

5' ttcttgaagacgaaagggcctcgtgatacgcctatTTTTataggttaatgTCatgataataatggTTTct
0 +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+ 70
3' aagaacttctgcttcccgggagcactatgcggataaaaatatccaattacagtactattattaccaaaga
0
0 Zral
0 | AatII
0 | |
5' tagacgTCaggtggcactTTTtcggggaaatgTgcgcggaaccctatttGTTattTTTctaatacatt
0 +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+ 140
3' atctgcagTCCaccgtgaaaagcccTTTtacacgcgcctTggggataaacaataaaaagatttatGtaa
0
0 Sspl
0 |
5' caaatatgtatccgctcatgagacaataaccctgataaATgcttcaataatTgaaaaaggaagagtat
0 +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+ 210
3' gTTtatacatagggcgagtactctgTtatTgggactatttacgaagTtattataactTTTtccttctcata
0
0
5' gagtattcaacattTccgTgTgcctTtattccctTTTtGcggcattTtgcctTcctgTttTtGctcac
0 +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+ 280
3' ctcataagTtGtaaaggcacagcgggaaataaggGaaaaaacgcCGTaaaacggaaggacaaaaacgagTg
0
0 Ap
0
5' ccagaaacgctggtgaaagtaaagatgctgaagatcagTtgggtgcacgagTgggttacatcgaactgg
0 +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+ 350
3' ggtctTtgcgaccactTtcatTTTtctacgactTttagTcaaccacgTgctcacccaatgtagcttgacc
0
0 Ap
0
5' atctcaacagcggtAagatccttgagagTtTtgcCCCgaagaacgTtTtccaatgatgagcactTttaa
0 +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+ 420
3' tagagTtGtcgccattctaggaactctcaaaagcggggctTcttgcaaaaggTtactactcgtgaaaatT
0
0 Ap
0
5' agTtctgctatgtggcgcggTattatcccgTgTtgacgccccgggcaagagcaactcggtcgccgcatcac
0 +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+ 490
3' tcaagacgatacacccgcgccataataggGcacaactgCGGCCcgtTctcgTtgagccagcggcgTatgtg
0
0 Ap
0
0 Scal
0 |
5' tattctcagaatgactTgggtgagtactcaccagTcacagaaaagcatctTaccgTggcatgacagtaa
0 +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+ 560
3' ataagagTctTactgaaccaactcatgagTggtcagTgTctTTtctgtagaatgcctaccgTactgtcatt
0
0 Ap
0
0 PvuII
0 |
5' gagaattatgcagTgctgccataaccatgagTgataaactgCGGCCaactTactTctgacaacgatcgg
0 +-----+-----+-----+-----+-----+-----+-----+-----+-----+-----+ 630
3' ctcttaatacgtcacgacggTattggTactcattTgtgacgccccggttgaatgaagactgTtgctagcc
0
0 Ap

BGH39_B01a-pET16-DEST

5' aggaccgaaggagctaaccgcttttttgcacaacatgggggatcatgtaactcgcttgatcgttgggaa
0
3' tectggcttctctcgattggcgaaaaaacgtgttgtaacccctagtacattgagcggaactagcaaccctt

700

Ap

PstI

5' ccggagctgaatgaagccataccaaacgacgagcgtgacaccacgatgcctgcagcaatggcaacaacgt
0
3' ggccctcgacttacttccggtatggtttgctgctcgcactgtgggtgctacggacgtcgttacccgttgttgca

770

Ap

5' tgcgcaaactattaactggcgaactacttactctagcttcccggcaacaattaatagactggatggaggc
0
3' acgcgtttgataattgaccgcttgatgaatgagatcgaagggccggttgtaattatctgacctacctccg

840

Ap

5' ggataaagttgcaggaccacttctgcgctcggcccttccggctggctggtttatgctgataaatctgga
0
3' cctatttcaacgtcctgggtgaagacgcgagccgggaaggccgaccgaccaataacgactatntagacct

910

Ap

Bsal

5' gccggtgagcgtgggtctcgcggtatcattgcagcactggggccagatggtaagccctcccgtatcgtag
0
3' cggccactcgcaccagagcgcctatagtaacgtcgtgaccccggtctaccattcgggagggcatagcatc

980

Ap

AhdI

5' ttatctacacgacggggagtccaggcaactatggatgaacgaaatagacagatcgctgagataggtgcctc
0
3' aatagatgtgctgcccctcagtcctggtgatacctacttgctttatctgtctagcgactctatccacggag

