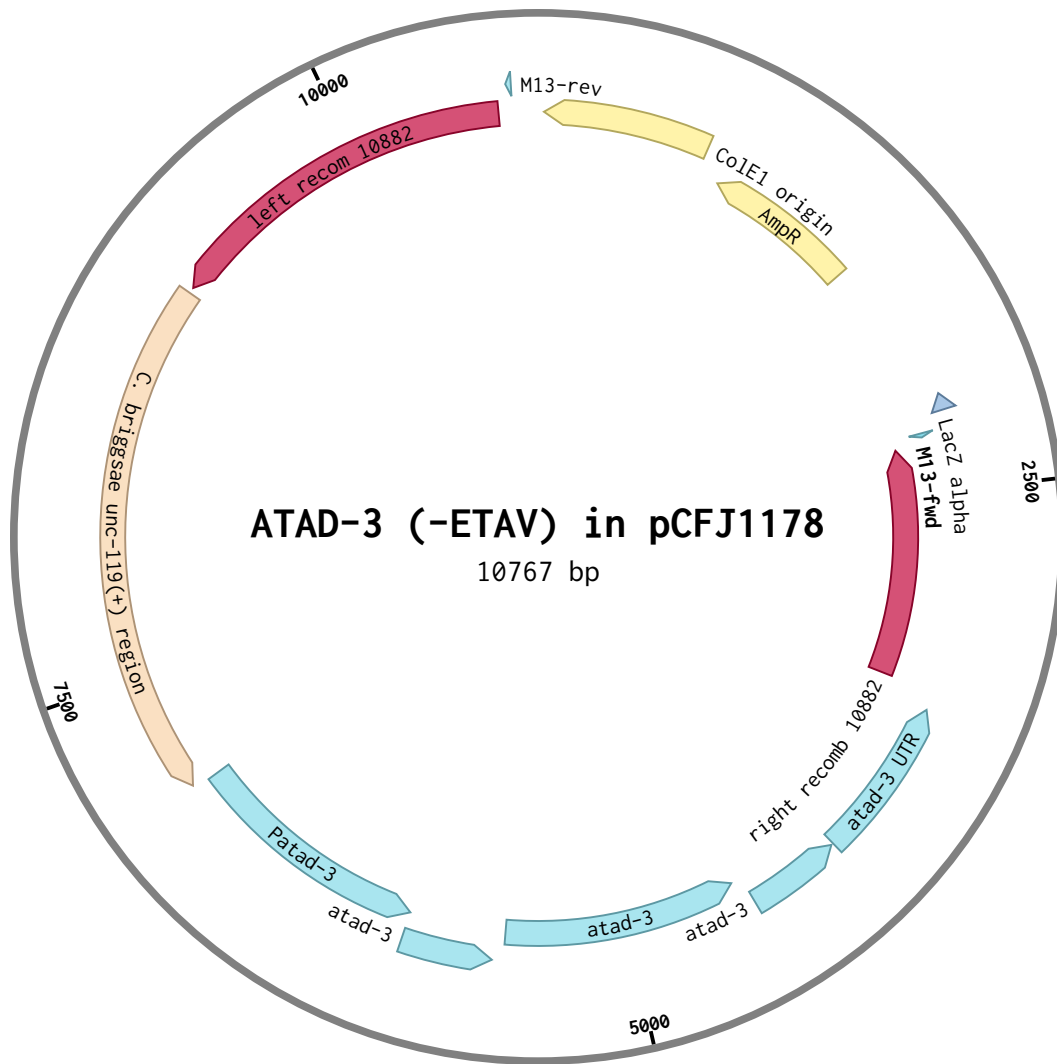
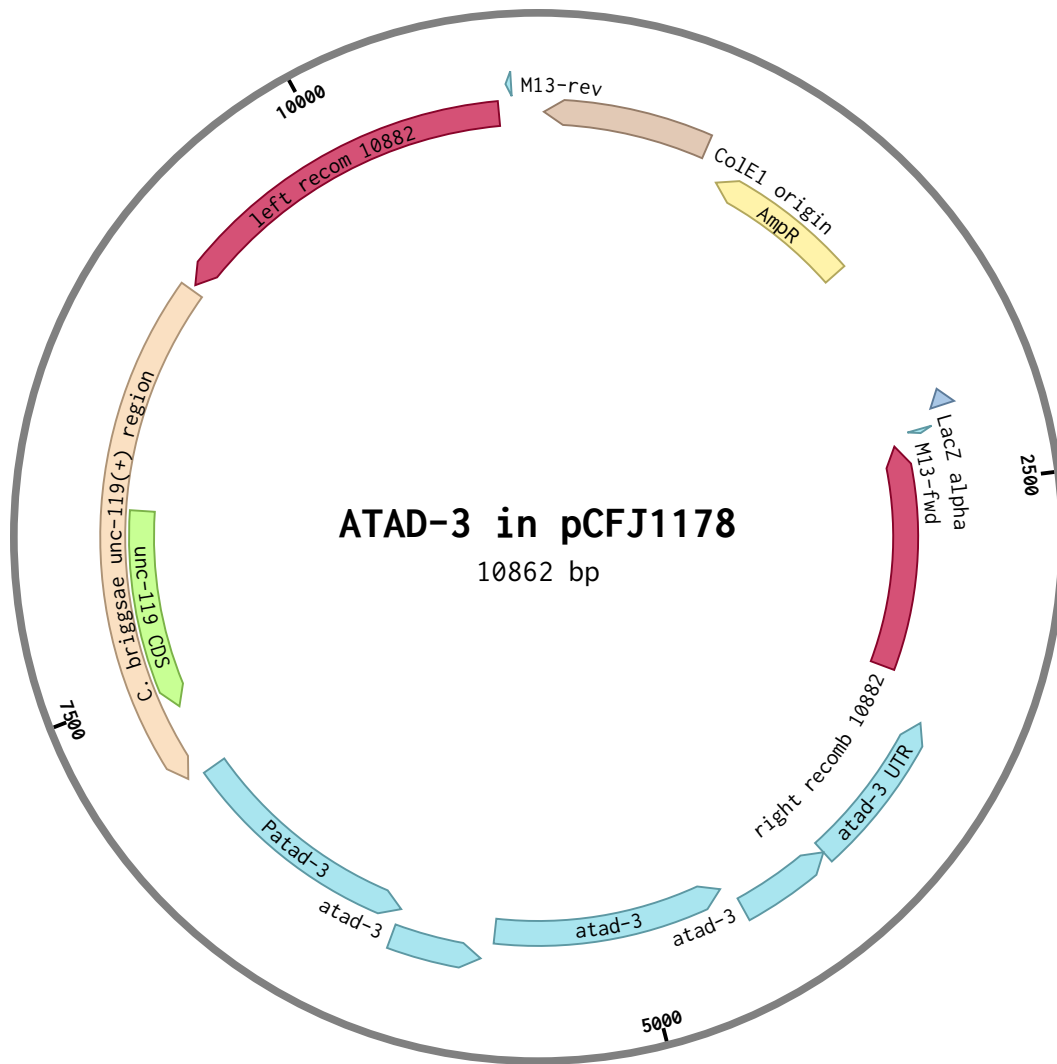


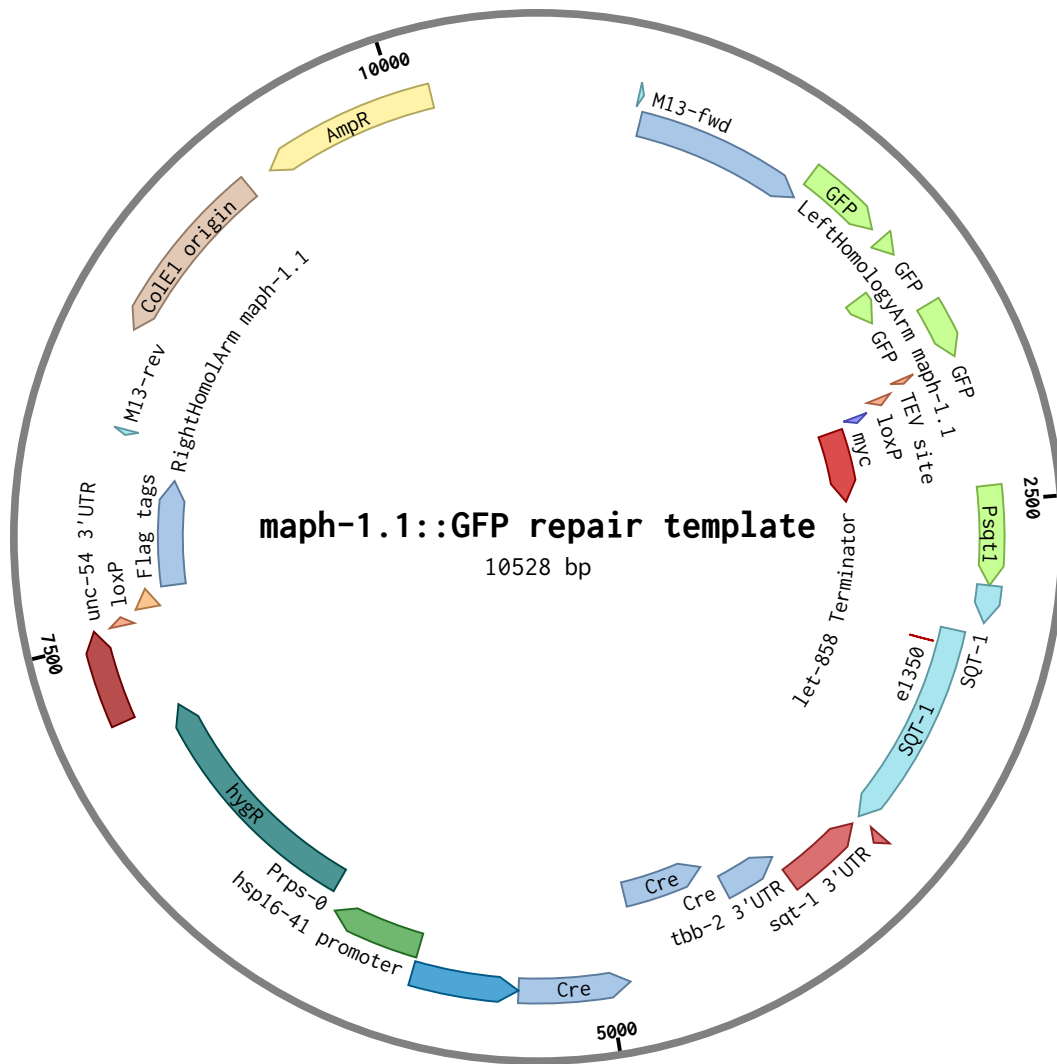
ATAD-3 (-ETAV) in pCFJ1178 (10767 bp)



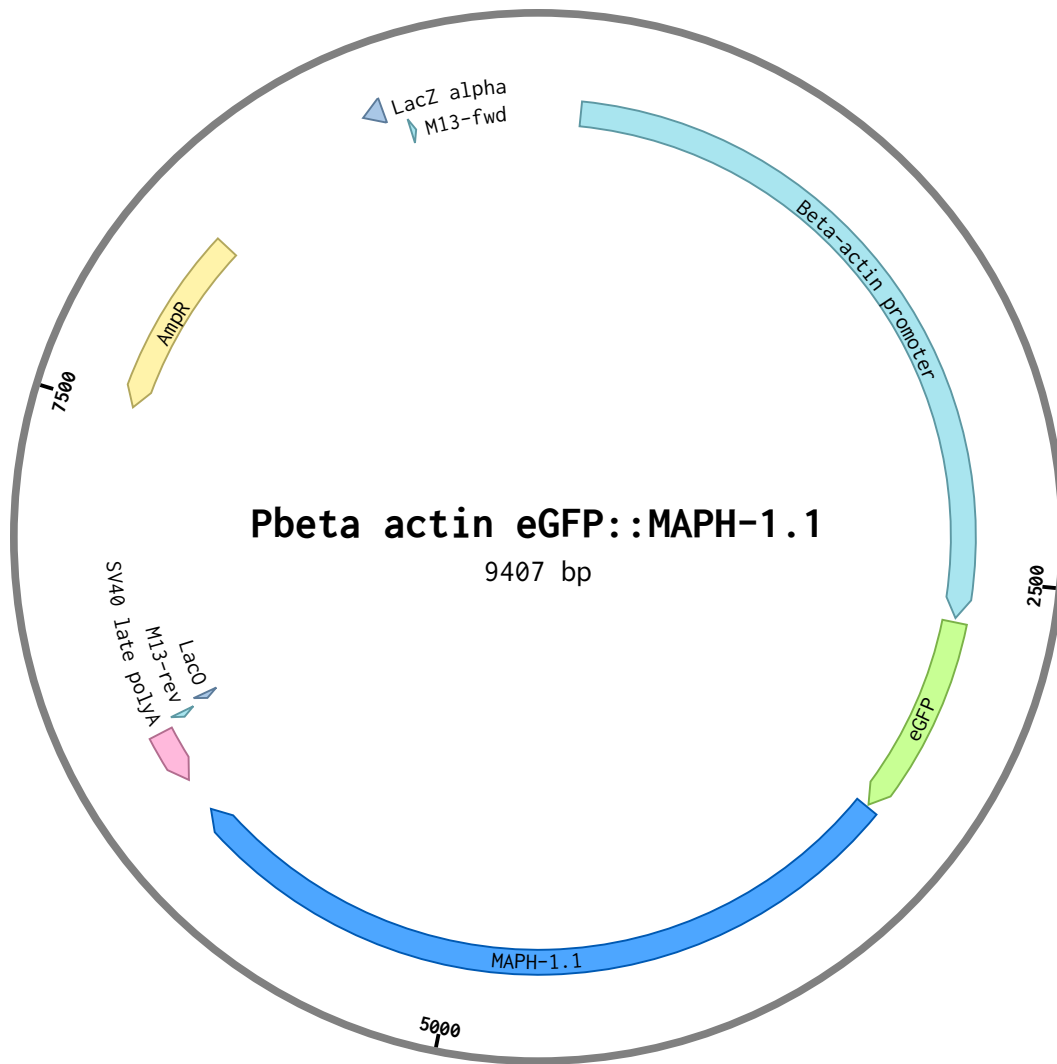
ATAD-3 in pCFJ1178 (10862 bp)



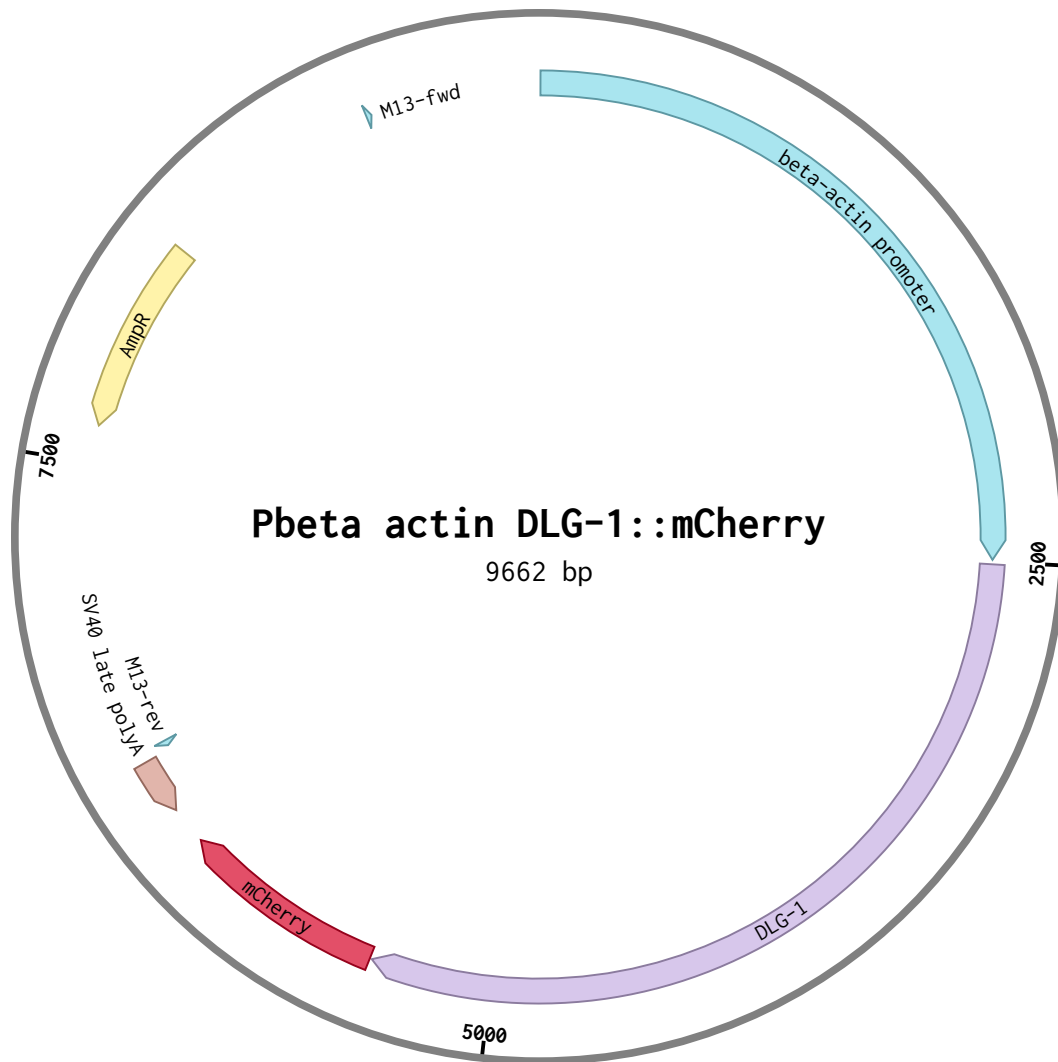
maph-1.1::GFP repair template (10528 bp)



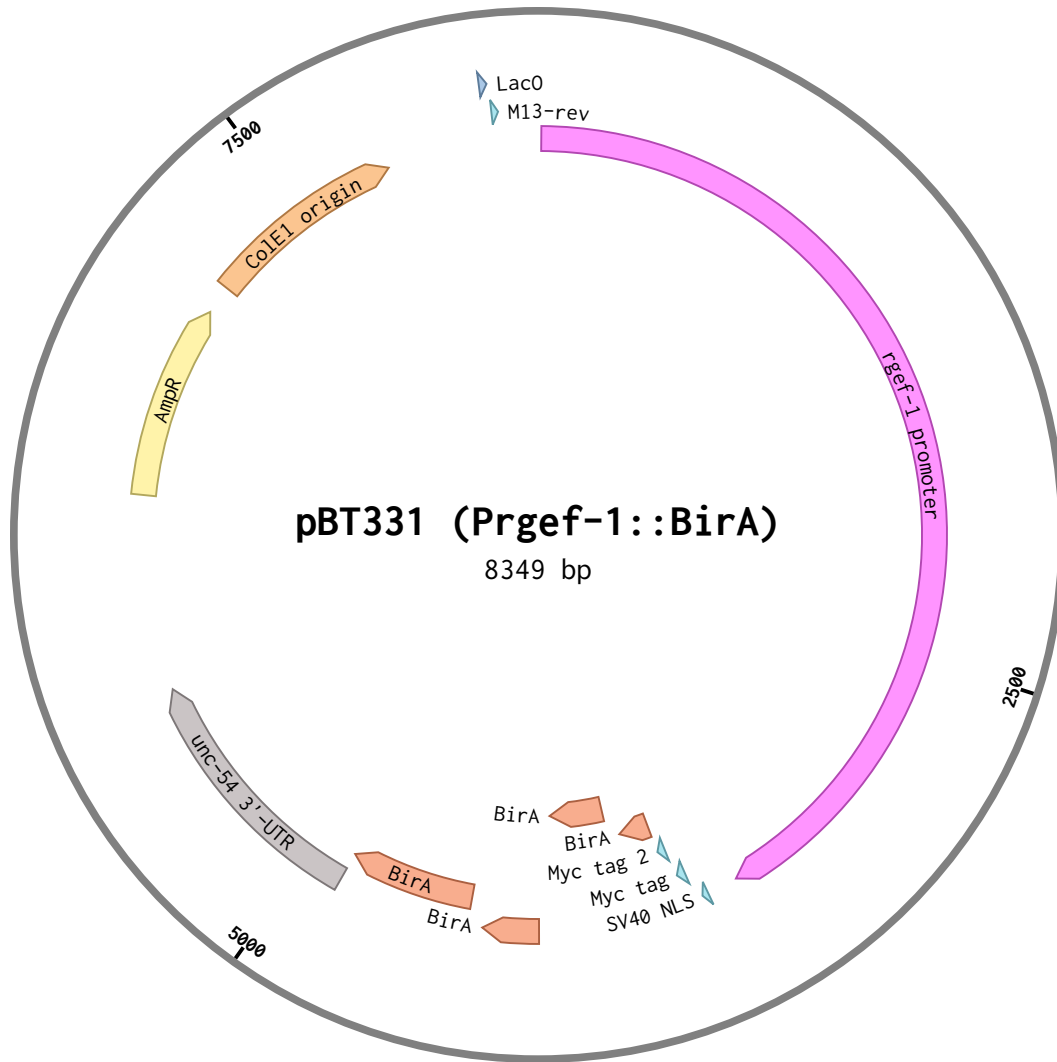
Pbeta actin eGFP::MAPH-1.1 (9407 bp)



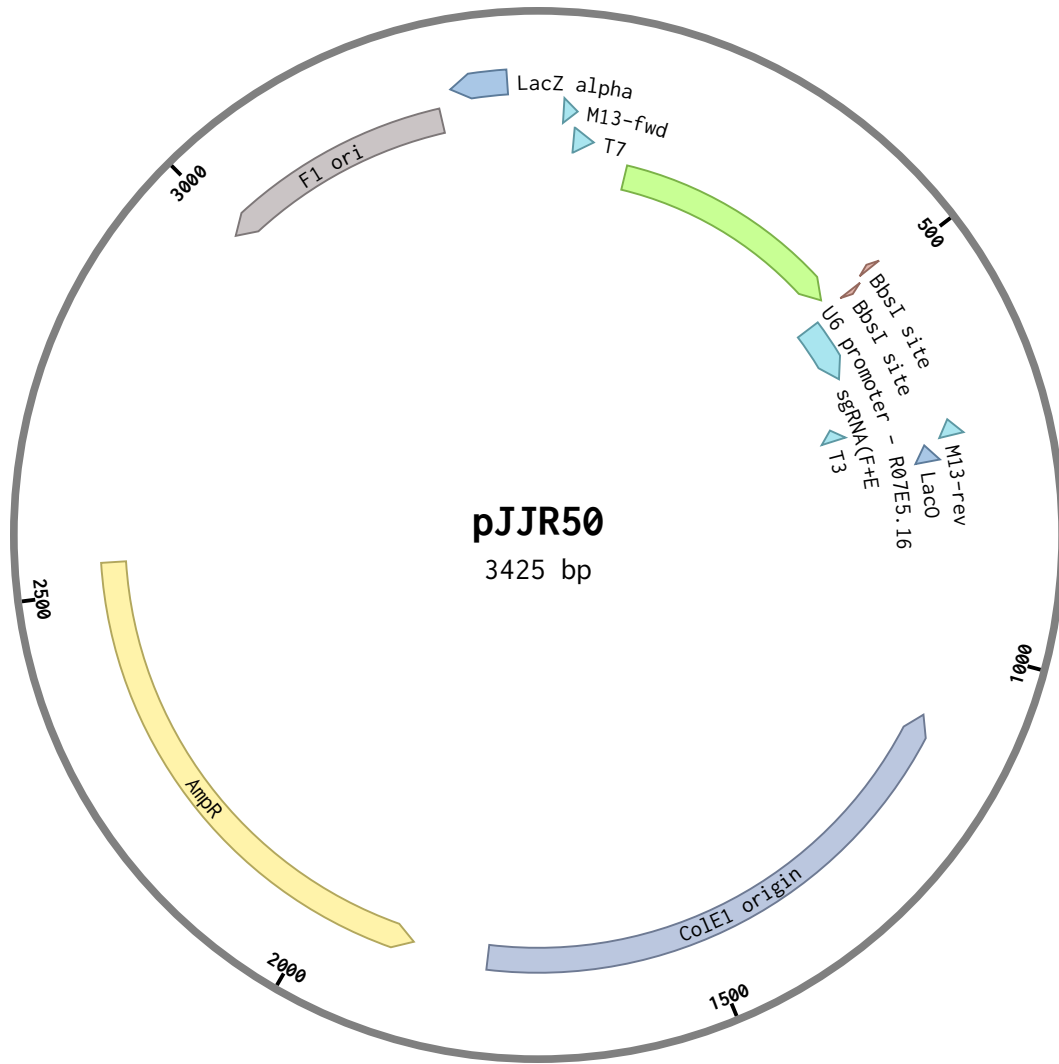
Pbeta actin DLG-1::mCherry (9662 bp)



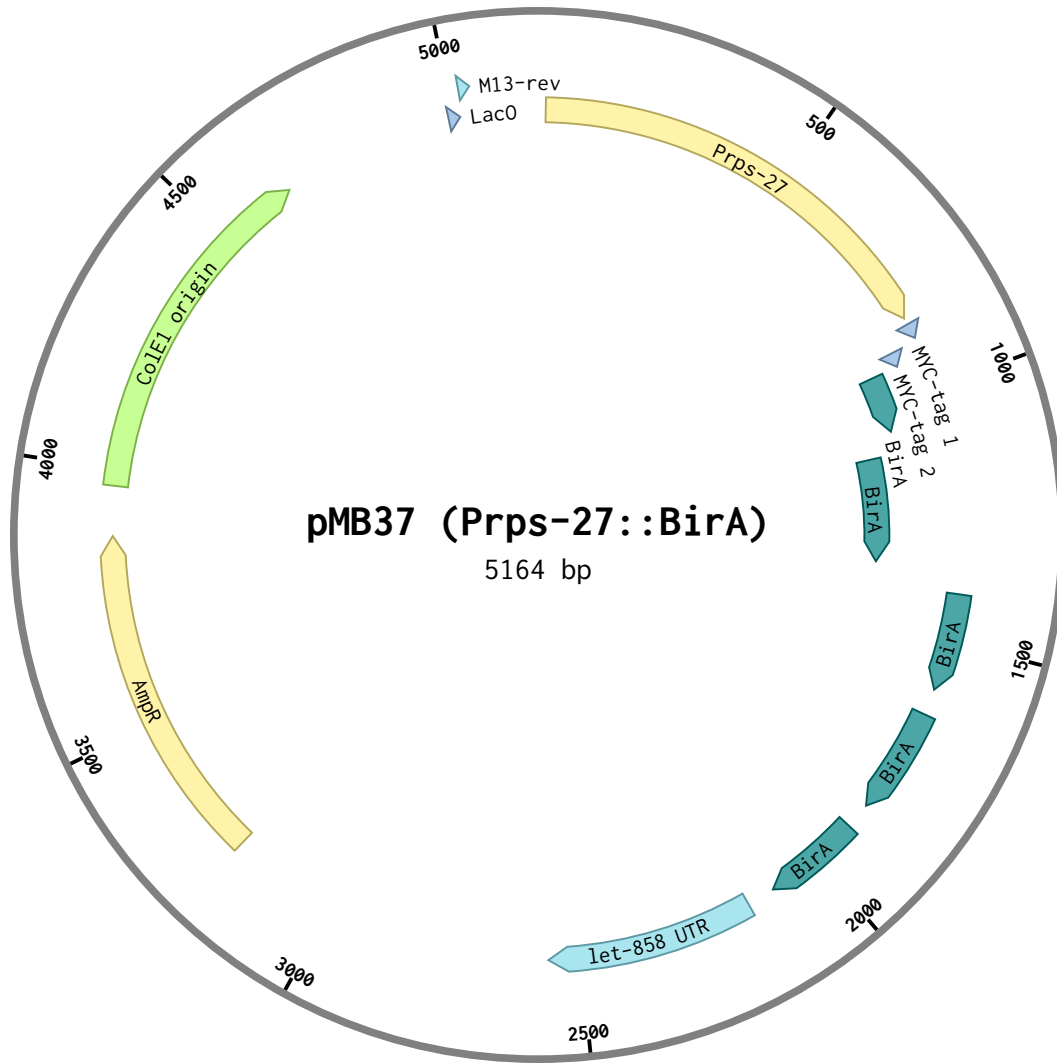
pBT331 (Prgef-1::BirA) (8349 bp)



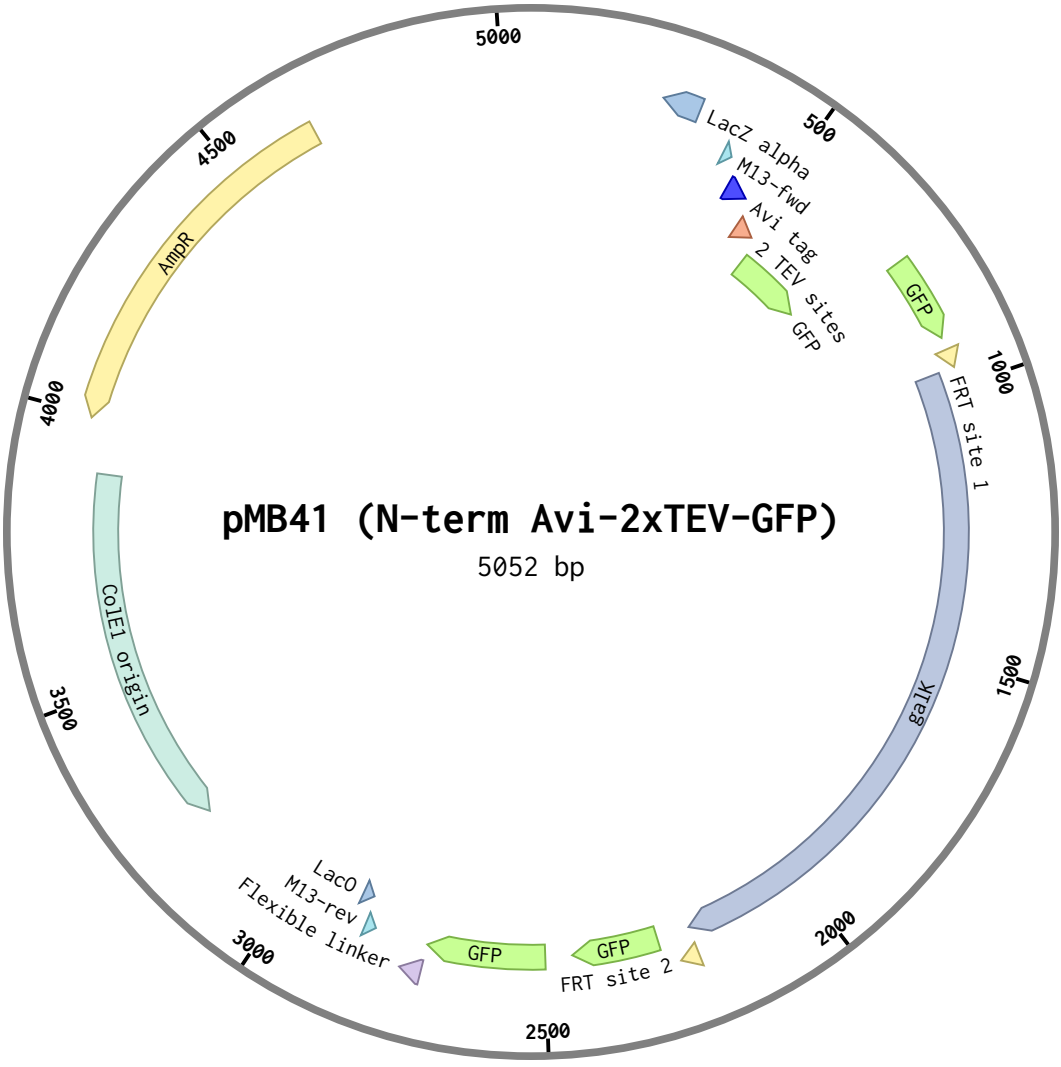
pJJR50 (3425 bp)



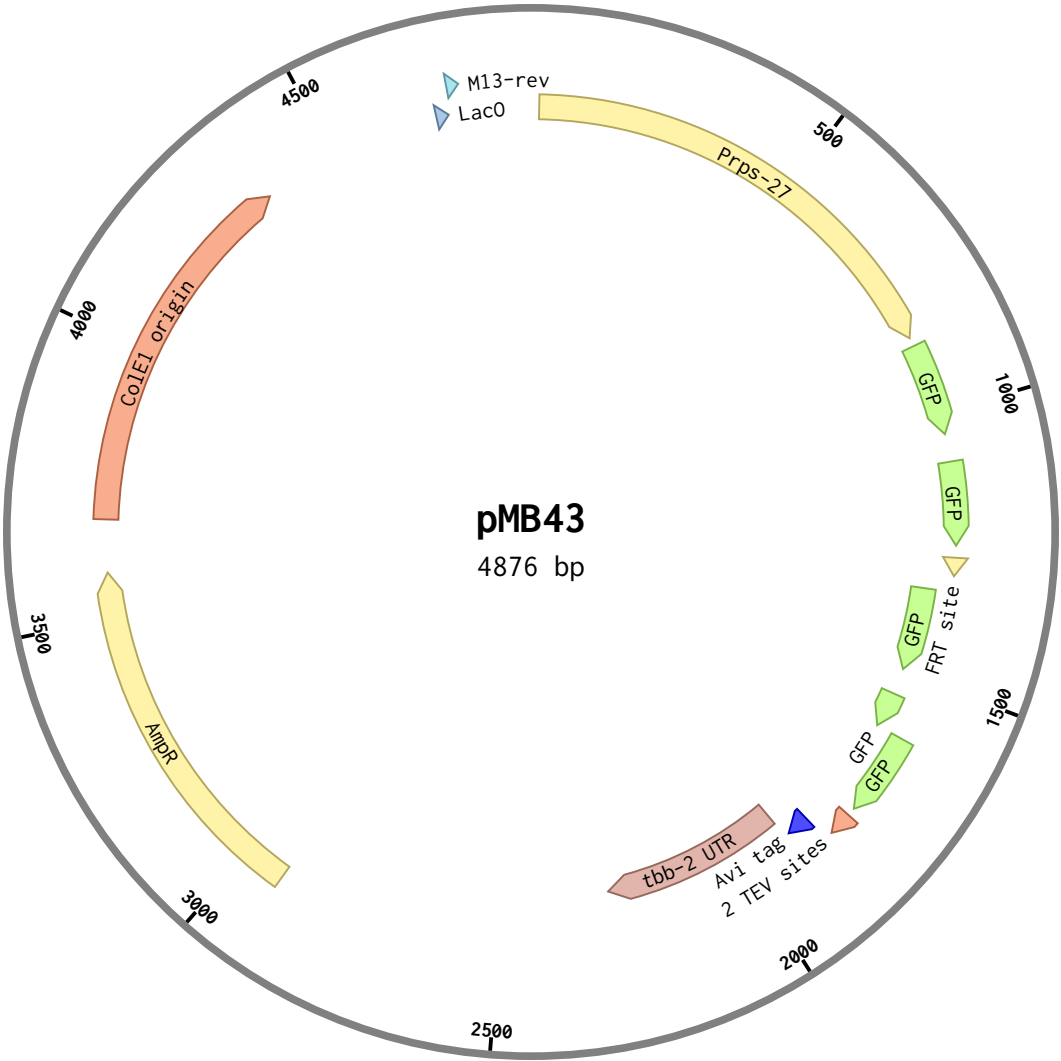
pMB37 (Prps-27::BirA) (5164 bp)



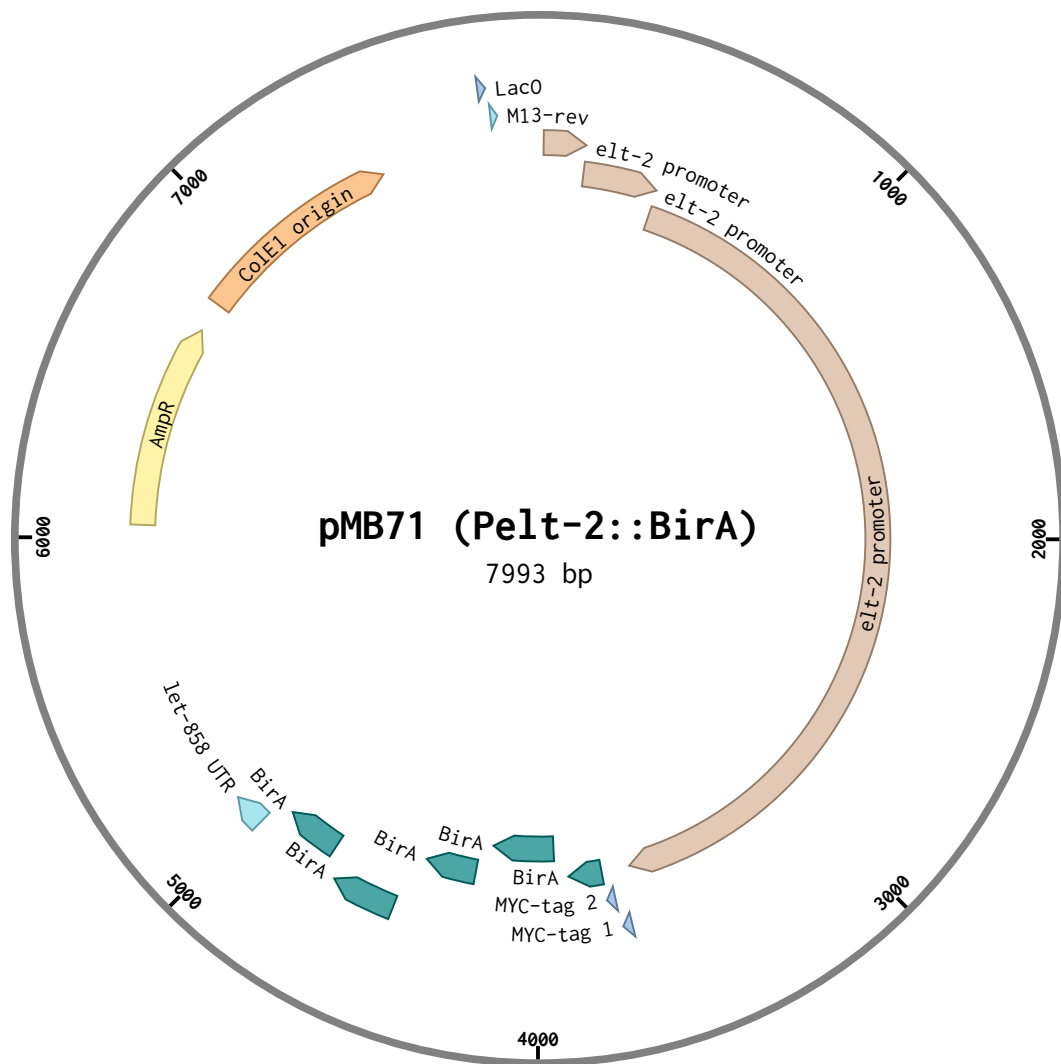
pMB41 (N-term Avi-2xTEV-GFP) (5052 bp)



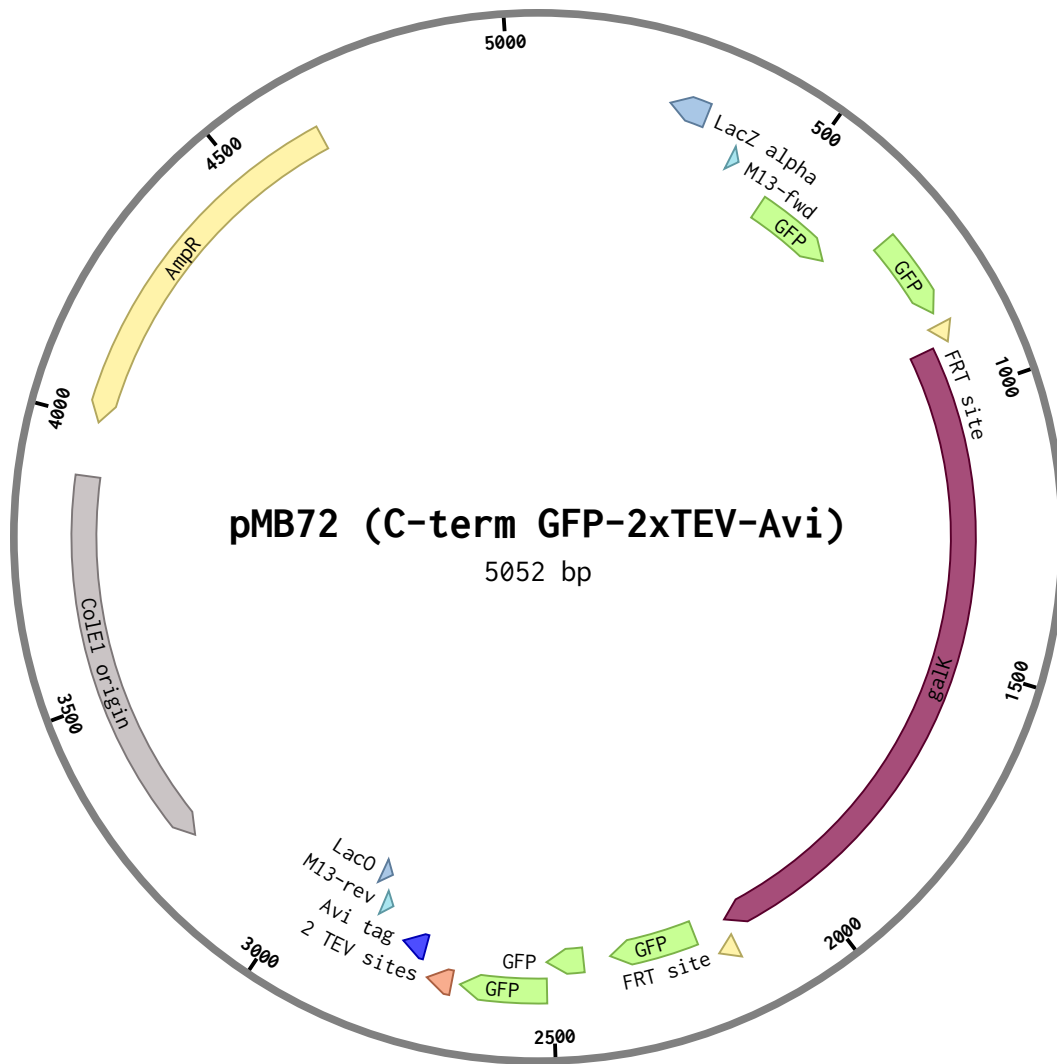
pMB43 (4876 bp)



