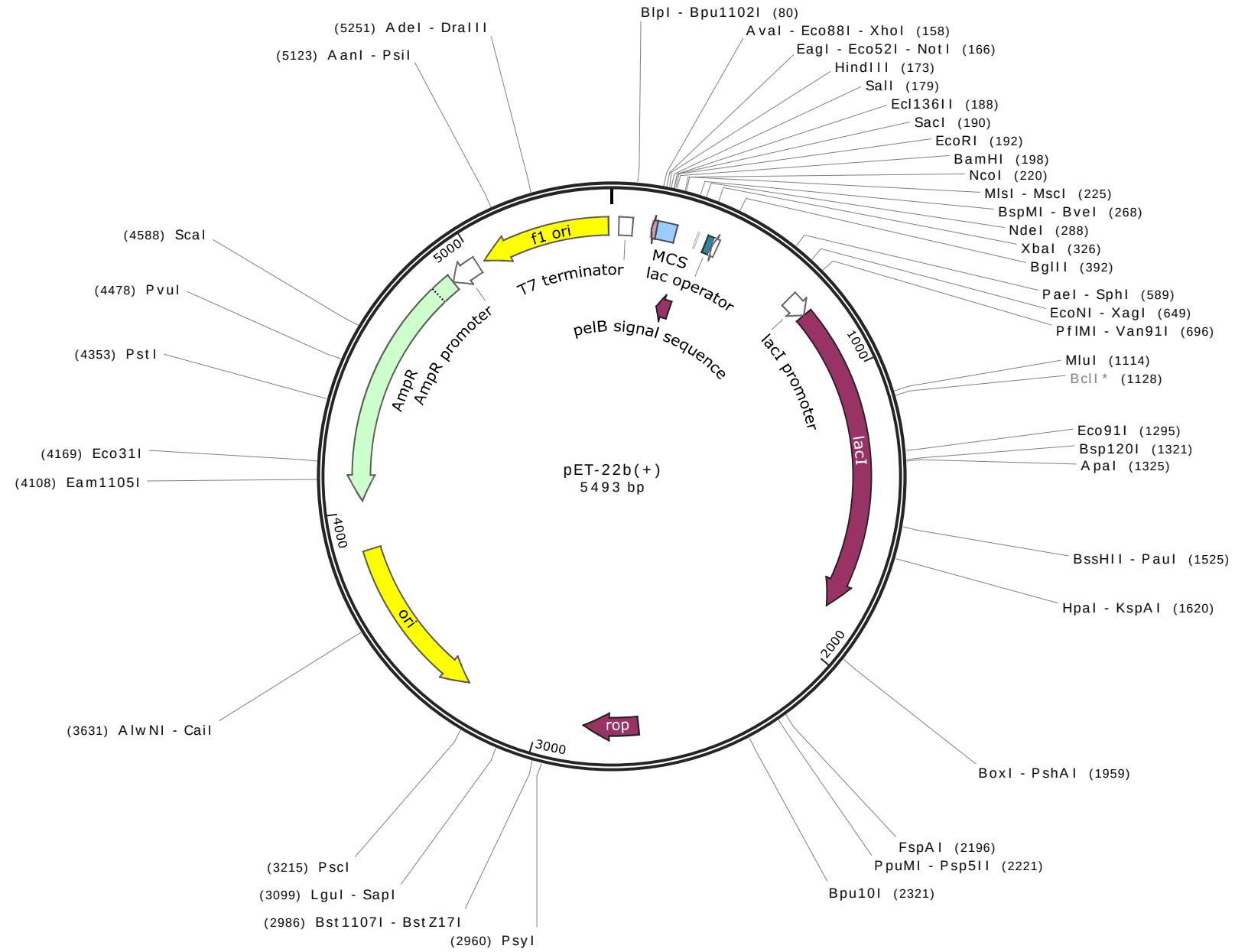
Bacterial vector that encodes a signal sequence for inducible expression of proteins in the periplasm.

