

pMOD2-Neo

A plasmid containing a synthetic Neomycin resistance gene

Catalog code: pmod2-neo

<https://www.invivogen.com/pmod2-neo>

For research use only

Version 22C07-MM

PRODUCT INFORMATION

Contents

- 20 µg of lyophilized plasmid DNA

Storage and Stability

- Product is shipped at room temperature.
- Lyophilized DNA should be stored at -20°C.
- Resuspended DNA should be stored at -20°C and is stable at least for 1 year.

Quality control

- Plasmid construct has been confirmed by restriction analysis and full-length open reading frame (ORF) sequencing.
- Plasmid DNA was purified by ion exchange chromatography.

GENERAL PRODUCT USE

pMOD2 plasmids contain genes that have been chemically synthesized. The DNA sequences of these genes were modified by optimizing the codon usage, reducing or eliminating the CpG motifs and avoiding secondary DNA structures without changing the amino acid sequence of the wild type proteins.

pMOD2 may be used to subclone the synthetic gene into another vector. Each synthetic gene is flanked by unique restriction sites allowing convenient excision. Furthermore, two multiple cloning sites (MCS) have been added on both ends of the synthetic gene. They contain several restriction sites that are compatible with many other enzymes, thus facilitating cloning.

METHODS

Plasmid resuspension

Quickly spin the tube containing the lyophilized plasmid to pellet the DNA. To obtain a plasmid solution at 1 µg/µl, resuspend the DNA in 20 µl of sterile water. Store resuspended plasmid at -20°C.

Plasmid amplification and cloning

Plasmid amplification and cloning can be performed in *E. coli* GT116 or other commonly used laboratory *E. coli* strains, such as DH5α.

Ampicillin usage

Ampicillin (not provided) can be used for *E. coli* at 50-100 µg/ml in liquid or solid media..

PLASMID FEATURES

• Multiple cloning sites

MCS1 located upstream of the synthetic gene, contains the following restriction sites:

NdeI, BstEII, AvrII, MfeI, BglII, AflIII, HindIII, PmeI

MCS2 located downstream of the synthetic gene, contains the following restriction sites:

NheI, BamHI, EcoRV, PaeI

Each restriction site is compatible with many other enzymes, increasing the cloning options.

• **Synthetic Neomycin resistance gene (CpG-free neo):** The *Neo* gene confers resistance to Kanamycin in *E. coli* and G418 in mammalian cells. This DNA sequence is based on the Tn5 aph2 gene and encodes aminoglycoside 3'-phosphotransferase, APH 3' II. The gene was modified by optimizing the codon usage and deleting the CpG motifs without changing the amino acid sequence of the wild type protein.

• **pMB1 ori** is a minimal *E. coli* origin of replication to limit vector size, but with the same activity as the longer Ori.

• **Amp:** The ampicillin resistance gene allows the selection of transformed *E. coli* carrying a pMOD2 plasmid.