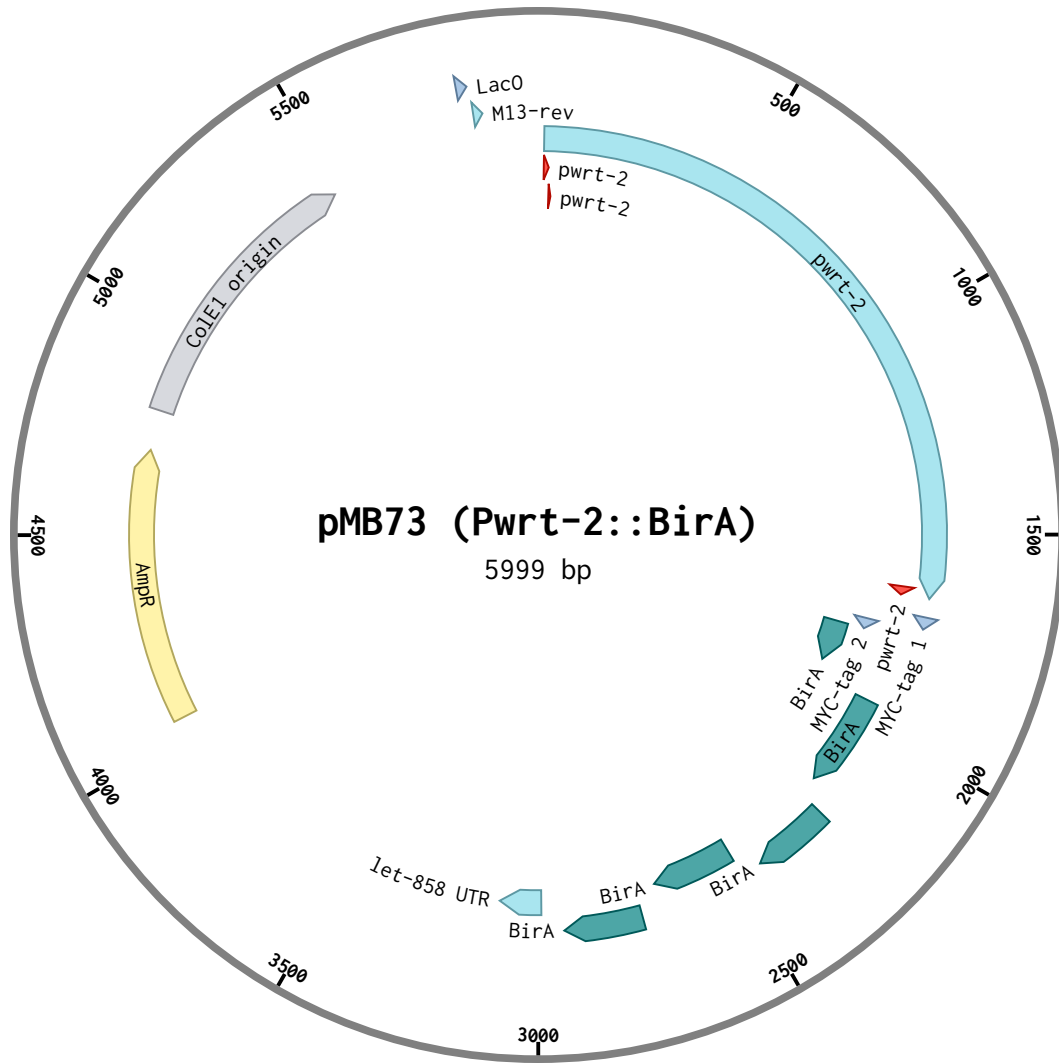
pMB71 (Pelt-2::BirA) (7993 bp)



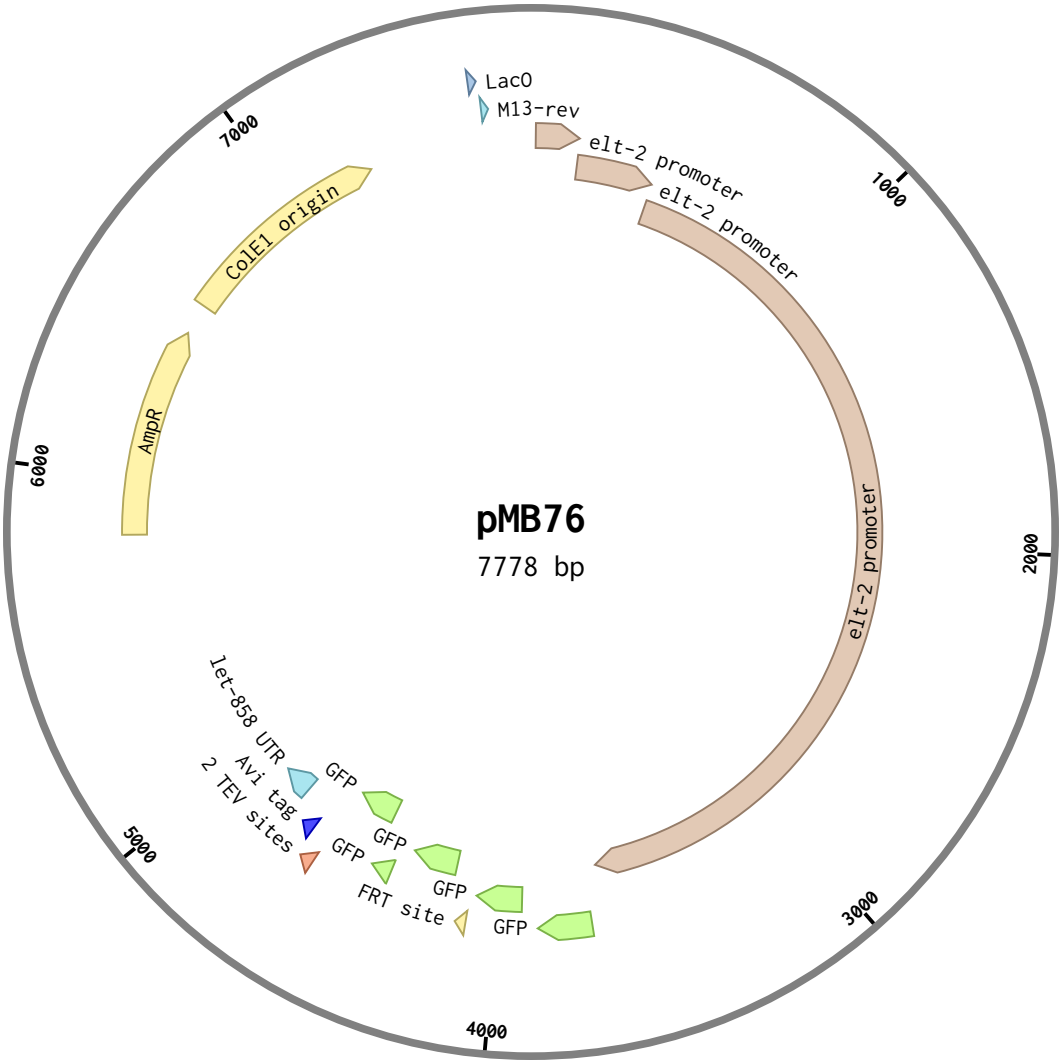
pMB72 (C-term GFP-2xTEV-Avi) (5052 bp)



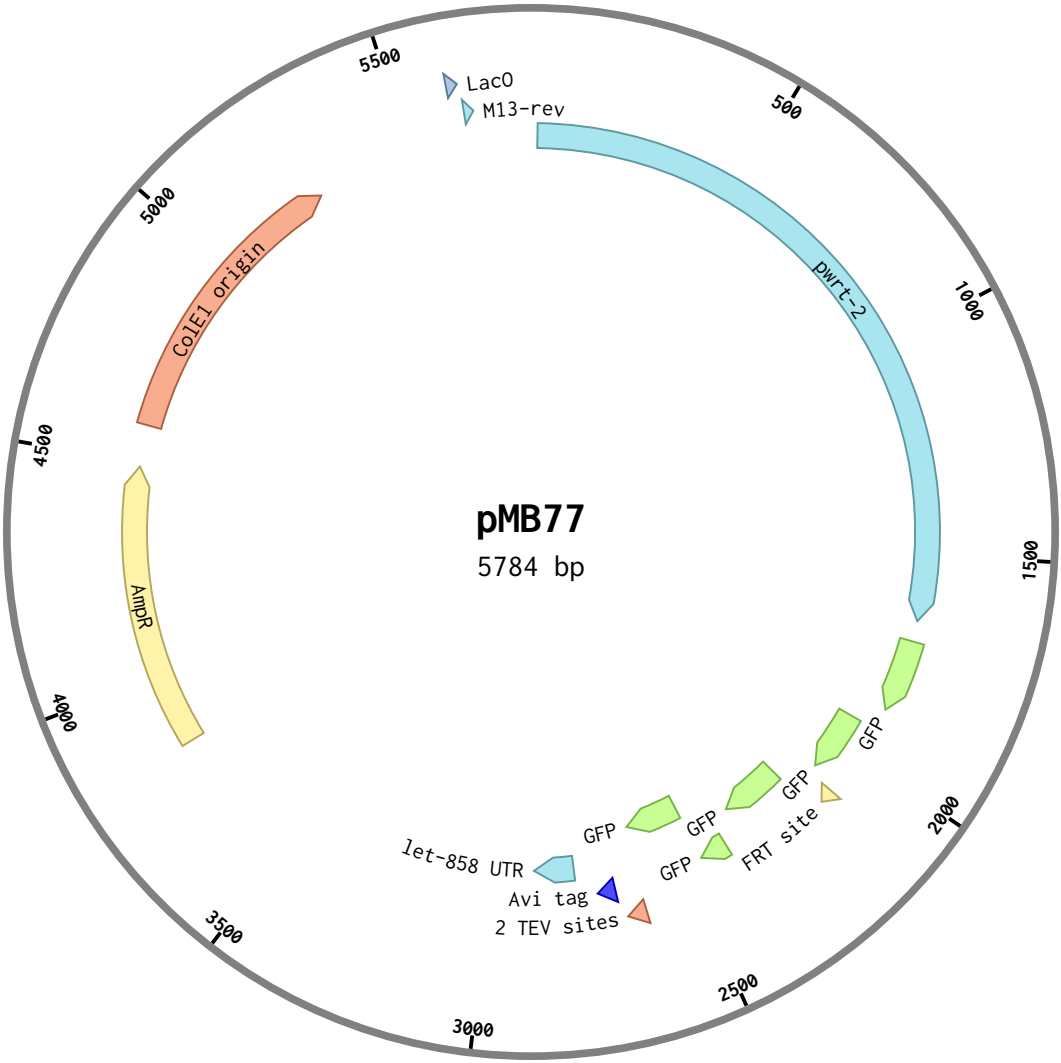
pMB73 (Pwrt-2::BirA) (5999 bp)



pMB76 (7778 bp)

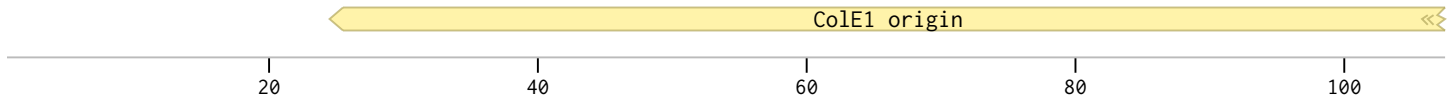


pMB77 (5784 bp)

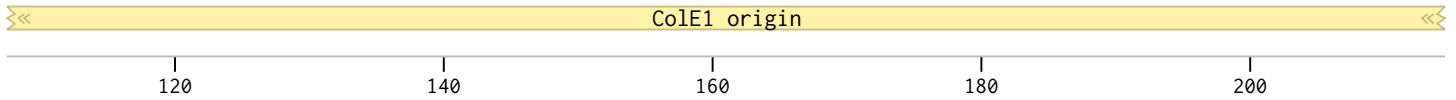


ATAD-3 (-ETAV) in pCFJ1178 (10767 bp)

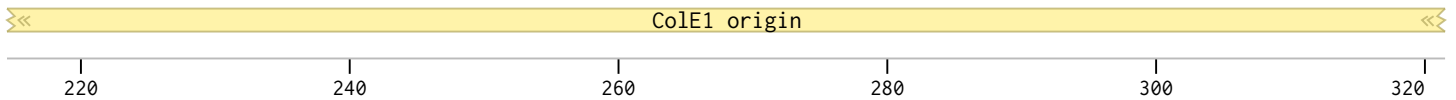
gcaaaagaccaggaaccgtaaaaaaggccggttgctggcggtttttccataggtccgccccctgacgagcatcacaaaaatcgacgctcaagtacaggtggcgaa
cgttttctggctccttggcatttttccggcgcaacgaccgcaaaaaggatatccgaggcgggggactgctcgtagtgttttagctgcgagttcagttccaccgctt



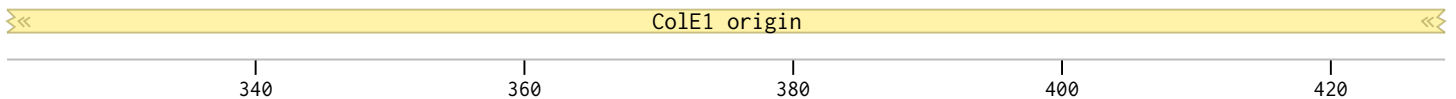
acccgacaggactataaagataaccaggcgtttccccctggaagctccctcgtgcgtctcctgttccgacctgccgcttacggatacctgtccgcttttccct
tgggctgtcctgatatttctatggtccgcaaaggggaccttcgagggagcacgcgagaggacaaggctgggacggcgaatggcctatggacaggcggaaagaggga



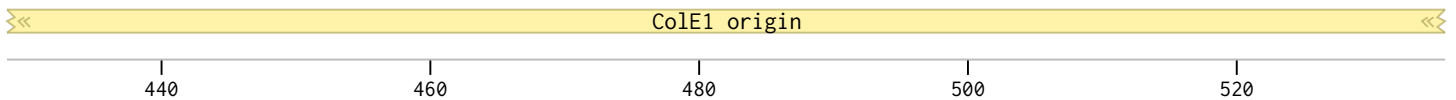
tcgggaagcgtggcgcttttctcatagctcacgctgtaggtatctcagttcgggtgtaggtcggttcgctccaagctgggctgtgtgcacgaacccccgttcagccga
agcccttcgcaccgcgaagagtatcgagtgcgacatccatagagtcaagccacatccagcaagcgaggttcgacccgacacacgtgcttggggggcaagtccgggt



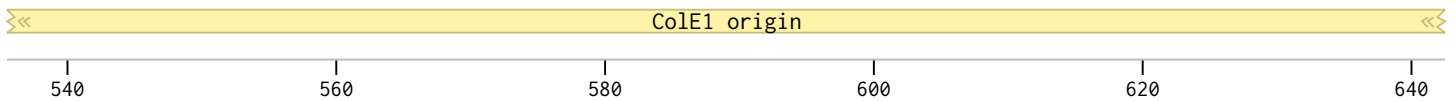
ccgctgcgccttatccggtaactatcgtcttgagtccaacccggtaagacacgacttatcgccactggcagcagccactggtaacaggattagcagagcgaggtatg
ggcgacgcggaatagccattgatagcagaactcaggttgggccattctgtgctgaatagcggtagccgtcgtcggtagaccattgtcctaatacgtctcgtccatac



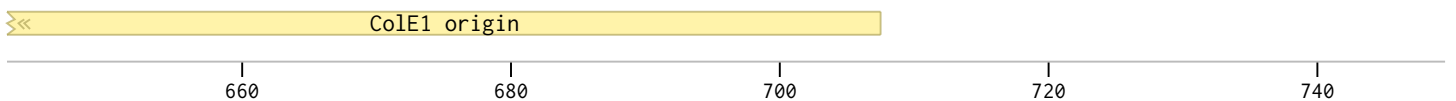
taggcggtgctacagagttcttgaagtgggtggcctaactacggctacactagaaggacagtatttggatatctgcgctctgctgaagccagttaccttcgaaaaaga
atccgccacgatgtctcaagaacttcaccaccggattgatgccgatgtgatcttctgtcataaaccatagacgcgagacgacttcggtcaatggaagccttttct



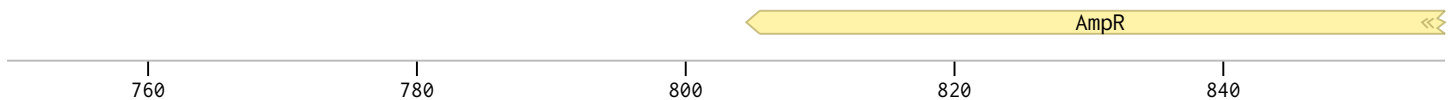
gttggtagctcttgatccggcaaaaaaccaccgctggttagcgggtggtttttgtttgcaagcagcagattacgcgcagaaaaaaggatctcaagaagatccttt
caaccatcgagaactaggccgtttgtttgggtggcgaccatcgccacaaaaaaacaaacgttcgtcgtctaatagcgcgtcttttttcttagagttcttctaggaaa



gatcttttctacggggtctgacgctcagtggaacgaaaactcacgttaagggttttggatcatgagattatcaaaaaggatcttcacctagatccttttaaatataa
ctagaaaagatgccccagactgcgagtcaccttgcttttgagtgaattccctaaaaccagtactctaatagtttttcttagaagtggatctaggaaaatttaattt

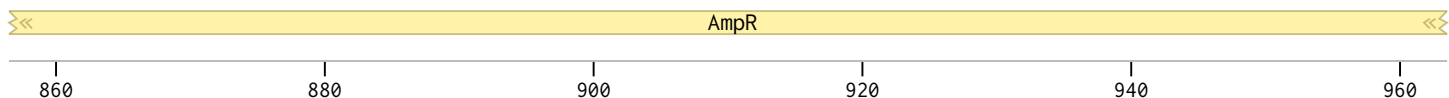


aatgaagttttaaatcaatctaagtatatatgagtaaacttggctgacagttaccaatgcttaatcagtgaggcacctatctcagcgatctgtctatttcgttca
ttacttcaaaatttagttagatttcatatatactcatttgaaccagactgtcaatggttacgaattagtcactccgtggatagagtcgctagacagataaagcaagt

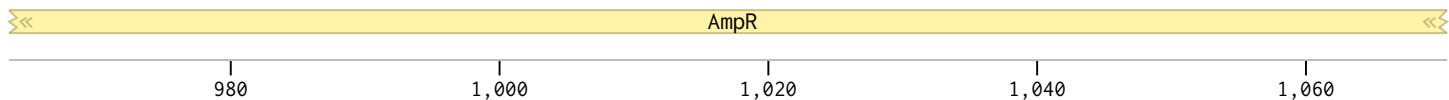


ATAD-3 (-ETAV) in pCFJ1178 (10767 bp) (from 857-1819 bp)

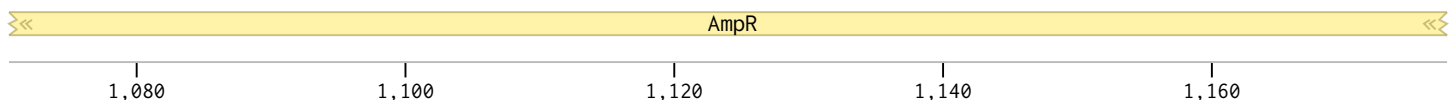
tccatagttgcctgactccccgtcgtgtagataactacgatacgggagggccttaccatctggccccagtgctgcaatgataccgcgagaccacgctcaccggctcc
aggatatcaacggactgaggggcagcacatctattgatgctatgccctcccgaatggtagaccgggtcacgacgttactatggcgctctgggtgagtgccgagg



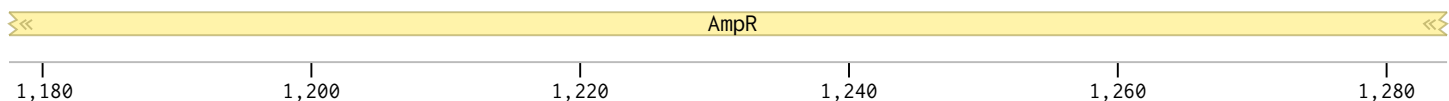
agatttatcagcaataaaccagccagccggaaggccgagcgcagaagtggctcctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagag
tctaaatagtcgttattttggctggctggccttcccggctcgcgtcttcaccaggacgttgaaataggcggaggttaggtcagataattaacaacggcccttcgatctc



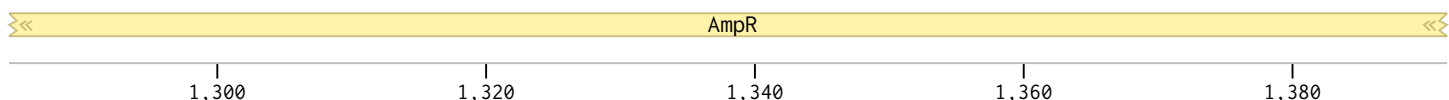
taagtagttcgccagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtgggtgcacgctcgtcgtttggtaggttcattcagctccggttcccaa
attcatcaagcggtaattatcaaacggttgcaacaacggtaacgatgtccgtagcaccacagtcgcgagcagaaaccataccgaagtaagtcgaggccaaggggt



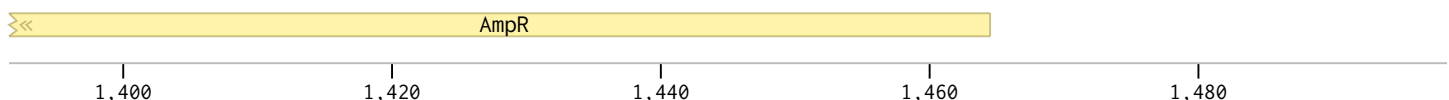
cgatcaaggcaggttacatgatccccatgttgtgcaaaaaagcggtagctccttcggctcctccgatcgttgtcagaagtaagttggccgcagtggtatcactcat
gctagttccgctcaatgtactagggggtacaacacgttttttcgccaatcgaggaagccaggaggctagcaacagtccttattcaaccggcgctacaatagtgagta



ggttatggcagcactgcataattctcttactgtcatgccatccgtaagatgcttttctgtgactgggtgagtactcaaccaagtcattctgagaatagtgtagcggc
ccaataaccgtcgtgacgtattaagagaatgacagtacggtaggcattctacgaaaagacactgaccactcatgagttgggttcagtaagactcttatcacatacggc



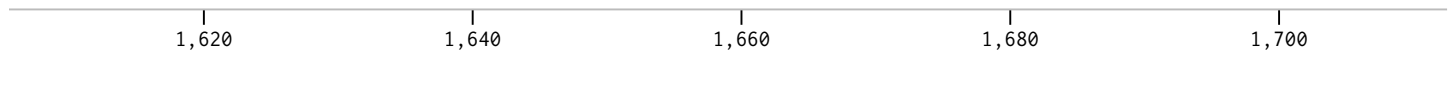
gaccgagttgctcttggccggcgtcaatacgggataataccgcgccacatagcagaactttaaaagtgtcatcattggaaaacgttcttcggggcgaaaactctca
ctggctcaacgagaacgggcccagttatgccctattatggcgcggtgtatcgtcttgaaatttcacgagtagtaaccttttgcaagaagccccgccttttgagagt



aggatcttaccgctgttgagatccagttcgtatgaaccactcgtgcaccaactgatcttcagcatcttttactttcaccagcgtttctgggtgagcaaaaacagg
tcctagaatggcgacaactctaggtcaagctacattgggtgagcacgtgggttgactagaagtcgtagaaaatgaaagtgggtcgcaaagaccactcgtttttgtcc



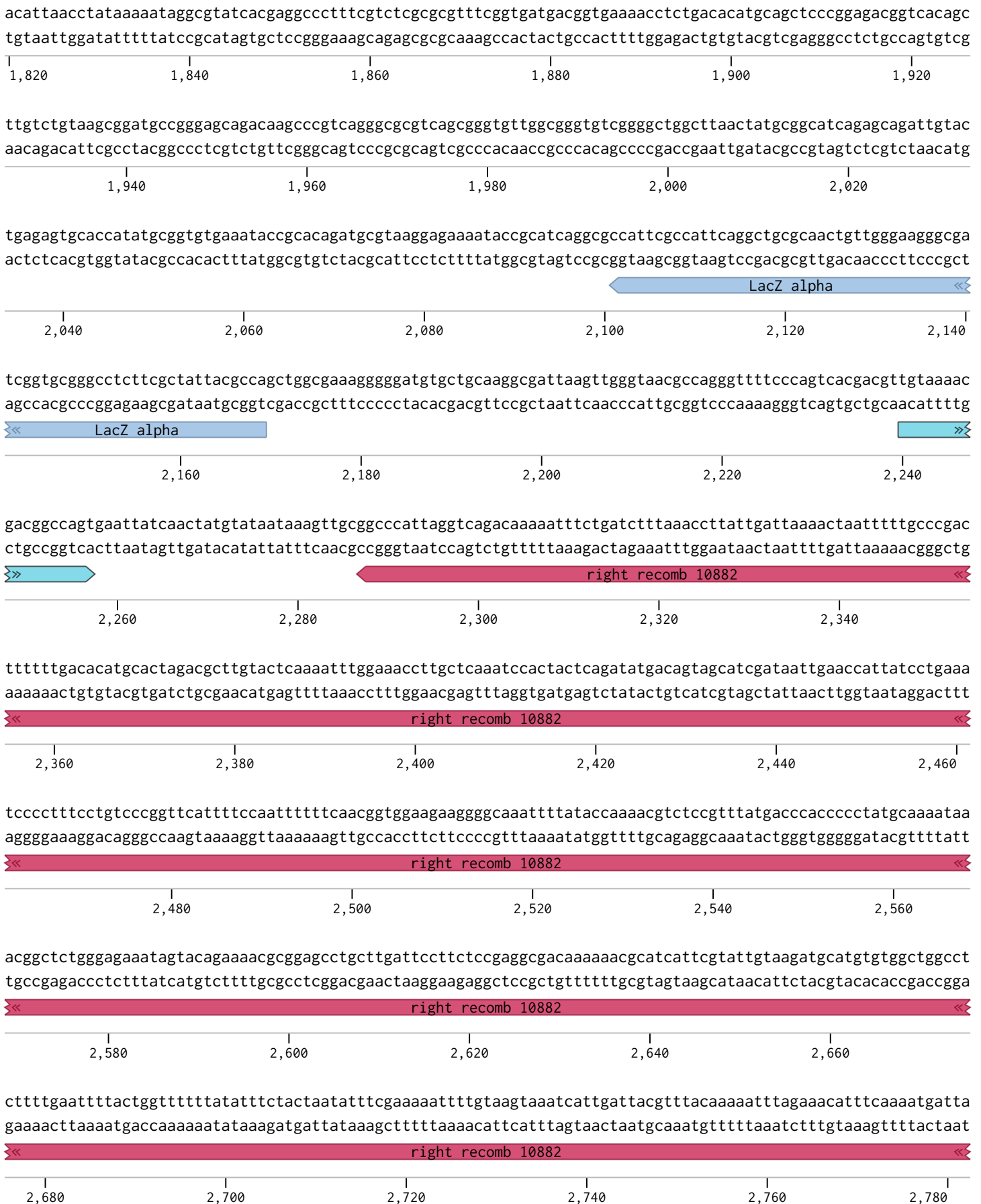
aaggcaaaatgccgcaaaaaagggaataagggcgacacggaatgttgaaactcatactcttcctttttcaatattatgaagcatttatcagggttattgtctca
ttccgttttacggcgtttttcccttattcccgtgtgcctttacaacttatgagtatgagaaggaaaaagtataataacttcgtaaatagtcaccaataacagagt



tgagcggatacatatttgaatgtatttagaaaaataacaaataggggttccgcgcacatttccccgaaaagtgccacctgacgtctaagaacattattatcatg
actcgcctatgtataaacttacataaatctttttatttgtttatccccaaggcgcgtgtaaaggggcttttcacggtggactgcagattctttggtaataatagtagt



ATAD-3 (-ETAV) in pCFJ1178 (10767 bp) (from 1820-2782 bp)



ATAD-3 (-ETAV) in pCFJ1178 (10767 bp) (from 2783-3638 bp)

cttctaaattaattatatttacaggttagttcgagttacttatgaccttccaatccgccatatccgccaaggacgtccaattaatttttttagaattatttttaac
gaagatttaattaataataaatgtccaatcaagctcaatgaatactggaaggttaggcggtataggcggttctctgaggttaattaaaaaatcttaataaaaaattg

right recomb 10882

2,800 2,820 2,840 2,860 2,880

acatgtattatttttaacaataaattattcatgaatcatcaaatgtatatgttctactataatatttaggtcaaactatagaaaagaaatccttgtttttgaac
tgtacataataaaaaattgttattttaataagtacttttagtagtttacatatacaagatgatattataaatccagtttgatatcttttcttaggaacaaaaaccttg

right recomb 10882

2,900 2,920 2,940 2,960 2,980

aaaggagttcagatcctgtgcatttgatcttggatccacatctttggatccatgggaaagcttggcactgatcaagaaggattcttcaaatatctaaaattgccggct
tttctcaagcttaggacacgtaaactagaacctaggtgtagaaccaggtaccctttcgaaccgtgactagttcttctaagaagttatagattttaacggccga

right recomb 10882

3,000 3,020 3,040 3,060 3,080 3,100

gcccgtagaattccatcagttttccagagtttttagtgaataattgcatcccgtagaaacaatctacacaacggtaaaaaggaccattatttttaccgtaccgttt
cgggcacatctaaggtagtcaaaaggtctcaaaatcacttttaacgtagggcaatctttgttagatgtgttgccatttttctgggtaataaaaatggcatggcaaa

right recomb 10882

3,120 3,140 3,160 3,180 3,200

tcctttatggccctctatgcaaaaaattatagcgtggaggggcagtacagaataataaagtgtgagaaaaaaaactgctctgcgagaaatagtacagcaaacgcgga
aggaaataccgggagatacgttttttaatatcgacctccccgtcatgtcttattatttcacactcttttttgacgagacgtctttatcatgtcgtttgcgcct

right recomb 10882

3,220 3,240 3,260 3,280 3,300

gcatgcttgattctatccactttgtacaagaaagctgggttaatacgactcactagtgggcagatcttcgaatgcatcGcgcgacccgtacgggatgcacggaagat
cgtacgaactaagataggtgaacatgttctttcgaccaattatgctgagtgatcacccgtctagaagcttacgtagCgcgctggcatgccctacgtgccttcta

atad-3 UTR

3,320 3,340 3,360 3,380 3,400 3,420

tctgaaattattgtttttcaggattttctgatattgaaaattgtggtttctagctttttattgttgcttttctggaaatattaggctaaaagctcataaacgtttaat
agactttaataacaaaaagtcctaaagactataacttttaacaccaaagatcgaaaaataacaacgaaaagacctttataatccgattttcgagtatttgcaaat

atad-3 UTR

3,440 3,460 3,480 3,500 3,520

ttcaattgatttcttattttctgaaaaaacatatattgccagctttttccttcttacctgtgcataaacagaaagacctctccggcctcccgcaagtttttgttt
aagttaactaaagaataaaaagacttttttggtatataacggtcgaaaaaggaagaatggacacgtatttgccttcttgagaggccggaggcggttcaaaaaacaa

atad-3 UTR

3,540 3,560 3,580 3,600 3,620

ATAD-3 (-ETAV) in pCFJ1178 (10767 bp) (from 3639-4494 bp)

cagtatccatttgatcgttttaatcgaacatttgggctgaaaattatTTTTTgcttttctcttcagaagctttcaaaatatgaaaaattgaagtgaacaaaag
gtcataggtaaactagcaaaattagcttgtaaaccgacttttaataaaaaaacgaaaaagagaagtcttcgaaagttttatactttttaacttcacgttgttttc

«« atad-3 UTR »»

3,640 3,660 3,680 3,700 3,720 3,740

cgattattagtttagtattacattaaaaatgaagagtttctttattaacaaaaaaaaacaataatctttcactctacttaattactacacaaaaactaaataaaaat
gctaataatcaatcataatgtaattttacttctcaagaaataattgtttttttttgttattagaagtgagatgaatttaatgatgtgttttgattttattttta

«« atad-3 UTR »»

3,760 3,780 3,800 3,820 3,840

gactgacctagaaaaataaggggaaaacgaaaaaaaaacaatagaaaaacaagggcctaattgaattatctaaaaaattatattatcagcaaaatttctgattaagaa
ctgactggatcttttatcccttttgcctttttttgttatcttttgttcccgattaaacttaatagatttttttaataataatagtcgttttaagactaattctt

«« atad-3 UTR »»

3,860 3,880 3,900 3,920 3,940

tgaattacgaaattaccggaagtttgaagatttcagaaaagaaaaacaacaaaaaacgtaaatagaaaaacaatagagtatcatgaacaaggaaatgaatatttt
actttaatgctttaatggccttcaaacttctaaagtcttttctttttgttgttttttgcatttatctttgttatctcatagtacttgttcctttacttataaaa

«« atad-3 UTR »»

3,960 3,980 4,000 4,020 4,040 4,060

gaaacgtacgttaTCTCTTCAACGTAGTTCGAACTTGACTTCTTGGTTACGAGCTTTCAATTGCTCCTTCTCAAGCCATTCCATCTTATGTTTCATGTTGAACCATT
ctttgcatgcaatAGAGAAGTTGCATCAAGGCTTGAAGTGAAGAACCAATGCTCGAAAGTTAACGAGGAAGAGTTCCGTAAGGTAGAATACAAGTACAACCTTGGTAA

«« atad-3 »»

4,080 4,100 4,120 4,140 4,160

GCGTCAGCAGTATTACGATCAACGATAGCCTCGGTGAGCACTCCGGTTTCAGATGCATATGCAGAAGCTTGCCATCCGATGACAAGTTTACTCAATTCTCTTCCACT
CGCAGTCGTCATAATGCTAGTTGCTATCGGAGCCACTCGTGAGGCCAAAGTCTACGTATACGTCTTCGAACGGTAGGCTACTGTTCAAATGAGTTAAGAGAAGGTGA

«« atad-3 »»

4,180 4,200 4,220 4,240 4,260 4,280

CATTCCAGATGTCTTTTTGGCAACTTCATTACACTTAGCAACCAATCAAAGTTATCGAGTTTCAGTCGTTGAGAACGAGATCCACTAGTTGCTGGAGTGACGATGT
GTAAGGTCTACAGAAAAACCGTTGAAGTAATGTGAATCGTTGGGTTAGTTTCAATAGCTCAAAGTCAGCAACTCTTGCTCTAGGTGATCAACGACCTCACTGCTACA

«« atad-3 »»

4,300 4,320 4,340 4,360 4,380

GCTCGTTGAAGTATTGCAGAAGAATTCGTTACGTTCTTCCATTCTGGCAGTGGAATTCGACAAGCTGATCGAAActgaaaagaataataaattctgttttttat
CGAGCAACTTCATAACGTCTTCTTAAGCAAGTGAAGAAGTAAGGACCGTCACACTTAAGCTGTTTCGACTAGCTTTgacttttcttattatttaagacaaaaata

«« atad-3 »»

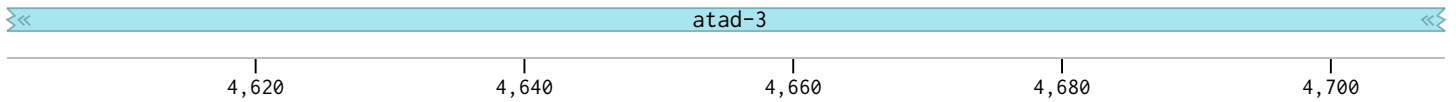
4,400 4,420 4,440 4,460 4,480

ATAD-3 (-ETAV) in pCFJ1178 (10767 bp) (from 4495-5350 bp)

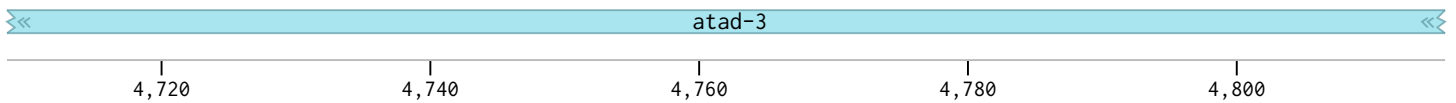
ttaaaaaaaaggattacCGATCGTTAACTGCCAATCGAACTGCTCTGGCTGATTAGAAGCCACGACAAGCATGAACTTTCTCGACTGCTCTCCAGTTCTGAAGAGG
aatttttttccctaatgGCTAGCAATTGACGGGTAGCTTGACGAGACCGACTAATCTTCGGTGCTGTTCTGTAAGAGCTGACGAGAGGTCAAGACTTCTCC



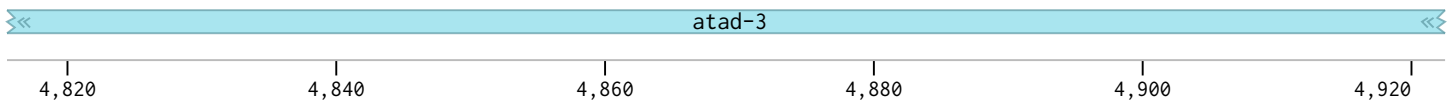
AAAGCGTTGAGAGCTGCACGTGTGCTTCAGACATTCCATTCTTTGATCTCTTTTGCAAAAAAGCGTCAGCTTCGTCAATAAAAAACAATCAACCTTTGCGACTTTT
TTTCGCAACTCTCGACGTGCACACAGAAGTCTGTAAAGTAAGAAACTAGAGAAAACGTTTTTCGCAAGTCGAAGCAGTTATTTTGTAGTTGGGAAACGCTGAAAA



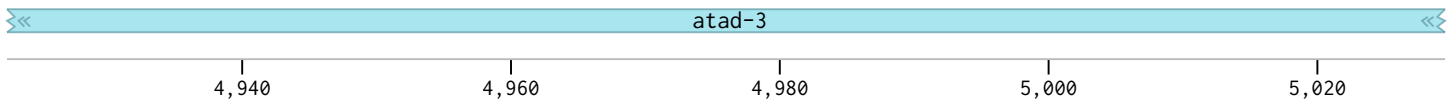
TGAAGCCCAGTCGAATACTTTATGAATTGCAGATACTCCATCACGTCCAAGTGGAGCAATATCTCCTCCAGTGAGAACTGCGTAATCGAGTCCGGAATGTTGAGCCA
ACTTCGGGTCAGCTTATGAAATACTTAACGTCTATGAGGTAGTGCAGGTTACCTCGTTATAGAGGAGGTCACTCTTGACGCATTAGCTCAGGCCTTACAACCTCGGT



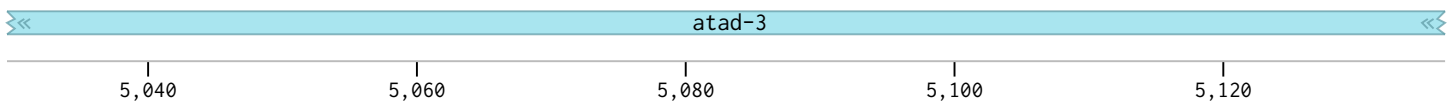
AACTCTTTGCGAAAAGTGCTTTCCGGTTCCTGGTGGTCCGTAGAACATTACATTACGGAAAAGTCCATTATTTCTCTTTGTGTTTGAGGTGGTAATGGCAATATCA
TTGAGAAACGCTTTTCACAGAAAGGCCAAGGACCACCAGGCATCTTGTAATGTAATGCCTTTTCAGGTAATAAAGAGAAACACAACTCCACCATTACCGTTATAGT



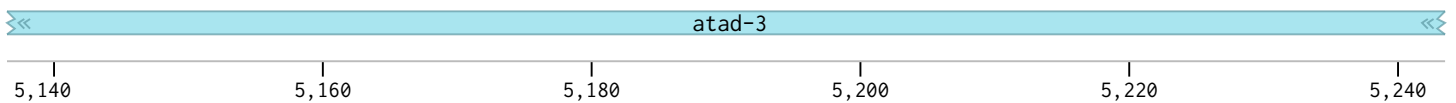
CGAAGACGACGTTCCAAAGCAGGTGGTAATACAACCTCATTGAGTGGATCCTTCTTCTGACGAGTCATCATTGAACACTTTTAATTGGGTGTTTGAGTACTTCAAG
GCTTCTGCTGCAAGGTTTCGTCCACCATTATGTTGAGGTAAGTCACCTAGGAAGAAGACTGCTCAGTAGTAACTTGTGAAAATTAACCCACAACTCATGAAGTTC



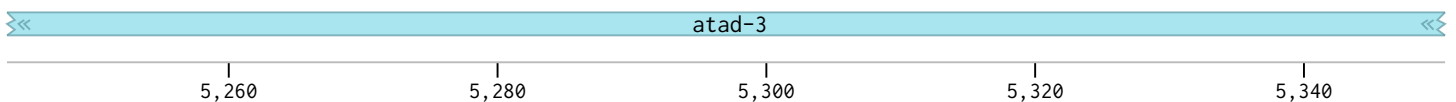
TGGAGTGATTCTGGATGTTTCTTACAAGACTTGGTTTTCCGAGACGAGATTCGATGTATCTTGCGGTGACTCCAGTTCCTCGTTTAGCGGTATACCAGCCGACAG
ACCTCACTAAGACCTACAAAGAGAATGTTCTGAACAAAAGGCTCTGCTCTAAGCTACATAGAAGCCACTGAGGTCAAGGAGCAAATCGCCATATGGTCGGCTGTC



CCAAAGCAGTCAATCCTCTACTGCAGCAGCATTTTCGTTTTATCATTCAAAAATTGATTGAGTCCAGAACCGATAAGTTCTCCACTGGTTTTAATTTTTTCAATG
GGTTTCGTCAGTTAGGAGGATGACGTCGTCGCTAAAAGCAAAATAGTAAGTTTTTAATAACTCAGGTCTTGCTATTCAAGAGGTGACCAAAATAAAAAGTTAC

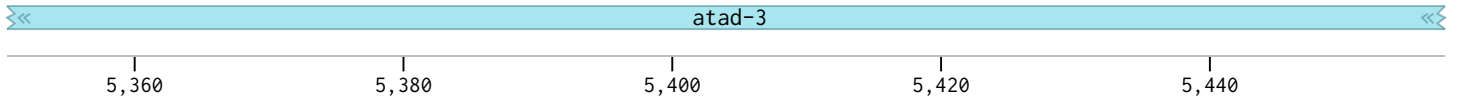


ACAGTTTTTCGGTCTCTTCTTCTGTAAGCTTCATTTGCTCTAAGTTTACATCTCTGTTATCTCGAGCAGCCTTTGCCCTGGCTCTGGTCTCTGCGTCAATTTTCTC
TGTCAAAAGCCAAGAGAAGAAGCACTTCGAAGTAAACGAGATTCAAATGTAGAGACAATAGAGCTCGTCGAAACGGGACCGAGACCAGAGACGCAGTTAAAGAG



ATAD-3 (-ETAV) in pCFJ1178 (10767 bp) (from 5351-6206 bp)