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Bpu1102I
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85
T7 terminator
XhoI
AvaI
Eco88I
NotI
EagI
Eco52I
GGTGGCAGCAGCCAACTCAGCTTCCTTTCGGGCTTTGTTAGCAGCCGGATCTCAGTGGTGGTGGTGGTGGTGCTCGAGTGCGGCC
CCACCGTCGTCGGTTGAGTCGAAGGAAAGCCCGAAACAATCGTCGGCCTAGAGTCACCACCACCACCACCACGAGCTCACGCCGG
170
5 1
H H H H H H E L A A
6xHis
MCS
SacI
HindIII SalI Ecl136II EcoRI BamHI NcoI MlsI MscI
GCAAGCTTGTCGACGGAGCTCGAATTCGGATCCGAATTAATTCCGATATCCATGGCCATCGCCGGCTGGGCAGCGAGGAGCAGCA
CGTTCGAACAGCTGCCTCGAGCTTAAGCCTAGGCTTAATTAAGGCTATAGGTACCGGTAGCGGCCGACCCGTCGCTCCTCGTCGT
255
20 15
A L K D V S S S N P D S N I G I D M A M A P Q A A L L L L
(in frame with pelB signal sequence)
pelB signal sequence
MCS
BveI
BspMI
NdeI
XbaI
GACCAGCAGCAGCGGTCGGCAGCAGGTATTTCATATGTATATCTCCTTCTTAAAGTTAAACAAAATTATTTCTAGAGGGGAATTG
CTGGTCGTCGTCGCCAGCCGTCGTCCATAAAGTATACATATAGAGGAAGAATTTCAATTTGTTTTAATAAAGATCTCCCCTTAAC
340
10 5 1
G A A A T P L L Y K M
pelB signal sequence
RBS
lac operator
BglII
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AATAGGCGAGTGTTAAGGGGATATCACTCAGCATAATTAAAGCGCCCTAGCTCTAGAGCTAGGAGATGCGGCCTGCGTAGCACCG
425
lac operator
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510
PaeI
SphI
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595
XagI
EcoNI
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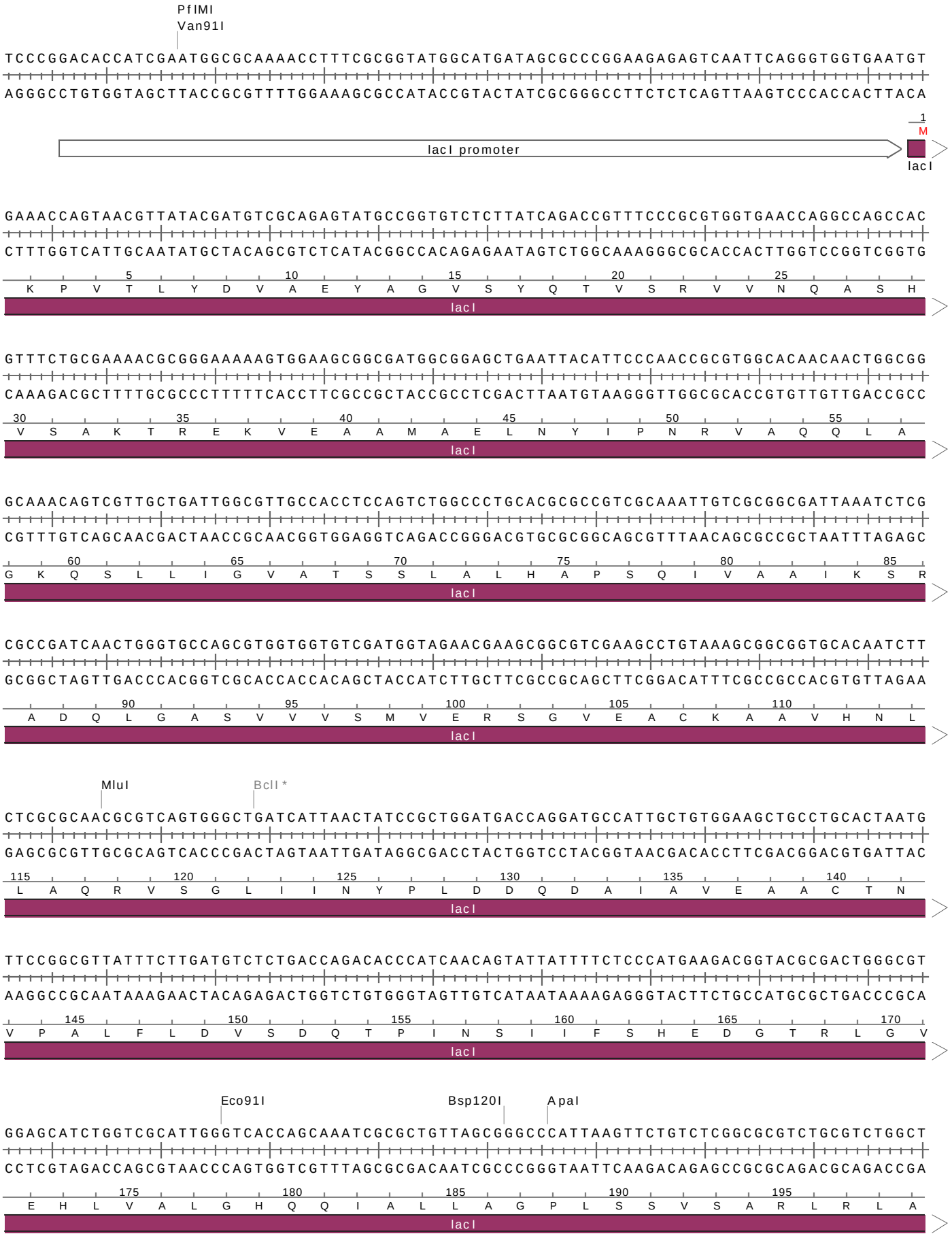
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765
1
M
lacI promoter
lacI
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850
5 10 15 20 25
K P V T L Y D V A E Y A G V S Y Q T V S R V V N Q A S H
lacI
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935
30 35 40 45 50 55
V S A K T R E K V E A A M A E L N Y I P N R V A Q Q L A
lacI
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1020
60 65 70 75 80 85
G K Q S L L I G V A T S S L A L H A P S Q I V A A I K S R
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1105
90 95 100 105 110
A D Q L G A S V V V S M V E R S G V E A C K A A V H N L
lacI
MluI
BclI*
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1190
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L A Q R V S G L I I N Y P L D D Q D A I A V E A A C T N
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1275
145 150 155 160 165 170
V P A L F L D V S D Q T P I N S I I F S H E D G T R L G V
lacI
Eco91I
Bsp120I
ApaI
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E H L V A L G H Q Q I A L L A G P L S S V S A R L R L A
lacI