1050

Ap

5' actgattaagcattggtaactgtcagaccaagtttactcatatatactttagattgatttaaacttcat
0
3' tgactaattcgtaaccattgacagtctgggtcaaataagatataatgaaatctaactaaattttgaagta

1120

Ap

5' ttttaatttaaaggatctaggtgaagatccttttgataatctcatgaccaaaatcccttaacgtgagt
0
3' aaaattaaatctttagatccacttctaggaaaaactattagagtactggtttttagggaattgcactca

1190

5' tttcgttccactgagcgtcagaccccgtagaaaagatcaaaggatcttcttgagatcctttttttctgcg
0
3' aaagcaaggtgactcgcagctctggggcatcttttctagtttctagaagaactctaggaaaaaaagacgc

1260

Ori


```

5' cgcagccgaacgaccgagcgcagcgcagtcagtgagcgcagggaagcgcgaagagcgcctgatgcccgtattttc
o  +++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++| 2030
3' gcgctcggcttgctggctcgcgctcgcctcagtcactcgcctccttcgccttctcgcggactacgccataaaag
o
5' tccttacgcatctgtgcccgtattttcacaccgcatatattggtgacactctcagtacaaatctgctctgatgcc
o  +++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++| 2100
3' aggaatgcgtagacacgccataaagtgtggcgatatataaccacgtgagagtcattgtagacgagactacgg
o
o
                    BstZ17I          BsaAI      Tth111I
                    |            |         |
5' gcatagttaagccagtatatacactccgctatcgctacgtgactgggctcatggctgcgccccgacacccggc
o  +++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++| 2170
3' cgtatcaattcggctcatatgtgagggcgatagcgatgactgacccagtcaccgacgcggggcgtgtgggcccg
o
5' aacaccgctgacgcgccctgacgggcttgctctgctcccggcatccgcttacagacaagctgtgaccgctc
o  +++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++| 2240
3' ttgtgggcccgactgcgcccggactgcccgaacagacgagggccgtaggcgaaatgctctgctcgacactggcag
o
5' tccgggagctgcatgtgtcagagggttttcaccgctcatcccgaaacgcgcccagggcagctgcccgttaaagct
o  +++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++| 2310
3' aggccctcgcagctacacagctctccaaaagtggcagtagtggcttgcgcgctccgctgcagccatttcga
o
5' catcagcgtggctcgtgaagcgattcacagatgtctgcctgttcattccgcgtccagctcgttgagttttc
o  +++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++| 2380
3' gtagtcgcaccagcacttcgctaagtgtctacagacggacaagtagggcgaggctcgagcaactcaagag
o
5' cagaagcgttaatgtctggcttctgataaagcggggccatgttaagggcggttttttccctgtttggctcact
o  +++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++| 2450
3' gtcttcgcaattacagaccgaagactatttcgcccggtacaattcccgccaaaaaaggacaaaccagtgatga
o
5' gatgcctccgctgtaagggggattttctgttcattggtgggttaatgataccgatgaaacgagagaggatgctca
o  +++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++| 2520
3' ctacggaggcacattccccctaaagacaagtaaccgccattactatggctactttgtctctctcctacgagt
o
5' cgatacggggtactgatgatgaacatgcccgggttactggaacgttgtaggggtaaacaactggccggatag
o  +++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++| 2590
3' gctatgcccaatgactactactgtacggggcaatgaccttgcacaactcccatttgttgaccgccatac
o
5' gatgcggcgggaccagagaaaaatcactcagggccaatgccagcgttcggttaatacagatgtagggtgtt
o  +++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++| 2660
3' ctacgcgcgccctggtctcttttagtgagtcccagttacggtcgcgaagcaattatgtctacatccacaa
o
5' ccacagggttagccagcagcattctcgcgatgcagatccggaaacataatgggtgcagggcgctgacttccgcg
o  +++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++| 2730
3' ggtgtcccatcggtcgtcgttaggacgctacgctctaggccttgattaccacgccccgagactgaaggcgc
o
5' tttccagacttttacgaaacacggaaccgaagaccattcatgttggtgctcaggtcgcagacgttttgca
o  +++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++| 2800
3' aaaggtctgaaatgctttgtgcctttggcctcctggtaagtacaacaacgagtcaccagcgtctgcaaaacgt
o
5' gcagcagtcgcttcacgcttcgctcgcgatatcggtgattcattctgctaaccagtaaggcaaccccgccag
o  +++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++|++++| 2870
3' cgtcgtcagcgaagtgaagcgcagcgcgatagccactaagtaagacgatttggtcattccgcttggggcggtc
o
  