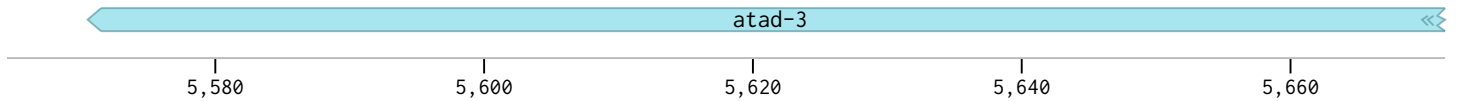
GAGCTCGTATTTGTGTTTTAATGCTAACTCATGCTCAATAGTTTGCTTGCAGAGTTGTTCTGCTTCTTGACAGACTCTTCTGTTTTCGGAGGCTTCTTCCTGCA
CTCGAGCATAAACACAAAATTACGATTGAGTACGAGTTATCAAACGAACGTTCAACAAGGACGAAGAAGTGTCTGAGAAGAACAAAAGCCTCCGAAAGAAGGACGT



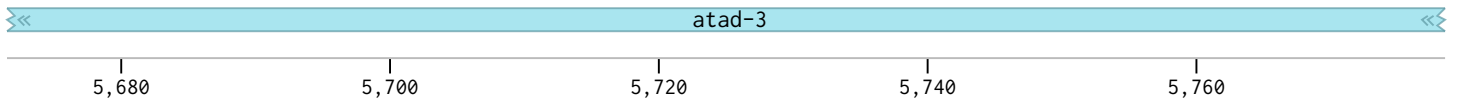
TTCTAGCTTTCATGGCAAGCTCCTCTTCGGCTCTCTTCTGGCCAATTGATCTTGATATTCAGCACGctgaaattatttagttgttatgtattcagatgtttggaaa
AAGATCGAAAGTACCGTTCGAGGAGAAGCCGAGAGAAAGACCGGTTAACTAGAACTATAAGTCGTGCGactttaataaatcaacaatacataagtctacaaccttt



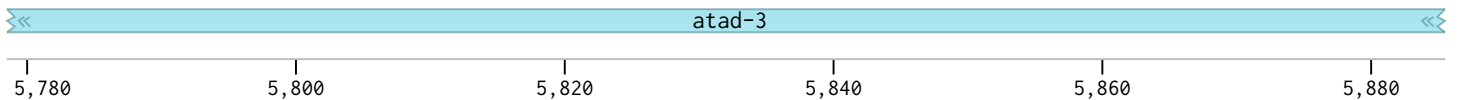
aattacCGAATGCGCATGTTTAGTCTCTTCTCCCAAAGTCTTCCTCCGTTCTTCTTCAGCAACACGAATGTGCTCTGATTTTCATATTGGCCAATTGAGCTTCGATCT
ttaatgGCTTACGCGTACAAATCAGAGAAGAGGGTTTCAGAAGGAGGCAAGAAGAAGTCGTTGTGCTTACACGAGACTAAAGTATAACCGGTTAACTCGAAGCTAGA



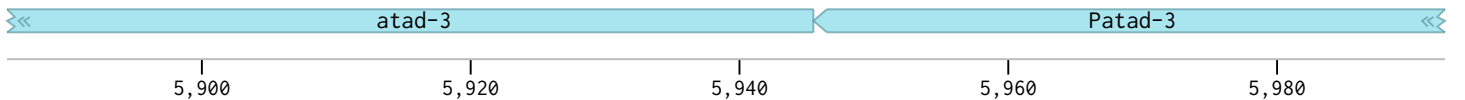
TCTTGGTCTCGTTCTCGACCTCTTTTTGGCGTGTAATTCTTGCAATTCTCGACAATTCAAGAGCTTCTTTGGCATTGGAAATTTCTCTAGATCACGAGCAGCCTTG
AGAACCAGAGCAAGAGCTGGAGAAAAACCGCACATTGAAGAACGTAAGAGCTGTTAAGTTCTCGAAGAAACCGTAAACCTTTAAGAGATCTAGTGCTCGTCGGAAC



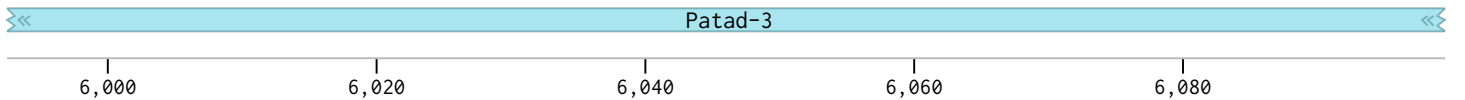
GCGGCACGCTCCAAAGCTGTTGAGTCGAAGGAATATGCCATTTTGCTGTTTCCCTCTTGCCGTTGGCCTTGACCTGGTTGTTGTGGACCGCCAGGAGCAGCACCTGC
CGCCGTGCGAGGTTTCGACAACTCAGCTTCTTATACGGTAAAACGACAAAGGAGAACGGCAACCGGAAGTGGACCAACAACACCTGGCGGTCTCGTCGTGGACG



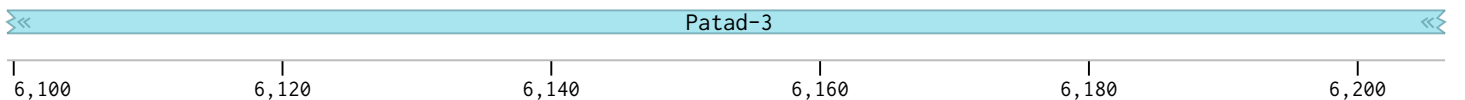
TTGAAATCATCCGAATCTGCGGAGTAGCGTTTTTTGAACACCAAATAACCAAGACATctgaaagaatagattgaagcttgggatggtgcaaaaatattctaagg
AATTTTAGTAGGCCTTAGACGCCTCATCGCAAAAAAATTGTGGTTATTGGTTCTGTAgacttttcttatctaacttcgaacctaccacgtttttataagattcc



aatattgattaaaggaaatgatttatatatgtacttatgcaaagtatgaacaataatttctttaagggaatgaaattcggagagactttgtgtaatccttgaaga
ttataactaatttctttactaaatatatacatgaatacggtttcatactttgttattaagaaatttcttactttaagcctctctgaacacattaggaacttct



aaacgtagtattaaacagagttgcaaccttttcagtaaaattagatgatgcaaacagattttccggctcattttccctgaatttaaaggacctgccgtcaaaaaa
tttgcataataatttgtctcaacgttggaaaagtcattttaatctactacgtttgtctaaaaggccgagtaaaagggacttaaatcttctggacggcagttttt



ATAD-3 (-ETAV) in pCFJ1178 (10767 bp) (from 6207-7062 bp)

gacctgccgtcgttataattcacgaatttctatTTTTTgaacacattctgcattgaaaaataaactTTTaaaaattaattaagattgttggaaaaaacagaat
ctggacggcagcaatattaagtgttaaagataaaaaactTTTgtgtaagacgtaactTTTTTTTgaaattTTTtaatttaattctaacaacctTTTTTgtcttta

« Patad-3 »

6,220 6,240 6,260 6,280 6,300

cgctaaggcagattatgctccaatgacatTTTctgacgatttctcgatatcgtaaagtgcgccagcgttcaaaggccacatctgaggccccacgaaaaggggagca
gcgattccgtcctaatacagaggttactgtaaaagactgcgtaaagagctatagcatttcacgcggtcgcaagttccggtgtagactccggggtgctttccctcgt

« Patad-3 »

6,320 6,340 6,360 6,380 6,400 6,420

gaacgaaaaggggatctgcaaaaaggggatctgcgaaaaggggagatacggaaaaggggagatacgaaggggagcaacgaaaaggggatctggcactgtgccaaac
cttgcttttcccctagacgtttttcccctagacgcttttcccctctatgcctttcccctctatgcttttcccctcgttgcttttcccctagaccgtgacacggttg

« Patad-3 »

6,440 6,460 6,480 6,500 6,520

gctatTTTTctgaagaaaacgataacaacgattgtcggaatacgcagaatactgatgttccgccgatcacgactgagaaatgatattaataccaggaaatgcgtc
cgataaaaagagcttcttttgctatgttgctaacagcgcttatgcgtcttatgactacaaggcggctagtgctgactctttactataattatgggtcctttacgcag

« Patad-3 »

6,540 6,560 6,580 6,600 6,620

aaggaaatattaaagaattattatgattattacgaagtctttccgtatttctaaatgtcagacaatccaccgaagtcacacaacgacaaagccgggaaactcct
ttcctttataatttcttaataactaataatgcttcagaaaggcataagatttacgagtgcgtgttaggtggcttcagtagttgttgcgtttcggcccttgaggaa

« Patad-3 »

6,640 6,660 6,680 6,700 6,720 6,740

gtttgaaagccgcgcaaaaagacacacacgtcacgagtgttacagtactaccacacatgcacatcaaaccacaacacgtcgacaccgcgcaaggaaatcgtcacttc
caaactttcggcgcggttttctgtgtgtgcagtgctcacaatgtcatgatggtgtgtacgtgtagttggggttgtgcagctgtggcgcttcctttagcagtgaag

« Patad-3 »

6,760 6,780 6,800 6,820 6,840

ttcgttttactcccggaccggcaggtcgcatgttaaataatgagcttttctattttatcattcaacggatttatcagtaataaattatataattctaccacttttga
aagcaaatgagggcctggcgtccagcgtacaatttatactcgaaagagtaaaaatagtaagttgcctaaatagtcattatttaatatattaagatgggtgaaact

« Patad-3 »

6,860 6,880 6,900 6,920 6,940

acctataccgatccgaacatggtgcatcggtcCCCCGGCCtagttctagacattctctaatagaaaaatctttcagttgaaattgaaatgagttaaagttggag
tggatatggctaggctttgtaccacgtagccgagGGGCCCGGatcaagatctgtaagagattactTTTTtagaaagtcaactttaacttttactcaatttcaacctc

« Patad-3 » C. briggsae unc-119(+) region »

6,960 6,980 7,000 7,020 7,040 7,060

ATAD-3 (-ETAV) in pCFJ1178 (10767 bp) (from 7063-7918 bp)

tttttattgaaaacagatttccgtgtgattagtggttttagcgagtgtagcaggacagcgaaaaatatagaacaaggggggaactgaaaagcttaggaatgcatt
aaaaataacttttgtctaaaggcacactaatcacaaaaatcgctcacactgtcctgtcgtctttttatatctttgttcccccttgacttttcgaatccttacgtaa

« C. briggsae unc-119(+) region »

7,080 7,100 7,120 7,140 7,160

gaacatgagaaggggaaggggaaggaacaaactagacaggaattattggaatttaacacatttggagtttttttctattcgacagaataattatccagaacattt
cttgactcttcccccttcccccttccctgtttgatctgtccttaataaccttaaatagtgtaaacctcaaaaaaagataagctgtcttattaataggctcttgtaa

« C. briggsae unc-119(+) region »

7,180 7,200 7,220 7,240 7,260

ttgtattaaatatttatgcatcatatgagtagtcggctttgttgtgcatgacgagttgttatcgacgaaatagaagctgtcagaacgagctctgtttgattgttg
aacataatttataaatacgtagtataactcatcagccgaaacaacacgtactgtctaaacaatagctgtttatcttcgacagcttctgtcagagcaaaccttaacaac

« C. briggsae unc-119(+) region »

7,280 7,300 7,320 7,340 7,360 7,380

atcatgtcgtccactgaaaaagagattagcttttgaattgtactttttagaataatgactcactgagttgttgagagagttgagggaaactcatagatatgttcaca
tagtacagcaggtgacttttttctaatcagaaaacttaacatgaaaaatcttattactgagtgactcaacaactctctcaactcccttgagtatctatacaagtg

« C. briggsae unc-119(+) region »

7,400 7,420 7,440 7,460 7,480

gttgtttcgtgaattcggaaatcacagaatccgaattcaaagtcaaaacacttcagaaggcgatctttgaagaagtgcgttcgatcattcggaaatgatggattggga
caacaagcacttaagccttatgtcttaggcttaagtttcagttttgtgaagcttccgctagaaacttcttactgcaagctagtaagcctttactacctaaccct

« C. briggsae unc-119(+) region »

7,500 7,520 7,540 7,560 7,580

tgtctcctactttgaattccacagttgctccgaccgttttgagtttcaaaaagtttgagcaaatctataacgcacgtatcttgcgactcctgtggcgactcatca
acagaggatgaaacttaaggtgtcaacgaggctggcaaaactcaaagtttttcaaacctcgtttagatattgcgtgcatagaacggctgaggacaccgctgagtagt

« C. briggsae unc-119(+) region »

7,600 7,620 7,640 7,660 7,680 7,700

ttctcctgatcgtttccggtttggcgatctcgaaaagcacttgctcagtggtccagatcacggatttggaacttggtgaactcgatgttatagatgttcgcagatgg
aagaggactagcaagaggccaaaccgctagagcttttcgtgaacgagtcacaggtctagtgcttaaaccttgaaccacttgagctacaatatctacaagcgtctacc

« C. briggsae unc-119(+) region »

7,720 7,740 7,760 7,780 7,800

ggagcataagaatcctaatttatgttttaactgaaatccaaaggagcaagataccttgagtgattcccgaagtgtcaaacgtcgttcggagtgatttgagct
cctcgattcttaggatttaaatacaaaattgactttaggtttccctcgttctatggaactcactaagggccttcacgattttgcagcaagcctcactaaactcga

« C. briggsae unc-119(+) region »

7,820 7,840 7,860 7,880 7,900

ATAD-3 (-ETAV) in pCFJ1178 (10767 bp) (from 7919-8774 bp)

ttcttcgcaagctccgattccgttgtgattccttgttcggtgcttgggtggccgtggcatctggaaatatggaaaagttcaacaaaaagaaaagagaaaagaatg
aagaagcgttcgaggctaaggcaactaaggaacaagccacgaaccaccgacccgtagacctttataaccttttcaagttgtttttcttttcttttcttac

»» C. briggsae unc-119(+) region ««

7,920 7,940 7,960 7,980 8,000 8,020

aaatcggatatcaagagttagttgagcggtttcttagttttctgagttctcacctgcgacgggaaggtcgccgagccgggtggaatcgatCgttgttgctcggcttt
tttagcctatagtttctcaactcgccaaagagatcaaagactcagagtggacgctgcccttcagcggctcgccacaccttagctaGcaacaacgagccgaaa

»» C. briggsae unc-119(+) region ««

8,040 8,060 8,080 8,100 8,120

catatcggtttgggtggaagcggctgaaaacggaagaagtggaagaaggaagagtggtgtgacaggaatggttaattagagggtgccaataaccagctat
gtatagccaaaccaaccttcgccgacttttgcctttcttcaccttctcttttctcacaccacactgtccttttaccattaatctcccacggtttatgtgcgata

»» C. briggsae unc-119(+) region ««

8,140 8,160 8,180 8,200 8,220

at tt t g t t t t t t t t t t g a a a c a t t t t t a a a a g a a a a t a c g a t a a t g a t a t c a g a t g g a t t t c c g g a a a c t g g t a t g a a a a t t t c a a c t t t t t g a g t a c a t g t
t a a a c a a a a a a a a c t t t t g t a a a a t t t t t t t a t g c t a t t a c t a t a g t c t a c t a a a g g c t t t t g a c c a t a c t t t t t a a g t t g g a a a a c t c a t g t a c a

»» C. briggsae unc-119(+) region ««

8,240 8,260 8,280 8,300 8,320 8,340

aatcaaaatacactttgtaaattatcatttttattgaaactccaccatttttctatttataacgctaataatttgaaaaagaacctAttgcgaaccgcggggtgaa
ttagttttatgtgaacatttaatagtaaaaataactttgagggtgtaaaaagataaatattgcgattattaaactttttcttttgaTaacgcttggcgccccactt

»» C. briggsae unc-119(+) region ««

8,360 8,380 8,400 8,420 8,440

tcccaaaaacgaatgcgttttgggtggagtgattgattcgaatcgaagaagaaaaagaagaagacgtggaatagagagctcactcttaaccgagcagcacacaccgac
agggtttttgcttacgaaaaccacctcactaactaagcttagcttcttcttttcttcttctgcaccttatctctcgagtgagaattggctcgtcgtgtgtgctg

»» C. briggsae unc-119(+) region ««

8,460 8,480 8,500 8,520 8,540 8,560

agaaaaaaaatgaaatgaatgagggtcttcttcttcttcttcttgaatgattgacagaaatgggaaaaagaggaagattgagaagggaaggaaggagaaaag
tcttttttttactttacttactcccagaagaagaagaagaagcttactaactgtctttaccctttttctccttctaactcttccctttttcttcttcttctt

»» C. briggsae unc-119(+) region ««

8,580 8,600 8,620 8,640 8,660

aagcagaagaagacgtcagagaggagaggaacgagcggaaaagcagcggcgcaagtcataagaagtagcagagctggggagaagaagacactatccaagaaaggaat
ttcgtcttcttctgcagtctctctctcttcttcttctgccttttctgcgccgcttcagtatcttcatcgtctcgaccttcttcttctgtgataggttctttcttta

»» C. briggsae unc-119(+) region ««

8,680 8,700 8,720 8,740 8,760

ATAD-3 (-ETAV) in pCFJ1178 (10767 bp) (from 8775-9630 bp)

gacgagagagtatgcaaaggggtataggggtgcagacagaataggaacagaataacagatgatgagccaagaagagttgaaaagggcgatgaatttgtcatgtaactt
ctgctctctcatagctttcccatatcccagctgtgtcttatccttgtcttattgtctactactcggttcttctcaacttttcccgctacttaaacagtacattgaa

« C. briggsae unc-119(+) region »

8,780 8,800 8,820 8,840 8,860 8,880

aatttgggtcaatttgagcatgatgaattgaaatcatcccttgttgggagttaataaccggttggttatcagaaacctgtaatagaagggcgccctaactttgagc
ttaaaccagttaaactcgactacttaacttttagtagggaacaacctcaattattggccaacaatagcttcttgggacattatcttcccgcgggattgaaactcg

« C. briggsae unc-119(+) region »

8,900 8,920 8,940 8,960 8,980

caattcatcccggtttctgtcaaatatatcaaaaagtggtcaactgacaaattgtttttgatattataataaacattttatccggttaacaattttcgaatactttt
gttaagtagggccaaagacagtttatatagttttcaccagttgactgtttaaaaaactataatattttgtaaaaataggcaattgttaaaagcttatgaaaaa

« C. briggsae unc-119(+) region »

9,000 9,020 9,040 9,060 9,080

acaaggacttgataaattggctcaaagagcctgctttttgtacaaacttgaattcaaaaacgcagaactcgactgttgatgcctgtgtagcggctcctctattg
tgttctgaacctatttaaccgagtttctcgacgaaaaaacatgtttgaacttaagttttgctgtttagcatgacaacctacggacacatcgccaggagataac

« left recom 10882 »

9,100 9,120 9,140 9,160 9,180 9,200

atttttgctatttttgataattttactgtaaattatgagttattccaattaacattccttagctaaatgtaagtttagcgaccaattttttagcaaccccatTTtatg
taaaaacgataaaaaactattaaaatgacatttaataactcaataaggttaattgtaaggatcgatttacattcaatcgctggttaaaaaatcgTTggggtaaaatac

« left recom 10882 »

9,220 9,240 9,260 9,280 9,300

acttttcagaatatcgctactgggtcaacgacactgttttgaactaagggtcttcccaatTTTTTTTaaatcttcataggcttgacagaatcagggttcttcaag
tgaaaagtcttatagcggatgaccagttgctgtgaacaaaccttgattcccagaagggttaaaaaaatttagaagtatccgaactgtcttagtcccaagaagttc

« left recom 10882 »

9,320 9,340 9,360 9,380 9,400

cagctttgagagggaatcaattgcaacatttgatgttaatttatattttttatagtttctctggtgaaatggggaccaccgcaaagccccttttatgtttttaactt
gtcgaaactctcccttagttaacgttgtaaactacaatttaaataaaaaatatcaagagaccactttacccttggtggcgtttcggggaaaatacaaaaattgaa

« left recom 10882 »

9,420 9,440 9,460 9,480 9,500 9,520

gaataaaatcttgatttaaattgtgatttatagatctgtatgggtaatttgaaggaaaagaaaggagctcccaaaagtgccttacagatccaggcccaataaatgt
cttattttagaacataatttaacactaaatatctagacataaccattaaacttcccttttcttccctcgagggttttcacggaatgtctaggtccgggttatttaca

« left recom 10882 »

9,540 9,560 9,580 9,600 9,620

ATAD-3 (-ETAV) in pCFJ1178 (10767 bp) (from 9631-10486 bp)

aaactattgggcagtagtatggcaaaaatcgtgcggaatttgaaaaacctagaattaaaaataattcaacacaaatgttcgagatattttaagttcggagtgtat
tttgataaccggtcatcataccgttttttagcacgccttaaaactttttggatcttaattttattttataagttgtgtttacaagctctataaaattcaagcctcacata

«« left recom 10882 »»

9,640 9,660 9,680 9,700 9,720

atctagaacatattgtacaagtaggtctacgggatcgtctacgggaaaatttgatttcctcgaagatgtattaatgaattctctaattgttcagggtctttgtattt
tagatcttgtataacatgtttcatccagatgccctagcagatgcccttttaactaaaggagcttctacataaattacttaagagattacaacgtccagaaacataaa

«« left recom 10882 »»

9,740 9,760 9,780 9,800 9,820 9,840

gacagaatgttggtttttgaacttattcgccataattgcttggctactacatgtctcatgccattgacactatcctgtactcgaaatttgtaagtaactaccac
ctgtcttacaacaaaaaactttgaataagcgggtattaacgaaccgatgatgtacagagtacggtaactgtgataggacatgagctttaacaattcatgtatgggtg

«« left recom 10882 »»

9,860 9,880 9,900 9,920 9,940

cgtccacttatgacgagagggtcaattaaggtcactccacaaaagtaaatgtgaaaacacatgagaaaaagtgatctgaattcccttgaagtggctaaaacaaagca
gcagggtgaatactgctctcccagtttaattccagtgagggtgttttcatttaacttttgtgtactcttttctactagacttaagggaacttcaccgattttgtttcgt

«« left recom 10882 »»

9,960 9,980 10,000 10,020 10,040

gatgagggatagcagctatgcgactactgagagataaggtcgaaacttgataaggatgctgcttacctgcttagcaagtttcttcgcacaggagaaagtgacaagct
ctactccctatgctgcatacgctgatgactctctattccagctttgaactattcctacgacgaatggacgaatcgttcaagaagcgtgtcctctttcactgttcga

«« left recom 10882 »»

10,060 10,080 10,100 10,120 10,140 10,160

aaactatcaaattcatctaaaaacctcaaaaaattatgttttgatgaaataatgttttattttgagcaacgcataaggcaaagaataaattaaaggcgatccgcttagc
tttgatagtttaagtagattttggagtttttaataaaaacctactttattacaaaataaaactcgttgcgtattccgtttcttatttaatttccgctaggcgaatcg

«« left recom 10882 »»

10,180 10,200 10,220 10,240 10,260

ggcgagttccgtcctcgaagaagattcctccatcgatggcgagtagtttgacagattccacgctctcctgggggttctggtggtccgactggctcctggctgtcct
ccgctcaaggcaggagcttcttctaaggaggtagctaccgctcatgaaacctgtctaagggtgcgagaggacccaaggaccaccagggtgaccaggaccgacagga

«« left recom 10882 »»

10,280 10,300 10,320 10,340 10,360

gggtttccgtcggctcctggcttgccgtctggtcctggtggtccctttggtccaggttgctcctgaaagatgtggtgattagatatggattgaaaaactatgaaatga
cccaaaggcagccgaggaccgaacggcagaccaggaccaccagggaaccagggtccaacaggactttctacaccactaatctatacctaactttttgatactttact

«« left recom 10882 »»

10,400 10,420 10,440 10,460 10,480

ATAD-3 (-ETAV) in pCFJ1178 (10767 bp) (from 10487-10767 bp)

ttacctggggttccgtcgttttcctggttgccggatggtcctggtggccgactggctcctggctctccggtggatcctggctctcccttttggactggctcgcagac
aatggacccaaggcagcaaaggaccaacaggcctaccaggaccaccaggctgaccaggaccgagaggccacctaggaccgagagggaacacctgaccgagcgtctg

left recom 10882

10,500

10,520

10,540

10,560

10,580

agctggaagtcctccaactttctatacaaagttgatagcttggcgtaatcatgggtcatagctgtttcctgtgtgaaattgttatccgctggtatcagctcactcaa
tcgaccttcaggagaggttgaaagatatgtttcaactatcgaaaccgattagtagcagtagtcgacaaggacacactttaacaataggcgaccatagtcgagtgagtt

M13-rev

10,600

10,620

10,640

10,660

10,680

10,700

aggcggtaatacggttatccacagaatcaggggataacgcaggaaagaacatgtgagcaaaaggcca
tccgccattatgccaataggtgtcttagtcccctattgcgtcctttctgtacactcgttttccggt

10,710

10,720

10,730

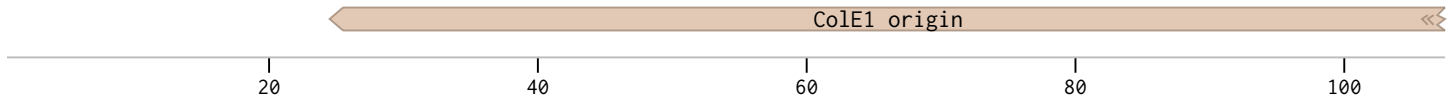
10,740

10,750

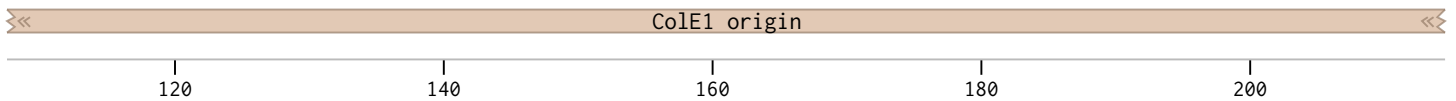
10,760

ATAD-3 in pCFJ1178 (10862 bp)

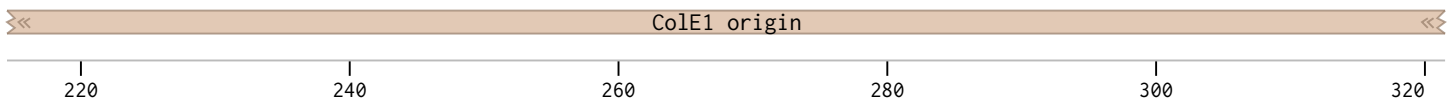
gcaaaagaccaggaaccgtaaaaaaggccggttgctggcggtttttccataggctccgccccctgacgagcatcacaaaaatcgacgctcaagtacagaggtggcgaa
cgttttctggctccttggcatttttccggcgcaacgaccgcaaaaaggatatccgaggcggggggactgctcgtagtgtttttagctgcgagttcagttctccaccgctt



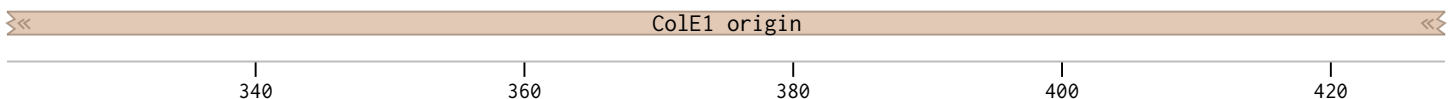
acccgacaggactataaagataaccaggcgtttccccctggaagctccctcgtgcgctctcctgttccgacctgccgcttacggatacctgtccgccttttccct
tgggctgtcctgatatcttatggctccgcaaagggggaccttcgagggagcacgcgagaggacaaggctgggacggcgaatggcctatggacagcggaagaggga



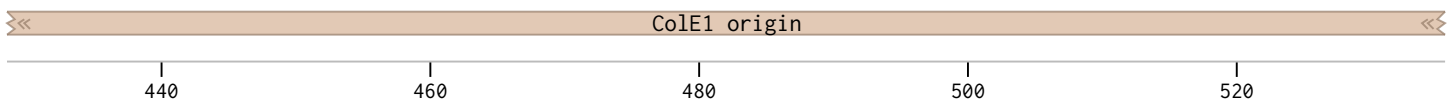
tcgggaagcgtggcgcttttctcatagctcacgctgtaggtatctcagttcgggtgtaggtcggttcgctccaagctgggctgtgtgcacgaacccccgttcagccga
agcccttcgcaccgcgaagagtatcgagtgcgacatccatagagtcaagccacatccagcaagcgaggttcgacccgacacacgtgcttggggggcaagtccgggt



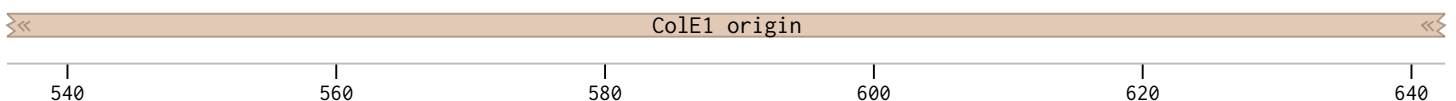
ccgctgcgccttatccggtaactatcgtcttgagtccaacccggtaagacacgacttatcgccactggcagcagccactggtaacaggattagcagagcgaggtatg
ggcgacgcggaatagccattgatagcagaactcaggttgggccattctgtgctgaatagcggtgaccgtcgtcggtgaccattgtcctaactcgtctcgtccatac



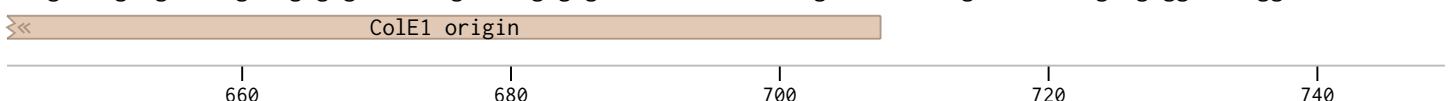
taggcggtgctacagagttcttgaagtgggtggcctaactacggctacactagaaggacagtatttggatatctgcgctctgctgaagccagttaccttcgaaaaaga
atccgccacgatgtctcaagaacttcaccaccggattgatgccgatgtgatcttctgtcataaaccatagacgcgagacgacttcggtcaatggaagcctttttct



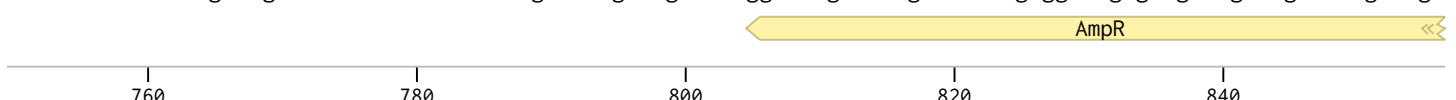
gttggtagctcttgatccggcaaaaaaccaccgctggtagcgggtggttttttgtttgcaagcagcagattacgcgcagaaaaaaaggatctcaagaagatccttt
caaccatcgagaactaggccgtttgtttgggtggcgaccatcgccacaaaaaaacaaacgttcgctcgtctaatagcgcgtcttttttcttagagttcttctaggaaa



gatcttttctacggggtctgacgctcagtggaacgaaaactcacgttaagggttttggctcatgagattatcaaaaaggatcttcacctagatccttttaaatataa
ctagaaaagatgcccgagactgcgagtcaccttgcttttgagtgaattccctaaaaccagtactctaatagttttttctagaagtggatctaggaaaatttaattt



aatgaagttttaaatcaatctaagtatatatgagtaaacttggctctgacagttaccaatgcttaatcagtgaggcacctatctcagcgatctgtctatttcgttca
ttacttcaaaatttagttagatttcatatatactcatttgaaccagactgtcaatggttacgaattagtcactccgtggatagagtcgctagacagataaagcaagt



ATAD-3 in pCFJ1178 (10862 bp) (from 857-1819 bp)

tccatagttgcctgactccccgtcgtgtagataactacgatacgggagggccttaccatctggcccagtgctgcaatgataccgcgagaccacgctcaccggctcc
aggatatcaacggactgaggggcagcacatctattgatgctatgccctcccgaatggtagaccgggtcacgacgttactatggcgctctgggtgagtgccgagg

«« AmpR »»

860 880 900 920 940 960

agatttatcagcaataaaccagccagccggaaggccgagcgcagaagtggctcctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagag
tctaaatagtcgttattttggctggcgttcccggctcgcgtcttcaccaggacgttgaaataggcggaggttaggtcagataattaacaacggcccttcgatctc

«« AmpR »»

980 1,000 1,020 1,040 1,060

taagtagttcgccagttaatagtttgcgaacgttgttgccattgctacaggcatcgtgggtgcacgctcgtcgtttggtaggttcattcagctccggttcccaa
attcatcaagcggtaattatcaaacggttgcaacaacggtaacgatgtccgttagcaccacagtcgcgagcagaaaccataccgaagtaagtcgaggccaagggtt

«« AmpR »»

1,080 1,100 1,120 1,140 1,160

cgatcaaggcaggttacatgatccccatgttgtgcaaaaaagcggtagctccttcggctcctccgatcgttgtcagaagtaagttggccgcagtggtatcactcat
gctagttccgctcaatgtactaggggttacaacacgttttttcgccaatcgaggaagccaggaggctagcaacagtccttattcaaccggcgtcacaatagtgagta

«« AmpR »»

1,180 1,200 1,220 1,240 1,260 1,280

ggttatggcagcactgcataattcttactgtcatgccatccgtaagatgcttttctgtgactggtagtactcaaccaagtcattctgagaatagtgtagcggc
ccaataaccgtcgtgacgtattaagagaatgacagtacggtaggcattctacgaaaagacactgaccactcatgagttgggttcagtaagactcttatcacatacggc

«« AmpR »»

1,300 1,320 1,340 1,360 1,380

gaccgagttgctcttggccggcgtcaatacgggataataccgcgccacatagcagaactttaaaagtgtcatcattggaaaacgttcttcggggcgaaaactctca
ctggctcaacgagaacgggcccagttatgccctattatggcgcggtgtatcgtcttgaaatttcacgagtagtaaccttttgcaagaagccccgccttttgagagt

«« AmpR »»

1,400 1,420 1,440 1,460 1,480

aggatcttaccgctgttgagatccagttcgatgtaaccactcgtgcaccaactgatcttcagcatcttttactttcaccagcgtttctgggtgagcaaaaacagg
tcctagaatggcgacaactctaggtcaagctacattgggtgagcacgtgggttgactagaagtcgtagaaaatgaaagtgggtcgcaaagaccactcgtttttgtcc

«« AmpR »»

1,500 1,520 1,540 1,560 1,580 1,600

aaggcaaaatgccgcaaaaaagggaataagggcgacacggaatgttgaaactcatactcttcctttttcaatattatgaagcatttatcagggttattgtctca
ttccgttttacggcgtttttcccttattcccgtgtgcctttacaacttatgagtatgagaaggaaaaagtataataacttcgtaaatagtcaccaataacagagt

«« AmpR »»

1,620 1,640 1,660 1,680 1,700

tgagcggatacatatttgatgtatttagaaaaataacaaataggggttccgcgcacatttccccgaaaagtgccacctgacgtctaagaaccattatttatcatg
actcgcctatgtataaacttacataaatctttttatttgtttatcccaaggcgcgtgtaaaggggcttttcacgggtggactgcagattctttggtaataatagtagt

«« AmpR »»

1,720 1,740 1,760 1,780 1,800

ATAD-3 in pCFJ1178 (10862 bp) (from 1820-2782 bp)

acattaacctataaaaaataggcgtatcacgaggcccttttcgtctcgcgcgttttcggtgatgacggtgaaaacctctgacacatgcagctcccggagacggtcacagc
tgtaattggatattttatccgcatagtgctccgggaaagcagagcgcgcaaaagccactactgccacttttggagactgtgtacgtcgagggcctctgccagtgtcg

1,820 1,840 1,860 1,880 1,900 1,920

ttgtctgtaagcggatgccgggagcagacaagcccgtcaggcgcgctcagcgggtgttggcgggtgtcggggctggcttaactatgcggcatcagagcagattgtac
aacagacattcgccctacggccctcgtctgttcgggcagtcgccgcgagtcgcccaaacgccacagccccgaccgaattgatacgcgtagtctcgtctaactg

1,940 1,960 1,980 2,000 2,020

tgagagtgcaccatatgcggtgtgaaataccgcacagatgcgtaaggagaaaaataccgcatcaggcgccattcgccattcaggctgcgcaactgttgggaaggcgga
actctcacgtggtatagccacactttatggcgtgtctacgcattcctcttttatggcgtagtcgcggtaagcggtaagtcgcagcgttgacaacccttcccgct

LacZ alpha

2,040 2,060 2,080 2,100 2,120 2,140

tcggtgccccctcttcgctattacgccagctggcgaaaggggatgtgctgcaaggcgattaagtgggtaacgccagggttttccagtcacgacgttgtaaaac
agccacgccccgagaagcgataatgcggtcgaccgctttccccctacagacgttcgcgtaattcaaccattgcggtcccaaaagggtcagtgctgcaacattttg

LacZ alpha

2,160 2,180 2,200 2,220 2,240

gacggccagtgaattatcaactatgtataataaagttagcgcccattaggtcagacaaaaatttctgatctttaaccttattgattaaaactaatttttggccgac
ctgccggtcacttaatagttgatacatatttttcaacgccgggtaatccagtcgtgttttaagactagaaatttggaataactaattttgattaaaacgggctg

right recomb 10882

2,260 2,280 2,300 2,320 2,340

tttttgacacatgcactagacgcttgactcaaaatttgaaaccttgctcaaatccactactcagatatgacagtagcatcgataattgaaccattatcctgaaa
aaaaactgtgtacgtgatctgcgaacatgagttttaaacctttggaacgagtttaggtgatgagtcatactgtcatcgtagctattaacttggtaataggacttt

right recomb 10882

2,360 2,380 2,400 2,420 2,440 2,460

tcccccttctgtcccgttcattttccaattttttcaacggtggaagaaggggcaaatttataccaaaacgtctccgtttatgaccaccccctatgaaaataa
aggggaaaggacaggccaagttaaagggttaaaaagtgtgccaccttcttccccgtttaaaatatggttttgcagaggcaaatactgggtgggggatacgttttatt

right recomb 10882

2,480 2,500 2,520 2,540 2,560

acggctctgggagaaatagtagaaaaacgcggagcctgttgattccttctccgaggcgacaaaaacgcatcattcgtattgtaagatgcatgtgtggctggcct
tgccgagaccctctttatcatgtcttttgcgcctcgacgaactaaggaagaggtccgctgttttttgcgtagtaagcataacattctacgtacacaccgaccgga

right recomb 10882

2,580 2,600 2,620 2,640 2,660

cttttgaattttactgggtttttatatttctactaatatttcgaaaaatttgaagtaaatcattgattacgtttacaaaaatttagaaacatttcaaatgatta
gaaaacttaaatgacaaaaaatataaagatgattataaagcttttttaaaccattcatttagtaactaatgcaaatgtttttaaattttgtaaagttttactaat

right recomb 10882

2,680 2,700 2,720 2,740 2,760 2,780

ATAD-3 in pCFJ1178 (10862 bp) (from 2783-3638 bp)

cttctaaattaattatatttacaggttagttcgagttacttatgaccttccaatccgccatatccgccaaggacgtccaattaatttttttagaattatttttaac
gaagatttaattaataataaatgtccaatcaagctcaatgaatactggaaggttaggcggtataggcggttctctgaggttaattaaaaaatcttaataaaaaattg

right recomb 10882

2,800 2,820 2,840 2,860 2,880

acatgtattatttttaacaataaattattcatgaaatcatcaaatgtatatgttctactataatatttaggtcaaactatagaaaagaaatccttgtttttggaaac
tgtacataataaaaaattgttattttaataagtacttttagtagtttacatatacaagatgatattataaatccagtttgatatcttttcttaggaacaaaaaccttg

right recomb 10882

2,900 2,920 2,940 2,960 2,980

aaaggagttcagatcctgtgcatttgatcttggatccacatctttggatccatgggaaagcttggcactgatcaagaaggattcttcaaatatctaaaattgccggct
tttctcaagcttaggacacgtaaactagaacctaggtgtgaaaccaggtaccctttcgaaccgtgactagttcttctaagaagtttatagattttaacggccga

right recomb 10882

3,000 3,020 3,040 3,060 3,080 3,100

gcccgtagaattccatcagttttccagagtttttagtgaataattgcatcccgtagaaacaatctacacaacggtaaaaaggaccattatttttaccgtaccgttt
cgggcatcttaaggtagtcaaaaggtctcaaaatcacttttaaacgtagggcaatctttgttagatgtgttgccatttttctgggtaataaaaatggcatggcaaa

right recomb 10882

3,120 3,140 3,160 3,180 3,200

tcctttatggccctctatgcaaaaaattatagcgtggaggggcagtagacagaataataaagtgtgagaaaaaaaactgctctgcgagaaatagtacagcaaacgcgga
aggaaataccgggagatacgttttttaatatcgcacctccccgtcatgtcttattatttcacactcttttttgacgagacgtctttatcatgtcgtttgcgcct

right recomb 10882

3,220 3,240 3,260 3,280 3,300

gcatgcttgattctatccactttgtacaagaaagctgggttaatacgactcactagtgggcagatcttcgaatgcatcGcgcgacccgtacgtctcgaggaattcct
cgtacgaactaagataggtgaacatgttctttcgaccaattatgctgagtgatcacccgtctagaagcttacgtagCgcgctggcatgcagagctccttaagga

3,320 3,340 3,360 3,380 3,400 3,420

gcaggatatctggatccacgaagcttcccatggtagcgtcacccggttctagatacctaggtgagctctggtaccgatgcacggaagattctgaaattattgtttt
cgtcctatagacctaggtgcttcgaagggtaccactgcagtggccaagatctatggatccactcgagaccatggcctacgtgccttctaagactttaataacaaaaa

atad-3 UTR

3,440 3,460 3,480 3,500 3,520

caggatttctgatattgaaaattgtggtttctagctttttattgttgcttttctggaaatattaggctaaaagctcataaacgtttaattcaattgatttcttatt
gtcctaaagactataacttttaacaccaaagatcgaataataacaacgaaaagacctttataatccgattttcgagtatttgcaaataaagtttaactaaagaataa

atad-3 UTR

3,540 3,560 3,580 3,600 3,620

ATAD-3 in pCFJ1178 (10862 bp) (from 3639-4494 bp)

ttctgaaaaaacatatattgccagctttttccttcttacctgtgcataaacagaaagacctctccggcctcccgcaagtttttgtttcagtatccatttgatcgt
aagacttttttgggtatataacgggtcgaaaaaggaagaatggacacgtatttgcctttctggagaggccggaggcggttcaaaaaacaaagtcataaggttaaactagca

«« atad-3 UTR »»

