



基本信息

启动子:	Tac
平台编号	bio-114980
复制子:	ColE1 ori
终止子:	rrnB T1 terminator
质粒分类:	大肠杆菌载体; pMal 系列表达质粒
质粒大小:	5677bp
原核抗性:	氨苄青霉素 Amp
克隆菌株:	DH5 α
培养条件:	37 $^{\circ}$ C, 有氧, LB
表达宿主:	BL21(DE3)
培养条件:	37 $^{\circ}$ C, 有氧, LB
诱导方式:	IPTG 或乳糖及其类似物

质粒简介

The vector pMAL-c5X is designed to produce maltose-binding protein (MBP) fusions, where the protein of interest can be cleaved from MBP with the specific protease Factor Xa .

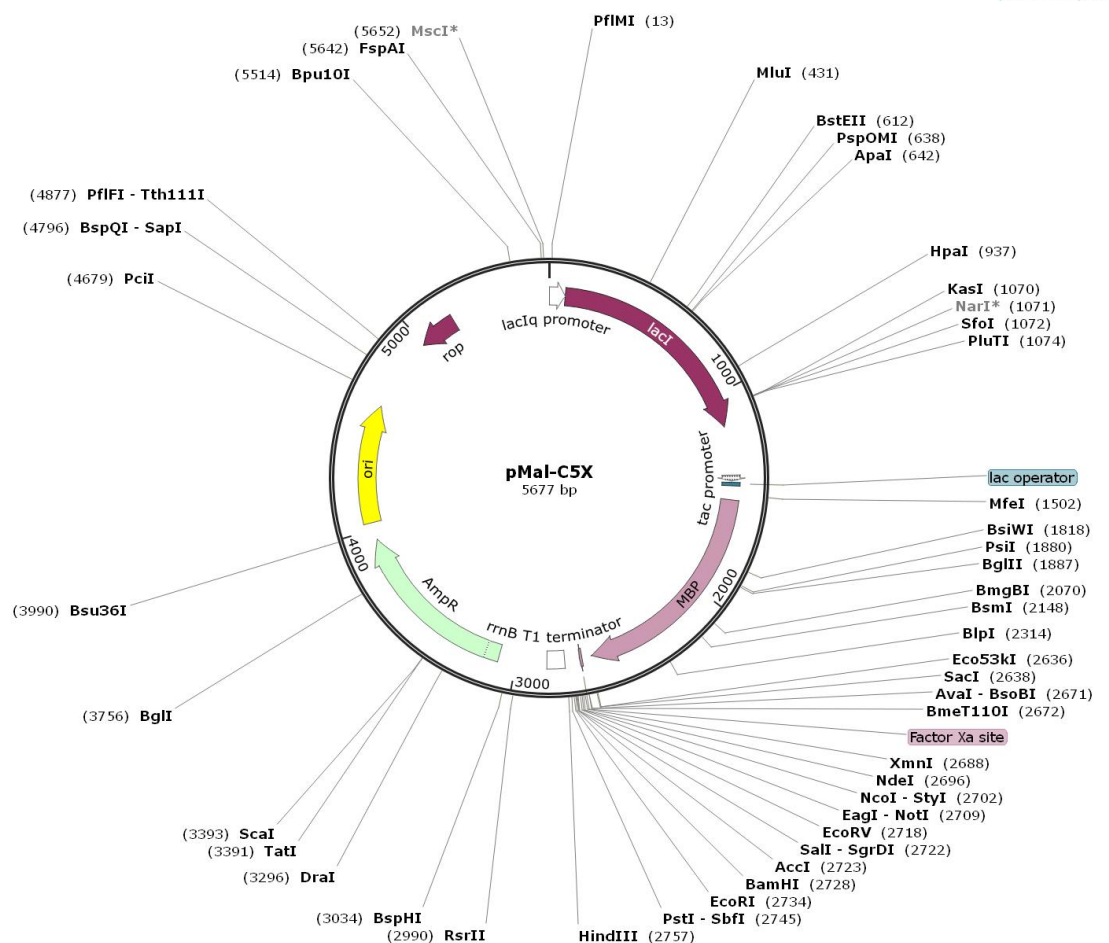
MBP fusions made with this vector are expressed cytoplasmically. The MBP has been engineered for tighter binding to amylose resin. A gene or open reading frame is inserted into a restriction site of the vector polylinker, in the same translational reading frame as the malE gene (encoding maltose-binding protein). The fusion protein thus produced can be purified by amylose affinity chromatography. The sequence coding for the four amino acids Ile-Glu-Gly-Arg is present just upstream of the XmnI site. This allows the protein of interest to be cleaved from maltose-binding protein with the specific protease Factor Xa. Fragments inserted in the XmnI site (cleaves GAAGG \downarrow ATTTC) will produce a fusion protein that, after Factor Xa cleavage, contains

no vector-derived residues on the protein of interest.



