

## Product datasheet for MR205214

### Cdk2 (NM\_183417) Mouse Tagged ORF Clone

#### Product data:

Product Type:	Expression Plasmids
Product Name:	Cdk2 (NM_183417) Mouse Tagged ORF Clone
Tag:	Myc-DDK
Symbol:	Cdk2
Synonyms:	A630093N05Rik
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-Entry (PS100001)
E. coli Selection:	Kanamycin (25 ug/mL)
ORF Nucleotide Sequence:	>MR205214 ORF sequence Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
GCC**CGATCGCC**

ATGGAGAACTTCCAAAAGGTGGAGAAGATTGGAGAGGGCACGTACGGAGTGGTGTACAAAGCCAAAAACA  
AGTTGACGGGAGAAGTTGTGGCGCTTAAGAAGATCCGGCTCGACACTGAGACTGAAGGTGTACCCAGTAC  
TGCCATCCGAGAGATCTCTCTCCTTAAGGAACCTAATCACCTAATATCGTCAAGCTGCTGGATGTCATC  
CACACAGAAAATAAGCTTTATCTGGTTTTGAATTTCTGCACCAGGACCTCAAGAAATTCATGGATGCCT  
CTGCTCTCAGGGCATTCTCTCCCTCATCAAGAGCTATCTGTTCCAGCTGCTCCAGGGCCTGGCTTT  
CTGCCATTCTCACCGTGTCTTACCGAGACCTTAAGCCCCAGAACCTGCTTATCAATGCAGAGGGGTCC  
ATCAAGCTGGCAGACTTTGGACTAGCAAGACCTTTGGAGTCCCTGTCCGAACTTACACTCATGAGGTGG  
TGACCCTGTGGTACCGAGCACCTGAAATCTTCTGGGCTGCAAGTACTACTCCACAGCCGTGGATATCTG  
GAGCCTGGGCTGCATCTTTGCTGAAATGCACCTAGTGTGTACCCAGCACCATGCTAAGTGTGTGGGGAA  
CACAGAAGAAATGGAAGACACAGTCTCTGCCCGCTGTGCTCTATCTAGAAGTGGCTGCATCACAAGGAG  
GGGGATGACCGCAGTGTCTGCCACACCCCGTGACCCGAGGGCCCTATTCCTGGAGATTCTGAGAT  
TGACCAACTCTCCGGATCTTTCCGACTCTGGGACCCAGATGAGGTGGTTTGGCCAGGAGTTACTTCT  
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ATGAAGATGGACGGAGCTTGTATCGCAAATGCTGCACTATGACCCCAACAAGCGGATTTTCAGCCAAAGC  
AGCCCTGGCTCACCTTTCTCCAGGATGTAACCTAAACCAGTGCCCCACCTTCGGCTC

**ACGCGT**ACGCGGCCGCTCGAGCAGAAACTCATCTCAGAAGAGGATCTGGCAGCAATGATATCCTGGATT  
ACAAGGATGACGACGATAAGGTTTAA



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**Protein Sequence:** >MR205214 protein sequence  
Red=Cloning site Green=Tags(s)

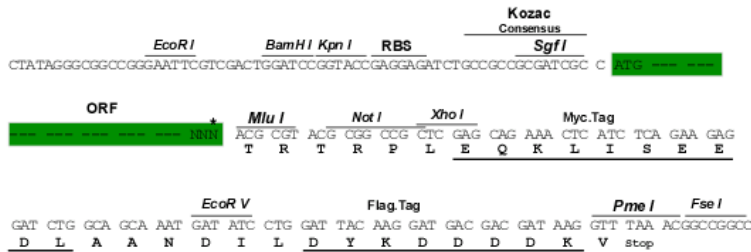
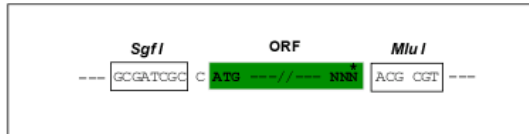
MENFQKVEKIGEGTYGVVYKAKNKL TGEVVALKKIRLDTETEGVPSTAIRESLLKELNHPNIVKLLDVI  
 HTENKLYLVFEFLHQDLKKFMDASAL TGIPLPLIKSYLFQLLQGLAFCHSHRVLHRDLKPQNLLINAEGS  
 IKLADFGLARAFGVPRVITYTHEVVTWLYRAPEILLGCKYYSTAVDIWSLGCIFAEMHLVCTQHHAKCCGE  
 HRRNGRHSLCPLCSYLEVAASQGGGMTAVSAPHPVTRRALFPGDSEIDQLFRIFRTLGTDPDEVVWPGVTS  
 MPDYKPSFPKWARQDFSKVVPPLDEDGRSLLSQMLHYDPNKRISAKAALAHPPFQDVTKPVPHLRL

TRTRPLEQKLISEEDLAANDILDYKDDDDKV

**Restriction Sites:** SgfI-MluI

**Cloning Scheme:**

Cloning sites used for ORF Shuttling:



\* The last codon before the Stop codon of the ORF

**ACCN:** NM\_183417

**ORF Size:** 1041 bp

**OTI Disclaimer:** The molecular sequence of this clone aligns with the gene accession number as a point of reference only. However, individual transcript sequences of the same gene can differ through naturally occurring variations (e.g. polymorphisms), each with its own valid existence. This clone is substantially in agreement with the reference, but a complete review of all prevailing variants is recommended prior to use. [More info](#)

**OTI Annotation:** This clone was engineered to express the complete ORF with an expression tag. Expression varies depending on the nature of the gene.

**Components:** The ORF clone is ion-exchange column purified and shipped in a 2D barcoded Matrix tube containing 10ug of transfection-ready, dried plasmid DNA (reconstitute with 100 ul of water).

**Reconstitution Method:**

1. Centrifuge at 5,000xg for 5min.
2. Carefully open the tube and add 100ul of sterile water to dissolve the DNA.
3. Close the tube and incubate for 10 minutes at room temperature.
4. Briefly vortex the tube and then do a quick spin (less than 5000xg) to concentrate the liquid at the bottom.
5. Store the suspended plasmid at -20°C. The DNA is stable for at least one year from date of shipping when stored at -20°C.

**RefSeq:** [NM\\_183417.3](#)

**RefSeq Size:** 2432 bp

**RefSeq ORF:** 1041 bp

**Locus ID:** 12566

**UniProt ID:** [P97377](#)

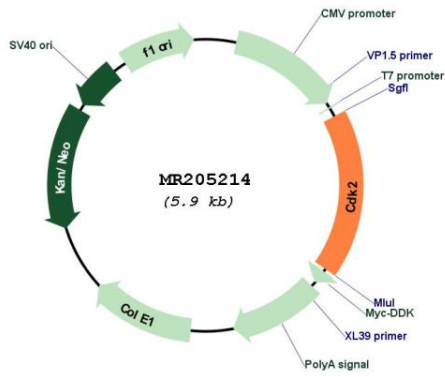
**Cytogenetics:** 10 D3

**MW:** 39 kDa

**Gene Summary:**

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. Phosphorylates CABLES1 (By similarity). 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 (PubMed:23853094). Phosphorylates CDK2AP2 (By similarity).[UniProtKB/Swiss-Prot Function]

Product images:



Circular map for MR205214