3,640 3,660 3,680 3,700 3,720 3,740

tttaatcgaacatttgggctgaaaattatTTTTTgcttttctcttcagaagctttcaaaatatgaaaaattgaagtgaacaaaagcgattattagttagtatt
aaattagcttgtaaaccgacttttaataaaaaaacgaaaagagaagtcctcgaaagttttatactttttaacttcacgttgttttcgctaataatcaatcataa

«« atad-3 UTR »»

3,760 3,780 3,800 3,820 3,840

acattaaatgaagagtttctttattaacaaaaaaaaacaataatctttcactctacttaattactacacaaaaactaaataaaatgactgacctagaaaaataa
tgtaattttacttctcaagaaataattgttttttttgttattagaaagtgagatgaatttaatgatgtgtttttgatttttttactgactggatcttttatt

«« atad-3 UTR »»

3,860 3,880 3,900 3,920 3,940

ggggaaaacgaaaaaaaaacaatagaaaaacaaggcctaattgaattatctaaaaaattatattatcagcaaaatttctgattaagaatgaaattacgaaattacc
ccccttttgctttttttgttatcttttgttcccgattaacttaatagatttttttaataataatagtcgttttaagactaattcttactttaatgctttaatgg

«« atad-3 UTR »»

3,960 3,980 4,000 4,020 4,040 4,060

ggaagtttgaagatttcagaaaagaaaaacaacaaaaaacgtaaatagaaaacaatagagtatcatgaacaaggaaatgaatattttgaaaTTAACAGCAGTTT
ccttcaaacttctaaagtcctttctttttgttgttttttgcatttatctttgttatctcatagtagtcttcttcttacttataaaactttAATTGTGTCGTCAAA

«« atad-3 UTR »» atad-3 ««

4,080 4,100 4,120 4,140 4,160

CTCTCTTCAACGTAGTTCCGAACCTTGACTTCTTGTTACGAGCTTTCAATTGCTCCTTCTCAAGCCATTCCATCTTATGTTTCATGTTGAACCATTGCGTCAGCAGTA
GAGAGAAGTTGCATCAAGGCTTGAAGTGAAGAACCAATGCTCGAAAGTTAACGAGGAAGAGTTCCGTAAGGTAGAATACAAGTACAACCTTGGTAACGCAGTCGTCAT

«« atad-3 »»

4,180 4,200 4,220 4,240 4,260 4,280

TTACGATCAACGATAGCCTCGGTGAGCACTCCGTTTCAGATGCATATGCAGAAGCTTGCCATCCGATGACAAGTTTACTCAATTCTCTTCCACTCATTCCAGATGT
AATGCTAGTTGCTATCGGAGCCACTCGTGAGGCCAAAGTCTACGTATACGTCTTGAACGGTAGGCTACTGTTCAAATGAGTTAAGAGAAGGTGAGTAAGGTCTACA

«« atad-3 »»

4,300 4,320 4,340 4,360 4,380

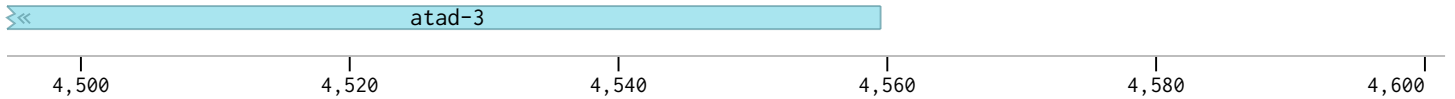
CTTTTGGCAACTTCATTACACTTAGCAACCAATCAAAGTTATCGAGTTTCAGTCGTTGAGAACGAGATCCACTAGTTGCTGGAGTGACGATGTGCTCGTTGAAGT
GAAAAACCGTTGAAGTAATGTGAATCGTTGGGTTAGTTTCAATAGCTCAAAGTCAGCAACTCTTGCTCTAGGTGATCAACGACCTCACTGCTACACGAGCAACTTCA

«« atad-3 »»

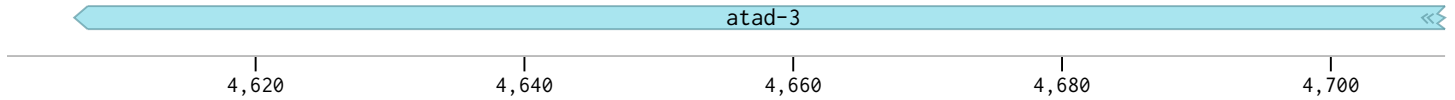
4,400 4,420 4,440 4,460 4,480

ATAD-3 in pCFJ1178 (10862 bp) (from 4495-5350 bp)

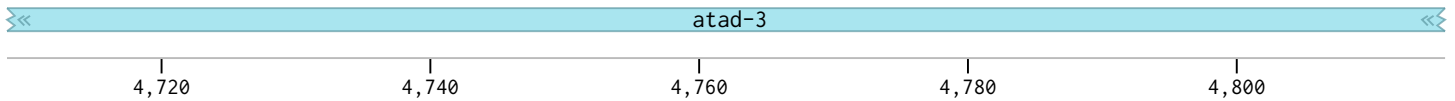
ATTGCAGAAGAATTCGTTACGTTCTTCCATTCCTGGCAGTGTGAATTCGACAAGCTGATCGAAActgaaaagaataataaattctgttttttatttaaaaaaaagg
TAACGTCTTCTTAAGCAAGTGAAGAAGGTAAGGACCGTCACACTTAAGCTGTTCGACTAGCTTTgacttttcttattatttaagacaaaaataatTTTTTTTcc



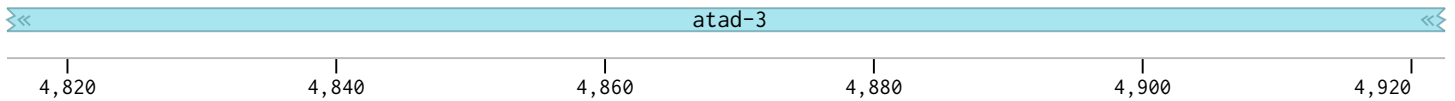
attacCGATCGTTAACTGCCCAATCGAACTGCTCTGGCTGATTAGAAGCCACGACAAGCATGAACTTTCTCGACTGCTCTCCAGTTCTGAAGAGGAAAGCGTTGAGA
taatgGCTAGCAATTGACGGGTTAGCTTGACGAGACCGACTAATCTTCGGTGTCTGCTACTTGAAAGAGCTGACGAGAGGTCAAGACTTCTCCTTTCGCAACTCT



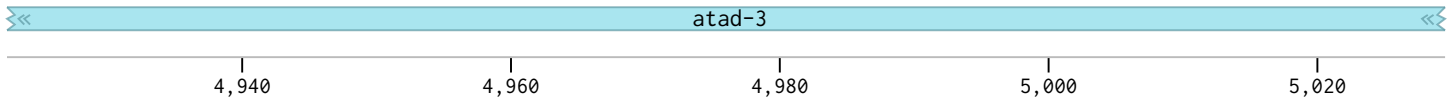
GCTGCACGTGTGTCTTCAGACATTCCATTCTTTGATCTCTTTTGCAAAAAGCGTCAGCTTCGTCAATAAAAACAATCAACCCTTTGCGACTTTTTGAAGCCCAGTC
CGACGTGCACACAGAAGTCTGTAAGGTAAGAACTAGAGAAAACGTTTTTCGCAGTCGAAGCAGTTATTTTTGTTAGTTGGGAAACGCTGAAAAACTTCGGGTCAG



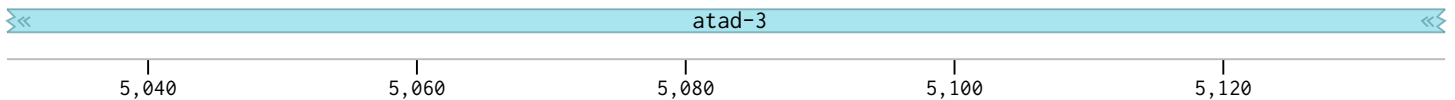
GAATACTTTATGAATTGCAGATACTCCATCACGTCCAAGTGGAGCAATATCTCCTCCAGTGAGAACTGCGTAATCGAGTCCGGAATGTTGAGCCAAACTCTTTCGCA
CTTATGAAATACTTAACGTCTATGAGGTAGTGCAGGTTACCTCGTTATAGAGGAGGTCACTCTTGACGCATTAGCTCAGGCCTTACAACCTCGTTTGAGAAACGCT



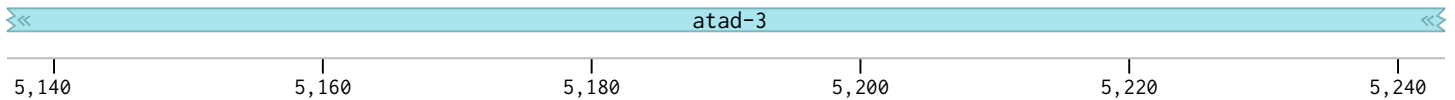
AAAGTGTCTTCCGGTTCCTGGTGGTCCGTAGAACATTACATTACGGAAAAGTCCATTATTTCTCTTGTGTTTGGGTGGTAATGGCAATATCACGAAGACGACGT
TTTCACAGAAAGGCCAAGGACCACCGGCATCTGTAATGTAATGCCTTTTCAGGTAATAAAGAGAAACACAAACTCCACCATTACCGTTATAGTGCTTCTGCTGCA



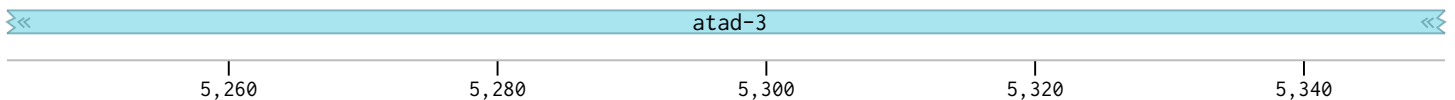
TCCAAAGCAGGTGGTAATACAACTCCATTCACTGGATCCTTCTTCTGACGAGTCATCATTTGAACACTTTTAATTGGGTGTTTGGTACTTCAAGTGGAGTGATTCT
AGGTTTTCGTCACCATTATGTTGAGGTAAGTCACCTAGGAAGAAGACTGCTCAGTAGTAACTTGTGAAAATTAACCCACAACTCATGAAGTTACCTCTACTAAGA



GGATGTTTCTCTTACAAGACTTGGTTTTCCGAGACGAGATTCGATGTATCTTGCGGTGACTCCAGTTCCTCGTTTAGCGGTATACCAGCCGACAGCCAAAGCAGTCA
CCTACAAAGAGAATGTTCTGAACCAAAAGGCTCTGCTCTAAGCTACATAGAACGCCACTGAGGTCAAGGAGCAAATCGCCATATGGTCGGCTGTCGGTTTCGTCAGT



ATCCTCCTACTGCAGCAGCGATTTTCGTTTTATCATTTCAAAAATTGATTGAGTCCAGAACCGATAAGTTCTCCACTGGTTTTAATTTTTTCAATGACAGTTTTTCGG
TAGGAGGATGACGTCGTCGCTAAAAGCAAAATAGTAAGTTTTTAATAACTCAGGTCTTGGCTATTCAAGAGGTGACCAAAATTAATAAAGTTACTGTCAAAAAGCC



ATAD-3 in pCFJ1178 (10862 bp) (from 5351-6206 bp)

TTCTCTTCTTCGTGAAGCTTCATTTGCTCTAAGTTTACATCTCTGTTATCTCGAGCAGCCTTTGCCCTGGCTCTGGTCTCTGCGTCAATTTTCTCGAGCTCGTATTT
AAGAGAAGAAGCACTTCGAAGTAAACGAGATTCAAATGTAGAGACAATAGAGCTCGTCGAAACGGGACCGAGACCAGAGACGCAGTTAAAAGAGCTCGAGCATAAA

«« atad-3 »»

5,360 5,380 5,400 5,420 5,440

GTGTTTTAATGCTAACTCATGCTCAATAGTTTGCTTGCAGAGTTGTTCTGCTTCTTGACAGACTCTTCTGTTTTTCGGAGGCTTTCTTCTGCATTCTAGCTTTCA
CACAAAATTACGATTGAGTACGAGTTATCAAACGAACGTTCAACAAGGACGAAGAAGTGTCTGAGAAGAACAAAAGCCTCCGAAAGAAGGACGTAAGATCGAAAGT

«« atad-3 »»

5,460 5,480 5,500 5,520 5,540 5,560

TGGCAAGCTCCTCTTCGGCTCTCTTTCTGGCCAATTGATCTTGATATTCAGCACGctgaattatttagttgttatgtattcagatgtttgaaaaattacCGAATG
ACCGTTTCGAGGAGAAGCCGAGAGAAAGACCGTTAACTAGAACTATAAGTCGTGCGactttaataaatcaacaatacataagctacaaacctttttaatgGCTTAC

«« atad-3 »»

5,580 5,600 5,620 5,640 5,660

CGCATGTTTAGTCTCTTCTCCCAAAGTCTTCTCCGTTCTTCTTCAGCAACACGAATGTGCTCTGATTTTCATATTGGCCAATTGAGCTTCGATCTTCTTGGTCTCGT
GCGTACAAATCAGAGAAGAGGGTTTCAGAAGGAGGCAAGAAGAAGTCGTTGTGCTTACACGAGACTAAAGTATAACCGTTAACTCGAAGCTAGAAGAACCAGAGCA

«« atad-3 »»

5,680 5,700 5,720 5,740 5,760

TCTCGACCTCTTTTTGGCGTGTAACCTCTTGCATTCTCGACAATTCAAGAGCTTCTTTGGCATTGGAAATTTCTCTAGATCACGAGCAGCCTTGGCGGCACGCTCC
AGAGCTGGAGAAAAACCGCACATTGAAGAACGTAAGAGCTGTTAAGTTCTCGAAGAAACCGTAAACCTTTAAAGAGATCTAGTGCTCGTCGGAACCGCGTGCAGG

«« atad-3 »»

5,780 5,800 5,820 5,840 5,860 5,880

AAAGCTGTTGAGTCGAAGGAATATGCCATTTTGCTGTTCCCTCTTGCCGTTGGCCTTGACCTGGTTGTTGTGGACCGCCAGGAGCAGCACCTGCTTGAAAATCATC
TTTCGACAACTCAGCTTCCTTATACGTTAAAACGACAAAGGGAACGGCAACCGGAAGTGGACCAACAACCTGGCGGTCTCGTCGTGGACGAACTTTTAGTAG

«« atad-3 »»

5,900 5,920 5,940 5,960 5,980

CGGAATCTGCGGAGTAGCGTTTTTTTGAACACCAAATAACCAAGACATctgaagaatagattgaagcttgggatggtgcaaaaatattctaaggaatattgattaa
GCCTTAGACGCCTCATCGCAAAAAAAGTGTGGTTATTGGTTCTGTAgactttcttatctaacttcgaaccctaccacgtttttataagattccttataactaatt

«« atad-3 Patad-3 »»

6,000 6,020 6,040 6,060 6,080

aggaaatgatttatatatgtacttatgccaaagtatgaacaataatttctttaaggaatgaaattcggagagactttgtgtaatccttgaagaaaacgtagtatt
tcctttactaaatatatacatgaatacggtttcatactttgttattaaagaaatttcttactttaagcctctctgaaacacattaggaacttcttttgcataata

«« Patad-3 »»

6,100 6,120 6,140 6,160 6,180 6,200

ATAD-3 in pCFJ1178 (10862 bp) (from 6207-7062 bp)

aaaacagagttgcaaccttttcagtaaaattagatgatgcaaacagattttccggctcattttccctgaatttaaaggacctgccgtcaaaaaagacctgccgtcg
ttttgtctcaacggttgaaaagtcattttaatctactacgttttgtctaaaaggccgagtaaaaggacttaaatcttgacggcagtttttctggacggcagc

Patad-3

6,220 6,240 6,260 6,280 6,300

ttataattcacgaatttctatttttgaacacattctgcattgaaaaataaactttaaaaaattaattaagattgttgaaaaaacagaaatcgctaaggcaga
aatattaagtgttaagataaaaaactttgtgtaagacgtaactttttatttgaaatttttaatttaattctaacaaccttttttgtcttttagcgattccgtct

Patad-3

6,320 6,340 6,360 6,380 6,400 6,420

ttatgctcaatgacattttctgacgcatcttctgatatcgtaaagtgcgccagcgttcaaaggccacatctgaggccccacgaaaaggggagcagaacgaaaagg
aatacgaggttactgtaaaagactgcgtaaagagctatagcatttcacgcggtcgcaagtttccggtgtagactccgggtgctttccctcgtcttgcctttccc

Patad-3

6,440 6,460 6,480 6,500 6,520

gatctgcaaaaaggggatctgcgaaaaggggagatacgaaaggggagatacgaaaaggggagcaacgaaaaggggatctggcactgtgccaaacgctattttctc
ctagacgtttttccctagacgcttttccctctatgcctttccctctatgcttttccctcgttgcttttccctagaccgtgacacggtttgcgataaaaagag

Patad-3

6,540 6,560 6,580 6,600 6,620

gaagaaaacgatacaacgattgtcggaatacgagaatactgatgttccgccgatcacgactgagaaatgatattaataccaggaaatcgctcaaggaaatatta
cttcttttgctatgttgtaacagcgcttatgcgtcttatgactacaaggcggttagtgctgactctttactataattatgggtcctttacgcagttcctttataat

Patad-3

6,640 6,660 6,680 6,700 6,720 6,740

aagaattattatgattattacgaagtctttccgtatttctaaatgctcacgacaatccaccgaagtcatacaaacgacaaagccgggaaactcctgtttgaaagccg
ttcttaataatactaataatgcttcagaaaggcataagattacgagtgctgttaggtggcttcagtagttgttgctgtttcgccctttgaggacaaactttcggc

Patad-3

6,760 6,780 6,800 6,820 6,840

cgccaaaagacacacacgtcacgagtggttacagtactaccacacatgcacatcaaaccacaacacgtcgacaccgcgcaaggaaatcgtcacttcttcgttttactc
gcggttttctgtgtgtgcagtgctcacaatgtcatgatggtgtgtacgtgtagtgttggggtgtgcagctgtggcgcttccttttagcagtgagaagcaaaatgag

Patad-3

6,860 6,880 6,900 6,920 6,940

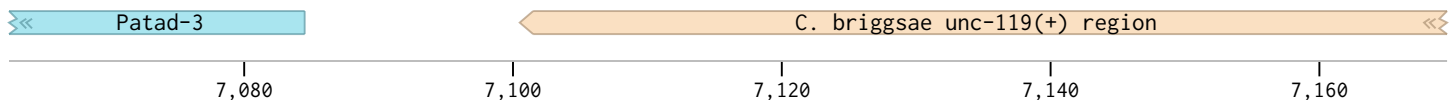
ccggaccggcaggtcgcatgttaaatatgagctttctcatttttatcattcaacggatttatcagtaataaattatataattctaccacttttgaaacctataccgat
ggcctggccgtccagcgtaacaatttatactcgaaagagtaaaaatagtaagttgcctaataatagtcattatattaatattaagatgggtgaaaacttgatatggcta

Patad-3

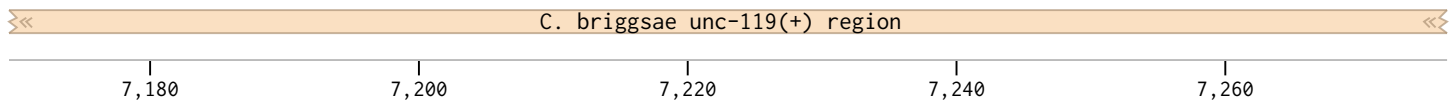
6,960 6,980 7,000 7,020 7,040 7,060

ATAD-3 in pCFJ1178 (10862 bp) (from 7063-7918 bp)

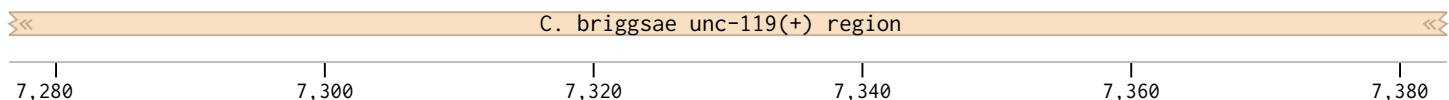
ccgaacatggtgcatcggtcCCCCGGCCtagttctagacattctctaataaaaaatctttcagttgaaattgaaaatgagttaaagttggagtttttattgaaaggctttgtaccacgtagccgagGGGCCCGGatcaagatctgtaagagattacttttttagaaagtcaactttaacttttactcaatttcaacctcaaaaataacttt



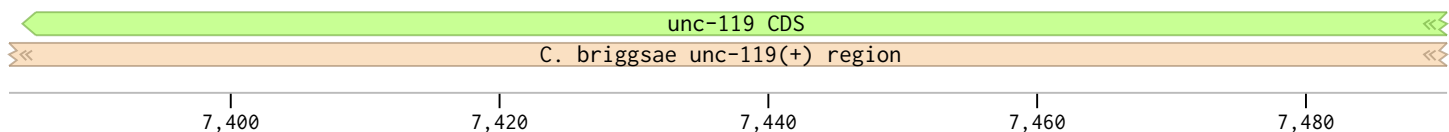
acagatttccgtgtgattagtggttttagcgagtgtagcaggacagcgaaaaatatagaacaaggggggaactgaaaagcttaggaatgcattgaacatgagaagtgtctaaaggcacactaatcacaaaaatcgctcacactgtcctgtcgctttttatatctttgttcccccttgacttttcgaatccttacgtaactgtactcttc



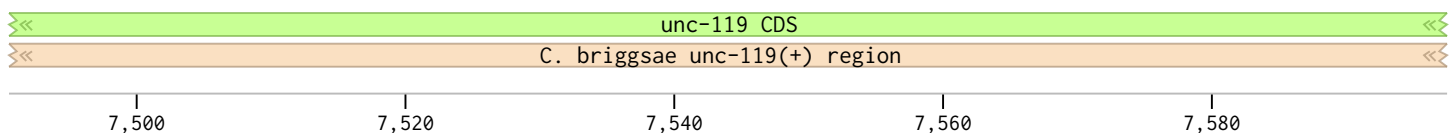
gggaaggggaaggaacaaactagacaggaattattggaatttaacacatttggagtttttttctattcgacagaataattatccagaacattttgtattaaatacccttcccccttctgtttgatctgtccttaataaccttaaatagtgtaaacctcaaaaaaagataagctgtcttataataggctcttgtaaaaacataatttat



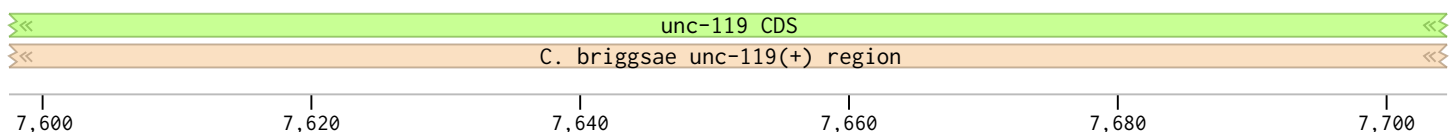
tttatgcatcatatgagtagtcggctttgtgtgcatgacgagttgttatcgacgaaatagaagctgtcagaacgagtcctggttgattgttgatcatgtcgtccaaatagtagtatactcatcagccgaaacaacacgtactgtcacaacaatagctgtttatcttcgacagcttctgctcagagcaaacctaacaactagtagcagcagg



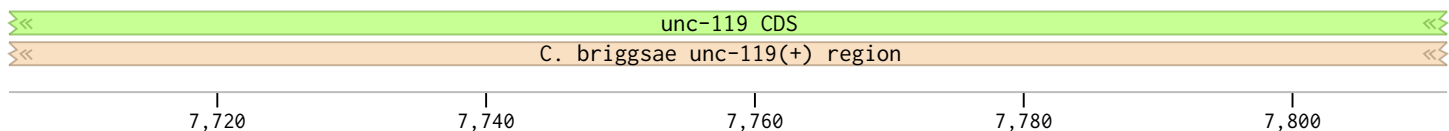
actgaaaaagagattagtcctttgaattgtactttttagaataatgactcactgagttgttgagagagttgaggggaactcatagatatgttcacagttgtttcgtgtagtcttttcttaatcagaaaacttaacatgaaaaatcttattactgagtgactcaacaactctctcaactcccttgagtatctatacaagtgtaacaaaagcact



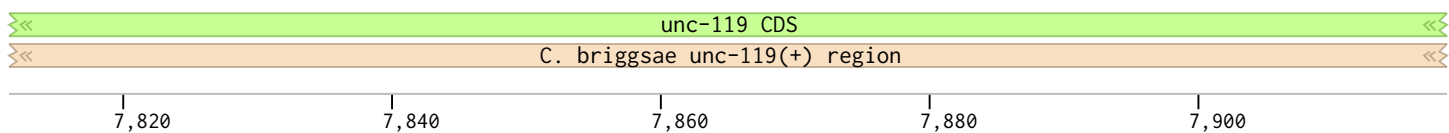
attcggaatacagaatccgaattcaaagtcaaaacacttcagaaggcgatctttgaagaagtgacgttcgatcattcggaatgatggattgggatgtctcctactttaagccttatgtcttaggcttaagtttcagttttgtgaagtcctccgctagaaacttcttcaactgcaagctagtaagcctttactacctaaccctacagaggatgaa



tgaattccacagttgctccgacggttttgagtttcaaaaagtttgagcaaatctataacgcacgtatcttgcgactcctgtggcgactcatcattctcctgatcgacttaaggtgtcaacgaggctggcaaaactcaaagttttcaaacctcgtttagatattgcgtgcatagaacggctgaggacaccgctgagtagtaagaggactagc



ttctccggtttggcgatctcgaaaagcacttgctcagtggtccagatcacggatttggaaacttggtgaactcgatgttatagatgttcgcagatggggagcataagaaagaggccaaaccgctagagcttttcgtgaacgagtcacaggtctagtgcttaaaccttgaaccacttgagctacaatatctacaagcgtctaccctcgtattctt



tctataaatttatgttttaactgaaattcaaaagggagcaagataccttgagtgaattcccggaagtgtctaaaacgtcgttcggagtgatttgagctttcttcgcaagc
aggatttaaatacaaaatttgacttttaggtttccctcgtttctatggaactcactaagggccttcacgattttgcagcaagcctcactaaactcgaaagaagcgttcg

« C. briggsae unc-119(+) region

tccgattccggttgtagattccttgcttcgggtgcttggtgggtggccgtggcatctggaaatatggaaaaagtccaacaaaaagaaaagagaaaagaatgaaatcggatatc
aggctaaggcaacactaaggaacaagccacgaaccaccacggcaccgtagacctttataccttttcaagttgtttttcttttcttttcttttcttacttttagcctatag

« C. briggsae unc-119(+) region

aagagtttagttgagcggtttctctagttttctgagtcctcacctgcgacgggaaggtcgccgagccgggtggaatcgatCgttgttgtctcggttttcatactggtttg
ttctcaatcaactcgccaaagagatcaaaagactcagagtggacgctgcccttcacgcggtcggcccaccttagctaGcaacaacgagccgaaagtatagccaaac

« C. briggsae unc-119(+) region

gttggaaagcgggtctaaaacggaaagaagtgggaagaaggaaaagagtgtggtgtgacaggaaaatggtaattagagggtgccaaataaccagctatatatttgtttttt
caaccttcgccgacttttgcctttcttcaccttcttcttttctcacaccacactgtccttttaccattaatctcccacggtttatattggtcgatataaaacaaaaaa

C. briggsae unc-119(+) region

tttgaaacatttttaaaaagaaaaatcagataatgatatcagatggatttcgggaaaactggtatgaaaaatttcaacctttttgagtacatgtaatcaaaataca
aaacttttgtaaaaattttctttttatgctattactatagtctacctaaaggccttttgaccatactttttaagttggaaaaactcatgtacattagttttatgt

C. briggsae unc-119(+) region

ctttgtaaattatcatttttattgaaactccaccatttttctatttataacgctaataattgaaaaagaaacctAttgcaaccgcggggtgaatcccaaaaacga
gaaacatttaatagtaaaaaataactttgaggttggtaaaaagataaatattgcgattattaaactttttctttggaTaacgcttggcgccccacttagggtttttgc

C. briggsae unc-119(+) region

atgcgttttggtggagtgattgattcgaatcgaagaagaaaaagaagaagacgtggaatagagagctcactcttaaccgagcagcacacaccgcagaaaaaaaat
tacgcaaaaccacctcactaactaagcttagcttcttcttttcttcttctgcaccttatctctcgagtgagaattggctcgtcgtgtgtggctgtctttttttta

C. briggsae unc-119(+) region

gaaatgaatgagggctcttcttcttcttcttcgaatgattgacagaaatgggaaaaagaggaagattgagaagggaaaaaggaaggagaaaaagaagcagaagaag
ctttacttactcccagaagaagaagaagaagccttactaactgtctttaccctttttctccttctaactcttccctttttccttcctcttttcttctgtcttcttc

C. briggsae unc-119(+) region

8,680 8,700 8,720 8,740 8,760

acgtcagagaggagaggaacgagcgggaaaagcagcggggcgcaagtcatagaagtagcagagctgggggagaagaagacactatccaagaaaggaatgacgagagagta
tgcagtctctctctctcttgcctgccttttcgtcgcccgcttcagtatcttcacgtctcgacccctcttcttctgtgataggttcttttcttactgctctctcat

A horizontal number line with major tick marks at intervals of 20. The labels are 8,780, 8,800, 8,820, 8,840, 8,860, and 8,880.

tgcaagggttatagggtgcagacagaataggaacagaataacagatgatgagccaagaagagt tgaagggtcgatgaatttgtcatgtaacttaatttgggtcaa
acgtttcccataatcccacgtctgtcttatcttgtcttattgtctactactcggttcttctcaacttttcccgtacttaaacagtacattgaattaaaccagtt

A horizontal number line with arrows at both ends. It has major tick marks labeled 8,900, 8,920, 8,940, 8,960, and 8,980. There are also minor tick marks between the major ones, representing increments of 10.

ttttagcatgatgaattgaaatcatcccttgttgggagttaataaccggttgttatcagaacctgtaatagaaggcgccctaactttgagccaattcatccg
aaactcgtactacttaactttagtagggaacaaccctcaattattggccaaacaatagtctttgggacattatcttcccgcgggattgaaactcggttaagtagggc

A horizontal number line with major tick marks at 9,000, 9,020, 9,040, 9,060, and 9,080. There are also minor tick marks between the major ones, representing increments of 10.

gtttctgtcaaatatatacaaaagtggcgaactgacaaattgttttggatattataataaacattttatccgtaacaattttcgaatactttttacaaggacttgg
caaagacagttttatatagtttttcaccagtttgactgttttaacaaaactataatatattttgtaaaaataggcaattgtttaaagcttatgaaaaatgttctctgaacc

A horizontal number line is shown, ranging from 9,100 to 9,200. Major tick marks are labeled at 9,100, 9,120, 9,140, 9,160, 9,180, and 9,200. Minor tick marks are placed halfway between the major tick marks, representing increments of 10. A solid dot is placed on the number line at the position corresponding to 9,150.

ataaattggctcaaagagcctgctttttgtacaaactgaattcaaaaacgcagaactcgactgttgatgcctgtgtagcggtcctctattgatttttgcatt
tatttaaccgagtttctcggacgaaaaaacatgtttgaacttaagttttgcgtcttgagcatgacaacctacggacacatcgccaggagataactaaaaacgataa

9,220 9,240 9,260 9,280 9,300

ttttgataattttactgtaaatatgagttattccaattaacattcctagctaaatgtaagttagcgaccaattttttagcaaccccatTTTtatgacttttcagaat
aaaactattaaaatgacatttaatactcaataagggttaattgtaaggatcgatttacattcaatcgctgggttaaaaaatcgttgggggtaaaaatactgaaaagcttta

A horizontal number line with five major tick marks. Below each tick mark is a numerical label: 9,320, 9,340, 9,360, 9,380, and 9,400. The tick marks are evenly spaced, representing an interval of 20 units.

atgcgctactgggtcaacgacacttgtttggaactaagggtcttcccaatttttttaaatcttcataggcttgacagaatcagggttcttcaagcagctttgagag
tagcggatgaccaggttgctgtgaacaaaccttgattccagaagggttaaaaaaaaaattagaagtatccgaactgtcttagtcccaagaagttcgtcgaaactctc

A horizontal number line with arrows at both ends. There are six major tick marks labeled from left to right: 9,420, 9,440, 9,460, 9,480, 9,500, and 9,520. The intervals between these labels are equal, representing 20 units each.

ggaatcaattgcaacatttgatgttaaatattatatttttatagtctctggtgaaatggggaccaccgcgaagcccctttatgttttaacttgaataaaatctt
ccttagttaacgttgtaaaactacaatttaaatataaaaaatatcaagagaccactttaccctgggtggcgtttcggggaaaatacaaaaattgaacttatttttagaa

9,540 9,560 9,580 9,600 9,620

ATAD-3 in pCFJ1178 (10862 bp) (from 9631-10486 bp)

gtattaaattgtgatttatagatctgtatgggtaatttgaaggaaaagaaagggagctccaaaagtccttacagatccaggcccaataaatgtaaactattgggc
cataatttaacactaaatatctagacataccattaaacttccttttccctcgagggttttcacggaatgtctaggtccgggttatttacatttgataacccg

left recom 10882

9,640 9,660 9,680 9,700 9,720

agtagtatggcaaaaatcgtgcggaatttgaaaaacctagaattaaaaataatattcaacacaaatgttcgagatattttaagttcggagtgtatatctagaacata
tcatacatccggttttagcacgccttaaaacttttggatcttaattttatttataagtgtgtttacaagctctataaaattcaagcctcacatatagatcttgtat

left recom 10882

9,740 9,760 9,780 9,800 9,820 9,840

ttgtacaagtaggtctacgggatcgtctacgggaaaatttgatttcctcgaagatgtatttaataatctctaatgttgcaggcttttgtatttgacagaatgttg
aacatgttcatccagatgccctagcagatgcccttttaactaaaggagcttctacataaattacttaagagattacaacgtccagaaacataaactgtcttacac

left recom 10882

9,860 9,880 9,900 9,920 9,940

gtttttgaaacttattcgcataattgcttggctactacatgtctcatgccattgacactatcctgtactcgaaatttgtaagtaactaccacgcgtccacttatg
caaaaactttgaataagcgggtattaacgaaccgatgatgtacagagtagcggtaactgtgataggacatgagctttaacaattcattgatgggtggcagggtgaatac

left recom 10882

9,960 9,980 10,000 10,020 10,040

acgagagggtcaattaaggtcactccacaaaagtaaatttgaacacatgagaaaaagtgatctgaattcccttgaagtggctaaaacaagcagatgagggtatc
tgctctccagtttaattccagtgagggtgttttcatttaaacttttgtgtactcttttactagacttaagggaacttcaccgattttgtttcgtctactccctatg

left recom 10882

10,060 10,080 10,100 10,120 10,140 10,160

gacgtatgcgactactgagagataaggtcgaaacttgataaggatgctgcttacctgcttagcaagtttcttcgcacaggagaaagtgacaagctaaactatcaaat
ctgcatacgtgatgactctctattccagctttgaaactattcctacgacgaatggacgaatcgttcaagaagcgtgtcctctttcactgttcgatttgatagtta

left recom 10882

10,180 10,200 10,220 10,240 10,260

tcataaaaaacctcaaaaaattattttggatgaataatgttttattttgagcaacgcataaggcaagaataaattaaaggcgatccgcttagcggcgagttccgt
agtagattttggagtttttaataaaacctactttattacaaaataaaactcgttgcgatttccgtttcttatttaatttccgctaggcgaatcgccgctcaaggca

left recom 10882

10,280 10,300 10,320 10,340 10,360

cctcgaagaagattcctccatcgatggcgcagtagtttgacagattccacgctctcctggggttcttggtggtccgactggtcctggctgtcctgggtttccgtcg
ggagcttcttctaaggaggtagctaccgcgtcatgaaacctgtctaagggtgcgagaggacccaaggaccaccaggctgaccaggaccgacaggacccaaaggcagc

left recom 10882

10,400 10,420 10,440 10,460 10,480

ATAD-3 in pCFJ1178 (10862 bp) (from 10487-10862 bp)

gctcctggcttgccgtctggtcctggtgggtccctttggtccaggttgctcctgaaagatgtggtgattagatatggattgaaaaactatgaaatgattacctgggggtt
cgaggaccgaacggcagaccaggaccaccagggaaccaggtccaacaggactttctacaccactaatctatacctaactttttgatactttactaatggaccccaa

left recom 10882

10,500

10,520

10,540

10,560

10,580

ccgtcgtttcctggttgccggatggtcctggtgggtccgactggtcctggctctccggtggatcctggctctcccttttgactggctcgagacagctggaagtcc
ggcagcaaaggaccaacaggcctaccaggaccaccagggtgaccaggaccgagaggccacctaggaccgagagggaaaacctgaccgagcgtctgtcgaccttcagg

left recom 10882

10,600

10,620

10,640

10,660

10,680

10,700

ctccaactttctatacaaagttgatagcttggcgtaatcatggtcatagctgtttcctgtgtgaaattgttatccgctggtatcagctcactcaaaggcggtaatac
gaggttgaaagatatgtttcaactatcgaaccgcattagtagtaccagtagtgcacaaggacacactttaacaataggcgaccatagtcgagtgagtttccgccattatg

left recom 10882

M13-rev

10,720

10,740

10,760

10,780

10,800

ggttatccacagaatcaggggataacgcaggaaagaacatgtgagcaaaaggcca
ccaataggtgtcttagtcccctattgctgcctttctgtacactcgttttccggt

10,810

10,820

10,830

10,840

10,850

10,860

maph-1.1::GFP repair template (10528 bp)

tcgcgcgttttcggtgatgacggtgaaaacctctgacacatgcagctcccggagacggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggc
agcgcgcaaaagccactactgccacttttggagactgtgtacgtcgagggcctctgccagtgtcgaacagacattcgcttacggccctcgtctgttcgggcagtcgccg

20

40

60

80

100

gcgtcagcgggtgttggcgggtgtcggggctggcttaactatgcggcatcagagcagattgtactgagagtgaccatatgcggtgtgaaataccgcacagatgcgt
cgagtcgcccacaaccgccacagccccgaccgaattgatacgccgtagtctcgtctaatgactctcacgtggtatacgccacactttatggcgtgtctacgca

120

140

160

180

200

aaggagaaaaataccgcatcaggcgccattcgccattcaggctgcgcaactgttgggaaggcgatcggtgcgggcctcttcgctattacgccagctggcgaaagggg
ttcctcttttatggcgtagtcccggttaagcggttaagtcgcagcgttgacaacccttcccgctagccacgcccggagaagcgataatgcggtcgaccgctttcccc

220

240

260

280

300

320

gatgtgctgcaaggcgattaagtgggtaacgccagggttttcccagtcacgacgttgtaaacgacggccagtcgccggcatccactcattttcgtctcacaca
ctacacgacgttccgctaattcaaccattgcggtcccaaaagggtcagtgctgcaacattttgctgccggtcagcgccgtagggtgagtaaaagcgagagtgtgt

M13-fwd

340

360

380

400

420

ctcacacacacaaaaacgagaccaacacactctagatgcccgctcacaaccacatttgcctccttctcatgattggctaaatgggttttttttggtatttgtttgg
gagtgtgtgtgttttgcctctggttgtgtgagatctacgggcgagtggttgtaaacgagggaagagtactaaccgatttaccaaaaaaaaaaccataaacaacc

LeftHomologyArm maph-1.1

440

460

480

500

520

acactaggcaacaaccaactattcgtctggattctttcattttccctagatgtttctcgtttcgttcccagtaacttttccaaaagtatcataagtaatatcgtaa
tgtgatccgtgtttgggtgataagcagacctaagaaagtaaaaggatctacaagagcaaagcaagggtcattgaaaaggttttcatagtattcattatagcatt

LeftHomologyArm maph-1.1

540

560

580

600

620

640

aatagtttattgctgtgtttcgactagatttgagacttatttcaactttacaaggaagactgctatcacaaaactatctgaacctttttcattaaatttcattcatt
ttatcaataacgacacaaaagcctgatctaaactctgaataaagtgtgaatgttccttctgacgatagtgttttgatagacttgaaaaagtaatttaaagtagtaa

LeftHomologyArm maph-1.1

660

680

700

720

740

ttttaacagaagatacggtacctgctctcgtcacgactgtaaattttcaactttagtgtgcatttttgccagaagccatgaatctttttactctattttccctata
aaaattgtcttctatgccatggacgagagcagtgctgacatttaaaagttgaaatcacacgtaaaaacggctctcggtacttagaaaaatgagataaaagggatat

LeftHomologyArm maph-1.1

760

780

800

820

840

tttttgacgttattttgacatttttgattgggtttggcacctttttagtcattaatgtgttcttttactgaaaaatgaagtctacagaaaagcgtgaaaaactct
aaaaaactgcaataaaactgtaaaaactaaccaaaacggtgaaaaaatcagtaattataccaagaaaatgactttttacttcagatgtcttttcgcactttttgaga

LeftHomologyArm maph-1.1

860

880

900

920

940

960

maph-1.1::GFP repair template (10528 bp) (from 964-1819 bp)

gaaattagggttttttagtcatTTTTgacataaaattcgccctaatttaaccttcagcgttgTTTTcattttatacgtatacgcgtttaaaactcttgaaaagaa
ctttaatcccaaaaacatcagtaaaactgtattttaagcgggattaaattaggaagtcgcaaaaaagtaaaatatgcatatgcgcaaattttgagaacttttctt

LeftHomologyArm maph-1.1

980

1,000

1,020

1,040

1,060

cattttttccagATGAGTAAAGGAGAAGAATTGTCTACTGGAGTTGTCCCAATCCTCGTCGAGCTCGACGGAGACGTCAACGGACACAAGTTCTCCGTCTCCGGAGA
gtaaaaaaggTCTACTATTTCTCTTCTTAACAAGTGACCTCAACAGGGTTAGGAGCAGCTCGAGCTGCCTCTGCAGTTGCCTGTGTTCAAGAGGCAGAGGCCTCT

GFP

1,080

1,100

1,120

1,140

1,160

GGGAGAGGGAGACGCCACCTACGGAAAGCTCACCTCAAGTTCATCTGCACCACCGGAAAGCTCCCAGTCCCATGGCCAACCCTCGTCACCACCTTCTGCTACGGAG
CCCTCTCCCTCTGCGGTGGATGCCTTTGAGTGGGAGTTCAAGTAGACGTGGTGGCCTTTGAGGGTCAGGTTACCGGTTGGGAGCAGTGGTGAAGACGATGCCTC