RELATED PRODUCTS

Product	Description	Cat. Code
ChemiComp GT116	Competent <i>E. coli</i>	gt116-11

TECHNICAL SUPPORT

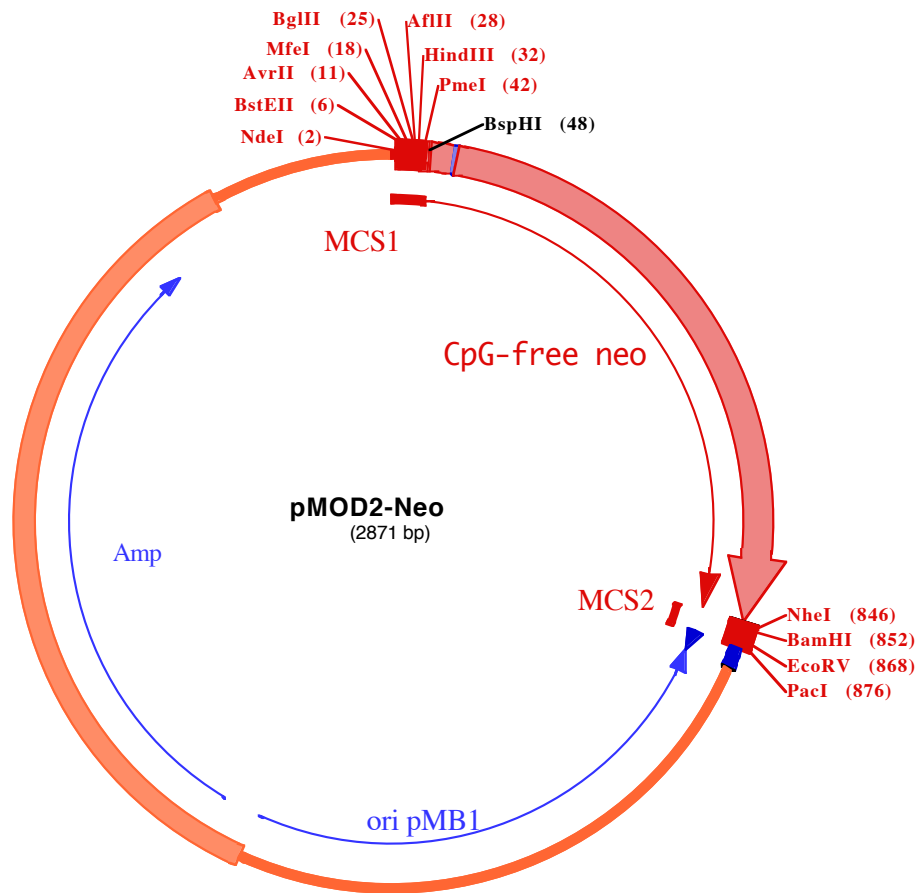
InvivoGen USA (Toll-Free): 888-457-5873

InvivoGen USA (International): +1 (858) 457-5873

InvivoGen Europe: +33 (0) 5-62-71-69-39

InvivoGen Asia: +852 3622-3480

E-mail: info@invivogen.com



HindIII (32)

BstEII (6) MfeI (18) AflIII (28)
NdeI (2) AvrII (11) BglIII (25) PmeI (42) BspHI (48)

1 CATATGGTGACCTAGGACAATTGTAGATCTTAAGCTTAGTTAAACATCATGATTGAACAAGATGGCCTACATGCAGGTTCCAGCTGCCTGGGTTGAG
101 AGACTGTTTGGCTATGACTGGGCACAGCAGACCATTGGTGTCTGATGCAGCAGTTTTTCAGACTTTCAGCCCAAGGCAGGCCAGTCTTTTTGTAAAGA
180 R L F G Y D W A Q Q T I G C S D A A V F R L S A Q G R P V L F V K
201 CAGACCTCAGTGGGCTCTCAATGAGCTCCAGGATGAGGCTGCCAGACTCTCTGGTTGGCAACAAGTGGGTCCTGTGAGCTGTCTTGTAGTGGT
51 T D L S G A L N E L Q D E A A R L S W L A T T G V P C A A V L D V V
301 CACAGAAGCTGGAAGGACTGGCTCTACTAGGTGAGGTGCCTGGGCAGGACCTCTTCTCTCACCTAGCTCCAGCTGAGAAAGTGCAATCATGGCT
84 T E A G R D W L L L G E V P G Q D L L S S H L A P A E K V S I M A
401 GATGCCATGAGAAGCTCCACACCTTGACCCAGCCACCTGCCCTTTGACCACCAAGCACAGGATAGAGAGGGCCAGAACCAGGATGGAGGCTG
118 D A M R R L H T L D P A T C P F D H Q A K H R I E R A R T R M E A
501 GCCTGGTGACCAAGATGACTTGGATGAAGAACCAGGCGCTGGCCCTGCTGAACATTTTCCAGGCTCAAGGCATCCATGCCAGATGGTGAGGACCT
151 G L V D Q D D L D E E H Q G L A P A E L F A R L K A S M P D G E D L
601 AGTGGTACTCATGGGATGCCTGCCCTCCCAACATCATGGTTGAAAATGGAAGTTCTCTGGCTTCATAGACTGTGGCAGGCTGGGAGTGGCTGACAGG
184 V V T H G D A C L P N I M V E N G R F S G F I D C G R L G V A D R
701 TACCAGGACATTGCCCTAGCAACCAGGACATAGCAGAAGAGCTAGGGGGAGAGTGGGCAGACAGGTTCTAGTGCCTATGGCATTGGACCCCTGACT
218 Y Q D I A L A T R D I A E E L G G E W A D R F L V L Y G I A A P D

BamHI (852) PacI (876)
NheI (846) EcoRV (868)

801 CCCAGAGAATTGCCTTCTACAGACTTCTTGATGAGTCTTCTAAAGCTAGCGGATCCTGAGCTCTGATATCTTAATTAACCCGCTTCGGCGGGTTTT
251 S Q R I A F Y R L L D E F F