质粒图谱





质粒序列

LOCUS Exported 5677 bp ds-DNA circular SYN 17-08-2015

DEFINITION synthetic circular DNA

ACCESSION .

VERSION .

KEYWORDS pMal-c5X

SOURCE synthetic DNA construct

ORGANISM synthetic DNA construct

REFERENCE 1 (bases 1 to 5677)

AUTHORS .

TITLE Direct Submission

JOURNAL Exported 2015-8-17 from SnapGene Viewer

2.8.1FEATURES Location/Qualifiers

source 1..5677

/organism="synthetic DNA construct"

/mol_type="other DNA"

promoter 3..80

```

      /gene="lacI (mutant)"
      /note="lacIq promoter"
      /note="In the lacIq allele, a single base change in the
      promoter boosts expression of the lacI gene about 10-fold."
CDS      81..1163
      /codon_start=1
      /gene="lacI"
      /product="lac repressor"
      /note="lacI"
      /note="The lac repressor binds to the lac operator to
      inhibit transcription in E. coli. This inhibition can be
      relieved by adding lactose or
      isopropyl-beta-D-thiogalactopyranoside (IPTG)."
```

AEL

```
      /translation="MKPVTLVDVAEYAGVSYQTVSRVNVQASHVSAKTREKVEAAM
      NYIPNRVAQQLAGKQSLIGVATSSLALHAPSQIVAAIKSRADQLGASVVVSMVER
      SGV
      EACKAAVHNLQAQRVSGLIINYPLDDQDAIAVEAACTNVPALFLDVSDQTPINSII
      FSH
      EDGTRLGVEHLVALGHQQIALLAGPLSSVSARLRLAGWHKYLTRNQQIPIAERGD
      WSA
      MSGFQQTMQMLNEGIVPTAMLVANDQMALGAMRAITESGLRVGADISVVGYYDDTDD
      SSC
      YIPPLTTIKQDFRLLGQTSVDRLLQLSQGQAVKGNQLLPVSLVKKRKTTLAPNTQTA
      SPR
      ALADSLMQLARQVSRLESGQ"
misc_feature      1406..1434
      /note="tac promoter"
      /note="strong E. coli promoter; hybrid between the trp and
      lac UV5 promoters"
protein_bind      1442..1458
      /bound_moiety="lac repressor encoded by lacI"
      /note="lac operator"
      /note="The lac repressor binds to the lac operator to
      inhibit transcription in E. coli. This inhibition can be
      relieved by adding lactose or
      isopropyl-beta-D-thiogalactopyranoside (IPTG)."
```