GFP

1,180

1,200

1,220

1,240

1,260

1,280

TCCAATGCTTCTCCGTTACCCAGACCACATGAAGCGTCACGACTTCTCAAGTCCGCCATGCCAGAGGGATACGTCCAAGAGCGTACCATCTTCTCAAGGtaagt
AGGTTACGAAGAGGGCAATGGGTCTGGTGTACTTCGCAGTGCTGAAGAAGTTACGGCGGTACGGTCTCCCTATGCAGTTCTCGCATGGTAGAAGAAGTTCattca

GFP

1,300

1,320

1,340

1,360

1,380

ttaaacaatatataactactgattattttaattttcagGACGACGGAAACTACAAGACCCGTGCCGAGGTCAAGTTCGAGGGAGACACCCTCGTCAACCGTAT
aatttgatatatatgattgatgactaataaatttaaaagtcCTGCTGCCTTTGATGTTCTGGGCACGGCTCCAGTTCAAGCTCCCTCTGTGGGAGCAGTTGGCATA

GFP

1,400

1,420

1,440

1,460

1,480

CGAGCTCAAGGtaagtttaaacagttcggTactaactaaccatacatatttaattttcagGGAATCGACTTCAAGGAGGACGGAAACATCCTCGGACACAAGCTCG
GCTCGAGTTCattcaaatTTGtaagccatgattgattggTatgtataaatttaaaagtcCCTTAGCTGAAGTTCTCTCTGCCTTTGTAGGAGCCTGTGTTCCGAGC

GFP

1,500

1,520

1,540

1,560

1,580

1,600

AGTACAACACAACCTCCACACAGTCTACATCATGGCCGACAAGCAAAAGAACGGAATCAAGGTCAACTTCAAGGtaagtttaaacaTgattttactaactaactaa
TCATGTTGATGTTGAGGGTGTGCAGATGTAGTACCGGCTGTTGTTTTCTTGCTTAGTTCAGTTGAAGTTCattcaaatTTgtactaaaatgattgattgatt

GFP

1,620

1,640

1,660

1,680

1,700

tctgattttaattttcagATCCGTCACAACATCGAGGACGGATCCGTCCAACCTCGCCGACCACTACCAACAAAACACCCCAATCGGAGACGGACAGTCTCTCTCC
agactaaatttaaaagtcTAGGCAGTGTGTAGCTCCTGCCTAGGCAGGTTGAGCGGCTGGTGTGTTTGTGGGGTTAGCCTCTGCCTGGTCAGGAGGAGGG

GFP

1,720

1,740

1,760

1,780

1,800

mapH-1.1::GFP repair template (10528 bp) (from 1820-2675 bp)

AGACAACCACTACCTCTCCACCAATCCGCCCTCTCCAAGGACCCAAACGAGAAGCGTGACCACATGGTCCTCCTCGAGTTCGTCACCGCCGCCGAATCACCCACG
TCTGTTGGTGATGGAGAGGTGGGTTAGGCGGGAGAGGTTCTGGGTTTGTCTTCGCACTGGTGTACCAGGAGGAGCTCAAGCAGTGGCGGCGGCCTTAGTGGGTGC

» GFP »

1,820 1,840 1,860 1,880 1,900 1,920

GAATGGACGAGCTCTACAAGGAGAATCTGTACTTTCAATCCGAAAGgtaagtttaaaATAACTTCGTATAGCATACATTATACGAAGTTATtttcagGGAGAGCAA
CTTACCTGCTCGAGATGTTCTCTTAGACATGAAAGTTAGGCCTTTCattcaattttTATTGAAGCATATCGTATGTAATATGCTTCAATAaaagtcCCTCTCGTT

» GFP » TEV site » loxP » »

1,940 1,960 1,980 2,000 2,020

AAGCTTATCTCCGAGGAGACCTCTAAGGATGATCGACGCCaACGTCGTTGAATTTTCAAATTTTAAATACTGAATATTTGTTTTTTTCTATTATTTATTTATTC
TTCGAATAGAGGCTCCTCCTGGAGATTCTACTAGCTGCGGtTGCAGCAACTTAAAGTTTAAATTTATGACTTATAAACAAAAAAGGATAATAAATAAATAAG

» myc » let-858 Terminator »

2,040 2,060 2,080 2,100 2,120 2,140

TCTTTGTGTTTTTTTTCTTGCTTTCTAAAAAATTAATTCAATCCAAATCTAAacatttttttctctttccgtctccaattcgattccgctcctctcatctgaa
AGAAACACAAAAAAGAACGAAAGATTTTTTAATTAAGTTAGTTTAGATTgtataaaaaaagagaaaggcagagggttaagcataaggcgaggagagtagactt

» let-858 Terminator »

2,160 2,180 2,200 2,220 2,240

cacaatgtgcaagtttatttatcttctcgttttcatttcatttaggacgtgggggaattggtggaaggggaaacacacaaaaggatgatggaatgaaataaggac
gtgttacacgttcaaataatagaagagcgaaagtaagtaactctgcaccccccttaaccaccttcccccttgtgtgttttctactacctttactttatctctg

» let-858 Terminator »

2,260 2,280 2,300 2,320 2,340

acacaatatgcaacaacattcaattcagaatatggaggaaggtttaaaagaaaacataaaaatatatagaggaggaaggaaactagctgccctcgattgtctatct
tgtgttatacgttgttgtaagtttaagtcctttatacctccttccaaattttcttttgtattttatatatctcctccttcttgcacgggagctaacagataga

» let-858 Terminator » Psqt1 »

2,360 2,380 2,400 2,420 2,440 2,460

tcattctcaccaagtttcaacaactttattcagtcattcttctcgtttcatttcccaaccaatcttcccgaataaagcccatctgtcctttcgccacattcctc
aggtaagagtggttcaaagttgttgaaataagtcagtaagaagagaccaagtaaggggttggttagaagggttatttcgggtagacaggaaagccgggtgaaggag

» Psqt1 »

2,480 2,500 2,520 2,540 2,560

acctacatccgtactccttatctccgttcttatccagtcctttatcgctctcgtcgtcgcacactgtctcgtcggtaatgtataaaaaaaacaaaaaaacttga
tggatgtaggcatgaggaatagagggaagaataggtcagaaaatagcagagacgcagagcgtgtgacagagcagccattacattttttttgtttttttgaact

» Psqt1 »

2,580 2,600 2,620 2,640 2,660

mapH-1.1::GFP repair template (10528 bp) (from 2676-3531 bp)

aaacttgcggaagatttcctaataaaaggagacgaatccggtaggaaatcgacaagtctctgcttctcgaagactaggtaggttacatttcttggccgaattatt
tttgaacgcctttctaagattatcttctctgcttaggccatccttttagctgttcagagacgaagagcttctgatccactcaatgtaaagaaccggcttaataa

» Psqt1 »

2,680 2,700 2,720 2,740 2,760 2,780

ttgaaatcctaaatttgataatttcagagATGTCTGTAAACTTGCCTGTTATGTGACGGCTTCGGTCACTGTCGCCACTCTTATGGTATGCTTCATGACCATGTCA
aactttaggattttaactattaaagtctcTACAGACATTTGAACGCACAATACACTGCCGAAGCCAGTGACAGCGGTGAGAATACCATACGAAGTACTGGTACAGT

» Psqt1 SQT-1 »

2,800 2,820 2,840 2,860 2,880

ACCATCTACTCGGAGGTTGATGGATTCAGAGAGAAGCTTGATACCGAGATGAATGTGTTCAAGtgagttaaattatattttgaattttaataatttttaatttc
TGGTAGATGAGCCTCCAACCTACCTAAGTCTCTCTCGAACTATGGCTCTACTTACACAAGTCTcactcaatttaataataaaacttaaaattattataaaattaaaag

» SQT-1 »

2,900 2,920 2,940 2,960 2,980

tagCAATCTACCAATGGATTGTGGAAGGACATAGTTGTCATCGGAAGATCTAGCAAGCGTGTCGGTTGTCAATATGAAGAGACCAACGCTACCCCACTCCACATGC
atcGTTAGATGGTTACCTAACACCTTCTGTATCAACAGTAGCCTTCTAGATCGTTGCGACAGGCAACAGTTATACTTCTCTGGTTGCGATGGGGTTGAGGTGTACG

SQT-1 »

3,000 3,020 3,040 3,060 3,080 3,100

TGATGGATCCCATCTGCTCCACCAGGTCAACCACCAGCAGTTCACCAGTCTTCAACCAGCCAAAGACTCCAAATGGAGCCAATGGAATGGACCAACCTGCAACT
ACTACCTAGGGGTAGACGAGGTGGTCCAGTTGGTGGTCGTCAGGTGGTCAGAAGTTGGTCGGTTTCTGAGGTTTACCTCGGTTACCTTTACCTGGTTGGACGTTGA

» SQT-1 »

3,120 3,140 3,160 3,180 3,200

GCAATGCTGATAACAAGTGCCAGCTGGACCATCCGACCAAAGGGAGTTCAGGAGTTCAGGACTCGACGGAGTTCAGGACTTGACGGTGTTCAGGAGTTGGA
CGTTACGACTATTGTTACGGGTGACCTGGTAGGCCTGGTTTCCCTCAAGGTCTCAAGGTCTGAGCTGCCTCAAGGTCTGAACTGCCACAAGGTCTCAACCT

» SQT-1 »

3,220 3,240 3,260 3,280 3,300

GCTGATGATATCGCTCCACAACGCGAGTCTGTCGGATGCTTCACTTGGCCACAAGGACCAGTTGGACCACCAGGAGCTCTTGAAGACCAGGACCAGTGGACTTCC
CGACTACTATAGCGAGGTGTTGCGCTCAGACAGCCTACGAAGTGAACGGGTGTTCTGGTCAACCTGGTGGTCTCGAGAACCTTCTGGTCTGGTGCACCTGAAGG

» SQT-1 »

3,320 3,340 3,360 3,380 3,400 3,420

AGGACCAAGAGGACAAAATGGAACCCAGGAAGAGATGGACAACCAGGACATCCAGGAGAGCAAGGATCATCCGGTCAAATCGGAAAGATCGGAGAGCCAGGACCAC
TCCTGGTTCTCTGTTTTACCTTTGGGTCTTCTCTACCTGTTGGTCTGTAGGTCTCTCGTTCTAGTAGGCCAGTTAGCCTTTCTAGCCTCTCGGTCTGGTG

» SQT-1 »

3,440 3,460 3,480 3,500 3,520

maph-1.1::GFP repair template (10528 bp) (from 3532-4387 bp)

CAGGAGAGAAGGGACGCGACGCCGAGCATCCAATCGGAAGACCAGGACCAAAGGGACCAAGAGGAGATCAAGGACCAACAGGACCAGCTGGACAGAACGGTCTTCAC
GTCCTCTCTCCCTGCGCTGCGGCTCGTAGGTTAGCCTTCTGGTCTGGTTTCCCTGGTTCTCTCTAGTTCCTGGTTGTCCTGGTCGACCTGTCTTGCCAGAAGTG

» SQT-1 »

3,540 3,560 3,580 3,600 3,620

GGACCACCAGGAGAGCCAGGAACCGTTGGACCAGAAGGACCATCTGGAAAGCAAGGACGTCAAGGACCAGACGGAACCCAGGGAGAGACTGGACCAGACGGAAGACC
CCTGGTGGTCTCTCGGTCCTTGGCAACCTGGTCTTCTGGTAGACCTTTCGTTCTCTGCAGTTTCTGGTCTGCCTTGGGTCCCTCTCTGACCTGGTCTGCCTTCTGG

» SQT-1 »

3,640 3,660 3,680 3,700 3,720 3,740

AGGAAAGGATGCCGAGTACTGCCAGTGCCAGACAAGTCTCCACCATCAGAGGCTGTCAACGCCAACCGTGGATACAGAAATATCTAAattgttggtgttttcta
TCCTTCTACGGCTCATGACGGTCACGGGTCTGTTAGAGGTGGTAGTCTCCGACAGTTGCGGTTGGCACCTATGTCTTTATAGATTtaacaaccacaaaagatta

» SQT-1 » sqt-1 3'UTR »

3,760 3,780 3,800 3,820 3,840

aaaaatatttgagattcagtgagacttttttcttggcggcacaataaagtttctctttttgttgggtcactcaacgaacacaatacaaatatttgagcgctcgcat
ttttataaactctaagtcactctgaaaaaagaaccgccgtgttatttcaaaggagaaaaacaaccagtgagttgcttgtgttatgtttataaactcgcgagcgtaa

» sqt-1 3'UTR » tbb-2 3'UTR »

3,860 3,880 3,900 3,920 3,940

tttctcaacctttcgggttttaagcacttcaaatggaattgaagagagattgtgaaagtacatcagacagaatcacattttgatagcattcacttcactcagatgc
aaagagttggaaagcccaaatttcgtgaagttttacctaacttctcttaacactttcatgtagctgtcttagtgtaaaactatcgtaagtgaagtgaagtctacg

» tbb-2 3'UTR »

3,960 3,980 4,000 4,020 4,040 4,060

aaacttttcagtgactataaaaagtcataaaataataacattaaaaagcaataaattagcgagagaatttttgacaaaaagaagaagagtgatagagaagaag
tttgaaaagtcactgatatttttcagtatattattattgtaatttttcgtttatttaacgctctcttaaaaaactgtttttcttcttctcactatcttctcttc

» tbb-2 3'UTR »

4,080 4,100 4,120 4,140 4,160

ggaatgcttgaaaggattttgcatttatcttaATCACCGTCTTCGAGAAGACGAACCATGGCGCCAGTTTCAAGATCCAAGTTTCTAATATAGTTCATCAATAGTT
ccttacgaactttcctaaaacgtaaatagaatTAGTGGCAGAAGCTCTTCTGCTTGGTACCGCGGTCAAAGTCTTAGGTTCAAAGATTATCAAGTAGTGTACAA

» tbb-2 3'UTR » Cre »

4,180 4,200 4,220 4,240 4,260 4,280

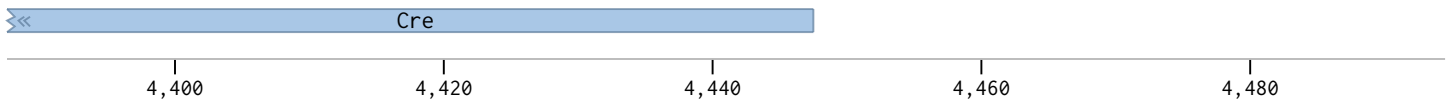
GACGTTGGTCCAACCTCCGGCTTGCAATCTCTGGGATGGAACTCCAGCGCGAGCCATGTCACGGGCAGCTCCGACACGGGCGGAATGTCCAGACCAAGCCAAGT
CTGCAACCAGGTTGGAGGCCGAACGTATTAGAGACCCTACCTTTGAGGTGCGCTCGGTACAGTGCCCGTCGAGGCTGTGCCCGCCTTACAGGTCTGGTTCGGTTCA

» Cre »

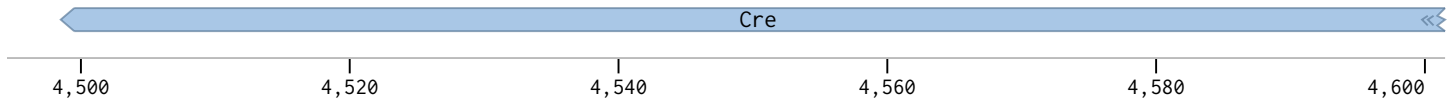
4,300 4,320 4,340 4,360 4,380

mapH-1.1::GFP repair template (10528 bp) (from 4388-5243 bp)

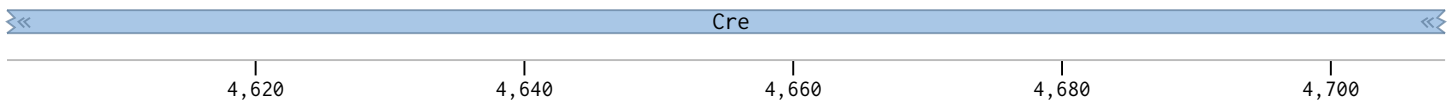
AACGTTGTCCGAATCATCCTTGGCTCCGTAGATGAGACGGTGGGTAGCTTCGAAGATTCctgaaaattttttcagcttattcttagctaatatgttgtttaaac
TTGCAACAGGCCTTAGTAGGAACCGAGGCATCTACTCTGCCACCCATCGAAGCTTCTAAGgacttttaataaaaagtcgaataagaatcgattatacaacaaatttg



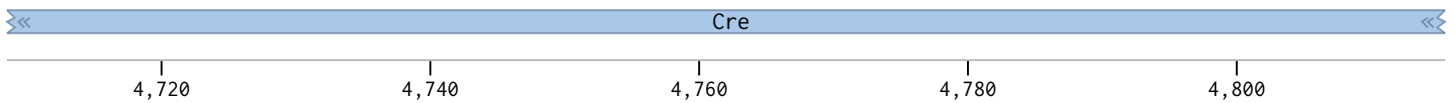
ttacCTTCAAGAGCTCGAGTCGAGAGTTGTGATGTTGCACTCGGGGCAGCAACTCCGTTCTTGCGAACACGACAGAACAGGTAGTTGTTTGGATCATCGGCGACTCC
aatgGAAGTTCTCGAGCTCAGCTCTCAACACTACAACGTGAGCCCCGTCGTTGAGGCAAGAACGCTTGTGCTGTCTTGTCCATCAACAAACCTAGTAGCCGCTGAGG



GGAAACCGAAATCCAGCGCTCAACGAGCTTGGTAACTCCAAGGGAGAGCGCTTTTTCGACTCCGGCAGTCGAGACCAGCGTTTTTGTACGTCCGATGTGGATGAGCA
CCTTTGGCTTTAGGTCGCGAGTTGCTCGAACCATTGAGGTTCCCTCTCGCGAAAAAGCTGAGGCCGTCAGCTCTGGTCGCAAAAACATGCAGGCTACACCTACTCGT



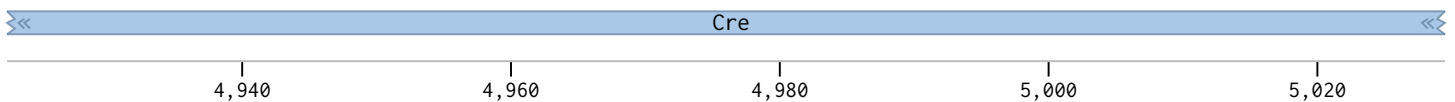
TTCTTCTCCGTCTGTGCGACTAATATCCTTGACGCGAATGCGGGCAATTTCCGGCATACGGAGAAGTGTTGTAAGCAATTCGAGGAAGGCGAGGTTTCGGATG
AAGAAGGAGGCAGACACGCTGATTATAGGAAGTACGCTTACGCCCCTTAAAGCCGCTATGCCTCTTACACAAACATTGTTAAGGCTCCTTCCGCTCCAAAGCCTAC



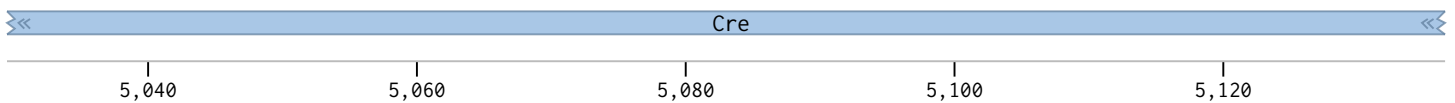
TCCTGGCAACGATCGGAATTTTCCATAAGAGAACGGACCTGATCGAAGTCGGTTctgaaaatttcgtcaagtcttaggattgaatacattaatatatttaaacttacCT
AGGACCGTTGCTAGCCTTAAAGGTATTCTCTTGCTGACTAGCTTCAGCCAAGacttttaagcagttcagaatcctaacttatgtaattataaatttgaatgGA



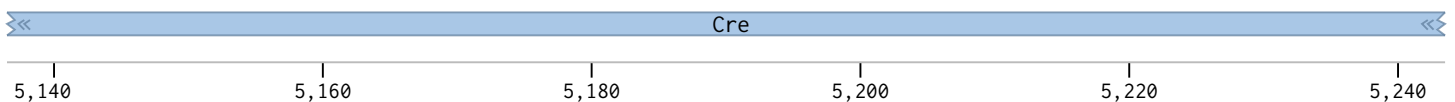
TTCGAAGGCGAGGGCTTGCTTGGCTCTCTCCAGCATCAACATTTTCTTGCGGATACGTCTCATTACGAGAGATACGGCATTAGAATCTGATGGGCGTGGAAGTC
AAGCTTCCGCTCCCGAACGAACCGAGAGAGAGGTCGTAGTTGTAAAAGGAACGCCATGCAGAGTAATGCTCTCTATGCCGTAATCTTAGACTACCCGCACCTTCAG



CAGATCGGCGATGGAGCATATTGAGCTGTCCGAGATGTTGTTGGATCGTCTTACCAGCAATCCACGAGCTTGAGGTAGAGCAAGTAGTCACGAACGTCTTCTGGC
GTCTAGCCGCTACCTCGTATAACTCGACAGGCTCTACAACAACCTAGCAGAAGTGGCGGTTAGGTGCTCGAACCTCCATCTCGTTCATCAGTGCTTGCAGAAGACCG

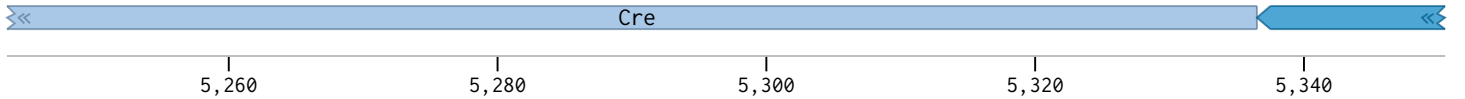


TCGGCTGGGAACCACTTGCGGTTGTTAAGCTTGCAACAGGCAGCCCAAGAACGGCACACTGAGAGAAGCATCTTCCAGGTGTGCTCGGAGAAGGCTTGCTGTGCAG
AGCCGACCCTTGGTGAACGCCAACAAATTCGAACGTGGTCCGTCGGGTTCTTGCCGTGTGACTCTCTTCGTAGAAGGTCCACACGAGCCTTCCGAACAGACAGTGC

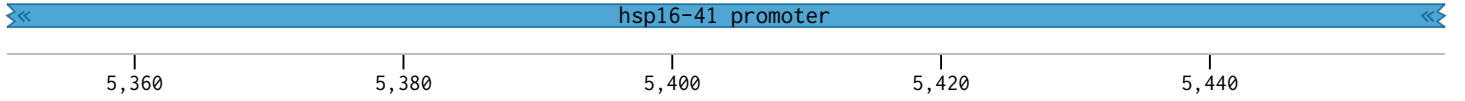


maph-1.1::GFP repair template (10528 bp) (from 5244-6099 bp)

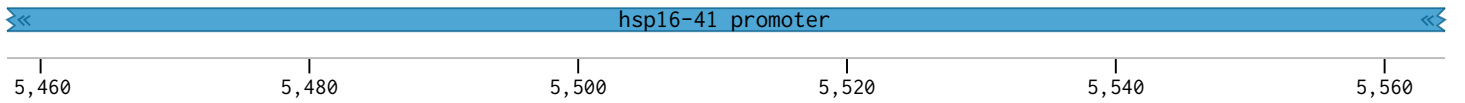
GAACATATCCATGAGGTTCTTGCGAACTTCATCACTTGTGCGTCAACTGGAAGTGCTGGAAGATTTTGATGAACAGTGAGAAGATTTGACATattttcgaagtttt
CTTGATAGGTACTCCAAGAACGCTTGAAGTAGTGAACAGCGCAGTTGACCTTCACGACCTTCTAAACTACTTGTCACTCTTCTAAACTGTataaaagcttcaaaa



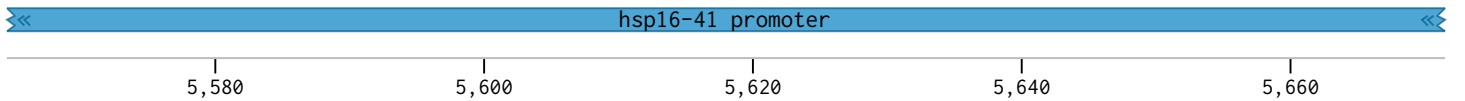
ttagatgcactagaacaaagcgtgttggtcttctctgagccgcttttccttatatacccgcatcttcgagccttacagaatgttctagaaggctctagatgcattcg
aatctacgtgatcttgttttcgcacaaccgaaggagactcgggcgaaggaatatatgggcgtaagacgtcgggaatgtcttacaagatcttcaggatctacgtaagc



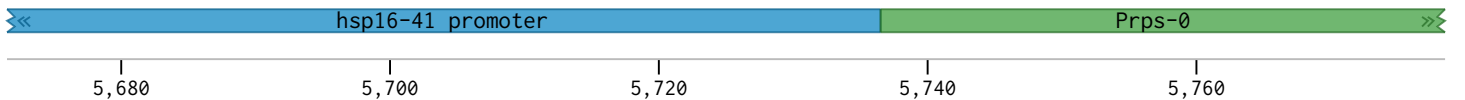
tttgaataactcccgttggtgcaaagagacgcagacggaatgtatctgggtctctttattgtgtactacttttccatgtaccgaatgtgagtcgcctcct
aaacttttatgagggccaccacgtttctctgctctgccttttacatagaccagagaataacacatgtgatgaaaaggtacatggcttacactcagcgggagga



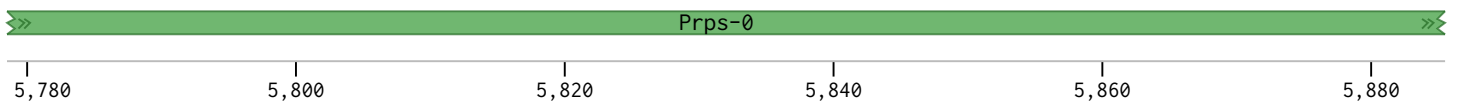
tttgaacaagcagctcgaatgttctagaaaaaggtggaatagtataaataccgttgaaaataaataccgaacaacatttgctctaattgtgaaattagaaatct
aaacgttgttcgtcgagcttacaagatcttttccaccttttatcatatttatggcaacttttatttatggcttgttgtaaacgagattaacactttaatctttaga



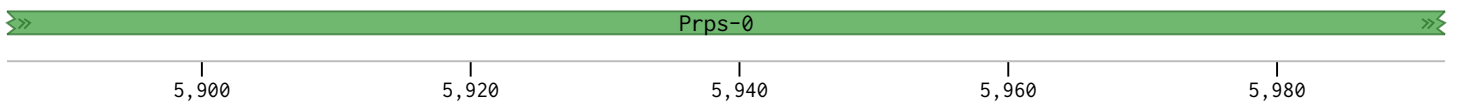
tcaactataatcatgtcactttaccactatttccgtccagctcaacgttccgttttttggtgatcATTTTGTCTTCGTGTAATCTACACACGCTCTCTCCGT
agtttgatatttagtacagtgaatggtgataaaggcaggtcgagttgcaaggcaaaaaccactagTAAAAACGAAAGCAGCATTTAGATGTGTGCGCAGAGAAGGCA



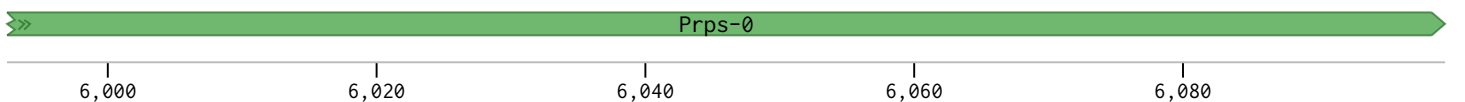
GCGAGAGTCCAAGCCAGCAGCCAAATTCGTTGACTGAGTATTCAACGTTTATACGTTGTCGGCAACGAGAAATAGGAAAATGCATCGGGAAATGTTCTTTTTTCGAT
CGCTCTCAGGTTCGGTCGTCGGTTTAAGCAACTGACTCATAAGTTGCAAAATATGCAACAGCCGTTGCTCTTTATCCTTTTACGTAGCCCTTTACAAGAAAAAGCTA



TTTTTCCAAGGTTTTGACAAATTTTACCACGAATTTGCTATGTTTTCAATTAATAAATATGTTATTCAACTGTTTCTATGAGGAAAAAAGGCTTTGCATGTAATT
AAAAAGGTTCCAAAAGTTTAAATGGTGCTTAAACGATACAAAAGTTAATTTTTATACAATAAGTTGACAAAGATACTCCTTTTATTCCGAAACGTACATTAA



TTCTATTTCAGCATAATTTTAATTAATTTGAATTTTCTGCTCAACGTTTATTTGTTTTCTTGGTTATGACTGATCTGAAATTAATTTTGAATTTTAAGGTAAT
AAGAATAAGTCGTATTAAAAATTAATTAACCTTAAAGACAGGATTGCAAATAAAACAAAAGAACCAATACTGACTAGACTTTAATTAATAAACTTAAATTCATTA

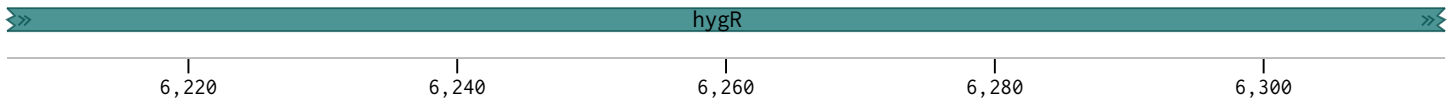


mapH-1.1::GFP repair template (10528 bp) (from 6100-6955 bp)

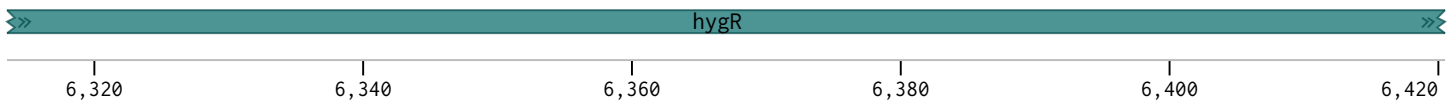
ATGTCAGGCGGTGCCGCAAGTTTGTACAAAAAGCAGGCTCCATGAAAAAGCCTGAACTACCGCGACGTCTGTCGAGAAGTTTCTGATCGAAAAGTTCGACAGCGT
TACAGTCCGCCACGGCGTTCAAACATGTTTTTCGTCCGAGGTACTTTTTCGGACTTGAGTGGCGCTGCAGACAGCTCTTCAAAGACTAGCTTTTCAAGCTGTCGCA



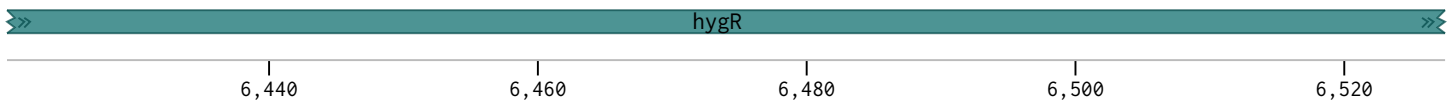
CTCCGACCTGATGCAGCTCTCGGAGGGCGAAGAATCTCGTGCTTTTCTAGCTTCGATGTAGGAGGGCGTGATATGTCCTGCGGGTAAATAGCTGCGCCGATGGTTTCT
GAGGCTGGACTACGTGAGAGCCTCCCGCTTCTTAGAGCACGAAAGTCGAAGCTACATCTCCCGACCTATACAGGACGCCCATTATCGACGCGCTACCAAAGA



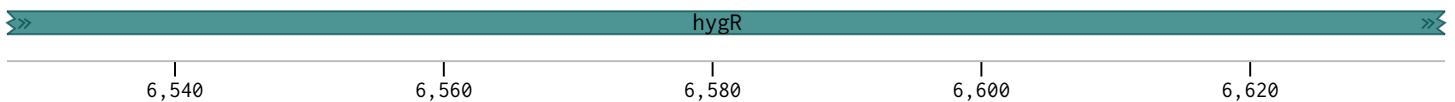
ACAAAGATCGTTATGTTTATCGGCACTTTGCATCGCCGCGCTCCCGATTCCGGAAGTGCTTGACATTGGGGAATTCAGCGAGAGCCTGACCTATTGCATCTCCCGC
TGTTTCTAGCAATACAAATAGCCGTGAAACGTAGCCGGCGCGAGGGCTAAGGCCTTCACGAACTGTAACCCCTTAAGTCGCTCTCGGACTGGATAACGTAGAGGGCG



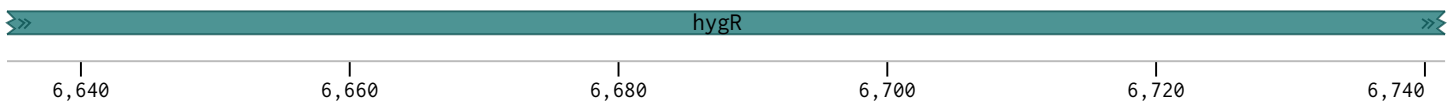
CGTGACAGGGTGTCACGTTGCAAGACCTGCCTGAAACCGAACTGCCCCTGTTCTGCAGCCGGTCGCGAGGCCATGGATGCGATCGCTGCGGCCGATCTTAGCCA
GCAGTGTCACAGTGCAACGTTCTGGACGGACTTTGGCTTGACGGGCGACAAGACGTGCGCCAGCGCCTCCGGTACCTACGCTAGCGACGCGCGCTAGAATCGGT



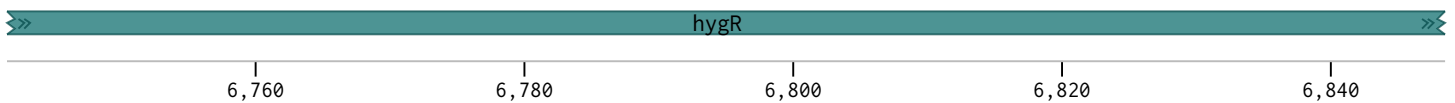
GACGAGCGGGTTCGGCCCATTCGACCCGCAAGGAATCGGTCAATACACTACATGGCGTGATTTTATATGCGCGATTGCTGATCCCCATGTGTATCACTGGCAAACCTG
CTGCTCGCCCAAGCCGGTAAGCCTGGCGTTCCTTAGCCAGTTATGTGATGTACCGCACTAAAGTATACGCGCTAACGACTAGGGGTACACATAGTACCCTTTGAC



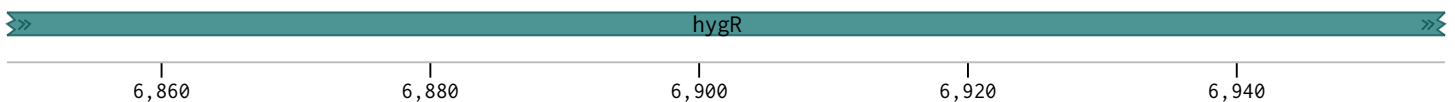
TGATGGACGACACCGTCAGTGCGTCCGTGCGCAGGCTCTCGATGAGCTGATGCTTTGGGCCGAGGACTGCCCCGAAGTCCGGCACCTCGTGACGCGGATTTCCGGC
ACTACCTGCTGTGGCAGTCACGCAGGCAGCGCTCCGAGAGCTACTCGACTACGAAACCCGGCTCCTGACGGGGCTTCAGGCCGTGGAGACGTGCGCCTAAAGCCG



TCCAACAATGTCCTGACGGAATGGCCGCATAACAGCGGTCACTGACTGGAGCGAGGCATGTTTCGGGGATTCCCAATACGAGGTGCGCAACATCTTCTTCTGGAG
AGGTTGTTACAGGACTGCCTGTTACCGGCGTATTGTCGCCAGTAAGTACCTCGCTCCGCTACAAGCCCCTAAGGGTTATGCTCCAGCGGTTGTAGAAGAAGACCTC

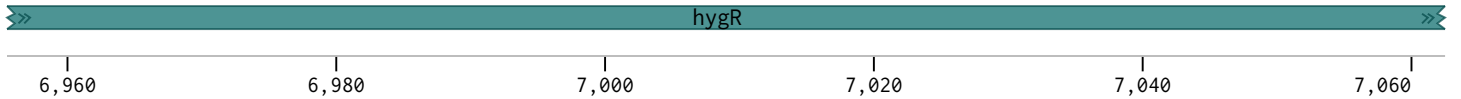


GCCGTGGTTGGCTTGTATGGAGCAGCAGACGCGCTACTTCGAGCGGAGGCATCCGAGCTTGACAGGATCGCCGCGGCTCCGGGCGTATATGCTCCGCATTGGTCTTG
CGGCACCAACCGAACATACCTCGTCGTCTGCGCGATGAAGCTCGCCTCCGTAGGCCTCGAACGTCTAGCGGCGCCGAGGCCCGCATATACGAGGCGTAACCAAGAC

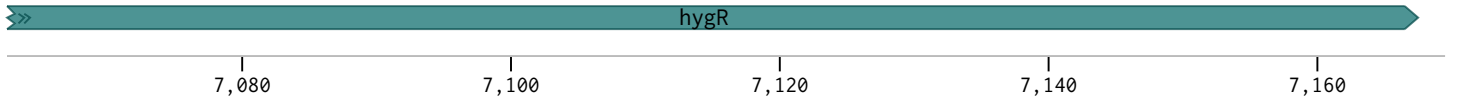


maph-1.1::GFP repair template (10528 bp) (from 6956-7811 bp)

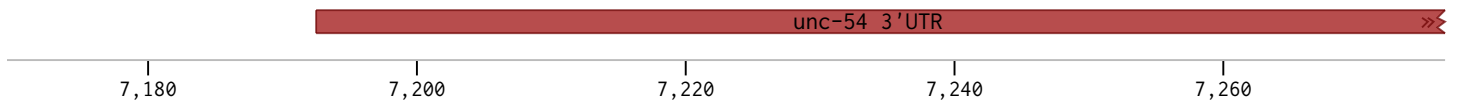
ACCAACTCTATCAGAGCTTGGTTGACGGCAATTCGATGATGCAGCTTGGGCGCAGGGTCGATGCGACGCAATCGTCCGATCCGGAGCCGGGACTGTCGGGCGTACA
TGGTTGAGATAGTCTCGAACCAACTGCCGTTAAAGCTACTACGTGCAACCCGCGTCCCAGCTACGCTGCGTTAGCAGGCTAGGCCTCGGCCCTGACAGCCCGCATGT



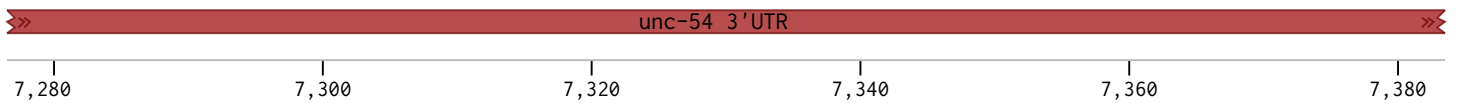
CAAATCGCCCGCAGAAGCGCGCCGTCTGGACCGATGGCTGTGTAGAAGTACTCGCCGATAGTGAAACCGACGCCCCAGCACTCGTCCGAGGGCAAAGGAATAGAC
GTTTAGCGGGCGTCTTCGCGCCGGCAGACCTGGCTACCGACACATCTTCATGAGCGGCTATCACCTTTGGCTGCGGGGTCGTGAGCAGGCTCCCGTTTCTTATCTG



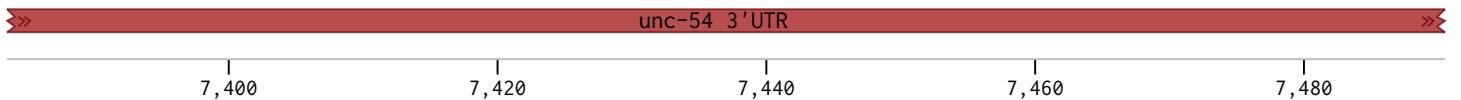
CCAGCTTTCTTGACAAAGTGGGTCCAATTACTCTTCAACATCCCTACATGCTCTTTCTCCCTGTGCTCCACCCCCCTATTTTTGTTATTATCAAAAACTTCTCTT
GGTCGAAAGAACATGTTTACCAGGTTAATGAGAAGTTGTAGGGATGTACGAGAAAGAGGGACACGAGGGTGGGGGATAAAAAACAATAATAGTTTTTTGAAGAGAA



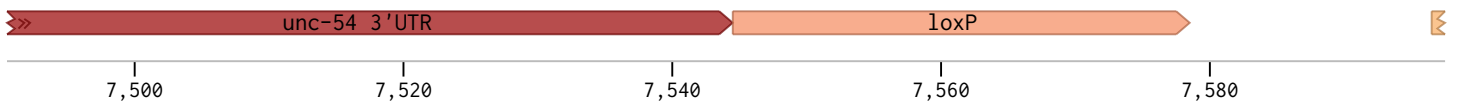
AATTTCTTTGTTTTTAGCTTCTTTAAGTCACCTCTAACAATGAAATTGTGTAGATTCAAAAATAGAATTAATTCGAATAAAAAGTCGAAAAAATTGTGCTCCC
TTAAAGAAACAAAAATCGAAGAAAATTCAGTGGAGATTGTTACTTTAACACATCTAAGTTTTATCTTAATTAAGCATTATTTTTTCAGCTTTTTTTAACACGAGGG



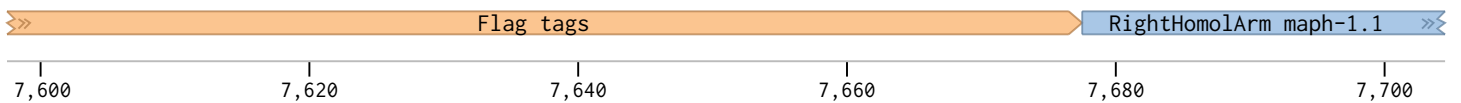
TCCCCCATTAAATAAATTCTATCCCAAATCTACACAATGTTCTGTGTACACTTCTTATGTTTTTTACTTCTGATAAATTTTTTTGAAACATCATAGAAAAACC
AGGGGGGTAAATTATTATTAAGATAGGGTTTTAGATGTGTTACAAGACACATGTGAAGAATACAAAAATGAAGACTATTTAAAAAACTTTGTAGTATCTTTTTTG



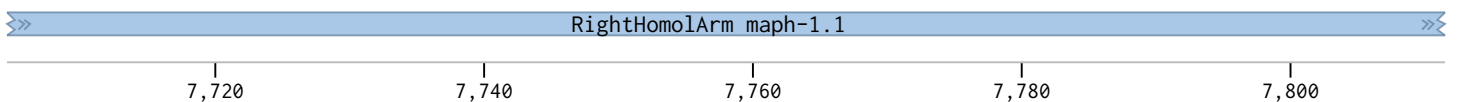
GCACACAAAATACCTTATCATATGTTACGTTTCAGTTTATGACCGCAATTTTTAATAACTTCGTATAGCATACATTATACGAAGTTATtttcagGGAGCCGGATCTG
CGTGTGTTTTATGGAATAGTATACAATGCAAAAGTCAAACTACTGGCGTTAAAAATTATTGAAGCATATCGTATGTAATATGCTTCAATAaaagtcCCTCGGCCTAGAC



ATTATAAAGACGATGACGATAAGCGTGACTACAAGGACGACGACGACAAGCGTGATTACAAGGATGACGATGACAAGAGAATGCCGGAGGAATATATCATGTCGTCA
TAATATTTCTGCTACTGCTATTCGCACTGATGTTCTGCTGCTGTTTCGCACTAATGTTCTACTGCTACTGTTCTTACGGCCTCCTTATATAGTACAGCAGT



AAGGCcTgAtATaTgTcTcGGCGGTGCGGCCAACACGGCCGCCCTGTTTGATTTGACGGCGTCTACATTCTCGATGGGGGATTGCCGAAAAGAACCAGGGATT
TTCCGgACaTATaTACAgAgCCGCCACGCCGTTGTGCCGGCGGGACAACTAAAGCTGCCGCAGATGTAAGAGCTACCCCTAAGCGGCTTTTCTTGGGCCCTAA



TGTGGCTCACGT CAGGGACGTCTCTGCCGTTCTGCTCGCCGCTCCGACGCTGGGAAATCTTGAACCATCTGCTCTGTTGGAACAGgtttgtagcaccttttagtg
ACACCGAGTGCAGTCCCTGCGAGACGGCAAGACGAGCGGCGAGGCTGCGACCTTTAGAACCTTGGTGACGAGACAACTTGTGcaaacatcgtggaaatcac

A horizontal number line is shown with major tick marks at 7,820, 7,840, 7,860, 7,880, and 7,900. Between each major tick mark, there are four minor tick marks, representing intervals of 10 units. A dot is placed on the number line at the position corresponding to 7,850.

caattttttgataatatttttttcagGGAACCGTTGCCGGTGTTACCAACACGAAGCCGTTCAAGACTGCAAAGCCAGGAAGCAGTGGAGAGATTGCCAAAGCA
gttaaaaaactattataaaaaaagtcCCTTTTGGCAACGGCCACAAGTGGTTGTGCTTCGGCAAGTTCTGACGTTTCGGTCCTTCGTACCTCTCTAACGGTTTCGT

7,920 7,940 7,960 7,980 8,000 8,020

ATTCAAGAAGCCAACTCGAAAACTCTCTCCGTGGCTCCACCACTGTTCAATCCAAAAATACCCGGCAAACATCATATACCAGTCAGCTGCAAAAGGAGTTCTCTCACT
TAAGTTCTTCGGTTGAGCTTTTAGGAGAGGCCACCGAGGTGGTGACAAGTTAGGTTTTATGGGCCGTTTGAGTATATGGTCAGTCGACGTTTTCTCAAGAGAGTGA

A horizontal number line with major tick marks at 8,040, 8,060, 8,080, 8,100, and 8,120. The numbers are labeled below the line.

