

## Product datasheet for **MG208692**

### **Chek2 (NM\_016681) Mouse Tagged ORF Clone**

#### **Product data:**

Product Type:	Expression Plasmids
Product Name:	Chek2 (NM_016681) Mouse Tagged ORF Clone
Tag:	TurboGFP
Symbol:	Chek2
Synonyms:	Cds1; CHK2; HUCDS1; Rad53
Mammalian Cell Selection:	Neomycin
Vector:	pCMV6-AC-GFP (PS100010)
E. coli Selection:	Ampicillin (100 ug/mL)



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**ORF Nucleotide Sequence:**

>MG208692 representing NM\_016681  
 Red=Cloning site Blue=ORF Green=Tags(s)

TTTTGTAATACGACTCACTATAGGGCGGCCGGAATTCGTCGACTGGATCCGGTACCGAGGAGATCTGCC  
 GCC**CGCATCGCC**

ATGAAGAGTCATCATCAGTCCCACAGCAGCACCTCCTCGAAGGCTCATGACAGTGCCTCCTGTTACAGT  
 CCCAGGGTGGCTTCAGCCAGCCCAAGGCACTCCTTCTCAGTTGCACGAGCTCTCACAGTATCAGGGTTC  
 GTCAGCTCCTCTACCGGCACAGTGCCGTCCTCCAGCCAGTCTCGCACTCCAGTTCTGGGACTCTGAGC  
 TCGCTGGAGACAGTGTCTACCCAGGAACCTGTTCTATTCTGAGGACCAAGAACCTGAAGAACCTGGTC  
 CTGCCCTTGGGCTCGGCTATGGGCTTTCAGGATGGATTCTCCAATCTAGACTGTGTTAACGACAACCTA  
 CTGTTTGGGAGAGATAAAAGCTGTGAATATTGCTTCGATGGACCACTGTTGAGAAGGACGGACAAGTAC  
 CGGACTTACAGCAAGAAGCATTTCGATTTTCAGGAAATGGGCCCTAAAAATTGTTACATCGTATACA  
 TAGAGGATCACAGTGGAAATGGAACCTTCGTAATACCGAGCTTATTGGGAAAGGCAAACGCTGCCTCT  
 GAGTAACAACCTGAAATCGCACTTTCACTATGTAGAAAATAAGTTTTTGTATTTTTGATCTGACTGTA  
 GATGATCAGTCAGTTTATCCTAAGGAATTAAGAGACGAATACATCATGTCAAAAACCTTTGGAAGTGGTG  
 CGTGTGGGGAGGTAAAGATGGCTTTTGGAGGAAGACATGTCAGAAAGTGGCCATAAAGATCATTAGCAA  
 GCGGAGGTTTGTCTTGGCTCATCGAGAGAAGCCGACACAGCTCCAGTGTGAAACTGAAATAGAAATT  
 TTGAAGAACTAAATCATCCATGCATCAAGATTAAGATGTTTTTGTGCGGAAGATTATTACATTG  
 TTCTGGAAGTGTGGAAGGAGGAGAAGTATTGACCGGGTGGTGGGAACAAGCGCCTGAAAGAAGCCAC  
 CTGTAAGCTCTACTTCTACCAGATGCTTGTAGCTGTACAGTACCTTACGAAAATGGGATCATACATCGG  
 GACTTAAAGCCGGAGAATGTTCTTTTATCATCTCAGGAAGAGGATTGTCTAATCAAGATCACTGACTTTG  
 GGCAGTCCAAGATCTTGGGGGAGACCTCCTTGATGAGAACCCTTATGTTGACTGCGCCACTTATCTGGCTCC  
 TGAGGTTCTTGTCTCCAACGGGACTGCTGGGTACAGCCGCGCTGTGGACTGCTGGAGTTTAGGAGTTATT  
 CTTTTATCTGCCTAAGTGGGTATCCACCTTTCTCTGAGCATAAGACCCAAGTGTCCCTGAAGGATCAGA  
 TCACCAGTGGAAAGTACAACCTTTATTCCTGAAGTCTGGACAGATGTCTCAGAGGAGGCTCTGGACCTGT  
 CAAGAACTGTTAGTTGTAGACCAAAGGCTCGGCTTACCACAGAGGAGGCTTAAATCATCCGTGGCTT  
 CAGGATGAGTACATGAAGAAGAAATTTCCAGGATCTCCTGGTGCAGGAAAAGAACTCGGTGACCTCCCTG  
 TGGCTCCCGCCAGACTCCAGTCAAAGCGGCCCTGGAAGTGGAGGTGGAGGGTATGCCGAGCACAAA  
 ACGCCTGTCTGTGTGGGGCTGTGTTG

**ACGCGTACGCGGCCGCTCGAG** - GFP Tag - GTTTAA

**Protein Sequence:**

>MG208692 representing NM\_016681  
 Red=Cloning site Green=Tags(s)

MKSHHQSHSSTSSKAHDSASCSQSQGGFSQPQGTSQLHELSQLYQSSSSSTGTVPSSQS SHSSSGTLS  
 SLETVSTQELCSIPEDQEPEEPGAPWARLWALQDGFNSLDCVNDNYWFGGRDKSCEYCFDGPLLRRTDKY  
 RTYSKKHFRIIFREMGPKNCYIVYIEDHSGNGTFVNTLIGKGRKPLSNNSEIALSLCRNKVVFVFDLTV  
 DDQSVYPKELRDEYIMSKTLGSGACGEVKMAFERKTCQKVAIKIISKRRFALGSSREADTAPSVETEIEI  
 LKKLNHPCIKIKDVFDAEDYYIVLELMEGGELFDRVVGKRLKEATCKLYFYQMLVAVQYLHENGIIHR  
 DLKPENVLLSSQEEDCLIKITDFGQSKILGETSLMRTLCTGPTTYLAPEVLVSNGTAGYSRAVDCWSLGI  
 LFICLSGYPPFSEHKTVSLKDQITSGKYNFIPVWTDVSEEALDLVKKLLVDPKARLTTEALNHPWL  
 QDEYMKKKFQDLLVQEKNSVTLPVAPAQTSSQKRPLELEVEGMPSTKRLSVCGLV

**TRTRPLE** - GFP Tag - V

**Restriction Sites:**

Sgfl-MluI



<b>ACCN:</b>	NM_016681
<b>ORF Size:</b>	1638 bp
<b>OTI Disclaimer:</b>	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. <a href="#">More info</a>
<b>OTI Annotation:</b>	This clone was engineered to express the complete ORF with an expression tag. Expression varies depending on the nature of the gene.
<b>Components:</b>	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).
<b>Reconstitution Method:</b>	<ol style="list-style-type: none"><li>1. Centrifuge at 5,000xg for 5min.</li><li>2. Carefully open the tube and add 100ul of sterile water to dissolve the DNA.</li><li>3. Close the tube and incubate for 10 minutes at room temperature.</li><li>4. Briefly vortex the tube and then do a quick spin (less than 5000xg) to concentrate the liquid at the bottom.</li><li>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.</li></ol>
<b>RefSeq:</b>	<a href="#">NM_016681.4</a>
<b>RefSeq Size:</b>	2247 bp
<b>RefSeq ORF:</b>	1641 bp
<b>Locus ID:</b>	50883
<b>UniProt ID:</b>	<a href="#">Q9Z265</a>
<b>Cytogenetics:</b>	5 F

**Gene Summary:**

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. Promotes the CCAR2-SIRT1 association and is required for CCAR2-mediated SIRT1 inhibition (By similarity). [UniProtKB/Swiss-Prot Function]