CDS

```
      1528..2628
      /codon_start=1
      /gene="malE (mutated)"
      /product="maltose binding protein from E. coli"
      /note="MBP"
```



```
/note="This version of the gene does not encode a signal
sequence, so MBP will remain in the cytosol."
/translation="MKIEEGKLVIIWINGDKGYNGLAEVGGKFEKDTGIKVTVEHPD
KLE
EKFQVAATGDGPDIIIFWAHDRFGGYAQSGLLAEITPDKAFQDKLYPFTWDAVRYN
GKL
IAYPIAVEALSIIYNKDLLPNPPKTWEEIPALDKELKAKGKSALMFNLQEPYFTWP
LIA
ADGGYAFKYENKDYDIKDVGVNAGAKAGLTFLVDLIKNKHMNADTDYSIAEAAFN
KGE
TAMTINGPWAWSNIDTSKVNIGVTVLPTFKGQPSKPFVGVLSAGINAASPENKELAK
EFL
ENYLLTDEGLEAVNKDKPLGAVALKSYYEELVKDPRIAATMENAQKGEIMPNIQPM
SAF
WYAVRTAVINAASGRQTVDEALKDAQT"
CDS 2677..2688
/codon_start=1
/product="Factor Xa recognition and cleavage site"
/note="Factor Xa site"
/translation="IEGR"
terminator 2763..2849
/gene="Escherichia coli rrnB"
/note="rrnB T1 terminator"
/note="transcription terminator T1 from the E. coli rrnB
gene"
terminator 2941..2968
/note="rrnB T2 terminator"
/note="transcription terminator T2 from the E. coli rrnB
gene"
promoter 2996..3086
/gene="bla"
/note="AmpR promoter"
CDS 3087..3947
/codon_start=1
/gene="bla"
/product="beta-lactamase"
/note="AmpR"
/note="confers resistance to ampicillin, carbenicillin, and
related antibiotics"
/translation="MSIQHFRVALI PFFAAFCLPVFAHPETLVKVKDAEDQLGARV
GYI
ELDLNSGKILESFRPEERFPMSTFKVLLCGAVLSRVDAGQEQLGRRIHYSQNDLV
```



EYS
PVTEKHLTDGMTVRELCSAAITMSDNNTAANLLLLTTIGGPKELTAFLNMGDHSVTRL

DRW
EPELNEAIPNDERDTMPVAMATTLRKLTLGELLTLASRQQLIDWMEADKVAGPLL

RSA
LPAGWFIADKSGAGERGSRGIIAALGPDGKPSRIVVIYTTGSQATMDERNRQIAEI

GAS
LIKHW"

rep_origin
4035..4623
/direction=RIGHT
/note="ori"
/note="high-copy-number ColE1/pMB1/pBR322/pUC origin of replication"

CDS
complement(4993..5184)
/codon_start=1
/gene="rop"
/product="Rop protein, which maintains plasmids at low copy number"
/note="rop"
/translation="MTKQEK TALNMARFIRSQTLTLEKLNELDADEQADICESLH

DHA
DELYRSCLARFGDDGENL"

ORIGIN
1 cgcacaccat cgaatggtgc aaaacctttc gcggtatggc atgatagcgc ccggaagaga
61 gtcaattcag ggtggtgaat gtgaaaccag taacgttata cgatgtcgca gagtatgccg
121 gtgtctctta tcagaccggt tcccgcgtgg tgaaccaggc cagccacggt tctgcgaaaa
181 cgcgggaaaa agtggaaagc gcgatggcgg agctgaatta cattcccaac cgcgtggcac
241 aacaactggc gggcaaacag tcggtgctga ttggcgttgc cacctccagt ctggccctgc
301 acgcgcctgc gcaaattgtc gggcgatta aatctcgcgc cgatcaactg ggtgccagcg
361 tgggtggtgc gatgtagaa cgaagcggcg tcgaagcctg taaagcggcg gtgcacaatc
421 ttctcgcgca acgctcagc gggctgatca ttaactatcc gctggatgac caggatgcca
481 ttgctgtgga agctgcctgc actaatgttc cggcgttatt tcttgatgct tctgaccaga
541 caccatcaa cagtattatt ttctccatg aagacggtac gcgactgggc gtggagcatc
601 tggctgcatt gggtcaccag caaatcgcgc tggtagcggg cccattaagt tctgtctcgg
661 cgcgtctgcg tctggctggc tggcataaat atctcactcg caatcaaatt cagccgatag
721 cggaaacggga aggcgactgg agtgccatgt ccggttttca acaaaccatg caaatgctga
781 atgagggcat cgttcccact gcgatgctgg ttgccaaaga tcagatggcg ctgggcgcaa
841 tgcgcgccat taccgagtcc gggctgcgcg ttggtgcgga tatttcggta gtgggatacg
901 acgataccga agacagctca tggtatatcc cgcggttaac caccatcaaa caggattttc
961 gcctgctggg gcaaaccagc gtggaccgct tgctgcaact ctctcagggc caggcgggtga
1021 agggcaatca gctgttgccc gtctcactgg tgaagagaaa aaccaccctg gcgccaata
1081 cgcaaaccgc ctctccccgc gcggtggcgg attcattaat gcagctggca cgacaggttt