```

BGH39_B01a-pET16-DEST

FspAI

MscI

0
5'
0
3'
0
5'
0
3'
0
5'
0
3'
0
5'
0
3'
0
5'
0
3'
0
5'
0
3'
0
5'
0
3'
0
5'
0
3'
0
5'
0
3'
0
5'
0
3'
0
5'
0
3'
0
5'
0
3'
0
5'
0
3'
0

cctagccgggtcctcaacgacaggagcacgatcatgcgccaccggtggccaggaccaacgctgcccgaga
ggatcgccccaggagtgtgctgtcctcgtagtacgcgctgggcaccggtcctgggttgcgacgggctct
tgcgccgcgtgaggctgctggagatggcggacgcgatggatatgttctgccaaagggttggtttgcgcatt
acgcggcgcacgccgacgacctctaccgcctgcgctacctatacaagacgggttcccaaccaaacgcgtaa
cacagtctccgcaagaattgattggctccaattcttggagtggatccggttagcgagggtgccgcccgg
gtgtcaagaggcgttcttaactaacggagttaagaacctcaccacttaggcaatcgctccacggcggcc
cttccattcaggtcgaggtggcccggctccatgcaccgcgacgcaacgcggggaggcagacaaggatatag
gaaggttaagtcacgctccaccgggcccggagtacgtggcgctgcggttgcgcccctccgtctgttccatc
ggcggcgcctacaatccatgccaaaccggttccatgtgctcgccgaggcggcataaatcgccgtgacgatc
ccgccgaggatgttaggtacggttgggcaaggtacacgagcggctccgccgtatttagcggcactgctag
agcgggtccagtgatcgaagttaggctggtaagagccgcgagcgcgatccttgaagctgtccctgatggtcgt
catctacctgcctggacagcatggcctgcaacgcgggcacccgatgccgcccgaagcgagaagaatcat
aatggggaaggccatccagcctcgcgctcggaacgccagcaagacgtagcccagcgcgctcggcccgatg
ttacccttccggtaggtcggagcgcagcgccttgcggctgcttctgcatcgggtcgcgcagccggcggtag
ccggcgataatggcctgcttctcgccgaaacgcttgggtggcgggaccagtgacgaaggcttgagcgaggg
ggccgctattaccggacgaagagcggcttggcaaacaccgcacctgggtcactgcttccgaactcgctccc
cgtgcaagattccgaataaccgcaagcgcagggccgatcatcgctcgcgctccagcgaagcggtcctcgcc
gcacgttctaaggcttatggcgctcgtgctcggctagtagcagcgcgaggtcgcttccgacaggagcgg
gaaaatgaccagagcgcgtgccggcacctgtcctacgagttgcatgataaagaagacagtcataagtgcg
ctttactgggtctcgcgacggccgtggacaggatgctcaacgtactatttcttctgtcagattcacgc
gcgacgatagtcatgccccgcgcccaccggaaggagctgactgggttgaaggcttcaagggcatcggtc
cgctgctatcagtaggggcgcgggtggccttctcgcactgacctcaacttccgagagttcccgtagccag

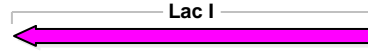
2940
3010
3080
3150
3220
3290
3360
3430
3500
3570
3640
3710

NruI

BGH39_B01a-pET16-DEST

5' gagatcccgggtgcctaataatgagtgagctaacttacattaattgcggtgcgctcactgcccgctttccagtc
 3' ctctagggccacggattactcactcgattgaatgtaattaacgcaacgcgagtgacggggcgaagggtcag

3780



5' gggaaacctgctcgtgccagctgcattaatgaatcggccaacgcgcggggagaggcggtttgcgtattggg
 3' cccttggacagcacggtcgacgtaattacttagccggttgcgcgcccctctccgccaacgcataacc

3850

BsaXI'

Lac I

BsaXI

5' cgccaggggtgggtttttcttttcaccagtgagacgggcaacagctgattgccttcaccgcctggccctga
 3' gcggtcccaccaaaaagaaaagtggtcactctgcccgttgtcgactaacgggaagtggcggaccgggact

3920

Lac I

HpaI

5' gagagttgcagcaagcgggtccacgctgggttgccccagcaggcgaaaatcctgttgatggtggttaacg
 3' ctctcaacgctgcttcgccaggtgcgaccaaacggggtcgctccgcttttaggacaaactaccaccaattgc