1445
1530
PauI
BssHII
1615
1700
HpaI
KspAI
1785
1870
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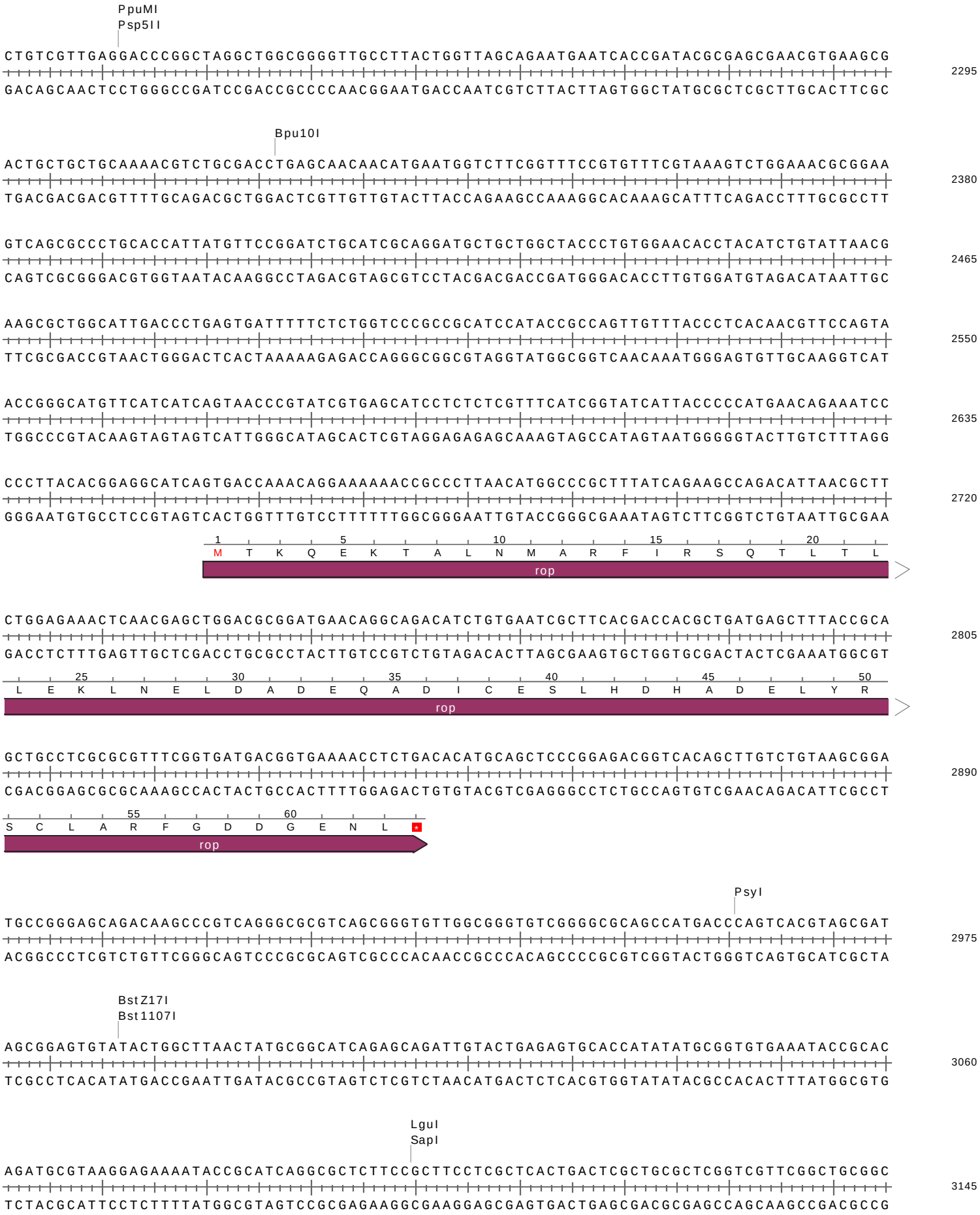
BoxI
PshAI
2040
2125
FspAI
2210
lacI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1 5 10 15 20
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2805
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2890
55 60
S C L A R F G D D G E N L *
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Bst1107I
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3145