1141 cccgactgga aagcgggcag tgagcgcac gcaattaatg taagttagct cactcattag
1201 gcacaattct catgtttgac agcttatcat cgactgcacg gtgcaccaat gcttctggcg
1261 tcaggcagcc atcggagct gtggtatggc tgtgcaggtc gtaaactact gcataattcg
1321 tgtcgtcaa ggcgcactcc cgttctggat aatgtttttt gcgccgacat cataacggtt
1381 ctggcaaata ttctgaaatg agctgttgac aattaatcat cggctcgtat aatgtgtgga
1441 attgtgagcg gataacaatt tcacacagga aacagccagt ccgtttagggt gttttcacga
1501 gcaattgacc aacaaggacc atagattatg aaaatcgaag aaggtaaact ggtaatctgg
1561 attaacggcg ataaaggcta taacgtctc gctgaagtcg gtaagaaatt cgagaaagat
1621 accggaatta aagtcaccgt tgagcatccg gataaactgg aagagaaatt cccacagggt
1681 gcggcaactg gcgatggccc tgacattatc ttctgggcac acgaccgctt tgggtggtac
1741 gctcaatctg gcctgttggc tgaatcacc ccgacaaaag cgttccagga caagctgtat
1801 ccgtttacct gggatgccgt acgttacaac ggcaagctga ttgcttacc gatcgtgtt
1861 gaagcgttat cgctgattta taacaagat ctgctgcga acccgccaaa aacctgggaa
1921 gagatccgg cgctggataa agaactgaaa gcgaaaggta agagcgcgt gatgttcaac
1981 ctgcaagaac cgtacttcac ctggccgctg attgctgctg acgggggta tgcttcaag
2041 tatgaaaacg gcaagtacga cattaagac gtggcgtgg ataacgtgg cgcgaaagcg
2101 ggtctgacct tcctggttga cctgattaaa aacaacaca tgaatgcaga caccgattac
2161 tccatcgcag aagctgcctt taataaaggc gaaacagcga tgaccatcaa cggcccgtgg
2221 gcatggtcca acatcgacac cagcaaagtg aattatggtg taacggctact gccgacctc
2281 aagggccaac catccaaacc gttcgttggc gtgctgagcg caggtattaa cgcgccagt
2341 ccgaacaaag agctggcaaa agagtctc gaaaactatc tgctgactga tgaaggtctg
2401 gaagcggta ataaagaca accgctgggt gccgtagcgc tgaagtctta cgaggaagag
2461 ttggtgaaag atccgcgtat tgccgccact atggaaaacg cccagaaagg tgaatcatg
2521 ccgaacatcc cgcagatgtc cgcttctgg tatgccgtgc gtactcgggt gatcaacgcc
2581 gccagcggtc gtcagactgt cgatgaagcc ctgaaagacg cgcagactaa ttcgagctcg
2641 aacaacaaca acaataaca taacaacaac ctccggatcg agggaaggat ttcacatag
2701 tccatggcg gccgcgatat cgtcgacgga tccgaattcc ctgcaggtaa ttaaataagc
2761 ttcaataaaa acgaaaggct cagtcgaaag actggcctt tcgttttacc tgttgtttgt
2821 cgggtaacgc tctctgagt aggacaaatc cgcgggagc ggattgaa gttgcgaagc
2881 aacggcccgg aggggtggcg gcagacgcc gccataaac tgccaggcat caaatgaagc
2941 agaaggccat cctgacggat ggcctttttg cgttctaca aactcttctg gtcggtgtt
3001 tatttttcta aatacatca aatatgtatc cgctcatgag acaataacc tgataaatgc
3061 ttcaataata ttgaaaagg aagagtatga gtattcaaca tttccgtgtc gcccttattc
3121 cttttttg cgcattttg cttctgttt ttgctcacc agaaacgctg gtgaaagtaa
3181 aagatgctga agatcagttg ggtgcacgag tgggttacct cgaactggat ctcaacagcg
3241 gtaagatcct tgagagttt cgcgccgaag aacgtttccc aatgatgagc acttttaaag
3301 ttctgctatg tggcgcggtt ttatcccgtg ttgacgccgg gcaagagcaa ctccgtcgc
3361 gcataacta ttctcagaat gacttggtt agtactcacc agtcacagaa aagcatctta
3421 cggatggcat gacagtaaga gaattatgca gtgctgcat aacctgagt gataacactg
3481 cggccaactt acttctgaca acgatcggag gaccgaagga gctaaccgct tttttgcaca
3541 acatggggga tcatgtaact cgccttgatc gttgggaacc ggagctgaat gaagccatac
3601 caaacgacga gcgtgacacc acgatgcctg tagcaatggc aacaacgttg cgcaaactat



