYDDISSDS	DTFSDDMAFK	LDRRENDER	R GSDRSDDLHK	HRHHQHRRSR	120
121	DLLKAKQ	TEK EKSQEVSSKS	GSMKDRI	SGS SKRSNEETDD	YGKAQVAKSS	SKESRSSKLH	180
181	KEKTRKER	EL KSGHKDRS	KS HRKRETPKSY	KTVDSPKRRS	RSPHRK	WSDS SKQDDSPSGA	240
241	SYGQDYD	LSP SRSHTSSNYD	SYKKSPG	STS RRQSVSPPYK	EPSAYQS	STR SPSPYRRQR	300
301	SVSPYSR	RRRS SSYERSGSYS	GRSPSPY	GRR RSSSPFLSKR	SLSRSPL	PSR KSMKRSRSP	360
361	AYS	RHSSSHS KKKRSSSR	SR HSSISP	VRLP LNSSLGAELS	RKKKERAAA	AAAKMDGKES	420
421	KGSPVFL	PRK ENSSVEAKDS	GLESKKL	PRS VKLEKSAPDT	ELVNVTHLNT	EVKNSSDTGK	480
481	VKLDENSE	KH LVKDLKAQGT	RDSKPIALKE	EIVTPKETET	SEKETPPPLP	TIASPPPLP	540
541	TTT	PPPQTPP LPPLPPIPAL	PQQPPLP	SSQ PAFSQVPASS	TSTLPPSTHS	KTSAVSSQAN	600
601	SQPPVQ	VSVK TQVSVTAAIP	HLKTSTL	PPL PLPPLPGDD	DMDSPKETLP	SKPVKKEKEQ	660
661	RTRHLL	TDLP LPPELPGGDL	SPPDSPE	PKA ITPPQQPYK	RPKICCPRYG	ERRQTESDWG	720
721	KRCV	KFDII GIIGEGTYGQ	VYKAKD	DTG ELVALKKVRL	DNEKEGFPIT	AIREIKILRQ	780
781	LIHRS	VVNMK EIVTDKQDAL	DFKKDKGAFY	LVFEYMDHDL	MGLLESGLVH	FSEDHIKSF	840
841	KQLME	GLEYC HKNFLHRDI	KCSNILLNNS	GQIKLADFGL	ARLYNSEESR	PYTNKVITLW	900
901	YRPE	LLLGE ERYTPAIDVW	SCGCILGELF	TKKPIFQANL	ELAQLELISR	LCGSPCPAVW	960
961	PDVIK	LPYFN TMKPKKQYRR	RLREEFSFIP	SAALDLLDHM	LTLDPSKRCT	AEQTLQSDFL	1020
1021	KDVEL	SKMAP PDLPHWQDCH	ELWSKRRRQ	RQSGVVVEEP	PPSKTSRKET	TSGTSTEPVK	1080
1081	NSSP	PAPPQA PGKVESGAGD	AIGLADITQQ	LNQSELAVLL	NLLQSQTDL	S IPQMAQLLNI	1140
1141	HSNPE	MQQL EALNQSISAL	TEATSQQQDS	ETMAPEESLK	EAPSAPVILP	SAEQTTLEAS	1200
1201	STPAD	MQNIL AVLLSQLMKT	QEPAGSLEEN	NSDKNSGPQ	PRRTPTMPQE	EAAACPPHIL	1260
1261	PPEKR	PPEPP GPPPPPPPPP	LVEGDLSSAP	QELNPAVTAA	LLQLLSQPEA	EPPGHLPEH	1320
1321	QALRP	MEYST RPRPNRTYGN	TDGPETG	FSA IDTDERN	SGP ALTESLVQTL	VKNRTFSGSL	1380
1381	SHLGE	SSYQ GTGSVQFPGD	QDLRFARVPL	ALHPVVGQPF	LKAEGSSNSV	VHAETKLQNY	1440
1441	GELGP	TTGA SSSGAGLHWG	GPTQSSAYGK	LYRGPTRVPP	RGGRGRGV	PY	1500

blue: CDK12 sequence expressed in recombinant protein

¹NCBI/Protein accession number NP_057591.2

GST-CycK Recombinant Fusion Protein Amino Acid Sequence

1	MSPILGYWKI	KGLVQPTRL	LEYLEEKYEE	HLYERDEGDK	WRNKKFELGL	EFPNLPYYID	60
61	GDVKLTQSMA	IIRYIADKHN	MLGGCPKERA	EISMLEGAVL	DIRYGVSRIA	YSKDFETLKV	120
121	DFLSKLPPEML	KMFKDRLCHK	TYLNGDHVTH	PDFMLYDALD	VVLYMDPMCL	DAFPKLVCFK	180
181	KRIEAIQID	KYLKSSKYIA	WPLQGWQATF	GGGDHPPKSD	PMGHHHHHG	RDSLEVLFOG	240
241	MKENKENS	PSVTSANLDH	TKPCWYDCK	DLAHTPSQLE	GLDPATEARY	RREGARFIFD	300
301	VGTRLGLHYD	TLATGIIYFH	RFYMFHSFKQ	FPRYVTGACC	LFLAGKVEET	PKKCKDIKT	360
361	ARSLNDVQF	QFGDDPKEE	VMVLERILLQ	TIKFDLQVEH	PYQFLLYAK	QLKGDKNKIQ	420
421	KLVQMAWTFV	NDSLCTTSL	QWEPEIIAVA	VMYLAGRLCK	FEIQEWTSKP	MYRRWWEQFV	480
481	QDVPVDVLED	ICHQILDLYS	QGKQMPHHT	PHLQPPSL	QPTPQVPQVQ	QSQPSQSSEP	540
541	S						600

1-218: GST **Red**: HIS6-tag **Green**: 3C cleavage site **blue**: CycK fragment

CycK wt² Amino Acid Sequence

1	MKENKENS	SVTSANLDHT	KPCWYDCKD	LAHTPSQLE	LDPATEARYR	REGARFIFDV	60
61	GTRLGLHYDT	LATGIIYFHR	FYMFHSFKQF	PRYVTGACCL	FLAGKVEETP	KKCKDIKTA	120
121	RSLNDVQFG	QFGDDPKEEV	MVLERILLQT	IKFDLQVEHP	YQFLLYAKQ	LKGDKNKIQK	180
181	LVQMAWTFVN	DSLCTTSLQ	WEPEIIAVAV	MYLAGRLCKF	EIQEWTSKPM	YRRWWEQFVQ	240
241	DVPVDVLEDI	CHQILDLYSQ	GKQMPHHTP	HQLQPPSLQ	PTPQVPQVQ	SQPSQSSEPS	300
301	QPQQKDPQQP	AQQQQPAQQP	KKPSPQSSP	RQVKRAVVVS	PKEENKAAEP	PPPPIPKIET	360
361	THPPLPPAHP	PPDRKPPLAA	ALGEAEPGP	VDATDLPKVQ	IPPPAHPAPV	HQPPPLPHRP	420
421	PPPPSSYMT	GMSTTSSYMS	GEGYQSLQSM	MKTEGPSYGA	LPPAYGPPAH	LPYHPHYVPP	480
481	NPPPPVPPP	PASFPAPAIP	PPTPGYPPP	PTYNPNFPPP	PPRLPPTHAV	PPHPPGLGL	540
541	PPASYPPPAV	PPGGQPPVPP	PIPPPGMPPV	GGLGRAAWMR			600

blue: CycK sequence expressed in recombinant protein

²[NCBI/Protein](#) accession number NP_001092872.1
[HGNC](#) identifier CycK: CCNK