PscI
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CaiI
AlwNI
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275
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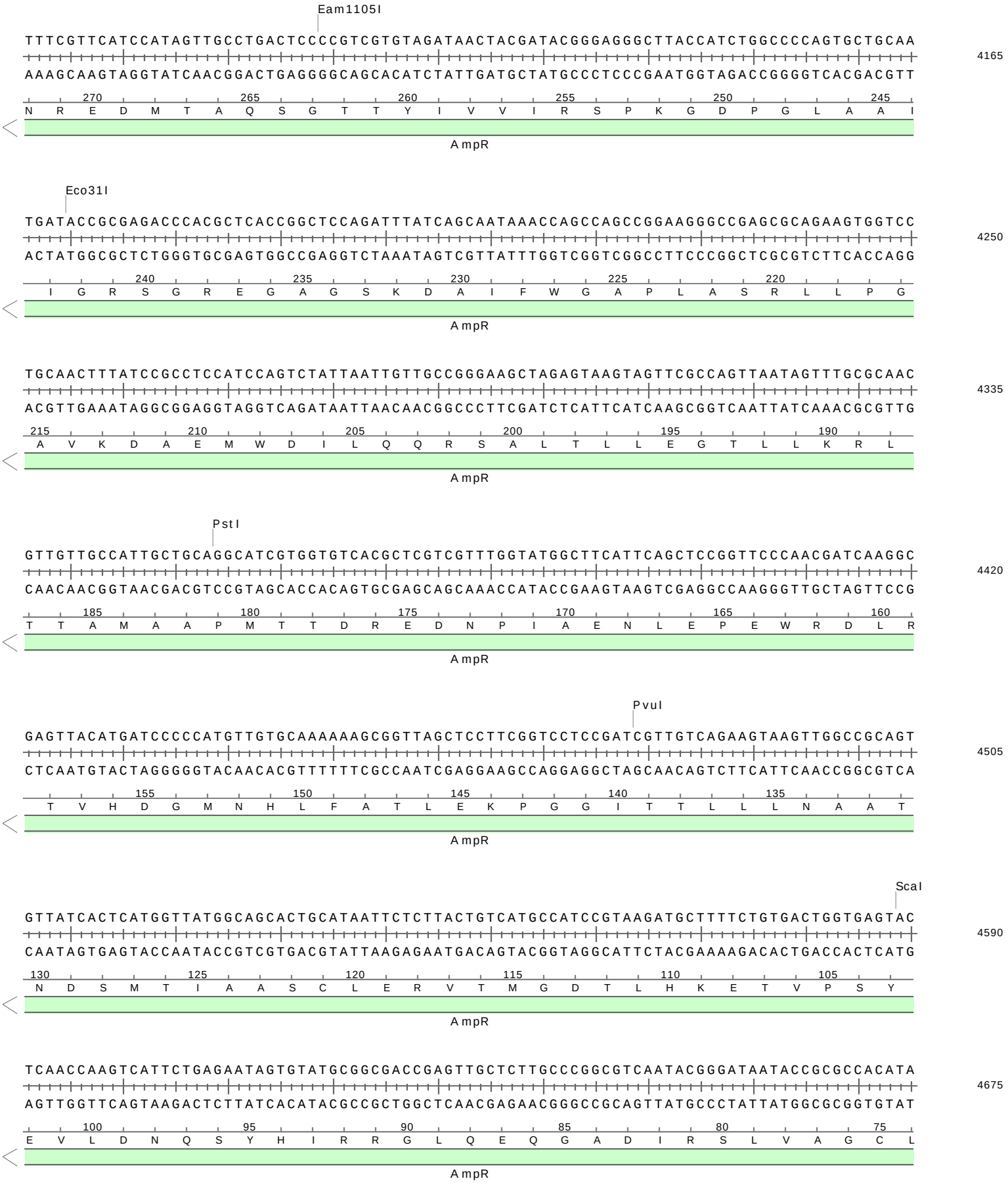
AmpR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AmpR
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215 210 205 200 195 190
A V K D A E M W D I L Q Q R S A L T L L E G T L L K R L
AmpR
PstI
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4420
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185 180 175 170 165 160
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AmpR
PvuI
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AmpR
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4675
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AmpR


