

# pMOD2-Zeo

A plasmid containing a synthetic Zeocin® resistance gene

Catalog code: pmod2-zeo

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

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:

*EcoRI, NheI, BamHI, Ec1136II, SacI, EcoRV, PaeI*

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

- **Synthetic Zeocin®** resistance gene (CpG-free *Sh ble*): The *Sh ble* gene from *Streptoalloteichus hindustanus* encodes a small protein that confers resistance to Zeocin® by binding to the antibiotic. A new allele of the small *Sh ble* gene (372 bp) was synthesized that contains no CpGs (50 CpGs in the wild type gene) and optimized codon usage.

- **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

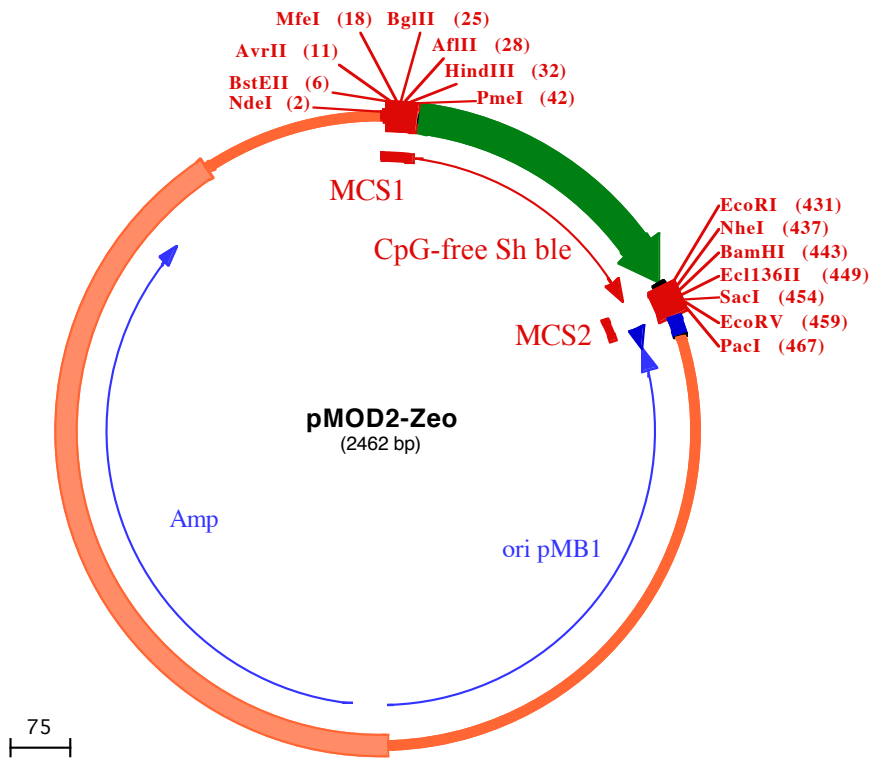
InvivoGen USA (Toll-Free): 888-457-5873

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](mailto:info@invivogen.com)



HindIII (32)

BstEII (6) MfeI (18) AflIII (28)  
 NdeI (2) AvrII (11) BglII (25) PmeI (42)

1 CATATGGTGACCTAGGACAATTGTAGATCTTAAGCTTAGTTAAACACCATGGCCAAGTTGACCAGTGTGCCAGTGCTCACAGCCAGGGATGTGGCT  
 101 GGAGCTGTTGAGTTCTGGACTGACAGGTTGGGGTCTCCAGAGATTTTGTGGAGGATGACTTTCAGGTGGTGCAGAGATGATGCACCTGTTTCATCT  
 18▶ G A V E F W T D R L G F S R D F V E D D F A G V V R D D V T L F I  
 201 CAGCAGTCCAGGACAGGTGGTGCCTGACAACCCCTGGCTTGGGTGGGTGAGAGGACTGGATGAGCTGTATGCTGAGTGGAGTGGGTGGTCCAC  
 51▶ S A V Q D Q V V P D N T L A W V W V R G L D E L Y A E W S E V V S T  
 301 CAACTTCAGGATGCCAGTGGCCCTGCCATGACAGAGATTGGAGAGCAGCCCTGGGGGAGAGAGTTTCCCTGAGAGACCCAGCAGGCAACTGTGTGCAC  
 84▶ N F R D A S G P A M T E I G E Q P W G R E F A L R D P A G N C V H