GTATATTCTGGCTGGTGACGTCAAGGATGCCGAAGTGATCACAAAGCGTTGGCTGGAGGAAACGAGGCTGAAGTGGAAGAGCGGCCGCTGAGCATGGAACCATCG
CATATAAGACCGACCACTGCAGTTCCTACGGCTTCACTAGTGTTCGCAACCGACCTCCTTTGCTCCGACTTCACCTCTTCCGCCGGCGACTCGTACCTTGGTAGC

A horizontal number line with major tick marks labeled 8,140, 8,160, 8,180, 8,200, and 8,220. There are minor tick marks between the major ones, representing intervals of 10 units.

CGTCCTGCTCTGGAGACCTGCGATGACTGATCAATCGGTGGTCAGAGTGCTCATTTTGataacatggctcatagctgttttctgtgtgaaattgttatccgctcaca
CGCAGGACGAGACCTCTGGACGCTACTGACTAGTTAGCCACCAAGTCTCACGAGTAAAGCtattgtaccagtatcgacaaaggacacactttaacaataggcgagtgt

atgccacacaacatacagagccggaagcataaagtgtaaagcctggggtgcctaattgagtgcctaacacatttaattgcgttgccgtcactgccgcgtttccagtc
taagggtgtgtgtatgctcgcccttcgtatttcacatttcggacccacaggattactcactcgattgagtgttaattaacgcaacgcgagtgacggggcgaagggtcag

8,360	8,380	8,400	8,420	8,440
-------	-------	-------	-------	-------

gggaaacctgtcgtgccagctgcattaatgaatcggccaacgcgcggggagaggcggtttgcgtattgggcgctcttccgcttctctcgctcactgactcgctgcgt
ccctttggacagcacggtcgacgtaattacttagccggttgcgcgccctctccgccaacgcataaccgcgagaaggcgaaggagcgagtactgagcgacgcga

8.460 8.480 8.500 8.520 8.540 8.560

cggtcggttcggctgcggcgagcgggtatcagctcactcaaaggcggtaatacggttatccacagaatcaggggataacgcaggaaagaacatgtgagcaaaaggccag
gccagcaagccgacgccctcgccatagtcgagtgagtttcgccattatgccaataggtgtcttagtcccctattgcgtcctttcttgtacactcgttttccggtc

8.580 8.600 8.620 8.640 8.660

caaaaggccaggaaccgtaaaaaggccgcttgctggcggttttccataggctccgccccctgacgagcatcacaaaaatcgacgctcaagtcagaggtggcgaaa
gttttccggtccttggcattttccggcgcaacgaccgcaaaaagggtatccgaggcggggggactgctcgtagtgtttttagctgcgagttcagttctccaccgcttt

8,680 8,700 8,720 8,740 8,760

maph-1.1::GFP repair template (10528 bp) (from 8775-9630 bp)

cccgacaggactataaagataaccaggcggtttccccctggaagctccctcgctgcgtctcctgttccgaccctgccgcttacggatacctgtccgccttttccctt
gggctgtcctgatatttctatggtcgcaagggggaccttcgagggagcacgcgagaggacaaggctgggacggcgaatggcctatggacaggcggaaagaggaa

ColE1 origin

8,780 8,800 8,820 8,840 8,860 8,880

cgggaagcgtggcgcttttctatagctcacgctgtaggtatctcagttcggtgtaggtcgctccaagctgggctgtgtgcacgaacccccgttcagcccgac
gcccttcgcaccgcgaagagtatcgagtgcgacatccatagagtcaagccacatccagcaagcgaggttcgacccgacacacgtgcttggggggcaagtgcggctg

ColE1 origin

8,900 8,920 8,940 8,960 8,980

cgctgcgccttatccgtaactatcgctttgagtccaacccggtaagacacgacttatcgccactggcagcagccactggtaacaggattagcagagcgaggtatgt
gcgacgcggaataggccattgatagcagaactcaggttgggccattctgtgctgaatagcggtgaccgtcgctcggtgaccattgtcctaatactgctcgcctcataca

ColE1 origin

9,000 9,020 9,040 9,060 9,080

aggcgggtgctacagagttcttgaagtgggtggcctaactacggctacactagaagaacagtatttggatatctgcgctctgctgaagccagttaccttcgaaaaagag
tccgccacgatgtctcaagaacttcaccaccggattgatgccgatgtgatcttctgtcataaacatagacgcgagacgacttcgggtcaatggaagccttttctc

ColE1 origin

9,100 9,120 9,140 9,160 9,180 9,200

ttggtagctcttgatccggcaaacaaaccacgctggttagcggtggttttttggtttgaagcagcagattacgcgcagaaaaaaggatctcaagaagatcctttg
aacatcgcagaactaggccgtttgtttgggtggcgaccatcgccacaaaaaaacaacgttcgtcgtctaatacgcgctcttttttcttagagttcttctaggaac

ColE1 origin

9,220 9,240 9,260 9,280 9,300

atcttttctacggggtctgacgctcagtggaaacaaaactcacgttaagggttttgggtcatgagattatcaaaaaggatcttcacctagatccttttaaattaaaa
tagaaaagatgccccagactgcgagtcaccttgcttttgagtgaattccctaaaaccagtactctaatagtttttcctagaagtggatctaggaaaatttaatttt

ColE1 origin

9,320 9,340 9,360 9,380 9,400

atgaagttttaaatcaatctaaagtatatatgagtaaacttggctgacagttaccaatgcttaatcagtgaggcacctatctcagcgatctgtctatttcgttcac
tacttcaaaatttagttagatttcatatatactcatttgaaccagactgtcaatggttacgaattagtcactccgtggatagagtcgctagacagataaagcaagta

AmpR

9,420 9,440 9,460 9,480 9,500 9,520

ccatagttgcctgactccccgtcgtgtagataactacgatacgggagggttaccatctggccccagtgctgcaatgataccgcgagaccacgctcaccggctcca
gggtatcaacggactgaggggcagcacatctattgatgctatgccctcccgaatggtagaccgggggtcacgacgttactatggcgctctgggtgagtgccgaggt

AmpR

9,540 9,560 9,580 9,600 9,620

maph-1.1::GFP repair template (10528 bp) (from 9631-10528 bp)

gatttatcagcaataaaccagccagccggaagggccgagcgcagaagtggctcctgcaactttatccgcctccatccagtcctattaattgttgccggaagctagagt
ctaaatagtcgttatttggtcggctcgccctcccggtcgcgtcttcaccaggacgttgaaataggcggaggtaggtcagataattaacaacggcccttcgatctca

»» AmpR »»

9,640

9,660

9,680

9,700

9,720

aagtagttccagtttaatagtttgcgcaacgttgttgccattgctacaggcatcgtggtgtcacgctcgtcgtttggtatggcttcattcagctccggttccaac
ttcatcaagcgggtcaattatcaaacgcgttgcaacaacggtaacgatgtccgtagcaccacagtgcgagcagcaaaccataccgaagtaagtcgaggccaagggttg

»» AmpR »»

9,740

9,760

9,780

9,800

9,820

9,840

gatcaaggcgagttacatgatcccccattgtgtgcaaaaaagcggttagctccttcggtcctccgatcgttgtcagaagtaagttggccgcagtggtatcactcatg
ctagttccgctcaatgtactaggggtacaacacgttttttcgccaatcgaggaagccaggaggctagcaacagtccttcattcaaccggcgtcacaatagttagtac

»» AmpR »»

9,860

9,880

9,900

9,920

9,940

gttatggcagcactgcataattctcttactgtcatgccatccgtaagatgcttttctgtgactggtagtactcaaccaagtcattctgagaatagtgtatgcggcg
caataccgtcgtgacgtattaagagaatgacagtacggtaggcattctacgaaagacactgaccactcatgagttggttcagtaagactcttatcacatacgccgc

»» AmpR »»

9,960

9,980

10,000

10,020

10,040

accgagttgctcttgcccgcgctcaatacgggataataccgcgccacatagcagaactttaaaagtgctcatcattggaaaacgttcttcggggcgaaaactctcaa
tggctcaacgagaacggggcgagttatgccctattatggcgcggtgtatcgtcttgaaatttcacgagtagtaacctttgcaagaagccccgcttttgagagtt

»» AmpR »»

10,060

10,080

10,100

10,120

10,140

10,160

ggatcttaccgctgttgagatccagttcgtatgtaaccactcgtgcacccaactgatcttcagcatcttttactttcaccagcgtttctgggtgagcaaaaacagga
cctagaatggcgacaactctaggtcaagctacattgggtgagcacgtgggttgactagaagtcgtagaaaatgaaagtgggtcgcaaagaccactcgtttttgtcct

10,180

10,200

10,220

10,240

10,260

aggcaaaatgccgcaaaaaaggaataagggcgacacggaaatgttgaatactcatactcttccttttcaatattattgaagcatttatcagggttattgtctcat
tccgttttacggcggtttttcccttattcccgcgtgtgcctttacaacttatgagtatgagaaggaaaaagttataataacttcgtaaatagtcccaataacagagta

10,280

10,300

10,320

10,340

10,360

gagcggatacatatttgaatgtatttagaaaaataacaaataggggttcgcgcacatttccccgaaaagtgccacctgacgtctaagaaccattattatcatga
ctgcctatgtataaacttacataaatcttttattgtttatccccaaggcgctgtaaaggggcttttcagggtggactgcagattcttttgtaataatagtact

10,400

10,420

10,440

10,460

10,480

cattaacctataaaaaataggcgtatcacgaggcccttttcgtc

gtaattggatatttttaccgcatagtgtcctcggaagcag

10,490

10,500

10,510

10,520

Pbeta actin eGFP::MAPH-1.1 (9407 bp)

gagcacaacgttaattaattccccagcaggcaggttaattaacagtgtgactcccttttctgctgcgagtgagggtgatacagagagatgtggcactatggagccac
ctcgtgtttgcaattaattaaggggtcgtccgtccattaattgtcacactgagggaaaaacgacgctcaccgcgactatgtctctacacgtgatacctgggtg

20

40

60

80

100

ggggctctggcactgggtgcccacggaggtcccatgtgctgcagtgacccgctccgaggtgacagtattgtccctgcggtgtccctgcagctcagctctgtcca
ccccaggaccgtgaccacgggtgcctccaggggtacacgacgtcacagtggcggagggtccactgtcataacagggacgccacagggacgtcgagtcgagacaggt

Beta-actin promoter

120

140

160

180

200

cagggccacctccagtttgaggggacacaatgcagccccgatgcaaccatcctcgagcatcccagggacaaagacccactgcaagaccgcacacagggtggg
gtcccggtggaggtcaaacctcccctgtgttacgtcggggctacgttgggtaggagcgtcgtagggtccctgtttctggggtgacgttctggcgtgtgtcccgacc

Beta-actin promoter

220

240

260

280

300

320

tcccgctcccctaataatctacagtgttttgcatggccccttaatcaatgcagttaatcagcatgcgctcatgcaccgctctggagctgcaaagcccctcgagcgc
agggcgaggggattatagatgtcacgaaaacgtaccgggaattagttacgtcaattagtcgtacgcgagtagctggcgagacctcgacgtttcggggagcgtcgcg

Beta-actin promoter

340

360

380

400

420

tgctcaccaacaccgcgcaccgccccggcccagcctgcagcacgcgctgcaaacaggaaagaaacaaaatattgccaaatgtaggcaaaggcattcggctgccttg
acgagtgggtgtggcgcgtggcggggccgggtcggacgtcgtgcgcgacgtttgtcctttctttgttttataacgggtttacatccgtttccgtaaggcgacggaac

Beta-actin promoter

440

460

480

500

520

acctccgcccgggcccggccctgcctgactcagctccttactcagcgtcgttctcctccctccgggtgccaccgccgcagcgcacaccctgacaaagagtggccctta
tggaggcgcccggcccgggacggactgagtcgaggaatgagtcgcgagcgaaggaggaggccgacggtggcggcgtcgcgtgtgggactgtttctaccgggaat

Beta-actin promoter

540

560

580

600

620

640

acgggctctgaggtgcaccagcagtgactcagcagtcgaaggccggcctggaggtttgcaccgctacgtgctgacattagcattgaacttggccctgggtagtg
tgcccagactccacgtgggtcgtcacgtgagtcgtcaggttcccggccggacctccaacgtggcgatgcagactgtaatcgtaactgaaccgggacccatcac

Beta-actin promoter

660

680

700

720

740

ctgcaggccgggcccgggtgggtgtagagagtgcagcgcgcttgaccacgggtcccccttcccctcccttgcatcccagcaggctgcacccagcaccaggcccggtgc
gacgtccggcccgcacccacatctctcacgtcgcgcgaacgtgggccacggggaagggagggaacgtagggtcgtccgacgtgggggtcgtgggtccgggcacg

Beta-actin promoter

760

780

800

820

840

Pbeta actin eGFP::MAPH-1.1 (9407 bp) (from 857-1712 bp)

atgcatgctcctggtgttattgcagcctggtgcatgcatgcgtcttagtggtgcagcgctgtgcatgcatcctccttgggtgtgtagcagcttagtgcatgcataccc
tacgtacgaggaccacaataacgtcggaccacgtacgtacgcagaatcaccacgtcgcgcacgtacgtaggaggaaccacacatcgctcgaatcacgtacgtatggg

» Beta-actin promoter »

860 880 900 920 940 960

ctcgggtgttattgctgctctgtgcaggcacgctcattgtatcacttcatcccagtgcatgcactcacactggagcgattgctgctcgggtgcacgcacactcattgta
gagccacaataacgacgagacacgtccgtgcgagtaacatagtgaagtagggtcacgtacgtgagtgtagctcgctaacgacgagccacgtgcgtgtgagtaacat

» Beta-actin promoter »

980 1,000 1,020 1,040 1,060

tcacgtcagctcagtggtgcacgcacaccggtgttattgctgctcgggtgcgtgcatgcacatcagtgctcgctgcagctcagtgcatgcacgctcattgcccacgc
agtgcagtcgagtcaccgacgtgctgtggccacaataacgacgagccacgcacgtacgtgtagtcacagcgacgtcgagtcacgtacgtgcgagtaacgggtagcg

» Beta-actin promoter »

1,080 1,100 1,120 1,140 1,160

tatccctgcctctcctgctggcgctccccgggaggtgacttcaaggggacgcgagaccacctcgggggtggggggagggtgcacacgcggacccccgctccccctc
atagggacggagaggacgaccgcgaggggccctccactgaagttcccttggtcctggtggagccccacccccctccgacgtgtgcgctggggcgagggggag

» Beta-actin promoter »

1,180 1,200 1,220 1,240 1,260 1,280

cccaacaaagcactgtggaatcaaaaaggggggaggggggatggaggggcgctcacacccccgccccacacctcacctcgaggtgagccccacgttctgcttcac
gggtgtttcgtgacaccttagttttccccctccccctacctccccgcgcagtggtggggcggggtgtgggagtgagctccactcggggtgcaagacgaagtg

» Beta-actin promoter »

1,300 1,320 1,340 1,360 1,380

tctccccatctccccccccctccccaccccccaatttgtattttattttttaattattttgtgagcgatgggggcggggggggggggggcgcgccaggcggg
agaggggtagaggggggggaggggtgggggttaaataacataataaaaaataataaaacacgtcgctacccccgcccccccccccccgcgcggtccgccc

» Beta-actin promoter »

1,400 1,420 1,440 1,460 1,480

gcggggcggggcgaggggcggggcggggcgaggcgagaggtgcggcggcagccaatcagagcggcgcgctccgaaagtcttctttatggcgaggcgggcgggcg
cgccccgccccgctccccgccccgccccgctccgctctccacgcccgctcggttagtctcgccgcgcgaggtttcaaaggaataaccgctccgccgcccgcgc

» Beta-actin promoter »

1,500 1,520 1,540 1,560 1,580 1,600

gcggccctataaaaaagcgaagcgcgggcgggcgggagtcgctgctgtgccttcgccccgtgccccgctccgcgcgcctcgcgccgcccgggctctgactga
cgccgggatatttttcgcttcgcgccgccccgcccacagcgacgcaacggaagcggggcacggggcgaggcgggcgagcgcgggcgggcggggcccagactgact

» Beta-actin promoter »

1,620 1,640 1,660 1,680 1,700

Pbeta actin eGFP::MAPH-1.1 (9407 bp) (from 1713-2568 bp)

ccgcgttactcccacaggtgagcgggaggacggcccttctcctcgggctgtaattagcgcttggtttaatgacggctcgtttcttttctgtggctcgtgaaagc
ggcgcaatgagggtgtccactcgcgcgcctgccgggaagaggagggccgacattaatcggaaccaattactgccgagcaaagaaaagacaccgacgcactttcg

» Beta-actin promoter »

1,720

1,740

1,760

1,780

1,800

cttaaagggtccgggaggccctttgtgcggggggagcggctcgggggtgctgctgtgtgtgtgctgaggagcgcgcgtgcggcccgcgtgccggcggg
gaatttcccaggccctcccgggaaacacgccccctcgccgagccccacgcacgcacacacacgcacccctcgcggcgcacgcggggcgacggggccgc

» Beta-actin promoter »

1,820

1,840

1,860

1,880

1,900

1,920

ctgtgagcgtgcgggcgcggcggggctttgtgcgtccgcgtgtgcgcgaggggagcgcggccggggcggtgccccgcgtgcggggggctgcgaggggaac
gacactcgcgacgccgcgcggcggcgggaaacacgcgagggcgacacgcgcgtcccttcgcgcggccccgccacggggcgccacgcccccgacgtcccttg

» Beta-actin promoter »

1,940

1,960

1,980

2,000

2,020

aaaggctgcgtgcggggtgtgtgcgtgggggggtgagcaggggtgtgggcgcggcggtcggtgtaacccccctgcacccccctcccagattgctgagcacg
tttcgacgcacgccccacacgcacccccccactcgtccccacacccgcgcgcagcccagacattggggggggacgtggggggaggggctaacgactcgtgc

» Beta-actin promoter »

2,040

2,060

2,080

2,100

2,120

2,140

gccccgcttcgggtgcggggctcgtgcggggcgtgggcgcggggctgccgtgccgggcgggggtggcggcaggtgggggtgcgggcggggcgggccgcctcgg
cgggccgaagcccacgccccgaggcacggcgcccgacgcgcggcgagcggcgacggccccccccaccgcgtccacccccacggccccccccggcgagcc

» Beta-actin promoter »

2,160

2,180

2,200

2,220

2,240

gccggggagggtcggggaggggcgcgggcgccccggagcgcggcggtgtcgaggcgggcgagccgcagccattgccttttatggtaatcgtgcgagaggcg
cggccccctccgagccccctcccgcgcgcggggcctcgcggcccgacagctccgcgcgcgtcggcgtcggtaacgaaaataccattagcacgctctccgc

» Beta-actin promoter »

2,260

2,280

2,300

2,320

2,340

cagggacttcctttgtcccaaacttggcggagccgaaatctgggaggcgcgcgcaccccccttagcgggcgcggcggaagcgtgcggcgccggcaggaagaaa
gtccctgaaggaaacagggttttagaccgctcggcttttagaccctccgcggcggtgggggagatcgcccgcggcgcttcgccacgcgcggcggtccttccttt

» Beta-actin promoter »

2,360

2,380

2,400

2,420

2,440

2,460

tggcggggagggccttcgtgcgtgcgcgcgcgcgtcccttctccatctccagcctcggggctgccgcagggggacggctgccttcgggggggacggggcaggg
accgccccctcccgaagcacgcagcggcgcgggcgagggaagaggtagaggtcgagccccacggcgtcccttcggacggaagccccctgccccgtccc

» Beta-actin promoter »

2,480

2,500

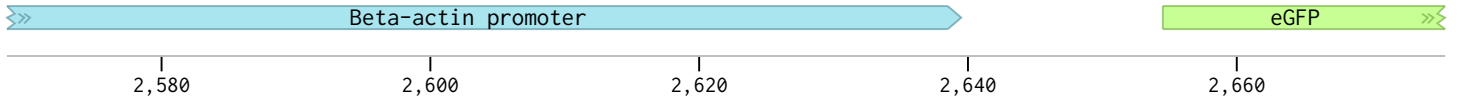
2,520

2,540

2,560

Pbeta actin eGFP::MAPH-1.1 (9407 bp) (from 2569-3424 bp)

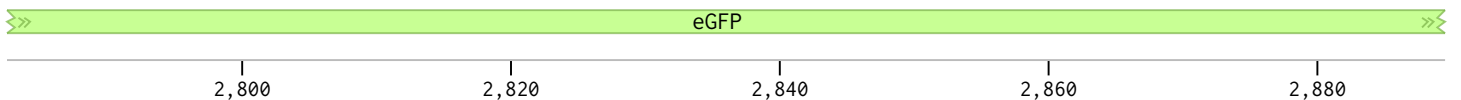
cggggttcggcttctggcgtgtgaccggcggggtttatatcttcccttctctgttccctccgcagccccaagctagcgctaagcttATGGTGAGCAAGGGCGAGGAG
gccccaaagccgaagaccgcacactggccgccccaaatataagaagggaagagacaaggaggcgctcgggggttcgatcgcgattcgaaTACCACTCGTTCCTCGCTCCTC



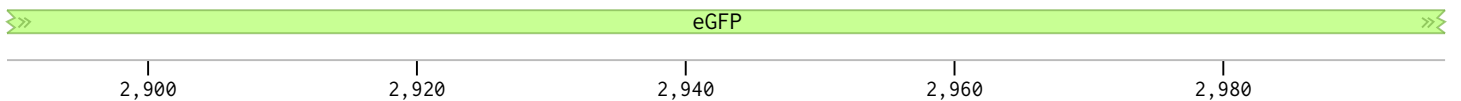
CTGTTACCGGGTGGTGCCCATCCTGGTCGAGCTGGACGGCGACGTAAACGGCCACAAGTTCAGCGTGTCGGCGAGGGCGAGGGCGATGCCACCTACGGCAAGCT
GACAAGTGGCCCCACCACGGGTAGGACCAGCTCGACCTGCCGCTGCATTTGCCGGTGTTCAGTCGCACAGGCCGCTCCCGCTCCCGCTACGGTGGATGCCGTTCTGA



GACCCTGAAGTTCATCTGCACCACCGCAAGCTGCCCGTGCCCTGGCCACCCTCGTGACCACCCTGACCTACGGCGTGCACTGCTTCAGCCGCTACCCCGACCACA
CTGGGACTTCAAGTAGACGTGGTGGCGTTTCACGGGCACGGGACCGGGTGGGAGCACTGGTGGGACTGGATGCCGCACGTACGAAGTCGGCGATGGGGCTGGTGT



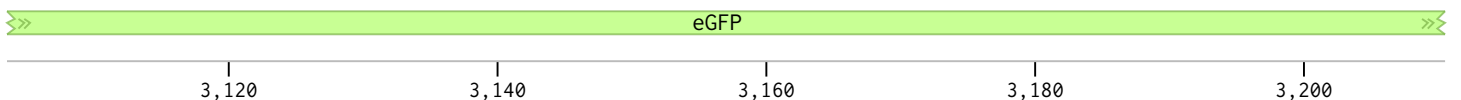
TGAAGCAGCACGACTTCTTCAAGTCCGCCATGCCGAAGGCTACGTCCAGGAGCGCACCATCTTCTTCAAGGACGACGGCAACTACAAGACCCGCGCCGAGGTGAAG
ACTTCGTCGTGCTGAAGAAGTTCAGGCGGTACGGGCTTCCGATGCAGGTCCTCGCGTGGTAGAAGAAGTTCCTGCTGCCGTTGATGTTCTGGGCGGGCTCCACTTC



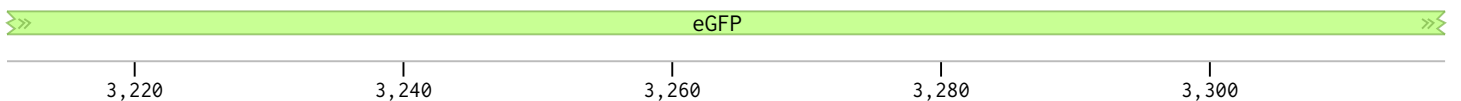
TTCGAGGGCGACACCCTGGTGAACCGCATCGAGCTGAAGGGCATCGACTTCAAGGAGGACGGCAACATCCTGGGGCACAAGCTGGAGTACAACACAACAGCCACAA
AAGCTCCCGCTGTGGGACCACTTGGCGTAGCTCGACTTCCCGTAGCTGAAGTTCCTCCTGCCGTTGTAGGACCCCGTTCGACCTCATGTTGATGTTGTGCGTGT



CGTCTATATCATGGCCGACAAGCAGAAGAACGGCATCAAGGTGAACCTCAAGATCCGCCACAACATCGAGGACGGCAGCGTGACGCTCGCCGACCACTACCAGCAGA
GCAGATATAGTACCGGCTGTTTCGTTCTTGGCGTAGTTTCACTTGAAGTTCAGGCGGTGTTGTAGTCTCCTGCCGTCGCACGTGAGCGGCTGGTGTGTCGTTCT



ACACCCCATCGGCGACGGCCCGTGCTGCTGCCGACAACCACTACCTGAGACCCAGTCCAAGCTGAGCAAAGACCCCAACGAGAAGCGCGATCACATGGTCCTG
TGTGGGGTAGCCGCTGCCGGGACACGACGCGGCTGTTGGTGTGACTCGTGGGTCAGGTTGACTCGTTTCTGGGTTGCTCTTCGCGCTAGTGTACCAGGAC



CTGGAGTTCGTGACCGCCGCCGGGATCACTCTCGGCATGGACGAGCTGTACAAGggcgcgccaATGCCGAGGAATATATCATGTCGTCAAAGGCGTGATCTACGT
GACCTCAAGCACTGGCGGCGGCCCTAGTGAGAGCCGTACCTGCTCGACATGTTTccgcgcggtTACGGCCTCCTTATATAGTACAGCAGTTTCCGCACGTAGATGCA



Pbeta actin eGFP::MAPH-1.1 (9407 bp) (from 3425-4280 bp)

CTTGGGCGGTGCGGCCAACACGGCCGCCCTGTTTGATTTGACGGCGTCTACATTCTCGATGGGGGATTGCGCGAAAAGAACCCGGGATTTGTGGCTCACGTCAGGG
GAACCCGCCACGCCGGTTGTGCCGGCGGGACAACTAAAGCTGCCGCAGATGTAAGAGCTACCCCTAAGCGGCTTTTCTTGGGCCCTAAACACCGAGTGCAGTCCC

»» MAPH-1.1 »»

3,440 3,460 3,480 3,500 3,520

ACGTCTCTGCCGTTCTGCTCGCCGCTCCGACGCTGGGAAATCTTGGAACCACATCTGCTCTGTTGGAACAGGGAAAACCGTTGCCGGTGTTACCAACACGAAGCCG
TGCAGAGACGGCAAGACGAGCGCGAGGCTGCGACCCTTTAGAACCTTGTTGTAGACGAGACAACCTTGCCCTTTTGCAACGCCACAAGTGGTTGTGCTTCGGC

»» MAPH-1.1 »»

3,540 3,560 3,580 3,600 3,620

TTCAAGACTGCAAAGCCAGGAAGCAGTGGAGAGATTGCCAAAGCAATTCAAGAAGCCAACCTCGAAAATCCTCTCCGTGGCTCCACCACTGTTCAATCCAAAATACCC
AAGTTCTGACGTTTCGGTCTTCGTACCTCTCTAACGTTTCGTTAAGTTCTTCGGTTGAGCTTTTAGGAGAGGCACCGAGGTGGTGACAAGTTAGGTTTTATGGG

»» MAPH-1.1 »»

3,640 3,660 3,680 3,700 3,720 3,740

GGCAAACATCATATACCAGTCAGCTGCAAAAGGAGTTCTCTCACTGTATATTCTGGTGGTGACGTCAAGGATGCCGAAGTGATCACAAGGCGTTGGCTGGAGGAA
CCGTTTGTAGTATATGGTCAGTCGACGTTTTCTCAAGAGAGTGACATATAAGACCGACCACTGCAGTTCCTACGGCTTCACTAGTGTTCGCAACCGACCTCCTT

»» MAPH-1.1 »»

3,760 3,780 3,800 3,820 3,840

ACGAGGCTGAAGTGGAGAAGGCGGCCGCTGAGCATGGAACCATCGGCGTCCTGCTCTGGAGACCTGCGATGACTGATCAATCGGTGGTCAGAGTGCTCATTTCCGGA
TGCTCCGACTTCACCTCTTCGCCCGGCGACTCGTACCTTGGTAGCCGAGGACGAGACCTCTGGACGCTACTGACTAGTTAGCCACCAGTCTCACGAGTAAAGCCCT

»» MAPH-1.1 »»

3,860 3,880 3,900 3,920 3,940

ACTAGTTCACTTTGAGGATCCAGCAATCGCTTGACAAGGCAGCGAAATCACTTCCATTCTCAACGTGCCTACCGTGAAGTCGAAGGATGCGCTGTCGGATATTCC
TGATCAAGTGAAAGCTCCTAGGTGCTTAGCGAACTGTTCCGTGCTTTAGTGAAGGTAAGGAGTTGCACGGATGGCACTTCAGTTCCTACGCGACAGCCTATAAGG

»» MAPH-1.1 »»

3,960 3,980 4,000 4,020 4,040 4,060

TGCTCCTGCTGTGCCACGACCTGTTGCCGGAACCATCGGCGAGACCTGCAACCACAACAGGCACCGCAACTCGTCCAACCTCGTCCAGCAGTCCCTGCAGCCAGTG
ACGAGGACGACACGGTCTGGACAACGGCCTTTTGGTAGCCGCTCTGGACGTTGGTGTGTCGGTGGCGTTGAGCAGGTTGAGCAGGTCGTCAGGGACGTCGGTCAC

»» MAPH-1.1 »»

4,080 4,100 4,120 4,140 4,160

CTCCCAGAGCTTTGACTTCTCGTGCTCCAGCAGGCCATCTCGTCCGACGACTACACGAAATGCAGCTCCTGCTCCCAGAACAGCTGTCCCATCGCGAGCAACTGTA
GAGGGTCTCGAACTGAAGAGCACGAGGTCGTCGGGTAGAGCAGGCTGCTGATGTGCTTTACGTCGAGGACGAGGGTCTTGTGACAGGGTAGCGCTCGTTGACAT

»» MAPH-1.1 »»

4,180 4,200 4,220 4,240 4,260 4,280

Pbeta actin eGFP::MAPH-1.1 (9407 bp) (from 4281-5136 bp)

CTCACAAAGACTGCTCCAGCATCGAAGGCTCCAACGAGAGCTCCAGTCCCAGCGAGATCTGCACCAGCGCCACCACGAGGAGCCCCTGCGAAGCCGGCCGCGAACAC
GAGTGTCTTCTGACGAGGTCGTAGCTTCCGAGGTTGCTCTCGAGGTGAGGTCGCTCTAGACGTGGTTCGCGGTGGTCTCCTCGGGGACGCTTCGGCCGGCGCTTGTG

»» MAPH-1.1 »»

4,300 4,320 4,340 4,360 4,380

AGCCAAGGCCGAACCAATAGCTCAGAAGAAGACCGTTGAAAAAGTTCAAGGAACTGCTCCATCAAAACCTGCTCCGGCGGCTCCAGCTTCGGCAGCCACGTCTCCAG
TCGGTTCGGCTTGGTTATCGAGTCTTCTTCTGGAACCTTTTCAAGTTCTTGACGAGGTAGTTTTGGACGAGGCCCGGAGGTCTGAAGCCGTGGTGCAGAGGTC

»» MAPH-1.1 »»

4,400 4,420 4,440 4,460 4,480

CTCCAGCTCCAGAAGCTCCTCGAAGGGATCCGAACAACGTACCATCGTTCTCGACGATTCGCTCTCTCCAGAAGATTTCAACCAAGGGTCGGCTCCGATGGATATT
GAGGTCGAGGTCTTCGAGGAGCTTCCCTAGGCTTGTTCAGTGGTAGCAAGAGCTGCTAAGCGAGAGAGGTCTTCTAAAGTTGGTTCCAGCCGAGGCTACCTATAA

»» MAPH-1.1 »»

4,500 4,520 4,540 4,560 4,580 4,600

GTCGTGATTCCACCAACACCGGAGCCACCACGTATGAGGTGGCTCAGGCCACGCATCCAGAGGAGTCGATAATTGACGCGGAGGACTTGCAAAGGCTCCACTGGA
CAGCACTAAGGTGGTTGTGGCTCGGTGGTGCAGTACTCCACCGAGTCCGGTGCCTAGGTCTCCTCAGCTATTAAGTGCCTCTGAACCGTTTCCGAGGTGACCT

»» MAPH-1.1 »»

4,620 4,640 4,660 4,680 4,700

AGTCGATGATGTCGCAAATCTGGCTGACGTCTGAAGACGAAATTCGCCACCAGTTGACGCGTTCAAGAAGCCAGAGCCACATCCAGAGCCGAATGTTTCTGGCGGTT
TCAGCTACTACAGCGTTTAGACCGACTGCAGTCTCTGCTTAAAGCGGTGGTCAACTGCGCAAGTTCTTCGGTCTCGGTGTAGGTCTCGGCTTACAAAGACCGCCAA

»» MAPH-1.1 »»

4,720 4,740 4,760 4,780 4,800

CCGAGGAAGACAAGATACCAGAGCCAGTCGATGCTTTCAAGAAGCCAGATCCAGTTGAGCTGGACGATTTTCGATCCACTAAAGCCATCGCATCCCAGGCCATCTGCG
GGCTCCTTCTGTTCTATGGTCTCGGTACGCTACGAAAGTTCTTCGGTCTAGGTCAACTCGACCTGCTAAAGCTAGGTGATTTCCGTAGCGTAGGGCTCGGTAGACGC

»» MAPH-1.1 »»

4,820 4,840 4,860 4,880 4,900 4,920

CCAGTTGTGCCAAGTGACCATATCATCATCGCTACACCTGATCCAGAGCTCCCCGACATTGTTGCTGCTGTTCCATTGTTTCTCCATCACAAAAGGTCCAAATGA
GGTCAACACGGTTCACTGGTATAGTAGTAGCGATGTGGACTAGGTCTCGAGGGGCTGTAAACAACGACGACAAGGTAAGCAAAGAGGTAGTGGTTTTCCAGGTTTACT

»» MAPH-1.1 »»

4,940 4,960 4,980 5,000 5,020

TGGACTTGTGAAGTTGGACGATGAGCTGGAGAAGATTGCTCCAGGATTTGAGGAACCACTGATCCCACAAGCTCCACGTGACGATGGCACTCTTGCCGAATGCAGTG
ACCTGAACACTTCAACCTGCTACTCGACCTCTTCTAACGAGGTCCTAACTCCTTGGTGACTAGGTGTTTCGAGGTGCACTGCTACCGTGAGAACGGCTTACGTCAC

»» MAPH-1.1 »»

5,040 5,060 5,080 5,100 5,120

Pbeta actin eGFP::MAPH-1.1 (9407 bp) (from 5137-5992 bp)

AAGAAGTGTCAAAATTGGTTGAGATCAGCATGGATACTGATAACAGCGCTGAAGTTGCAGCGGATCTTGCCAAGGCCGTTGGAGAAGTCACTCAGTTGTCGGCAGAT
TTCTTCACAGGTTTAAACCACTCTAGTCGTACCTATGACTATTGTCGCGACTTCAACGTCGCTAGAACGGTTCCGGCAACCTCTTCAGTGAGTCAACAGCCGTCTA

»» MAPH-1.1 »»

5,140 5,160 5,180 5,200 5,220 5,240

CTTCAGAATCTGGGTCTCGACGAGAAGACGGATGAGTATGTGCGAAAGCTGAGCAATCAGATGATTGAAGACGCCACACTGCCATTACCAGTGCACTTGCCAGCAG
GAAGTCTTAGACCCAGAGCTGCTCTTCTGCCTACTCATACACGCTTTCGACTCGTTAGTCTACTAACTTCTGCGGTGTGACGGTAAGTGGTCACGTGAACGGTCGTC

»» MAPH-1.1 »»

5,260 5,280 5,300 5,320 5,340

TATTGTCACTTCGAACGGATCGGAAACAAACGGCCACGGGGAACAAGCACATGCAGCACAAAATGGAGGAATCGATCATCAGAAGGAGATTCCGAAGCATGATTAA
ATAACAGTGAAGCTTGCCCTAGCCTTTGTTTGCCGGTGCCCTTGTTCTGTGTACGTCGTGTTTTACCTCCTTAGCTAGTAGTCTTCTCTAAGGCTTCGTACTAAATT

»» MAPH-1.1 »»

5,360 5,380 5,400 5,420 5,440

TGCAATCGCGCTCCAGTGTGATTGAGAATGGAGCTGCTGTGCAGTACGAGAAGACTGATCCAGCATTGGATGATGTGCTCAATGCATGTGCTCAGGAGAGTGAAAAG
ACGTTAGCGCGAGGTCACACTAACTCTTACCTCGACGACACGTCATGCTCTTCTGACTAGGTCGTAACTACTACACGAGTTACGTACACGAGTCCTCTCACTTTTC

»» MAPH-1.1 »»

5,460 5,480 5,500 5,520 5,540 5,560

ATCGATGCTTCCCATCCAGATAATCTTCACATGCCAGCTGCTCCAGGATCCGCCGCCCCAGCGAAGCCAGTCAAGTTCGCGCGCCCATATTATTTGACGTGGTGAC
TAGCTACGAAGGGTAGGTCTATTAGAAGTGTACGGTCGACGAGGTCCTAGGCGGCGGGTTCGTTTCGGTCAGTTCAAGCGCGCGGGTATAATAAAGCTGCACCACTG

»» MAPH-1.1 »»

5,580 5,600 5,620 5,640 5,660

AGTGCCAAGGAACGAGAAATTGGAGACCTCTGTTGCAGCAGACGGCCTTCAAGAGTTCATCTCAAAAGTTCGCTCCAGAAATGTGATCCTCGCGTCGAAGGATATCT
TCACGGTTCCTTGCTCTTTAACCTCTGGAGACAACGTCGCTGCGGGAAGTTCTCAAGTAGAGTTTTCAAGCGAGGTCTTTACACTAGGAGCGCAGCTTCCTATAGA

»» MAPH-1.1 »»

5,680 5,700 5,720 5,740 5,760

CCGGAGAGCAGCTGCAGGCGATTCTTTGCGGAAAGCAAACATGGTGTGATAGTGCTCACCCATGCAACGTGATCCCAGCGCATTCTCTCCGATGCTACTCGATTTC
GGCCTCTCGTCGACGTCGCTAAGAAACGCCTTTCGTTTGTACCACACTATCACGAGTGGGTACGTTGCACTAGGGCTGCGTAAGGAGAGGCTACGATGAGCTAAAG

»» MAPH-1.1 »»

5,780 5,800 5,820 5,840 5,860 5,880

CGCCAAAAGAACGAGGAACAGTTTGCCGGAATAATCTGCAATTTTCGATTCCCGTGGAGAAGCAACGGACCACAGTGAGCTCGGACGCCGAGCCATCGAGTATGA
GCGGTTTTCTTGCTCCTTGTCAAACGGCGCTTATTAGACGTTAAAAGCTAAGGACACCTCTTCGTTGCCTGGTGTCACTCGAGCCTGCGGCCTCGGTAGCTCATACT

»» MAPH-1.1 »»

5,900 5,920 5,940 5,960 5,980

Pbeta actin eGFP::MAPH-1.1 (9407 bp) (from 5993-7062 bp)

GTTGCCAGAGTCGATTGCTCTAAGcgggccgcatatgcatcctaggcctattaatattccggagtatacgttagccggctaacaaccggtacctctagataagtaa
CAACCGGTCTCAGCTAAACGAGATTcgccggcggtatagtaggatccggataattataaggcctcatatgcatcgccgattgttggccatggagatctattcatt