3990

Lac I

5' gcgggatataacatgagctgtcttcggtatcgtcgtatcccactaccgagatatccgcaccaacgcgcag
 3' cgccctatatgtactcgacagaagccatagcagcatagggtgatggctctataggcgtgggtgcgcgctc

4060

Lac I

5' cccggactcggtaatggcgcgcattgcgcccagcgcacatctgatcgttggcaaccagcatcgcagtgggg
 3' gggcctgagccattaccgcgcgtaacgcgggtcgcggttagactagcaaccggttggtcgtagcgtcaccct

4130

Lac I

5' acgatgccctcattcagcatttgcattggttggttgaaaaccggacatggcactccagtcgccttcccgtt
 3' tgctacgggagtaagtcgtaaacgtaccaaacacttttggcctgtaccgtgaggtcagcgggaagggcaa

4200

Lac I

5' ccgctatcggctgaatttgattgagtgagatatttatgccagccagccagacgcagacgcgccgagac
 3' ggcgatagccgacttaaacctaacgctcactctataaacatcgggtcggtcggctctgcgtctgcgcggtctg

4270

Lac I

o
5' agaacttaatgggcccgctaacagcgcgatttgcctggtgacccaatgcgaccagatgctccacgcccagt 4340
o
3' tcttgaattaccggcgattgtcgcgctaaacgaccactgggttacgctggtctacgaggtgcggggtca
o
Lac I

o
5' cgcgtaccgtcttcatgggagaaaataataactggtgatgggtgctctggtcagagacatcaagaaataacg 4410
o
3' gcgcatggcagaagtaccctcttttattatgacaactaccacagaccagtctctgtagttctttattgc
o
Lac I

o
5' ccggaacattagtgcaggcagcttccacagcaatggcatcctggtcatccagcggatagttaatgatcag 4480
o
3' ggcttghtaatcacgtccgctcgaagggtgctgttaccgtaggaccagtaggtcgctatcaattactagtc
o
Lac I
Bcl I

o
5' cccactgacgcgttgcgcgagaagattgtgcaccgcccgtttacaggcttcgacgccgcttcgttctacc 4550
o
3' ggggtgactgcgcaacgcgctcttctaacacgctggcgggcgaatgtccgaagctgcggcgaagcaagatgg
o
Lac I

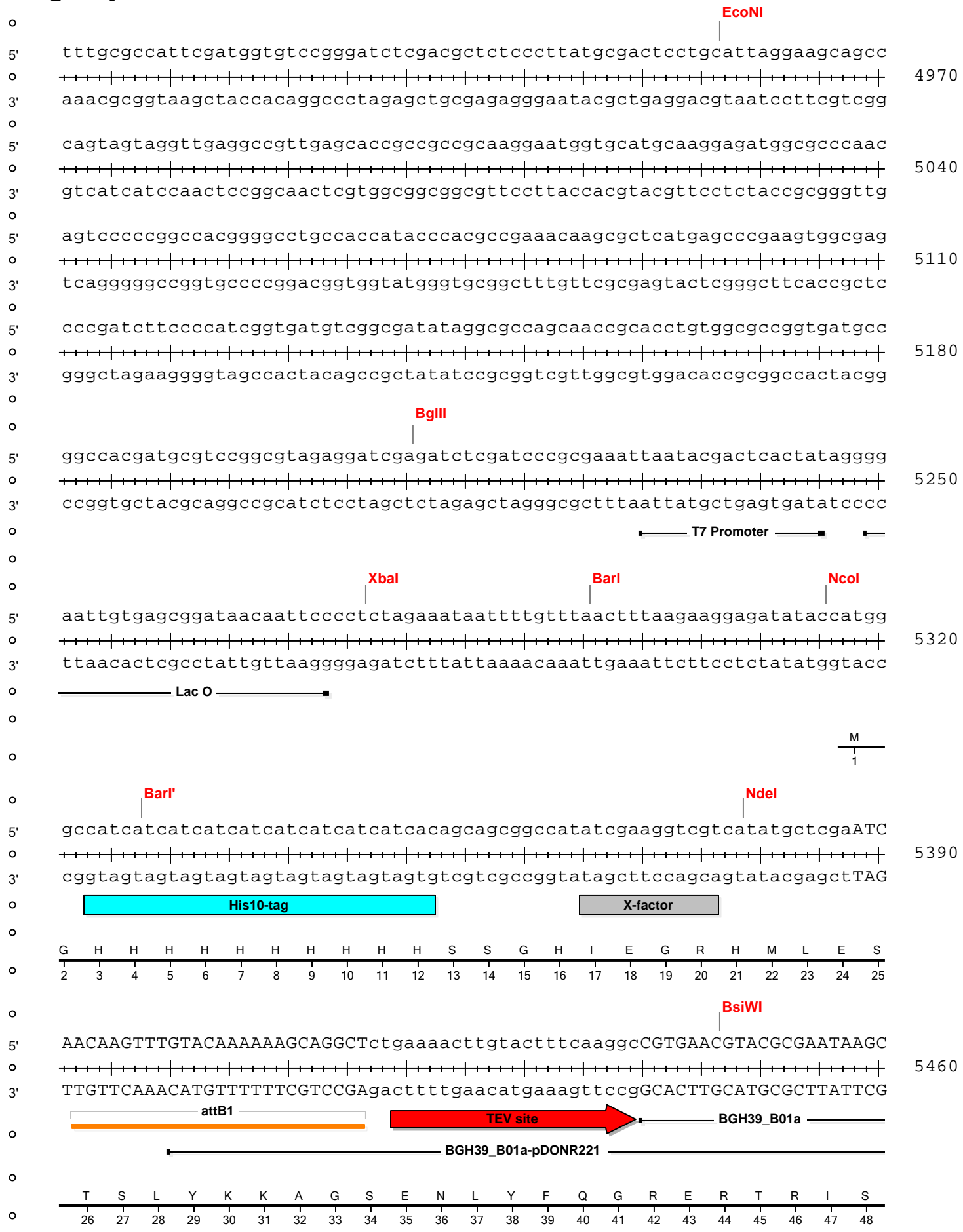
o
5' atcgacaccaccagctggcaccagttgatcggcgcgagatttaatcgccgcgacaatttgcgacggcg 4620
o
3' tagctgtgggtggtgacccgctgggtcaactagccgcgctctaaattagcggcgctgttaaaccgctgccgc
o
Lac I