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AmpR
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signal sequence
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AanI
PsiI
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f1 ori
AdeI
DraIII
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f1 ori
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5355
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f1 ori
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5440
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f1 ori
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5493
GGTGGTGTGGGCGGCGCGAATTACGCGGCGATGTCCCGCGCAGGGTAAGCGGT 5′
f1 ori

Enzymes	Sites	
AanI	1	5123
AdeI	1	5251
AlwNI	1	3631
ApaI	1	1325
AvaI	1	158
BamHI	1	198
BclI	1*	1128*
BglII	1	392
BlpI	1	80
BoxI	1	1959
Bpu10I	1	2321
Bpu1102I	1	80
Bsp120I	1	1321
BspMI	1	268
BssHII	1	1525
Bst1107I	1	2986
BstZ17I	1	2986
BveI	1	268
CaiI	1	3631
DraIII	1	5251
EagI	1	166
Eam1105I	1	4108
Ecl136II	1	188
Eco31I	1	4169
Eco52I	1	166
Eco88I	1	158
Eco91I	1	1295
EcoNI	1	649
EcoRI	1	192
FspAI	1	2196
HindIII	1	173
HpaI	1	1620
KspAI	1	1620
LguI	1	3099
MlsI	1	225
MluI	1	1114
MscI	1	225
NcoI	1	220
NdeI	1	288
NotI	1	166
PaeI	1	589
PauI	1	1525
PflMI	1	696
PpuMI	1	2221
PscI	1	3215
PshAI	1	1959
PsiI	1	5123
Psp5II	1	2221
PstI	1	4353
PsyI	1	2960
PvuI	1	4478
SacI	1	190
SalI	1	179
SapI	1	3099
ScaI	1	4588
SphI	1	589
Van91I	1	696
XagI	1	649
XbaI	1	326
XhoI	1	158