» MAPH-1.1

6,000 6,020 6,040 6,060 6,080

tgatcataatcagccatcacatctgtagaggtttacttgccttaaaaaacctcccacacctccccctgaacctgaacataaaatgaatgcaattgttgttgtt
actagtattagtcggtatagtagtagacatctccaaatgaacgaaatttttggagggtgtggaggggacttggactttgtattttacttacgttaacaacaaca

SV40 late polyA

6,100 6,120 6,140 6,160 6,180 6,200

aactgtttattgcagcttataatggttacaaataaagcaatagcatcacaatttcacaaataaagcattttttcactgcattctagttgtgtgttgcctaaact
ttgaacaaataacgtcgaatattaccaatgtttatttcgttatcgtagtgtttaaagtgtttatttcgtaaaaaaagtacgtaagatcaacaccaaacaggttga

SV40 late polyA

6,220 6,240 6,260 6,280 6,300

catcaatgtatcttatcatgtctggatcaattcgtaatcatggatcatagctgtttcctgtgtgaaattgttatccgctcacaattccacacaacatacagagccggaa
gtagttacatagaatagtagacacgttagtaagcatttagtaccagtagtcgacaaggacacactttaacaataggcgagtggttaaggtgtgtgtatgctcgccctt

SV40 late polyA

M13-rev

LacO

6,320 6,340 6,360 6,380 6,400 6,420

gcataaagtgtaaagcctggggtgcctaataagtagtgagctaactcacattaattgcgttgcgctcactgcccgtttccagtcgggaaacctgtcgtgccagctgcat
cgtatttcacatttcggacccacggattactcactcgattgagtgttaataacgcaacgcgagtgacgggcgaaaggtcagcccttggacagcacggctcgacgta

6,440 6,460 6,480 6,500 6,520

taatgaatcgccaacgcgcggggagaggcggtttgcgtattgggcgctcttccgcttcctcgctcactgactcgctcgctcggtcggttcggctgcggcgagcggt
attacttagccggttgcgcgccctctccgcaaacgcataaccgcgcgagaaggcgaaggagcgagtgactgagcgacgcgagccagcaagccgacccgctcgcca

6,540 6,560 6,580 6,600 6,620

atcagctcactcaaaggcggttaatacgggttatccacagaatcaggggataacgcaggaagaacatgtgagcaaaaggccagcaaaaggccaggaaccgtaaaaagg
tagtcgagtgagtttcgccattatgccaatagggtgtcttagtcccctattgcgtcctttctgtacactcgttttccggctggtttccggctccttggcatttttc

6,640 6,660 6,680 6,700 6,720 6,740

ccgcgttgctggcggttttccataggctccgccccctgacgagcatcacaaaaatcgacgctcaagtcagaggtggcgaaaccgacaggactataaagataccag
ggcgcaacgaccgcacaaagggtatccgaggcggggggactgctcgtagtgttttagctgcgagttcagtcctccaccgctttgggctgtcctgatatttctatggtc

6,760 6,780 6,800 6,820 6,840

gcgtttccccctggaagctccctcgtgcgctctcctgttccgaccctgccgttacggatacctgtccgcttttcccttcgggaagcgtggcgctttctcatag
cgcaaagggggaccttcgagggagcacgcgagaggacaaggctgggacggcgaatggcctatggacaggcggaaagagggaagcccttcgaccgcgaaagagtatc

6,860 6,880 6,900 6,920 6,940

ctcacgctgtaggtatctcagttcggtgtaggtcggttcgctccaagctgggctgtgtgcacgaacccccgttcagcccagcgcgtgcgcttatccggttaactatc
gagtgcgacatccatagagtcaagccacatccagcaagcgaggttcgacccgacacacgtgttggggggcaagtcgggctggcgacgcggaataggccattgatag

6,960 6,980 7,000 7,020 7,040 7,060

Pbeta actin eGFP::MAPH-1.1 (9407 bp) (from 7063-8025 bp)

gtcttgagtccaacccggttaagacacgacttatcgccactggcagcagccactggtaacaggattagcagagcgaggtagtaggcggtgctacagagttcttgaag
cagaactcaggttgggccattctgtgctgaatagcggtgaccgtcgctcggtgaccattgtcctaatactgctcgtccatacatccgccacgatgtctcaagaacttc

7,080 7,100 7,120 7,140 7,160

tggtagcctaactacggctacagtagaaggacagtatattgggtatctgcgctctgctgaagccagttaccttcggaaaaagagttggtagctcttgatccggcaaaaa
accaccggattgatgccgatgtcatcttctgtcataaacatagacgcgagacgacttcgggtcaatggaagcctttttctcaaccatcgagaactaggccgtttgt

7,180 7,200 7,220 7,240 7,260

aaccaccgctggtagcgggtggtttttttgtttgcaagcagcagattacgcgcagaaaaaaggatctcaagaagatcctttgatcttttctacggggtctgacgctc
ttggtagcgaccatcgccacaaaaaaacaaacgttcgtcgtcctaatacgcgctcttttttcttagagttcttctagaaactagaaaagatgcccagactgcgag

7,280 7,300 7,320 7,340 7,360 7,380

agtggaacgaaaactcacgttaagggttttgggtcatgagattatcaaaaaggatcttcacctagatccttttaattaaaaatgaagttttaaatcaatctaaagt
tcaccttgcttttgagtgaattccctaaaaccagtactctaatagtttttcttagaagtggtatctaggaaaatttaatttttacttcaaaatttagtttagatttca

7,400 7,420 7,440 7,460 7,480

atatatgagtaaaacttgggtctgacagttaccaatgcttaatcagtgaggcacctatctcagcgatctgtctatttcgttcatccatagttgcctgactccccgtcgt
tatatactcatttgaaccagactgtcaatgggttacgaattagtctactccgtggatagagtcgctagacagataaagcaagtaggtatcaacggactgaggggcagca

Ampr

7,500 7,520 7,540 7,560 7,580

gtagataactacgatacgggagggcttaccatctggccccagtgctgcaatgataccgcgagaccacgctcaccgggtccagatttatcagcaataaaccagccag
catctattgatgctatgccctcccgaatggtagaccgggtcacgacgttactatggcgctctgggtgagtgaggccgaggtctaaatagtcgttatttgggtcggtc

Ampr

7,600 7,620 7,640 7,660 7,680 7,700

ccggaaggccgagcgcagaagtgggtcctgcaactttatccgcctccatccagtcctattaattgttgccgggaagctagagtaagtagttcgccagttaatagtttg
ggccttcccggctcgcgtcttcaccaggacgttgaatagcgaggtaggtcagataattaacaacggcccttcgatctcattcatcaagcgggtcaattatcaaac

Ampr

7,720 7,740 7,760 7,780 7,800

cgcaacgttgttgccattgctacaggcatcgtgggtgtcacgctcgtcgtttgggtatgggttcattcagctccggttcccaacgatcaaggcgagttacatgatcccc
gcgttgcaacaacggtaacgatgtccgtagcaccacagtgcgagcagcaaacataccgaagtaagtcgaggccaagggttgctagttccgctcaatgtactagggg

Ampr

7,820 7,840 7,860 7,880 7,900

catgttggtgcaaaaaagcggttagctccttcggtcctccgatcgttggtcagaagtaagttggccgagtggttatcactcatggttatggcagcactgcataattctc
gtacaacacgttttttcgccaatcgaggaagccaggaggtagcaacagtccttattcaaccggcgtcacaatagtgagtaccaataaccgtcgtgacgtattaagag

Ampr

7,920 7,940 7,960 7,980 8,000 8,020

Pbeta actin eGFP::MAPH-1.1 (9407 bp) (from 8026-9095 bp)

ttactgtcatgccatccgtaagatgcttttctgtgactggtgagtactcaaccaagtcattctgagaatagtgtatgcggcgaccgagttgctcttggccggcgctca
aatgacagtacggtaggcattctacgaaaagacactgaccactcatgagttggttcagtaagactcttatcacatacgcgctggctcaacgagaacggcgccgagt

»» AmpR »»

8,040 8,060 8,080 8,100 8,120

atacgggataataccgcgccacatagcagaactttaaaagtgtcatcattggaaaacgttcttcggggcgaaaactctcaaggatcttaccgctgttgagatccag
tatgccctattatggcgcggtgtatcgtcttgaaatcttcacgagtagtaaccttttgcaagaagccccgcttttgagagttcctagaatggcgacaactctaggtc

»» AmpR »»

8,140 8,160 8,180 8,200 8,220

ttcgtatgtaaccactcgtgcaccaactgatcttcagcatcttttactttcaccagcgtttctgggtgagcaaaaacaggaaggcaaaatgccgcaaaaaggga
aagctacattgggtgagcacgtgggttgactagaagtcgtagaaaaatgaaagtggtcgcaagaccactcgtttttgtcttccgttttacggcgtttttccctt

8,240 8,260 8,280 8,300 8,320 8,340

taaggcgacacggaaatgttgaaactcatactcttcttttcaatattattgaagcatttatcagggttattgtctcatgagcggatacatatttgatgtatt
attcccgctgtgcctttacaacttatgagtagagaaggaaaaagttataataacttcgtaaatagtcaccaataacagagtactcgctatgtataaacttacataa

8,360 8,380 8,400 8,420 8,440

tagaaaaataaacaataggggttccgcgcacatttccccgaaaagtgccacctgacgtctaagaaccattattatcatgacattaacctataaaaaataggcgtat
atctttttatttgtttatccccaggcgcgtgtaaagggttttcacggtggactgcagattctttggtaataatagtactgtaattggatattttatccgcata

8,460 8,480 8,500 8,520 8,540 8,560

cacgaggccctttcgtctcgcgcgtttcgggtgatgacggtgaaaacctctgacacatgcagctcccggagacggtcacagcttgctctgtaagcggatgccgggagca
gtgctccgggaaagcagagcgcgcaaagccactactgccacttttgagactgtgtacgtcgaggccctctgccagtgtcgaacagacattcgctacggccctcgt

8,580 8,600 8,620 8,640 8,660

gacaagcccgtcaggcgcgctcagcgggtgttgccgggtgtcggggttggttaactatgcggcatcagagcagattgtactgagagtgcaccatatgcgggtgtgaa
ctgttcgggcagtcgccgcgagtcgcccacaaccgccacagcccaaccgaattgatacgccgtagtctcgtctaactgactctcacgtggtatacgccacactt

8,680 8,700 8,720 8,740 8,760

ataccgcacagatgcgtaaggagaaaaataccgcatcaggcgccattcgccattcaggctcgcaactgttggaaggcgatcggtgcgggcctcttcgctattacg
tatggcgtgtctacgattcctcttttatggcgtagtccgcggttaagcggtaagtccgacgcgttgacaacccttccgctagccacgcccggagaagcgataatgc

»» LacZ alpha »»

8,780 8,800 8,820 8,840 8,860 8,880

ccagctggcgaaaggggatgtgctgcaaggcgattaagtgggtaacgccagggttttccagtcacgacgttgtaaaacgacggccagtccaagtgggatctt
ggcgcaccgtttccccctacacgaggttcgcctaattcaaccattgcggtcccaaaagggtcagtgctgcaacattttgctgcgggtcacggttcaaccctagaa

»» M13-fwd »»

8,900 8,920 8,940 8,960 8,980

tgcattggcccacggctctcaggatggggatgctcccttcagcaccgggttcccttggaaactgatggctcctggctctgtggcatggcagtggcactgtgaggag
acgtaaccgggtgcccagagtcctacccctacgagggaagtcgtgggccaagggaacctttgactaccaggaccgagacaccgtaccgtaccgtgacactcctc

9,000 9,020 9,040 9,060 9,080

Pbeta actin eGFP::MAPH-1.1 (9407 bp) (from 9096-9407 bp)

cccctaccagcagcacacagtgggtttggcactgccacgctccggatgccgcgctctgatccaaccccataatcaagggaacccgaattgccccatcattgccccca
ggggatggtcgtcgtgtgtcacccaaaccgtgacggtgacgagcctacggcgcgagactaggttgggggtattagttcccttgggcttaacggggtagtaacgggggt

9,100 9,120 9,140 9,160 9,180 9,200

ccacccccatcctgccgggccctcacacccacgctgccttgtggtgacattcccagcccaaaccacggcttcatggctaccgcggggcatttccattgccgcc
ggtgggggtaggacggcccgggagtgtggggtgcgacggaacaccactgtaaggggtcgggtttgggtgccgaagtaccgatggcgccccgtaaagggtaacggcg

9,220 9,240 9,260 9,280 9,300

ccattatcagctctgcacacctcccgtgtacccatgcctcgtggctgcccttctttgacgtataatcttctaattaataccggccttgtcaaagt
ggtaatagtcgagacgtgtggagggcgacatgggtacggagcaccgacgggaagaaactgcatattagaagattaattatgggccggaacagtttcac

9,310 9,320 9,330 9,340 9,350 9,360 9,370 9,380 9,390 9,400

Pbeta actin DLG-1::mCherry (9662 bp)

ctgcagtgtcaccgcctccgaggtgacagtattgtccctgcggtgtccctgcagctcagctctgtccacagggccacctccagtttgaggggacacaatgcagccc
gacgtcacagtggcggagggtccactgtcataacaggagccacagggacgtcgagtcgagacagggtgtcccggtggagggtcaaacctcccctgtgttacgtcggg

beta-actin promoter

20

40

60

80

100

cgatgcaacccatcctcgcagcatcccagggacaaagaccccactgcaagaccgcacacagggtgggtcccgtcccctaataatctacagtgttttgcattggccc
gctacgttgggtaggagcgtcgtagggtccctgtttctggggtgacgttctggcgtgtgtcccgaccaggcgaggggattatagatgtcacgaaaacgtaccggg

beta-actin promoter

120

140

160

180

200

cttaatcaatgcagttaatcagcatgcgtcatgcaccgctctggagctgcaaagcccctcgagcgtgtctaccaacaccgcgcaccgccccggcccagcctgca
gaattagttacgtcaattagtcgtacgcgagtacgtggcgagacctgcaggttccggggagcgtcgcgacgagtggttgtggcgcgtggcggggccgggtcggacgt

beta-actin promoter

220

240

260

280

300

320

gcacgcgctgcaaacaggaaagaaacaaaatattgcccaaatgtaggcaaaggcattcggctgccttgacctccgcggggccgggcccctgcctgactcagctcctta
cgtgcgcgacgtttgtcctttctttgttttataacgggtttacatccgtttccgtaagccgacggaactggaggcggcccggcccgggacggactgagtcgaggaat

beta-actin promoter

340

360

380

400

420

ctcagcgctcgttctcctccctccggctgccaccgccgcagcgcacaccctgacaaagagtggcccttaacgggctctgagggtcacccagcagtgcactcagcagtc
gagtcgcgagcgaaggaggaggccgacgggtggcggcgtcgcgtgtgggactgtttctcaccgggaattgccgagactccacgtgggtcgtcacgtgagtcgtcag

beta-actin promoter

440

460

480

500

520

caagggccggcctggagggttgcaccgctacgtgctgacattagcattgaacttggccctgggtagtgtgcaggccgggcccgggtgggtgtagagagtgcagcgcg
gttcccgccggacctccaaacgtggcgtacgacactgtaactcgtaactgaaccgggacccatcacgacgtccggcccggcccaccacatctctcacgtcgcgc

beta-actin promoter

540

560

580

600

620

640

cgttgacccgggtgccccttcccctcccttgcattcccagcaggctgcaccccagcaccaggcccgtgcatgcatgctcctggtgtattgcagcctggtgcatgcat
gcaacgtgggccacggggaaggagggaacgtagggtcgtccgacgtggggtcgtggtccgggcacgtacgtacgaggaccacaataacgtcggaccacgtacgta

beta-actin promoter

660

680

700

720

740

gcgtcttagtggtgcagcgtgtgcatgcatcctccttggtgtgtagcagcttagtgcatgcatacccctcgggtgtattgctgctctgtgcaggcacgctcattgt
cgcagaatcaccacgtcgcgacacgtacgtaggaggaaccacacatcgtcgaatcacgtacgtatggggagccacaataacgacgagacacgtccgtgcgagtaaca

beta-actin promoter

760

780

800

820

840

Pbeta actin DLG-1::mCherry (9662 bp) (from 857-1712 bp)

atcacttcatcccagtgcatgcactcacactggagcgattgtctgctcggtgcacgcacactcattgtatcacgtcagctcagtggtgcacgcacaccggtgttatt
tagtgaagtaggggtcacgtacgtgagtgtagctcgctaacgacgagccacgtgcgtgtgagtaacatagtcagtcgagtcaccgacgtgcgtgtggccacaataa

» beta-actin promoter »

860 880 900 920 940 960

gctgctcggtgcgtgcatgcacatcagtgctgctgcagctcagtgcatgcacgctcattgcccatcgctatccctgcctctcctgctggcgctccccgggaggtgac
cgacgagccacgcacgtacgtgtagtcacagcgacgtcgagtcacgtacgtgcgagtaacgggtagcgatagggacggagaggacaccgcgaggggcccctccactg

» beta-actin promoter »

980 1,000 1,020 1,040 1,060

ttaaggggaccgcaggaccacctcgggggtggggggagggctgcacacgcggaccccgctccccctcccaacaaagcactgtggaatcaaaaaggggggaggggg
aagtccccctggcgctcctggtggagccccacccccctcccgacgtgtgcgctggggcgagggggaggggtgtttcgtgacaccttagttttccccctcccc

» beta-actin promoter »

1,080 1,100 1,120 1,140 1,160

gatggagggcgcgctcacacccccgccccacacctcacctcgaggtgagccccagttctgttctactctccccatctccccccctccccacccccaatTTTgta
ctacctccccgcgcagtggtggggcggggtgtgggagtgagctccactcggggtgcaagacgaagtgagaggggtagaggggggggaggggtgggggttaaacaat

» beta-actin promoter »

1,180 1,200 1,220 1,240 1,260 1,280

tttattttatttttaattattttgtgcagcgatggggcgggggggggggggcgcgcgccaggcggggcgggcgggcgagggcgggcgggcgaggcgggaga
aaataaataaaaaattaataaaacacgtcgctaccccccccccccccccccgcgcggtccgccccgccccgctccccgccccgccccgctccgcctct

» beta-actin promoter »

1,300 1,320 1,340 1,360 1,380

ggtgcgggcggcagccaatcagagcggcgctccgaaagtttcttttatggcgaggcggcgggcgggcgccctataaaaaagcgaagcgcgggcgggcgggagtg
ccacgcccgcgtcggttagtctcgccgcgagggcttcaaaggaaaaataccgctccgcccgcgcccgggatattttcgttcgcgcgcccgccgcctca

» beta-actin promoter »

1,400 1,420 1,440 1,460 1,480

cgctgcgttgcttcgccccgtgccccgctccgcccgcctcgcgccgcccgggctctgactgaccgcgttactcccacaggtgagcgggcggggacggccctt
gcgacgcaacggaagcggggcacggggcgaggcgggcgggcgggcgggcgagactgactggcgcaatgaggggtgtccactcgccgcccctgcccgggaa

» beta-actin promoter »

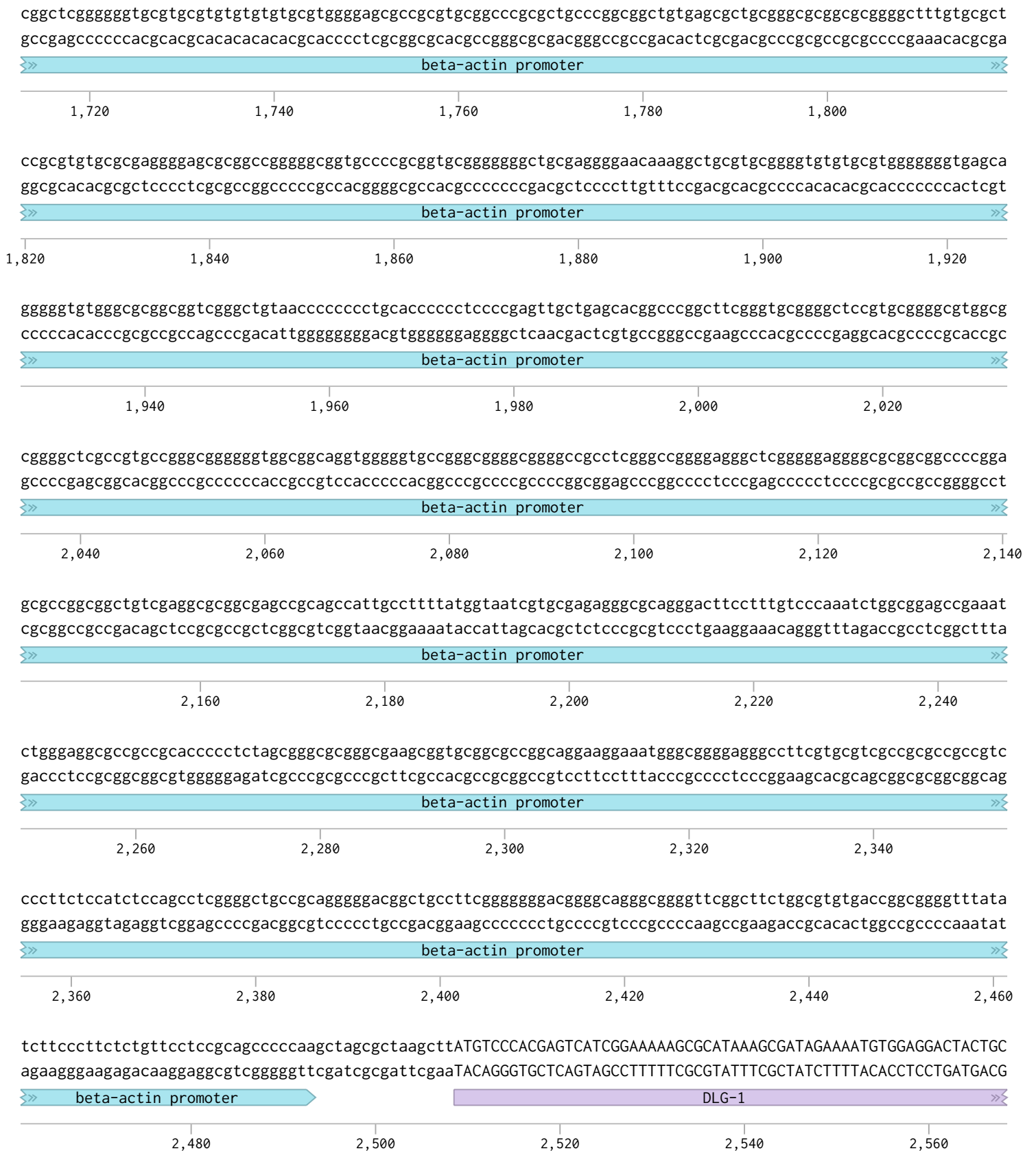
1,500 1,520 1,540 1,560 1,580 1,600

ctcctcgggctgtaattagcgttggttttaatgacggctcgtttcttttctgtggctgcgtgaaagccttaaagggtccgggagggccctttgtgcgggggggag
gaggaggcccgacattaatcgcaaccaaattactgccgagcaagaaaagacaccgacgcactttcggaatttcccgaggccctccgggaaacacccccctc

» beta-actin promoter »

1,620 1,640 1,660 1,680 1,700

Pbeta actin DLG-1::mCherry (9662 bp) (from 1713-2568 bp)



Pbeta actin DLG-1::mCherry (9662 bp) (from 2569-3424 bp)

CAGACACTGACAAGACACGGCAATGAGGAGCTACGCACAAACCTGGAACGAGTTATCACCACATTCAAATCAAACCTGATGCATTCTGTTGCTCGACATTCACGATCTGTCTGTGACTGTTCTGTGCCGTTACTCCTCGATGCGTGTTTGACCTTGCTCAATAGTGGTGTAAGTTTAGTTTGACTACGTAAGCAACGAGCTGTAAGTGCTAGA

»» DLG-1 »»

2,580

2,600

2,620

2,640

2,660

GTACGAGCAGACGCTGCTCAGCGAGCGAAAAATCAGATGCAGAGAAAAATATGGAAGTAAGGCGTGTGATTGAGCGACTCGAAGGTGGACCACACTCTACAACAGTCATGCTCGTCTGCGACGAGTCGCTCGCTTTTAGTCTACGTCTCTTTTATACCTTCATTCCGCACACTAACTCGCTGAGCTTCCACCTGGTGTGAGGATGTTGTCAG

»» DLG-1 »»

2,680

2,700

2,720

2,740

2,760

2,780

GTCCGGCTGCGACGACTTCCACGTGAACTACAACCTTTCAAGCACAACCTCCACTTATTTTCAGATCTGAGAGATCGGGGAGGTTTCTCGTATTTGAACGGCGGAGGCAGGCCGACGCTGCTGAAGGTGCAGCTTGATGTTGGAAAGTTCGTGTTGAGGTGAATAAAGTCTAGACTCTCTAGCCCTCCAAAGAGCATAACTTGCCGCCTCCG

»» DLG-1 »»

2,800

2,820

2,840

2,860

2,880

CTTGAAACGGGCTTGGAATGGACTTGGAACGGACTTCTGTCTTCTCCGTACAACCTCATCCAGCACTCACTACCTTCATGAGCGTCAACGTGAGCCAGTCATGA GAACCTTTGCCGAACCTTACCTGAACCTTTGCCTGAAGACAGAAGGCATGTTGAGTAGGTCGTGAGTGATGGAAGTACTCGCAGTTGCAGTCTGGTCAGTACT

»» DLG-1 »»

2,900

2,920

2,940

2,960

2,980

TGGAACATGGCGGAAACAACCACAAGAACAGTTGACACTCCAAGTGGTCTTGAAAGACGTGTGGTTGAACATACTGGAGTTATCGATGATCATGGTCGTAATGGGACCTTGACCGCCCTTGTTGGTGTTCTTGTCAACTGTGAGGTTACCAGAACTTTCTGCACACCAACTTGATGACCTCAATAGCTACTAGTACCAGCATTTACCC

»» DLG-1 »»

3,000

3,020

3,040

3,060

3,080

3,100

AGCTTGAGAATATTGTCTTGAGAAAGGTCACACCGCCTTGATTCTCGATTACTGGAGGTATGGACCAACCAACAGAAGACGGAGATACTTCTATCTATGTCACCTCGAACTCTTATAACAGAACCTTTTCCAGTGTCGCCGGAACCTAAGAGCTAATGACCTCCATACCTGGTTGGTTGTCTTCTGCCTCTATGAAGATAGATACAGTGG

»» DLG-1 »»

3,120

3,140

3,160

3,180

3,200

AATATTATTGAAGGAGTGCCGCACTTGCTGATGGGCGTATGAGAAAGAATGATATTATCACTGCAGTCAACAATACAACTGTGAAAATGTGAAGCATGAGGTTGCTTATAATAACTTCTCCACGGCGTGAACGACTACCCGCATACTCTTCTTACTATAATAGTGACGTCAGTTGTTATGTTTGACACTTTTACACTTCGTACTCCAACG

»» DLG-1 »»

3,220

3,240

3,260

3,280

3,300

AGTCAACGCATTGAAAAGCTCCGGAACGTTGTTTCGTTGAGTTTGAAACGGCGTAAAGATGAAGCCTTTCTTCCAATTGGAGGAACTTTGGCGGGTCGACTTCTTTCAGTTGCGTAACTTTTCGAGGCCTTTGCAACAAAGCAACTCAAACCTTTGCCGCACTTCTACTTCGGAAGAAGGTTAACCTCCTTTGAAACCGCCAGCTGAAGAA

»» DLG-1 »»

3,320

3,340

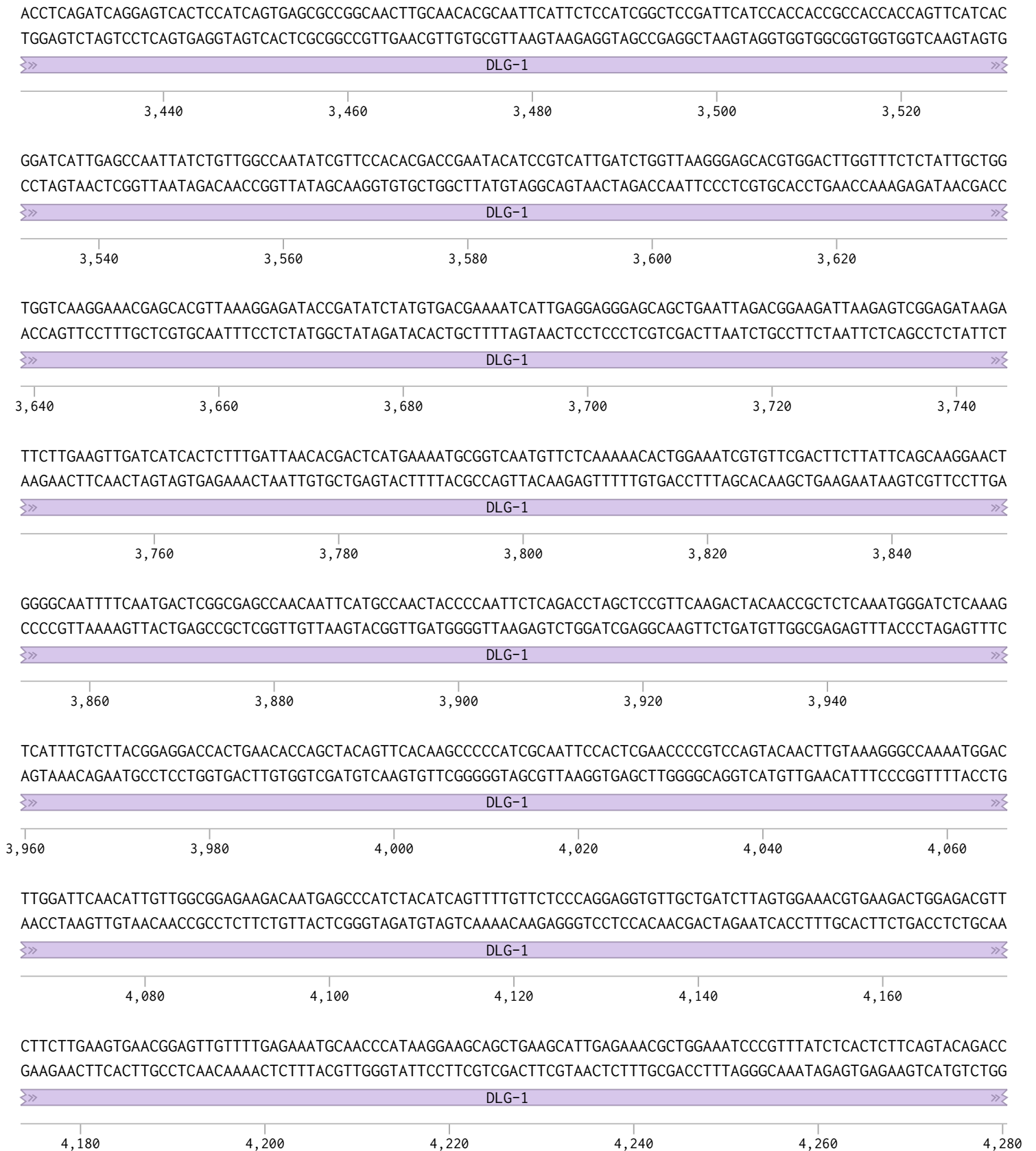
3,360

3,380

3,400

3,420

Pbeta actin DLG-1::mCherry (9662 bp) (from 3425-4280 bp)



Pbeta actin DLG-1::mCherry (9662 bp) (from 4281-5136 bp)

ACAAGAGTATCAAATTTTTGAGTCCAAAATTGAGAAGCTGAGAAACGACGTGATTGCTCAATCTAGAATGGGAACCTTTGAGCAGAAAGTCTGAATATGTTAGAGCAC
TGTTCTCATAGTTTAAAAACTCAGGTTTTAACTCTTCGACTCTTTGCTGCACTAACGAGTTAGATCTTACCCTTGAAACTCGTCTTCAGACTTATACAATCTCGTG

»» DLG-1 »»

4,300 4,320 4,340 4,360 4,380

TTTTCGATTATGATCCATCACGTGAAAACCTGTGTGCTCCCATAGATCAATGGGATTTAACTATGGTGACATCCTACATATCATCAACTCATCTGACGATGAATGG
AAAAGCTAATACTAGGTAGTGCACTTTTGAGACAACGAGGGGTATCTAGTTACCTTAAATTGATACCACTGTAGGATGTATAGTAGTTGAGTAGACTGCTACTTACC

»» DLG-1 »»

4,400 4,420 4,440 4,460 4,480

TGGACAGCTAGAAAAGTTCACGAAAACGAGAAGAAACAGCTGAAGGAGTGATTCCATCAAAGAAACGTGTCGAGAAGAGAGAACGACTTCGTGCGAAGCAAGTCAA
ACCTGTCGATCTTTTCAAGTGCTTTTGCCCTCTTCTTTGTCGACTTCCTCACTAAGGTAGTTTCTTTGCACAGCTCTTCTCTTGTCTGAAGCAGCCTTCGTTCAAGTT

»» DLG-1 »»

4,500 4,520 4,540 4,560 4,580 4,600

CTTCAACTCGGGATCGCAGTCTCTTGGAAGAACTCGAGCACTACTGGATTGGAACCGAAGAGGAAGCCGAGTCAGCTTTCTCTTCCAGAAAGTTCCCATTCG
GAAGTTGAGCCCTAGCGTCAGAGAACCTTCTTTGAGCTCGTGATGACCTAACCTTTTGCTTCTCTTTCGGCGTCAGTCGAAAGGAAGAGGTCTTTCAAGGGTAAGC

»» DLG-1 »»

4,620 4,640 4,660 4,680 4,700

TCAAAAGTACCGACCGGCTCAACGATCTTAATGAGGAATCCTCAAATGTAGCTGAAGAGCCAGTGTGGTCTACCAGGCAGTTGAGCAACAGGCGATCAACTACGTT
AGTTTTCATGGCTGGCCGAGTTGCTAGAATTACTCCTTAGGAGTTTACATCGACTTTCGGTCACACCAGGATGGTCCGTCAACTCGTTGTCCGCTAGTTGATGCAA

»» DLG-1 »»

4,720 4,740 4,760 4,780 4,800

CGTCCAGTGATCATTCTTGAGCTCTCAAAGACCGAATCAACGATGAACCTTGCAACCGCGACCCTTCGAAATTCAGTAGCTGCGTTCCACACACTTCCCGACCACC
GCAGGTCAGTAGTAAGAACCTCGAGAGTTTCTGGCTTAGTTGCTACTTGAACAGTTGGCGCTGGGAAGCTTTAAGTCATCGACGCAAGGTGTGTGAAGGGCTGGTG

»» DLG-1 »»

4,820 4,840 4,860 4,880 4,900 4,920

ACGCGAGGGAGAGGTTAACGGACGTGACTACTACTTTGTCAACAAGCACAAATATGGAGGAAGATGTCAAGAATAATCTCTTCATTGAAGCGGGACAATTCCAAAACA
TGCCTCCCTCTCCAATTGCCTGCACTGATGATGAAACAGTTGTTCTGTGTTATACCTCCTCTACAGTTCTTATTAGAGAAGTAACTTCGCCCTGTTAAGGTTTTGT

»» DLG-1 »»

4,940 4,960 4,980 5,000 5,020

ATCTCTACGGAAGTACGATTCAAAGCGTCCGAGATGTCGCCAACCAAGGAAGACACTGTATTCTGGACGTGAGTGGAAATGCTATCCGACGACTTCAAAGCAATGCC
TAGAGATGCCTTGATCGTAAGTTTCGACGGCTCTACAGCGGTTGGTTCCTTCTGTGACATAAGACCTGCAGTCACCTTTACGATAGGCTGCTGAAGTTTCGTTACGG

»» DLG-1 »»

5,040 5,060 5,080 5,100 5,120

Pbeta actin DLG-1::mCherry (9662 bp) (from 5137-5992 bp)

AATATTCAACCAATCTCGATCTTCATCAAGCCCAGCTCTGCACAACAGATTCTTGAATTGGACAGCCAATTGCCACCAACCGACAAGACGATCGAGCGATGAGTGG
TTATAAGTTGGTTAGAGCTAGAAGTAGTTCGGGTCGAGACGTGTTGTCTAAGAACTTAACCTGTCGGTTGAACGGTGGTTGGCTGTTCTGCTAGCTCGCTACTCACC

DLG-1

5,140 5,160 5,180 5,200 5,220 5,240

CGAAGAAGCTCAAGCGCAGTATTCCAGATGTCATAGAATTGAGCAAATTTCCGGGATTTGTTACGCAAGAAATCTCAAATGTGCACAGCGGAATGACGTTTTGA
GCTTCTTCGAGTTTCGCGTCATAAGGTCTACAGTATCTTAACTCGTTTAAAAGCCCCTAAACAAGTGCGTTCTTTAGAGTTTACACGTGTCGCGTTACTGCAAACT

DLG-1

5,260 5,280 5,300 5,320 5,340

GCAAAGTGTACTCCATCATCAGCCGTGAATCGCAGACGCCAATTTGGGTGCCACGTCATaagtcgacagtgaagggcgaggaggataacatggccatcatcaag
CGTTTCACATGAGGTAGTAGTCGGCACTTAGCGTCTGCGGTTAAACCCACGGTGCAGTAttcagctgtcactcgttcccgcctcctattgtaccggtagtagttc

DLG-1 mCherry

5,360 5,380 5,400 5,420 5,440

gagttcatgcgcttcaaggtgcacatggagggtccgtgaacggccacgagttcgagatcgaggcgaggcgaggcgccctacgagggcacccagaccgcca
ctcaagtacggaagttccacgtgtacctcccgaggcacttgccggtgctcaagctctagctcccgcctcccgcctcccggcggggatgctccgtgggtctggcggtt

mCherry

5,460 5,480 5,500 5,520 5,540 5,560

gctgaaggtgaccaaggggtggccccctgcccttcgcctgggacatcctgtcccctcagttcatgtacgggtccaaggcctacgtgaagcaccgcccacatccccg
cgacttcactggttcccaccgggggacgggaagcgacccctgttagacaggggagtcagtagacatgccaggttccggatgcacttcgtggggcggtgttaggggc

mCherry

5,580 5,600 5,620 5,640 5,660

actacttgaagctgtccttccccgagggttcaagtgggagcgcgatgaacttcgaggacggcgcggtgggtgaccgtgaccaggactcctccctgcaggacggc
tgatgaacttcgacaggaaggggtcccgaagttcacctcgcgactacttgaagctcctgccgcgcaccactggcactgggtcctgaggaggagcgtcctgccg

mCherry

5,680 5,700 5,720 5,740 5,760

gagttcatctacaaggtgaagctgcgcggcaccaacttcccctccgacggccccgtaatgcagaagaagaccatgggctgggaggcctcctccgagcggatgtacc
ctcaagtagatgttccacttcgacgcgccgtggttgaaggggaggtgccggggcattacgtcttcttctgttaccgacccctccggaggaggctcgctacatggg

mCherry

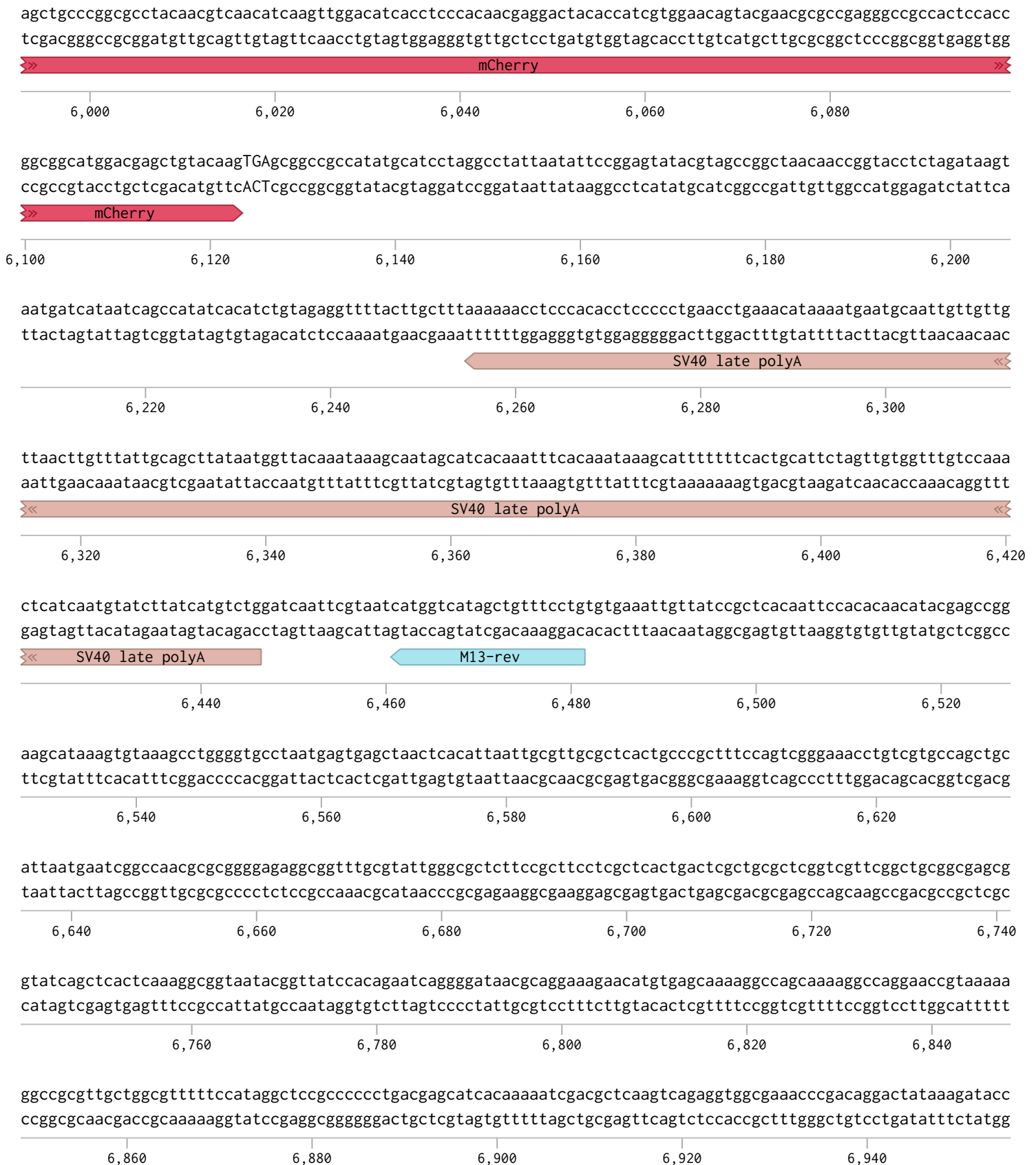
5,780 5,800 5,820 5,840 5,860 5,880

cgaggacggcgccctgaagggcgagatcaagcagaggctgaagctgaaggacggcgccactacgacgtgaggtcaagaccacctacaaggccaagaagcccgtgc
gctcctgcccgggacttcccgccttagttcgttccgacttcgacttcctgccgcgggtgatgctgcgactccagtcttggtggatgttccggttcttcgggcacg

mCherry

5,900 5,920 5,940 5,960 5,980

Pbeta actin DLG-1::mCherry (9662 bp) (from 5993-6955 bp)