o
5' cgtgcagggccagactggaggtggcaacgccaatcagcaacgactgtttgcccgcagttggtgtgccac 4690
o
3' gcacgtcccggctgacctccaccgcttgcggttagctcgcttgctgacaaacgggcggtcaacaacacggtg
o
Lac I

o
5' gcggttgggaatgtaattcagctccgccatcgccgcttccacttttcccgcgcttttcgcagaaacgtgg 4760
o
3' cgccaacccttacattaagtgcaggcggtagcggcgaagggtgaaaaagggcgcaaaagcgtctttgcacc
o
Lac I

o
5' ctggcctggttcaccacgcgggaaacgggtctgataagagacaccggcatactctgcgacatcgtataacg 4830
o
3' gaccggaccaagtgggtgcgccctttgccagactattctctgtggccgatatgagacgctgtagcatattgc

o
5' ttactggtttcacattcaccaccctgaattgactctcttccgggcgctatcatgccataccgcgaaagg 4900
o
3' aatgaccaaagtgtaagtgggtgggacttaactgagagaaggcccgcgatagtagcggatggcgctttcca
o



o
5' GTTGATGCCAGTGAAGCGGTACGCCCCGTTCAACCGGTTCTGGCGCGGCACCGGCTTTTCGCCGGCCGAGC
o
3' CAACTACGGTCACTTCGCCATGCGGGCAAGTTGGCCAAGACCGCGCCGTGGCCGAAAAGCGGCCGGCTCG
o
————— **BGH39_B01a** —————
o
————— **BGH39_B01a-pDONR221** —————

5530

V D A S E A V R P F N R F W R G T G F S P A E
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71

o
PspXI
5' TGCTGCTCGAGCCCAGATGCGCCAGATGCTTGCCTATATCGGTGGCCTGCCGAATGAGGGCATCAAGTT
o
3' ACGACGAGCTCGGGCTCTACGCGGTCTACGAACGGATATAGCCACCGGACGGCTTACTCCCGTAGTTCAA
o
————— **BGH39_B01a** —————
o
————— **BGH39_B01a-pDONR221** —————

5600

L L L E P E M R Q M L A Y I G G L P N E G I K F
72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95

5' CCTGCGGGTGCATTATCTCTACAATCTGCTGAGCGCGAAGGGCGAGGTCGGCTACGACTGGTCGCTGCTC
o
3' GGACGCCACGTAATAGAGATGTTAGACGACTCGCGCTTCCCGCTCCAGCCGATGCTGACCAGCGACGAG
o
————— **BGH39_B01a** —————
o
————— **BGH39_B01a-pDONR221** —————