3661 taactggcga actacttact ctactctccc ggcaacaatt aatagactgg atggaggcgg
3721 ataaagttgc aggaccactt ctgcgctcgg cccttccggc tggctgggtt attgctgata
3781 aatctggagc cggtgagcgt gggctctcgg gtatcattgc agcactgggg ccagatggta
3841 agccctcccg tatcgtagtt atctacacga cggggagtca ggcaactatg gatgaacgaa
3901 atagacagat cgctgagata ggtgcctcac tgattaagca ttggtaactg tcagaccaag
3961 tttactcata tatacttttag attgatttcc ttaggactga gcgtcaacc cgtagaaaag
4021 atcaaaggat cttcttgaga tcctttttt ctgcgcgtaa tctgctgctt gcaaacaaaa
4081 aaaccaccgc taccagcggg ggtttgtttg ccgatcaag agctaccaac tcttttccg
4141 aaggttaactg gcttcagcag agcgcagata ccaaatactg tccttctagt gtacccgtag
4201 ttaggccacc acttcaagaa ctctgtagca ccgcctacat acctcgctct gctaactcgt
4261 ttaccagtgg ctgctgccag tggcgataag tcgtgtctta ccgggttggg ctcaagacga
4321 tagttaccgg ataaggcgca gcggtcgggc tgaacggggg gttcgtgca acagcccagc
4381 ttggagcgaa cgacctacac cgaactgaga tacctacagc gtgagctatg agaaagcgc
4441 acgcttcccg aaggagaaa ggcgacaggg tatccgtaa gcggcagggt cggaacagga
4501 gagcgcacga gggagcttcc aggggaaac gcctggatc tttatagtcc tgtcgggtt
4561 cgccacctct gacttgagcg tcgatttttg tgatgctcgt cagggggcg gagcctatgg
4621 aaaaacgcca gcaacgcggc ctttttacgg ttctggcct tttgctggc tttgctcac
4681 atgttctttc ctgcttacc ccctgattct gtggataacc gtattaccgc ctttgagtga
4741 gctgataccg ctgcgccag ccgaacgacc gagcgcagcg agtcagttag cgaggaagcg
4801 gaagagcgcc tgatgcggta ttttctcctt acgcatctgt gcggtatttc acaccgcata
4861 taagtgacac tgtgactggg tcatggctgc gccccgacac ccgccaacac ccgctgacgc
4921 gccctgacgg gcttgtctgc tcccggcatc cgcttacaga caagctgtga ccgtctccgg
4981 gagctgcatg tgtcagaggt tttaccgctc atcaccgaaa cgcgcgaggc agctcgggta
5041 aagctcatca gcgtggtcgt gcagcgattc acagatgtct gcctgttcat ccgctccag
5101 ctgcttgagt ttctccagaa gcgttaatgt ctggcttctg ataaagcggg ccatgttaag
5161 ggcggttttt tcctgtttgg tcaactgatgc ctccgtgtaa gggggatttc tgttcatggg
5221 ggtaatgata ccgatgaaac gagagaggat gctcacgata cgggttactg atgatgaaca
5281 tgcccgggta ctggaacggt gtgagggtaa acaactggcg gtatggatgc ggcgggacca
5341 gagaaaaatc actcagggtc aatgccagcg cttcgttaat acagatgtag gtgtccaca
5401 gggtagccag cagcatcctg cgatgcagat ccggaacata atggtgcagg gcgctgactt
5461 ccgcttttcc agactttacg aaacacggaa accgaagacc attcatgttg ttgctcaggt
5521 cgcagacggt ttgcagcagc agtcgcttca cgctcgtcgt cgtatcgggt attcattctg
5581 ctaaccagta aggcaacccc gccagcctag ccgggtcctc aacgacagga gcacgatcat
5641 gcgcaccgt ggccaggacc caacgctgcc cgaaatt