	Feature		Location	Size (bp)		Type
✓	T7 terminator		26 .. 73	48		terminator
	/note	= transcription terminator for bacteriophage T7 RNA polymerase				
✓	6xHis		140 .. 157	18		CDS
	/product	= 6xHis affinity tag				
	/translation	= HHHHHH				
		6 amino acids = 840.9 Da				
✓	MCS		158 .. 225	68		misc_feature
	/note	= multiple cloning site				
✓	pelB signal sequence		224 .. 289	66		CDS
	/gene	= pelB (fragment)				
	/product	= leader peptide for secretion				
	/translation	= MKYLLPTAAAGLLLLAAQPAMA				
		22 amino acids = 2.2 kDa				
✓	RBS		298 .. 303	6		RBS
	/note	= ribosome binding site				
✓	lac operator		334 .. 358	25		protein_bind
	/bound_moiety	= lac repressor encoded by 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-β-D-thiogalactopyranoside (IPTG).				
✓	T7 promoter		359 .. 377	19		promoter
	/note	= promoter for bacteriophage T7 RNA polymerase				
✓	lacI promoter		686 .. 763	78		promoter
	/gene	= lacI				
✓	lacI		764 .. 1846	1083		CDS
	/gene	= lacI				
	/product	= lac repressor				
	/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-β-D-thiogalactopyranoside (IPTG).				
	/translation	= VKPVTLYDVAEYAGVSYQTVSRVVNQASHVSAKTREKVEAAMAELNYIPNRVAQQLAGKQSLLIGVATSSLALHAPSQIVAAIKS RADQLGASVVVSMVERSGVEACKAAVHNLLAQRVSGLIINYPLDDQDAIAVEAACTNVPALFLDVSDQTPINSIIFSHEDGTRLG VEHLVALGHQQIALLAGPLSSVSARLRLAGWHKYLTRNQIQPIAEREGDWSAMSGFQQTMQMLNEGIVPTAMLVANDQMALGAM RAITESGLRVGADISVVGYDDTEDSSCYIPPLTTIKQDFRLLGQTSVDRLLQLSQGQAVKGNQLLPVSLVKRKTTLAPNTQTASPRA LADSLMQLARQVSRLESGQ*				
		360 amino acids = 38.6 kDa				
✓	rop		2655 .. 2846	192		CDS
	/gene	= rop				
	/product	= Rop protein				
	/translation	= VTKQEKTALNMARFIRSQTLTLLEKLNELDADEQADICESLHDHADELYRSCLARFGDDGENL*				
		63 amino acids = 7.2 kDa				
✓	ori		3276 .. 3864	589		rep_origin
	/direction	= LEFT				
	/note	= high-copy-number ColE1/pMB1/pBR322/pUC origin of replication				

	Feature	Location	Size (bp)			Type
✓	AmpR	4035 .. 4895	861		←	CDS

2 segments

/gene = bla

/product = β-lactamase

/note = confers resistance to ampicillin, carbenicillin, and related antibiotics

/translation = MSIQHFRVALIPFFAAFCLPVFA,HPETLVKVKDAEDQLGARVGYIELDLNSGKILESFRPEERFPMMSTFKVLLCGAVLSRIDAGQE
QLGRRIHYSQNDLVEYSPVTEKHLTDGMTVRELCSAAITMSDNTAANLLLTTIGGPKELTAFLHNMGDHVTRLDRWEPELNEAIPN
DERDTTMPAAMATTLRKLLTGELLTLASRQQLIDWMEADKVAGPLLRSALPAGWFIADKSGAGERGSRGIIAALGPDGKPSRIVVIY
TTGSQATMDERNRQIAEIGASLIKHW*
286 amino acids = 31.5 kDa

✓	AmpR promoter	4896 .. 5000	105		←	promoter

/gene = bla

✓	f1 ori	5027 .. 5482	456		←	rep_origin

/direction = LEFT

/note = f1 bacteriophage origin of replication; arrow indicates direction of (+) strand synthesis

Description:	Bacterial vector that encodes a signal sequence for inducible expression of proteins in the periplasm.
Created:	Saturday, May 12, 2012
Last Modified:	Sunday, Dec 1, 2013
Accession Number:	
Code Number:	
Sequence Author:	Novagen (EMD Millipore)
DNA Type:	Synthetic DNA
Laboratory Host Organism:	Escherichia coli
Bacterial Transformation Strain:	Unspecified Dam$^+$ Dcm$^+$ EcoKI$^+$
Comments:	
References:	