5670

L R V H Y L Y N L L S A K G E V G Y D W S L L
96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118

o
BmgBI
5' GACCGCGCGCTCGACGTGATGATCGAACACCGCCTGAAGCCGTTCTTTCGAAGTATGGGCAACCCATCCG
o
3' CTGGCGCGCGAGCTGCACTACTAGCTTGTGGCGGACTTCGGCAAGAAGCTTGACTACCCGTTGGGTAGGC
o
————— **BGH39_B01a** —————
o
————— **BGH39_B01a-pDONR221** —————

5740

D R A L D V M I E H R L K P F F E L M G N P S
119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141

5' GCCTGTTACCCGACTATGAGGACATGGATCAGGTCAGGCGCTGGCGGGATCTCGTGACGGCAACGGTCTGA
o
3' CGGACAAGTGGCTGATACTCCTGTACCTAGTCCAGTCCGCGACCGCCCTAGAGCACTGCCGTTGCCAGCT
o
————— **BGH39_B01a** —————
o
————— **BGH39_B01a-pDONR221** —————

5810

G L F T D Y E D M D Q V R R W R D L V T A T V D
142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165

BGH39_B01a-pET16-DEST

5' CCGTTATGGCGCGCGTTACGGCATGGACGAATTGCGCACATGGTATTTGAAACGACGAACGAGGCCGAC
+
3' GGCAATACCGCGCGCAATGCCGTACCTGCTTAACGCGTGTACCATAAAGCTTTGCTGCTTGCTCCGGCTG

5880

BGH39_B01a

BGH39_B01a-pDONR221

R Y G A R Y G M D E L R T W Y F E T T N E A D
166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188

5' TCCGGCTGGTGGACCTACGGGATCAAGGGTTACACCAACTACTACGACGCCTGCGTTCGCGGGGCTCGATG
+
3' AGGCCGACCACCTGGATGCCCTAGTTCCCAATGTGGTTGATGATGCTGCGGACGCAGCGCCCCGAGCTAC

5950

BGH39_B01a

BGH39_B01a-pDONR221

S G W W T Y G I K G Y T N Y Y D A C V A G L D
189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211

5' CCATCGATCCCACCTTGC CGATGGGCGGACCCGGAACCGCCGACGCTCTCGCCGATCTTTCGCGCCCT
+
3' GGTAGCTAGGGTGAACGGCTACCCGCCTGGGCCTTGGCGGGCGTTCGAGAGCGGCTAGAAAGCGCGGGA

6020

BGH39_B01a

BGH39_B01a-pDONR221

A I D P T L P M G G P G T A R T L S P I F R A L
212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235

5' GATGGCCATTGCGACAGCGGCACGAGCTGCCTCAGCGATGACGGCCCGCCGCGCATCGATTACATCTCG
+
3' CTACCGGGTAACGCTGTGCGCGTGTCTCGACGGAGTCGCTACTGCCGGGCGGCGGTAGCTAATGTAGAGC

6090

BGH39_B01a

BGH39_B01a-pDONR221

M A H C D S G T S C L S D D G P P R I D Y I S
236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258

5' ATCCACGAAAAGGGCGTCAACGGCAGCAAGGAAGACCTGACCCCGAAAACCAACGGTATCGTCGACCGCA
+
3' TAGGTGCTTTTCCCGCAGTTGCCGTTCGTTCTTGACTGGGGCTTTTGGTTGCCATAGCAGCTGGCGT

6160

BGH39_B01a

BGH39_B01a-pDONR221

I H E K G V N G S K E D L T P K T N G I V D R
259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281

BGH39_B01a-pET16-DEST

5' CTTTGCTCGTCGTCTGACTATCTGAAGGAGCATCACCCGCGCCTGGCGGGCTTGCCCATCGTCAACGATGA
 6230
 3' GAAACGAGCAGCAGCTGATAGACTTCCTCGTAGTGGGCGCGACCCGCCGAACGGGTAGCAGTTGCTACT

BGH39_B01a

BGH39_B01a-pDONR221

T L L V V D Y L K E H H P R L A G L P I V N D E
 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305

5' ATGCGATCCGCAGCTTGGCTGGAGCGATCATCATAGCTGGCACGGCAAAGCCTATTACGCCGGTATCATC
 6300
 3' TACGCTAGGCGTCGAACCGACCTCGCTAGTAGTATCGACCGTGCCGTTTCGGATAATGCGGCCATAGTAG