SacI (454)  
 NheI (437) Ecl136II (449) PacI (467)  
 EcoRI (431) BamHI (443) EcoRV (459)

401 TTTGTGGCAGAGGAGCAGGACTGAGGATAAGAATTTCGTAGCGGATCTGAGCTCTGATATCTTAATTA AAAACCCGCTTCGGCGGGTTTTTTTATGCAT  
 118▶ F V A E E Q D •

501 GTGAGCAAAGGCCAGCAAAGGCCAGGAACCGTAAAAAGGCCGCTTGTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAATCGA  
 601 CGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTTCCCTGGAAGCTCCCTCGTGCCTCTCTGTTCCGACCTGCCG  
 701 TTACCGGATACCTGTCCGCCTTCTCCCTTCGGGAAGCGTGGCGCTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCAA  
 801 GCTGGGCTGTGTGCACGAACCCCGTTCAGCCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATGCCA  
 901 CTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGCGGTGCTACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGA  
 1001 CAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGA AAAAGAGTTGGTAGCTTGTATCCGGCAAACAAACCCGCTGGTAGCGGTGTTT  
 1101 TTTTGTTCGAAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGCTGACGCTCAGTGGAAACGAAAATCA  
 1201 CGTTAAGGGATTTTGGTCATGCATGAGACAATAACCTGATAAATGCTTCAATAATATTGAAAAAGGAAGAGTATGAGTATTCACATTTCCGTGTCCG  
 1301 CTTATTCCTTTTTGCGGCATTTTGCCTTCTGTTTTGCTCACCCAGAAACGCTGGTGAAGTAAAAGATGCTGAAGATCAGTTGGGTGCACGAGTGG  
 10▶ 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 A R V  
 1401 GTTACATCGAACTGGATCTCAACAGCGGTAAGATCCTTGAGAGTTTTTCGCCCGAAGAACGTTTTCCAATGATGAGCACTTTAAAGTTCTGCTATGTGG  
 43▶ 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 L C G  
 1501 CGCGGTATTATCCCGTATTGACGCCGGCAAGAGCAACTCGGTGCGCCGATACACTATTCTCAGAATGACTTGGTTGAGTACTCACAGTACAGAAAAG  
 76▶ 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 T E K  
 1601 CATCTACGGATGGCATGACAGTAAGAGAATTATGCAAGTGCCTAACCATGAGTGATAAAGTGCAGTGCAGTGCAGTGCAGTGCAGTGCAGTGCAGTGCAG  
 110▶ 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 I G G  
 1701 CGAAGGAGCTAACCGCTTTTTGCAACAATGGGGGATCATGTAACCTGCCTTGTATCGTTGGGAACCGGAGCTGAATGAAGCCATACCAAACGACGAGCG  
 143▶ 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 D E R  
 1801 TGACACCAGATGCCTGTAGCAATGGCAACAACGTTGCGCAACCTATTAAGTGGCGAAGTACTTACTCTAGCTTCCCGGCAACAATTAAGACTGGATG  
 176▶ 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 D W M  
 1901 GAGGCGGATAAAGTTGCAGGACACTTCTGCGCTCGGCCCTCCGGCTGGCTGTTTATTGCTGATAAATCTGGAGCCGGTGGAGTGGGTCTCGCGGTA  
 210▶ 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 S R G  
 2001 TCATTGCAGCACTGGGCGCAGATGGTAAGCCCTCCCGTATCGTAGTTATCTACACGACGGGGAGTCAAGCAACTATGGATGAACGAAATAGACAGATCGC  
 243▶ 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 Q I A  
 2101 TGAGATAGGTGCCTCACTGATTAAGCATTGGTAAGTGTGACAGCAAGTTTACTCATATATACTTTAGATTGATTTAAAACCTCATTTTTAATTTAAAAG  
 276▶ E I G A S L I K H W •  
 2201 ATCTAGGTGAAGATCCTTTTTGATAATCTCATGCATGACATTAACCTATAAAAATAGCGGTATCACGAGGCCCTTTCGTCTCGCGGTTTCGGTGTATGAC  
 2301 GGTGAAAACCTCTGACACATGCAGCTCCCGGAGACGGTACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTACGGCGCTCAGCGGGT  
 2401 TTGGCGGTGTGGGGTGGCTTAACTATGCGGCATCAGAGCAGATTGTAAGTGTGAGAGTGCAC