901 TTTATGATGTGAGCAAAGGCCAGCAAAGGCCAGGAACCGTAAAAAGGCCGCTTGTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCAC
1001 AAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCTGGAAGCTCCCTCGTGCCTCTCTGTTCCGA
1101 CCCTGCCGCTTACCGGATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTGGCGCTTTCTCATAGCTCACGCTGATGATCTCAGTTCCGGTGTAGTCTGT
1201 TCGCTCAAGCTGGGCTGTGTGCACGAACCCCGTTCAGCCGACCGCTGCGCTTATCCGGTAACTATCGTCTTGTAGTCCAACCCGGTAAGACACGAC
1301 TTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGATGTAGGCGGTGCTACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACA
1401 CTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAAACCAGCTGGTAG
1501 CGGTGGTTTTTTTTGTTTGAAGCAGCAGATTACCGCCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGGAAC
1601 GAAAACCTCACGTTAAGGGATTTTGGTCAATGATGAGACAATAACCTGATAAATGCTTCAATAATTGAAAAAGGAAGAGTATGAGTATTCAACATTTT
1701 CGTGTGCCCCATTATCCCTTTTTTTCGCGCATTTCCTTCTGTTTTTGTCCACCCAGAAACGCTGGTAAAAGTAAAAGATGCTGAAGATCAGTTGGGTTG
7 R V A L I P F F A A F C L P V F A H P E T L V K V K D A E D Q L G
1801 CACGAGTGGGTTACATCGAAGTGGATCTCAACAGCGGTAAGATCCTTGAGAGTTTTCCGCCCCGAAAGACGTTTTCAATGATGAGCACTTTAAAGTTCT
40 A R V G Y I E L D L N S G K I L E S F R P E E R F P M M S T F K V L
1901 GCTATGTGGCGGGTATTATCCCGTATTGACGCCGGGCAAGAGCAACTCGGTCGCCGATACACTATTCTCAGAATGACTTGGTTGAGTACTACCCAGTC
73 L C G A V L S R I D A G Q E Q L G R R I H Y S Q N D L V E Y S P V
2001 ACAGAAAAGCATCTTACGGATGGCATGACAGTAAGAGAATTATGACGTGCTGCCATAACCATGAGTGATAACACTGGGCCAACTTACTTCTGACAACGA
107 T E K H L T D G M T V R E L C S A A I T M S D N T A A N L L L T T
2101 TCGGAGGACCGAAGGAGCTAACCGCTTTTTTGCACAACATGGGGATCATGTAACCTCGCCTTGATCGTTGGGAACCGGAGCTGAATGAAGCCATACCAA
140 I G G P K E L T A F L H N M G D H V T R L D R W E P E L N E A I P N
2201 CGACGAGCGTGACACCACGATGCCTGTAGCAATGGCAACAACGTTGCGCAAACTATTAAGTGGCGAACTACTTACTCTAGCTTCCGCGCAACAATTAATA
173 D E R D T T M P V A M A T T L R K L L T G E L L T L A S R Q Q L I
2301 GACTGGATGGAGCGGATAAAGTTGACGAGCACTTCTGCGCTCGGCCCTCCGGCTGGCTGTTTTATTGCTGATAAATCTGGAGCCGGTGGAGCTGGGT
207 D W M E A D K V A G P L L R S A L P A G W F I A D K S G A G E R G
2401 CTCGGGTATCATTGCAGCACTGGGGCCAGATGGTAAGCCCTCCCGTATCGTAGTTATCTACACGACGGGGAGTCAGGCAACTATGGATGAACGAAATAG
240 S R G I I A A L G P D G K P S R I V V I Y T T G S Q A T M D E R N R
2501 ACAGATCGTGAGATGGTCCCTACTGATTAAGCATTGGTAACCTGTGACACCAAGTTTACTCATATATACTTTAGATTGATTTAAAACCTTCACTTTTAA
273 Q I A E I G A S L I K H W •
2601 TTTAAAAGGATCTAGGTGAAGATCCTTTTTGATAATCTCATGCATGACATTAACCTATAAAAATAGCGGATCACGAGGCCCTTTCGTCTCGCGGTTTT
2701 GGTGATGACGGTAAAACCTCTGACACATGCAGCTCCCGGAGACGGTACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTACGGGCGGT
2801 CAGCGGGTGTGGCGGGTGTGGGGCTGGCTAACTATGCGGCATCAGAGCAGATTGTAAGAGAGTGCC