BGH39_B01a

BGH39_B01a-pDONR221

C D P Q L G W S D H H S W H G K A Y Y A G I I
 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328

5' GCCCGCATCATCGAACAGCACGACCGGCGCATCATCGCCCCGAAAGCGGCGAATTTACCTTCCTCAGCA
 6370
 3' CGGGCGTAGTAGCTTGTCGTGCTGGCCGCGTAGTAGCGGGGCTTTCGCCGCTTAAAGTGAAGGAGTTCGT

BGH39_B01a

BGH39_B01a-pDONR221

A R I I E Q H D R R I I A P K A A N F T F L S
 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351

5' ATGACCACGCCTTTATCGGCGGCTGGAGCCAGCGCACGATCTTTGCCTATTTTCGGTTCGCGCAATTTAC
 6440
 3' TACTGGTGCAGAAATAGCCGCCGACCTCGGTGCGGTGCTAGAAACGGATAAAGCCAAGCGCTTAAAGTG

BGH39_B01a

BGH39_B01a-pDONR221

N D H A F I G G W S Q R T I F A Y F G S R N F T
 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375

5' CAAGGCGCAGTGGGAGCACAAGACCAATCTGGATATGCTGGTCACCGATGTTCGACAGGGCGCCGCCCTTC
 6510
 3' GTTCCGCGTCACCCTCGTGTCTGGTTAGACCTATACGACCAGTGGCTACAGCTGTCCCGCGGCGGGAAG

BGH39_B01a

BGH39_B01a-pDONR221

K A Q W E H K T N L D M L V T D V D R A P P F
 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398

BGH39_B01a-pET16-DEST

5' GACATCATCAAGAAGCCCGGCCTCACATCGATGGAACCTGCTGGCAACGCTTGGCGATAACCGTTTGCAAGG
 0 ++++++
 3' CTGTAGTAGTTCTTCGGGCCGGAGTGTAGCTACCTTGACGACCGTTGCGAACCGCTATGGCAAACGTTCC

6580

BGH39_B01a

BGH39_B01a-pDONR221

D I I K K P G L T S M E L L A T L G D T V C K
 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421

5' TGACGGCCGAACCGCCGCTTGGCGCCGACCAGGATGGCCTGGCGATCCTGCCGACGCGGCTGCCGGGCGG
 0 ++++++
 3' ACTGCCGGCTTGGCGGCGAACGCGGGCTGGTCTTACCGGACCGCTAGGACGGCTGCGCCGACGGCCCGCC

6650

BGH39_B01a

BGH39_B01a-pDONR221

V T A E P P L A P D Q D G L A I L P T R L P G G
 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445

RsrII

5' CGGTGTTTCCATCAGCCTCATCCATAGCGTCGATGCCATCAACCGCTCGGGCCGGACCGCCGTCCGTCTC
 0 ++++++
 3' GCCACAAAGGTAGTCGGAGTAGGTATCGCAGCTACGGTAGTTGGCGAGCCCGGCCTGGCGGCAGGCAGAG

6720

BGH39_B01a

BGH39_B01a-pDONR221

G V S I S L I H S V D A I N R S G R T A V R L
 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468

5' GAGGTGAGCGGCTTGGTTCCCGGCCGCCACGCGCTTTGCCTGCTGCGCATCGACGAGGAATTCACCAATC
 0 ++++++
 3' CTCCACTCGCCGAACCAAGGGCCGGCGGTGCGCGAAACGGACGACGCGTAGCTGCTCCTTAAGTGGTTAG

6790

BGH39_B01a

BGH39_B01a-pDONR221

E V S G L V P G R H A L C L L R I D E E F T N
 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491

5' CGATGGAGGTCTGGGAAGCCCAGCACGATGAAAGCAACCCGCGTGGGCTCTTCGAGCCGGTCCGGCGCACC
 0 ++++++
 3' GCTACCTCCAGACCCTTCGGGTCGTGCTACTTTTCGTTGGGCGCACCCGAGAAGCTCGGCCAGCCGCGTGG

6860

BGH39_B01a

BGH39_B01a-pDONR221

P M E V W E A Q H D E S N P R G L F E P V G A P
 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515

BGH39_B01a-pET16-DEST

5' GCCTGCACCTGATGAAGCGCAGTTTGCCGAAATGCGCCGCGCGCAGGAGCCCCGCCCTGCTGCATCCGATC
 3' CGGACGTGGACTACTTCGCGTCAAACGGCTTTACGCGGCGCGCGTCTCTCGGGCGGGACGACGTAGGCTAG

6930

BGH39_B01a

BGH39_B01a-pDONR221

P A P D E A Q F A E M R R A Q E P A L L H P I
 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538

AarI

5' AGCGTCGTCGCGTGGCAGCAAGGCCGGATCAGTGTGACCTGGATGTGCCATTGCCGTCGCTGACGCAGG
 3' TCGCAGCAGCGCACGCTGCTTCCGGCCTAGTACACAGCTGGACCTACACGGTAACGGCAGCGACTGCGTCC

7000

BGH39_B01a

BGH39_B01a-pDONR221

S V V A C D E G R I S V D L D V P L P S L T Q
 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561

5' TGCTTGTCTGTTCCCGATATCGGCGTGCCACCGGCGGCACCGAGCGGCCTTGTCTGTCGAACGCTATCTCGG
 3' ACGAACAGCAAGGGCTATAGCCGCACGGTGGCCGCCGCTGGCTCGCCGGAACAGCAGCTTGCATAGAGCC

7070

BGH39_B01a

BGH39_B01a-pDONR221

V L V V P D I G V P P A A P S G L V V E R Y L G
 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585

BseRI

5' CCTCGGCGGTTCGGGAGGAGCGCATGCTGTTCTGGGCTGCCGGCGATGCCAGCCCGCCATCTTCTACGAT
 3' GGAGCCGCCAGCCCTCCTCGCGTACGACAAGACCCGACGGCCGCTACGGTTCGGGCGGTTAGAAGATGCTA

7140

BGH39_B01a

BGH39_B01a-pDONR221

L G G R E E R M L F W A A G D A S P A I F Y D
 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608

5' GTCCTGGTCAGCACCGATGGCGCGGCTTTTGAAAAGGTCAGTTCAGCGCCGCTGATCTCGACGGCATTCC
 3' CAGGACCAGTCGTGGCTACCGCGCCGAAAACCTTTTCCAGTCAAGTCGCGGCGACTAGAGCTGCCGTAAGG

7210

BGH39_B01a

BGH39_B01a-pDONR221

V L V S T D G A A F E K V S S A P L I S T A F
 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631

BGH39_B01a-pET16-DEST

o

5' TGCACATGTCGCCGCCGCAGGGCGTGCGTTATGCGGTGCGCGCCCCGCGATGCATTCGGTCGCCGCAGCGA

o

3' ACGTGTACAGCGGCGGGCGTCCCACGCAATACGCCACGCGCGGGCGCTACGTAAGCCAGCGGCGTCGCT

NsiI

7280

BGH39_B01a

BGH39_B01a-pDONR221

L H M S P P Q G V R Y A V R A R D A F G R R S E

632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655

o

5' GCTTTGTCTCTCCCGCTAGGACCCAGCTTTCTTGTACAAAGTGGTTGATtcgaggatccggctgctaaca

o

3' CGAAACAGAGAGGGCGATCCTGGGTCGAAAGAACATGTTTCACCAACTAagctcctaggccgacgattgt

BamHI

7350

BGH39_B01a

attB2

BGH39_B01a-pDONR221

L C L S R .

656 657 658 659 660 661

5' aagcccgaaaggaagctgagttggctgctgccaccgctgagcaataactagcataacccttggggcctc

o

3' ttcgggctttccttcgactcaaccgacgacggtggcgactcgttattgatcgattggggaaccccgag

T7 Terminator

7420

5' taaacgggtccttgaggggttttttgcctgaaaggaggaactatatccggatatcccgcaagaggcccggca

o

3' atttgcccagaactccccaaaaaacgactttcctccttgatataggcctataggcggttctccgggcccgt

T7 Terminator

7490

5' gtaccggcataaccaagcctatgcctacagcatccagggtgacggtgccgaggatgacgatgagcgcatt

o

3' catggccgatttggttcggatacggatgctcgtaggtcccactgccacggctcctactgctactcgcgtaa

7560

HindIII

5' gttagatttcatacacggtgcctgactgcgttagcaatttaactgtgataaactaccgcattaaagctta

o

3' caatctaaagtatgtgccacggactgacgcaatcgtaaattgacactatttgatggcgtaatttcgaat

7630

5' tcgatgataagctgtcaaacatgagaa

o

3' agctactattcgacagtttgactctt

7657