Pbeta actin DLG-1::mCherry (9662 bp) (from 6956-8025 bp)

aggcgtttccccctggaagctccctcgtgcgtctcctgttccgacctgcccgttacggatacctgtccgcttttcccttcgggaagcgtggcgcttttctcat
tccgcaaagggggaccttcgagggagcacgcgagaggacaaggctgggacggcgaatggcctatggacaggcggaaagagggaagcccttcgcaccgcgaaagagta

6,960 6,980 7,000 7,020 7,040 7,060

agctcacgctgtaggtatctcagttcgggtgtaggtcgttcgctccaagctgggctgtgtgcacgaacccccgttcagcccaccgctgcgcttatccggtaacta
tcgagtgcgacatccatagagtcaagccacatccagcaagcgaggttcgaccgcacacagtgcttggggggcaagtcgggctggcgacgcggaataggccattgat

7,080 7,100 7,120 7,140 7,160

tcgtcttgagtccaacccggtaagacacgacttatcgccactggcagcagccactggtaacaggattagcagagcgaggtagtaggcggtgctacagagttcttga
agcagaactcaggttggggcattctgtgctgaatagcggtgaccgtcgtcggtagcattgtcctaatacgtctcgtccatacatccgccacgatgtctcaagaact

7,180 7,200 7,220 7,240 7,260

agtggtagcctaactacggctacagtagaaggacagtatttggtagctgcgctcgtcgaagccagttaccttcggaaaaagagttggtagctcttgatccggcaaa
tcaccaccggattgatgccgatgtcatcttctgtcataaaccatagacgcgagacgacttcggtagcattggaagcctttttctcaaccatcgagaactaggccgttt

7,280 7,300 7,320 7,340 7,360 7,380

caaaccaccgctggttagcggtaggttttttgtttgcaagcagcagattacgcgcagaaaaaaggatctcaagaagatcctttgatcttttctacgggcttgacgc
gtttggtggcgaccatcgccacaaaaaaacaaacgttcgtcgtcctaatagcgcgctcttttttcttagagttcttctaggaaactagaaaagatgccccagactgcg

7,400 7,420 7,440 7,460 7,480

tcagtggaaacgaaaactcacgttaagggttttggtagcagattatcaaaaaggatcttcacctagatccttttaattaaaaatgaagttttaaatcaatctaaa
agtcaccttgcttttgagtgaattccctaaaaccagtactctaatagtttttcctagaagtggatctaggaaaatttaatttttacttcaaaatttagtttagattt

7,500 7,520 7,540 7,560 7,580

gtatatatgagtaaacttggctgacagttaccaatgcttaatcagtgaggcacctatctcagcgatctgtctatttcgttcatccatagttgcctgactccccgtc
catatatactcatttgaaccagactgtcaatggttacgaatttagtcactccgtggatagagtcgctagacagataaagcaagtaggtatcaacggactgaggggcag

Ampr

7,600 7,620 7,640 7,660 7,680 7,700

gtgtagataactacgatacgggagggcttaccatctggccccagtgctgcaatgataccgcgagaccacgctcaccggctccagatttatcagcaataaaccagcc
cacatctattgatgctatgccctcccgaatggttagaccggggtcacgacgttactatggcgctctgggtgcgagtgccgagggtctaaatagtcgttatttggctcg

Ampr

7,720 7,740 7,760 7,780 7,800

agccggaagggccgagcgcagaagtggctcctgcaactttatccgcctccatccagtcatttaattgttgccgggaagctagagtaagtagttcgcagttaatagtt
tcggccttcccggctcgcgtcttcaccaggacgttgaaataggcggaggttaggtcagataattaacaacggcccttcgatctcatcatcaagcggtaattatcaa

Ampr

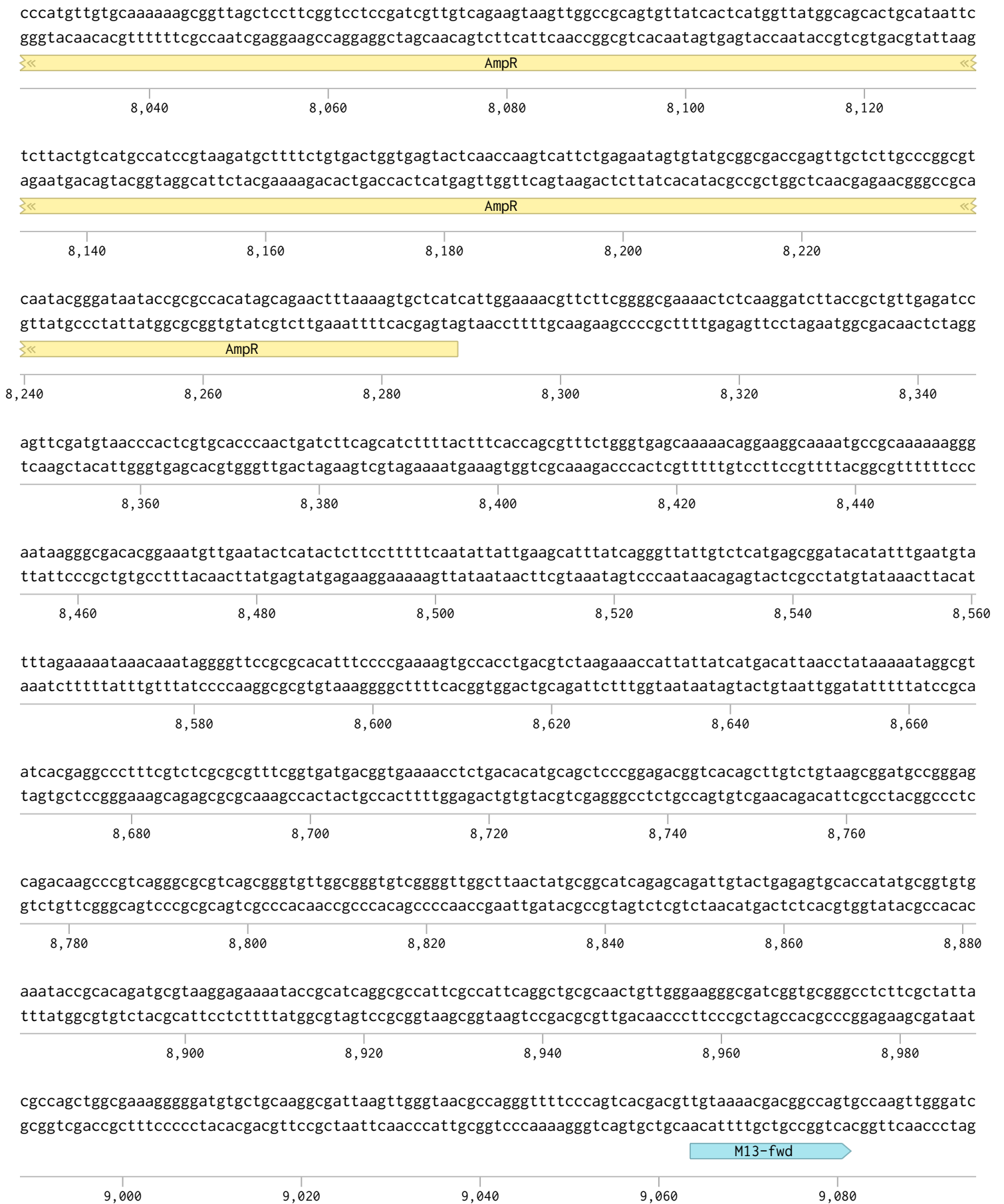
7,820 7,840 7,860 7,880 7,900

tcgcaacgttgttgccattgctacaggcatcgtggtgtcacgctcgtcgttttggtatggcttcattcagctccggttcccaacgatcaaggcgagttacatgatcc
acgcgttgcaacaacggtaacgatgtccgtagcaccacagtcgcgagcagcaaacataccgaagtaagtcgaggccaagggttgctagttccgctcaatgtactagg

Ampr

7,920 7,940 7,960 7,980 8,000 8,020

Pbeta actin DLG-1::mCherry (9662 bp) (from 8026-9095 bp)



Pbeta actin DLG-1::mCherry (9662 bp) (from 9096-9662 bp)

tttgattggcccacggctctcaggatggggatgctccccttcagcaccgggtccccttggaaactgatggctcctggctctgtggcatggcagtggcactgtgagg
aaacgtaaccgggtgccgagagtcctacccttacgagggaagtcgtgggccaaggggaacctttgactaccaggaccgagacaccgtaccgtaccgtgacactcc

9,100 9,120 9,140 9,160 9,180 9,200

agcccctaccagcagcacacagtgggtttggcactgccacgctccggatgccgcgctctgatccaacccataatcaagggaacccgaattgccccatcattgcccc
tcggggatggctcgtcgtgtgtcaccctaacgtgacggtgcgaggcctacggcgcgagactaggttgggggtattagttcccttgggcttaacggggtagtaacgggg

9,220 9,240 9,260 9,280 9,300

caccacccccatcctgccgggcccctcacacccacgctgccttgtgggtgacattccccagcccaaacccacggcttcatggctaccgcggggcatttccattgccg
gtgggtggggtaggacggcccgagggtgtgggggtcgacgggaacaccactgtaaggggtcgggtttgggtgccgaagtaccgatggcgccccgtaaagggtaacggc

9,320 9,340 9,360 9,380 9,400

ccccattatcagctctgcacacctcccgtgtacccatgcctcgtggctgcccttctttgacgtataatcttctaattaatacccggttgcataaagtggagcaca
ggggtaatagtcgagacgtgtggagggcgacatgggtacggagcaccgacgggaagaaactgcataatagaagattaattatgggccggaacagtttcacctcgtgt

9,420 9,440 9,460 9,480 9,500 9,520

aacgttaattaattccccagcaggcaggttaattaacagtgtgactccctttttgctgcgagtggggctgatacagagagatgtggcactatggagcccacgggggtcc
ttgcaattaattaaggggtcgtccgtccattaattgtcacactgagggaacacgacgctcaccgcgactatgtctctctacaccgtgatacctcgggtgccccagg

9,540 9,560 9,580 9,600 9,620

tggcactgggtgcccacggagggtccccatgtg
accgtgaccacgggtgcctccagggtacac

9,640 9,650 9,660

pBT331 (Prgef-1::BirA) (8349 bp)

aagcttgcatgcctgcagcgtttccgatacccccttatatcagcacacattcagtcataccacaaaatgttgtagtagtgataggcaaaactaccgtatttcct
ttcgaacgtacggacgtcgcaaaggctatgggggaatatagtcgtgtgtaagtcagtagtatgggtgtttacaacactatcactatccgttttgatggcataaagga

rgef-1 promoter »»

20 40 60 80 100

ctattaatcttgcatgcaagactaattttcgattaacccgtaggggtgcaagactaatagagactgcaagactattagaggctgaaataactaattttcgtatgctca
gataattagaacgtacgttctgattaaaagctaattgggcatccccacgttctgattatctctgacgttctgataatctccgactttatgattaaaagcatacaggt

rgef-1 promoter »»

120 140 160 180 200

ataatgttgaaattggcctatttttttagaaaacttgataccgtttaacaaggaaaaatacacactttttaatattcatcaataattgaacgattttgtgatt
tattaaaacctttaaccggataaaaaacatctttgaactatggcaatttgttcccttttatgtgtgaaaaattataaagtagttattaaacttgctaaaacactaa

rgef-1 promoter »»

220 240 260 280 300 320

ttaagttcaatttgcccaaaaaagacaatttttctgacgttaccgcaaagtaatgctggtcaggcaaaaagagcgggtgcaaaaatataagagactgcaataactaat
aattcaagttaaacgggttttttctgttaaaaagactgcaatggcgtttcattacgaccagtcggttttctcgccacgtttttatattctctgacgttatgatta

rgef-1 promoter »»

340 360 380 400 420

agaggaaatacggtaattgaatttttagtgaaacttgcgacagttttcctcattttttgtatttccggcatacagagtgtggcatacagagtgaggtcatcttttgttt
tctcctttatgccattaacttaaaatcactttgaacgctgtcaaaaggagtaaaaaacaataaggccgtatgctcacaccgtatgctcactccagtagaaaaacaaa

rgef-1 promoter »»

440 460 480 500 520

cttcggtttcttcatcgcttttgaaaaaaatgttgaagaaaacttcgtagccgatagccggataatgtttggcacggcgttccaacatatatcattggaaatttt
gaaggcaaagaagtagcgaaaactttttttacaacttctttgaagcatcggtatcgccctattacaaaccgtgccgcaaggttgtatatagtaaccttttaaaa

rgef-1 promoter »»

540 560 580 600 620 640

taagatttttgcgaaaaatcacattcttcacgatgagaacacgttattgaaggaatataaatcaagaataacatatagttatatttctctattactttaacgttaaa
attctaaaaacgcttttttagtgtaagaagtgtactcttgtgcaataacttccttatatttagttcttattgtatatcaatataaagagataatgaaattgcaattt

rgef-1 promoter »»

660 680 700 720 740

tatgagcaaatttgacattttgattgcatgaaaagcagaatcgagtcgaactgaaatccgttcaaaaacctaagctcggttcgcccgaagtcgatttttcaata
atactcgtttaaacgtgtaaaactaacgctacttttctgtcttagctcagtttaggcaagtttttgattcgagccaagcgggctttcagctaaaaaggttat

rgef-1 promoter »»

760 780 800 820 840

pBT331 (Prgef-1::BirA) (8349 bp) (from 857-1712 bp)

gccgaacagcactgcttctttatccccaggtatccccgggtgtaagaattatcttctttgtttgggtatttacgtttccgaattccctttcttgatctgtcgc
cggcttgtcgtgacgaagaataaaagggtccataaaacccacatcttataatagaagaacaacccataaatgcaaaggcttaagggaagaactagacagcg

»» rgef-1 promoter »»

860 880 900 920 940 960

tatccccagaaccagaacagttatcccccatgagaacctgaatagctcaaaaacccgtttaatctttcatcatctcatttgaaactttcctagtcttc
ataaaaagcttttggtcttgtcaaataggaaaaagtactcttgacctatcgagttttgggcaaattaaagaaaagtagtagagtaaactttgaaaggatcagaag

»» rgef-1 promoter »»

980 1,000 1,020 1,040 1,060

ttaatgattccaggctcctcctacatttgtatctcaagatgcatacactttatccccgctccaattcgaatcatctacttctctttttcttcaactttctacttt
aattactaaagggtccgaggaggatgtaaacatagagttctacgtatgtgaaataaaggcgagggttaagcttagtagatgaagagaaaaagaagttgaaagatgaaa

»» rgef-1 promoter »»

1,080 1,100 1,120 1,140 1,160

tttcattcttttcttcaaatgttcgacgtcttcaagtactgctcttcattctcctcatttttctcgaatttcattcttgtctctttttgtctaaaaatggaaa
aaaggtaagaaaagaagtttacaagctgcagaagttcactgacgagaagtaaggagtaaaaaagccttaagtaagaacagagaaaaaacgagttttaccttt

»» rgef-1 promoter »»

1,180 1,200 1,220 1,240 1,260 1,280

atgaaagtgcgtgagatttggacggcgggacacgggggcagtagaagcagcaaaaaggagagaaaggagacacaaataagaagaacgaattcaaaaaataagcggag
tactttcactgcactctaaacctgccgccctgtgccccgtcatcttcgtcgtttttctctctttctctctgtgtttattcttcttgccttaagttttattcgccctc

»» rgef-1 promoter »»

1,300 1,320 1,340 1,360 1,380

aggagctatttccgtcaattctacctccccaatcttcatcaattcggtcgaattgaatgacgtcacaggagataaacggttggatgagcgccgtccatcactgac
tcctcgataaaggcagtttaagatggagggttagaagtagttaagccgagttacttactgcagtgctcctctatttggcaaacctactcgcggcaggttagtgactg

»» rgef-1 promoter »»

1,400 1,420 1,440 1,460 1,480

gccatcccgtttgggacaagaaaagagaaaaaagagcacaagttttgggtgacggatcttgtcaatcatatgaaagttgttctgattgattgtcagttttttcct
cggtagggcacaacctgttcttttctctttttctcgtgtttcaaaaaccactgcctagaacagtttagtatactttcaacaagactaactaacgtcaaaaaaagga

»» rgef-1 promoter »»

1,500 1,520 1,540 1,560 1,580 1,600

acttttttgattctatccacttctgaacttttgacaagtttcaaactttctgaatcattttctatgcattttcctggaattcttttatgtaaaatatgaaataga
tgaaaaaacctaagataggtgaagacttgaaaactgttcaaagtttgaaagacttagtaaaagatacgtaaaaggaccttaagaaaaatacattttatactttatct

»» rgef-1 promoter »»

1,620 1,640 1,660 1,680 1,700

pBT331 (Prgef-1::BirA) (8349 bp) (from 1713-2568 bp)

atgttttgaattcaagttctgcttttttctctttttgttctgttcgggcttggttatgctttttttaaattattttgcacatcgaccaataagtgcgcaact
tacaaaaacttaagttcaagacgaaaaaagaagaaaaacaagacaagcccgaaccatacgaaaaaatttttaataaaacgtgtagctggttattcacgcgtga

» rgef-1 promoter »

1,720

1,740

1,760

1,780

1,800

tataaaattaattttttgttaatttttgaaatacttgatttgctttaagtgatctgacctcgccctgagctttccacgtagttatcaaatacaaatcctccaag
atattttaattaaataaaaaacaattaaaaactttatgaacataacgaaattcacttagactggagcgggactcgaaaggtgcatcaatagtttatgtttaggaggttc

» rgef-1 promoter »

1,820

1,840

1,860

1,880

1,900

1,920

ggtaacgtacctatattactgatctttataataactttatcacctgtccaggtccagaggaattctgttaagcttataggcacagaaggagtcatttctgctggtt
ccattgcatggatataatgactagaaatattattgaaatagtgacagggtcaaggctccttaagacaattcgaatatccgtgtcttctcagtaaagacgacaaa

» rgef-1 promoter »

1,940

1,960

1,980

2,000

2,020

ttaatgatccaaatctttatttcaagtaaaaaactgaacacttgccaataaaactatcagattaaccattcacaaaaatgtgtttgaatctaaaactttctcagta
aattactaggtttagaataaagttcatttttgacttgtgaacgcttattttgatagctcaattggtaagtggttttacacaaacttagattttgaaagagtcatt

» rgef-1 promoter »

2,040

2,060

2,080

2,100

2,120

2,140

ttccaaatatagaaataaataaccacgacattgctaaaatctgtctgaattgtgtactccttacgtgaagtaataatggatataatgaatcgtttgaaatgaatga
aaggtttatatctttattttattgggtgctgtaacgatttttagacagacttaacacatgaggaaatggcacttcattattacctatattacttagcaaactttacttact

» rgef-1 promoter »

2,160

2,180

2,200

2,220

2,240

tcagcacatttttggtgaaagatcacaaataaggaataagcgacggaaaaataaacgattatttcggatcaaaaattgttgaagatcatatacactcgagaccaag
agtcgtgtaaaaaccactttctagtgtttattccttattcgtgcctttattttgctaataaagcctagtttttaacaacttctagtatatgtgagctctggttc

» rgef-1 promoter »

2,260

2,280

2,300

2,320

2,340

attattctagacaattttcaaattggcttctttgtttgcaaactttcataataatctgtgaagtttggaattttgaatttttaactttttcatagattatagttt
taataagatctgttaaaagttaaccgaagaacaaacgtttagaagtattatttagacacttcaaacctttaacttaaaaattagaaaaaagtatctaatatcaaa

» rgef-1 promoter »

2,360

2,380

2,400

2,420

2,440

2,460

ttatttctttgcaaaactatattaaaaacgatgcattgttttagggaattaatgagcctttgttcaacactaaaaacaataaaaattaaaattttggcttcatca
aataaagaacgttttgatataatttttggtacgtaacaaaatcccttaattactcgaaaacaagttgtgattttgttatttttaatttttaaacgaagtagt

» rgef-1 promoter »

2,480

2,500

2,520

2,540

2,560

pBT331 (Prgef-1::BirA) (8349 bp) (from 2569-3424 bp)

tttgacctttttaagttcgaaaacttttctcgattttctgaaccgccaattttttcacacatctctagacttttggtgccggtccagaaagttaagtaattgcta
aaactggaaaaaattcaagcttttgaaaagagcataaagacttggcgggttaaaaaagtgtgtagagatctgaaaaccacgggcaaggctcttcaattcattaacgat

»» rgef-1 promoter »»

2,580 2,600 2,620 2,640 2,660

ttctaagaaagtctcaacattgttttttagttctgattgaattctgatgttccaggaatatattttaaatataattctttgcactatttctataactaaat
aagattctttcaagagttgtaacaaaaatcaagactaacttaagactacaaggctcttatataaaatttaattataagaaacgtgataaagatatgattgattta

»» rgef-1 promoter »»

2,680 2,700 2,720 2,740 2,760 2,780

aataaatagctctaagtatgttcaatgagaacaaaaagctctatctatatttttctatcctatttcatattatctcttttcattttgaactcaccagcttctcttct
ttatttatcagattcatacaagttactctgttttttcgagatagatataaaaaagataggataaagtaaataaggaagaaagtaaaacttgagtggctgaagagaaga

»» rgef-1 promoter »»

2,800 2,820 2,840 2,860 2,880

tcttcttgtccatataacttcttaaaagtctcgaacttctctctctcactctccatcaatttctttatggctaccgcttgcgctctgccgcttccgaagaaagaaggc
agaagaacagggtatatgaagaattttcagagcttgaagagagagagtgaagagtagttaagaaataccgatggcgaacgcgagacggcgaaggcttcttcttccg

»» rgef-1 promoter »»

2,900 2,920 2,940 2,960 2,980

gttggcagagctctcaattctattttttctcgccgtaggctatcgatttctcagcttctcttctcttctcactccaccaccaccacttcgggcttcttcttttc
caaccgtctcgagagttaagataaaaaagagcggcatccgatagctaaagagtcgaagagaagagagaaggagtgaagtggtggtggtgaagcccgaagaagaaaaag

»» rgef-1 promoter »»

3,000 3,020 3,040 3,060 3,080 3,100

ttcattttctgttcttcttctcctcttcttttttttccagttccccctcactcctcccccttatatgcgctgagagagggtgcaaaagcagcgcgcatccgaga
aagtaaaagcagaagaagaagtaggagaagaaaaaaaagtaagggggagtgaggaggggaatatacgcgcacgctctccccacgttttctgctgcgcgtaggctct

»» rgef-1 promoter »»

3,120 3,140 3,160 3,180 3,200

attgaaacgagaaaaacggagacgcagcagcagttctgtcctcagaaaaatagccagtaaaaagagaaaaagatagagagagacctatcgcattttattttcaaattgc
taactttgctcttttgcctctgcgtcgtcgtcaagcaggagctttttatcggtcatttttctcttttctatctctctctgtagcgtaaaataaaagttaacg

»» rgef-1 promoter »»

3,220 3,240 3,260 3,280 3,300

aattcctgcaattcatgtgtgctgtgcccattttcaattcttccggtattttttagaccattaccaacgttctttctagatcttgagacaattctccttctgctc
ttaaggacgttaagtaacacgcacacgggtaaaagttaagaagggaataaaaaagtcgtggaatggttgcaagaaagatctagaactctgttagaaggaagacgag

»» rgef-1 promoter »»

3,320 3,340 3,360 3,380 3,400 3,420

pBT331 (Prgef-1::BirA) (8349 bp) (from 3425-4280 bp)

aatcgttcgtcgtgaagacggcatcgacgacgacgacgatcagcagtaaaggatccccgggattggccaaaggacccaaggtatgtttcgaatgataactaacataa
ttagcaagcagcacttctgccgtagctgctgctgctgctagtcgtcatttctaggggcctaaccggtttcttggtttccatacaaagcttactatgattgtatt

» rgef-1 promoter »

3,440 3,460 3,480 3,500 3,520

catagaacattttcaggaggacccttgagggtaccggtagaaaaaATGACCGCTCCAAGAAGAAACGCAAAGTACCGAGCTCAGAAAAGACCGGTATGGAGCAGAA
gtatcttgtaaaagtcctcctgggaactcccatggccatctttttTACTGGCGAGGTTTCTTCTTTGCGTTTCATGGCTCGAGTCTTTTCTGGCCATACCTCGTCTT

SV40 NLS »

3,540 3,560 3,580 3,600 3,620

GCTCATCTCTGAGGAAGACCTCGGAGGAGAGCAGAACTCATCTCTGAAGAGGACCTCATGAAGGATAATACTGTTCCATTGAAGTTGATTGCTTTGCTTGCAAATG
CGAGTAGAGACTCCTTCTGGAGCCTCCTCTCGTCTTTGAGTAGAGACTTCTCTGGAGTACTTCTATTATGACAAGGTAACCTCAACTAACGAAACGAACGTTTAC

» Myc tag »

Myc tag 2 »

BirA »

3,640 3,660 3,680 3,700 3,720 3,740

GAGAATTTTATTCTGGAGAACAATTGGAGAGACGTTGGGAATGTCGCGTGCTGCAATTAACAAGCATATTCAAACAgtaagtttaaacagttcgggtactaactaac
CTCTTAAAGTAAGACCTCTTGTGAACCTCTCTGCAACCCTTACAGCGCACGACGTTAATTGTTCTGATAAGTTTGTcattcaaatttgtaagccatgattgattg

» BirA »

3,760 3,780 3,800 3,820 3,840

catacatatttaattttcagTTGAGAGACTGGGGAGTTGACGTTTTTACGGTTCAGGAAAGGGATATTGCTTCCAGAGCCAATTCAGCTCTTGAATGCAAAGCA
gtatgtataaatttaaaagtcAACTCTCTGACCCCTCAACTGCAAAAATGCCAAGGTCCTTTCCCTATAAGCGAAGGTCTCGGTTAAGTCGAGAACTTACGTTTCGT

BirA »

3,860 3,880 3,900 3,920 3,940

AATTTTGGGACAGCTTGATGGTGGTAGTGTTCAGTACTTCCGTTATAGATAGTACAAATCAGTACTTGCTTGATCGAATAGGAGAATTGAAATCAGGAGATGCTT
TTAAAACCTGTGCAACTACCACCATCACAACGTCATGAAGGCCAATATCTATCATGTTTAGTCATGAACGAACTAGCTTATCCTCTTAACCTTTAGTCCTCTACGAA

» BirA »

3,960 3,980 4,000 4,020 4,040 4,060

GCATCGCTGAGTATCAGCAGGCTGGACGAGGACGAAGAGGACGTAAGTGTTCTgtaagtttaacatatataactaactaacctgattatttaattttcagCG
CGTAGCGACTCATAGTCGTCCGACCTGCTCCTGCTTCTCCTGCATTACCAAGAcattcaaatttgatatatatgattgattgggactaataaatttaaaagtcGC

» BirA »

4,080 4,100 4,120 4,140 4,160

CCTTTGCGAGCCAATCTCTATTTGAGTATGTTCTGGCGTCTGAACAAGGTCCGGCCGCTGCTATCGGACTTTCATTGGTTATTGGAATTGTGATGGCAGAAGTTCT
GGAAAGCCTCGGTTAGAGATAAACTCATACAAGACCGCAGAAGTGTTCAGGCCGCGACGATAGCCTGAAAGTAACCAATAACCTTAACACTACCGTCTTCAAGA

» BirA »

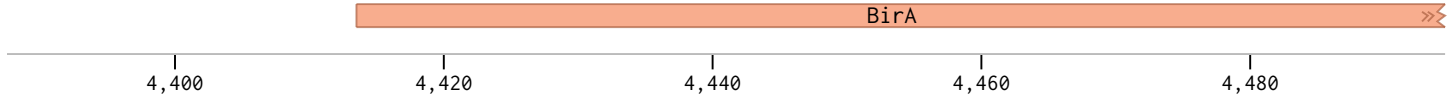
4,180 4,200 4,220 4,240 4,260 4,280

pBT331 (Prgef-1::BirA) (8349 bp) (from 4281-5136 bp)

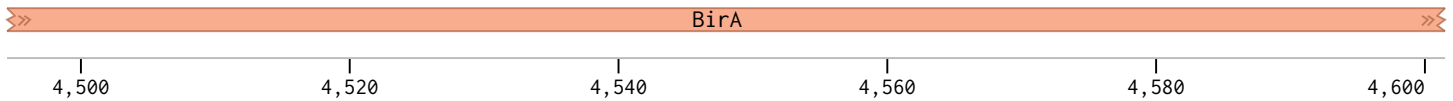
CCGAAAACCTGGTGCAGATAAGGTGAGAGTCAAGTGGCCTAACGATCTTTATCTTCAAGATAGAAAATTGGCCGGAATATTGgtaagtttaacatatataactaa
GGCTTTTGAACCACGTCTATTCCACTCTCAGTTCACCGGATTGCTAGAAATAGAAGTTCTATCTTTAACCGGCCTTATAACcattcaaatttgtatatatatgatt



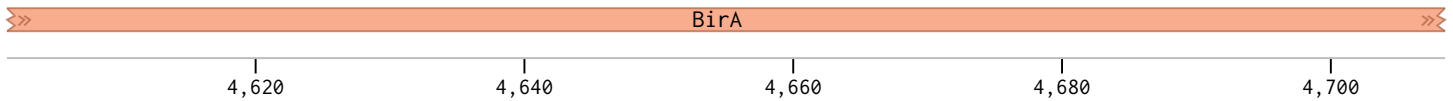
ctaaccctgattatttaaattttcagGTTGAGCTTACTGGAAAGACGGGAGATGCTGCTCAAATTGTGATTGGAGCTGGTATCAATATGGCAATGAGAAGAGTAGAA
gattgggactaataaattttaaagtcCAACTCGAATGACCTTTCTGCCTCTACGACGAGTTAACACTAACCTCGACCATAGTTATACCGTTACTCTTCTCATCTT



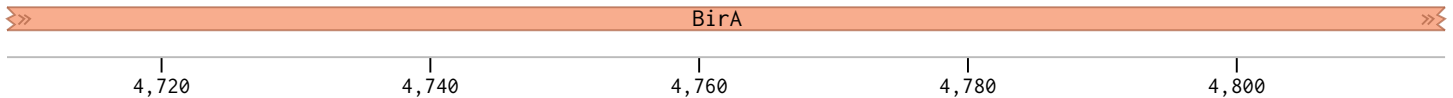
GAGTCTGTTGTTAATCAAGGTTGGATCACACTTCAAGAGGCAGGAATCAACCTTGATAGAAATACGTTGGCCGCCATGCTTATCCGAGAATTGCGAGCTGCACTCGA
CTCAGACAACAATTAGTTCCAACTAGTGGAAGTTCTCCGTCCTTAGTTGGAAGTATCTTTATGCAACCGCGGTACGAATAGGCTCTTAACGCTCGACGTGAGCT



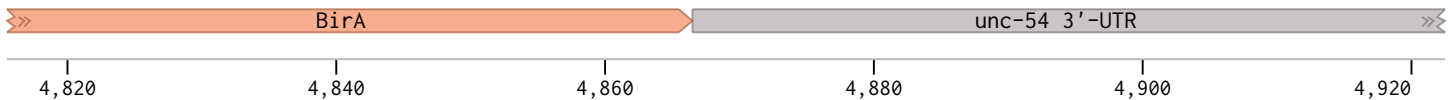
ACTCTTGAACAAGAAGGTCTTGTAAGTTTAAACATATATATACTAACTAACCTGATTATTTAAATTTTTCAGGCCCTTACCTCAGTAGATGGGAGAAACTTGACA
TGAGAAGCTTGTTCTTCCAGAACATTCAAATTTGTATATATATGATTGATTGGGACTAATAAATTTAAAAGTCCGGGAATGGAGTCATCTACCCTCTTTGAAGTGT



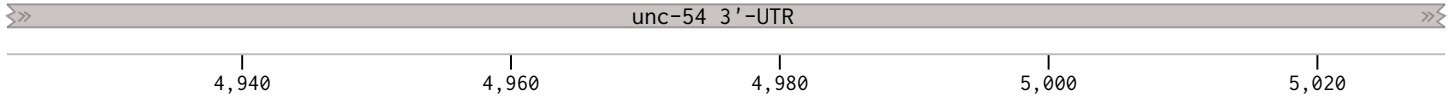
ATTTTATCAATCGACCAGTGAAGTTGATAAATTGGAGATAAGGAAATTTTGGTATCAGTCGAGGAATTGATAAGCAAGGAGCTCTTCTCCTTGAGCAAGATGGAATC
TAAATAGTTAGCTGGTCACTTCAACTATTAACCTCTATTCTTTAAAAACCATAGTCAGCTCCTTAAGTATTCGTTCTCGAGAAGAGGAACTCGTTCTACCTTAG



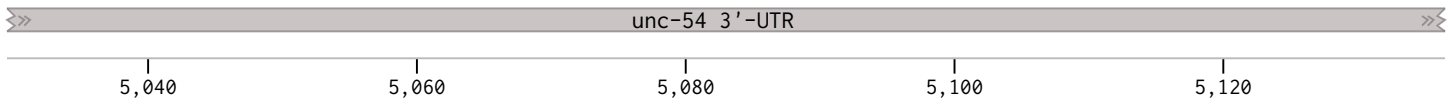
ATTAACCATGGATGGGTGGAGAGATTTCTTTGCGATCTGCTGAAAAGTAgaattccaactgagcgccggtcgctaccattaccaacttgtctggtgtcaaaaata
TAATTTGGTACCTACCCACCTCTCTAAAGAAACGCTAGACGACTTTTCATTcttaaggttgactcgcgccagcgatggtaatgggtgaacagaccacagtttttat



ataggggcccgtgtcatcagagtaagtttaactgagtttactaactaactgagtaatatttaaattttcagcatctcgcgcccgctgcctctgacttctaagtcaa
tatccccggcgacagtagtctcattcaaatgtactcaagatgattgattgctcattataaattttaaagtcgtagagcgcgggcacggagactgaagattcaggtt



ttactcttcaacatccctacatgctctttctccctgtgctcccacccctattttgttattatcaaaaaacttcttcttaatttctttgttttttagcttctttt
aatgagaagttgtaggatgtacgagaaagaggacacaggggtgggggataaaaacaataatagttttttgaagaagaattaaagaaacaaaaaatcgaagaaa



pBT331 (Prgef-1::BirA) (8349 bp) (from 5137-6099 bp)

aagtcacctctaacaatgaaattgtgtagattcaaaaatagaattaattcgtataaaaaagtcgaaaaaatgtgctccctcccccaataataataattctatcc
ttcagtgagattgttactttaacacatctaagttttatcttaattaagcattatttttcagcttttttaacacgagggagggggtaattattattaagatagg

»» unc-54 3'-UTR »»

5,140 5,160 5,180 5,200 5,220 5,240

caaaatctacacaatgttctgtgtacacttcttatgtttttttacttctgataaatttttttgaacatcatagaaaaaccgcacacaaaataccttatcatat
gttttagatgtgttacaagacacatgtgaagaatacaaaaaaatgaagactatttaaaaaaacctttagtagtatcttttttgcggtgtgtttatggaatagtata

»» unc-54 3'-UTR »»

5,260 5,280 5,300 5,320 5,340

gttacgtttcagtttatgaccgcaatttttttcttcgcacgtctgggcctctcatgacgtcaaatcatgctcatcgtgaaaaagtttggagtattttggaatt
caatgcaaagtcaaatactggcgttaaaaaataaagaagcgtgcagaccggagagtactgcagtttagtacgagtagcactttttcaaaacctcataaaaaccttaa

»» unc-54 3'-UTR »»

5,360 5,380 5,400 5,420 5,440

tttcaatcaagtgaagtttatgaaattaattttcctgcttttgctttttgggggtttccctattgtttgtcaagagtttcgaggacggcgtttttcttgctaaaa
aaagttagttcactttcaaatactttaattaaaaggacgaaaacgaaaaaccccaaaggggataacaaacagtttctcaaagctctgccgcaaaaagaacgatttt

»» unc-54 3'-UTR »»

5,460 5,480 5,500 5,520 5,540 5,560

tcacaagtattgatgagcacgatgcaagaagatcggaagaaggtttgggtttgaggctcagtggaaggtgagtagaagttgataatttgaaagtgagtagtgtct
agtgttcataactactcgtgctacgttctttctagccttcttccaaacccaaactccgagtcaccttccactcatcttcaactattaaactttcacctcatcacaga

»» unc-54 3'-UTR »»

5,580 5,600 5,620 5,640 5,660

atgggggttttgccttaaatgacagaataattcccaatataccaaacataactgtttcctactagtccgccgtacgggccctttcgtctcgcgctttcggtagatg
taccacaaaaacggaatttactgtcttatgtaaggttatatggtttgtattgacaaaggatgatcagccggcatgcccggaagcagagcgcgcaaagccactac

»» unc-54 3'-UTR »»

5,680 5,700 5,720 5,740 5,760

acggtgaaaacctctgacacatgcagctcccggagacgggtcacagcttgtctgtaagcggatgccgggagcagacaagcccgtcagggcgcgctcagcgggtgttggc
tgccacttttgagactgtgtacgtcgagggcctctgccagtgtcgacagacattcgcttacggccctcgtctgttcgggcagtcccgcgcagtcgccacaaccg

5,780 5,800 5,820 5,840 5,860 5,880

gggtgtcggggctggcttaactatgcggcatcagagcagattgtactgagagtgcaccatattgcggtgtgaaataccgcacagatgcgtaaggagaaaataccgcat
cccacagccccgaccgaattgatacgcgtagtctcgtctaacatgactctcagtggtatagccacactttatggcgtgtctacgattctcttttatggcgta

5,900 5,920 5,940 5,960 5,980

caggcggccttaaggcctcgtgatacgcctatttttataggttaatgtcatgataataatggtttcttagacgtcaggtggcacttttcggggaaatgtgcgcgga
gtccgcccgaattcccggagcactatgcggataaaaaatatccaattacagtactattattacaaagaatctgcagtcaccgtgaaaagcccctttacacgcgcct

6,000 6,020 6,040 6,060 6,080

pBT331 (Prgef-1::BirA) (8349 bp) (from 6100-7062 bp)

acccttatttgtttatttttctaaatacattcaaatatgtatccgctcatgagacaataaccctgataaatgcttcaataattgaaaaaggaagagtatgagtat
tggggataaacaataaaaagatttatgtaagtttatacataggcgagtactctgttattgggactatttacgaagttattataactttttccttctcatactcata

6,100 6,120 6,140 6,160 6,180 6,200

tcaacatttccgtgtcgccttattcccttttttgcggcattttgccttcctgtttttgctcaccagaaacgctgggtgaaagtaaagatgctgaagatcagttgg
agttgtaaaggcacagcgggaataagggaacacgcccgtaaaacggaaggacaaaacgagtggttcttgcgaccactttcattttctacgacttctagtcaacc

6,220 6,240 6,260 6,280 6,300

gtgcacgagtgggttacatcgaactggatctcaacagcggtaagatccttgagagttttcgcgccgaagaacgttttccaatgatgagcacttttaagttctgcta
cacgtgctcacccaatgtagcttgacctagagttgtcgccattctaggaactctcaaaagcggggcttcttgcaaaaggttactactcgtgaaaatttcaagacgat

AmpR >>

6,320 6,340 6,360 6,380 6,400 6,420

tgtggcgcggtattatcccgtattgacgcgggcaagagcaactcggtcgccgcatacactatttctcagaatgacttggttgagtactcaccagtcacagaaaagca
acaccgcgccataatagggcataactgcggcccgttctcgttgagccagcggcgatgtgataagagtcttactgaaccaactcatgagtggtcagtgcttttctgt

>> AmpR >>

6,440 6,460 6,480 6,500 6,520

tcttacggatggcatgacagtaagagaattatgcagtgctgccataacatgagtataacactgcggccaacttacttctgacaacgatcggaggaccgaaggagc
agaatgcctaccgtactgtcattctcttaatacgtcacgacggtatttggtactcactattgtgacgccggttgatgaagactgttgctagcctcctggcttctctg

>> AmpR >>

6,540 6,560 6,580 6,600 6,620

taaccgcttttttgcaacaatgggggatcatgtaactcgccttgatcgttggaaccggagctgaatgaagccataccaaacgacgagcgtgacaccacgatgcct
attggcgaaaaaacgtgttgtaacccctagtagacatgagcggaactagcaacccttgccctcgacttacttcggtatggtttgctgctcgactgtggtgctacgga

>> AmpR >>

6,640 6,660 6,680 6,700 6,720 6,740

gtagcaatggcaacaacgttgcgcaaactattaactggcgaactacttactctagcttcccggaacaattaatagactggatggaggcggataaagtgcaggacc
catcgttaccgttggtgcaacgcgtttgataattgaccgcttgatgaatgagatcgaagggccgttgtaattatctgacctacctccgcctatttcaacgtcctgg

>> AmpR >>

6,760 6,780 6,800 6,820 6,840

acttctgcgctcggcccttccggctgggtttattgctgataaatctggagccggtgagcgtgggtctcgcggtatcattgcagcactggggccagatggttaagc
tgaagacgcgagccgggaaggccgaccgaccaaataacgactatttagacctcgccactcgacccagagcgccatagtaacgtcgtgaccccggtctaccattcg

>> AmpR >>

6,860 6,880 6,900 6,920 6,940

cctcccgtatcgtagttatctacacgacggggagtcaggcaactatggatgaacgaaatagacagatcgctgagataggtgcctcactgattaagcattggtaactg
ggagggcatagcatcaatagatgtgctgcccctcagtcctgtgatacctacttgctttatctgtctagcgactctatccacggagtgactaattcgttaaccattgac

>> AmpR >>

6,960 6,980 7,000 7,020 7,040 7,060

pBT331 (Prgef-1::BirA) (8349 bp) (from 7063-8025 bp)

tcagaccaagtttactcatatatacttttagattgattttaaaacttcatttttaattttaaaaggatctaggtgaagatcctttttgataatctcatgacaaaaatccc
agtcctggttcaaatgagtatatatgaaatctaactaaattttgaagtaaaaattaaattttcttagatccacttctaggaaaaaactattagagtactggttttaggg



7,080 7,100 7,120 7,140 7,160

ttaacgtgagttttcgttccactgagcgtcagaccccgtagaaaagatcaaaggatcttcttgagatccttttttctgcgcgtaatctgctgcttgcaacaaaaa
aatgacactcaaaagcaaggtgactcgcagtcctgggcatcttttctagtttcttagaagaactctaggaaaaaagacgcgcattagacgacgaacgtttgtttt

>> ColE1 origin >>

7,180 7,200 7,220 7,240 7,260

aaccaccgctaccagcgggtggtttgtttgccgatcaagagctaccaactctttttccgaaggtaactggcttcagcagagcgcagataccaaatactgtccttcta
ttggtggcgatggtcgccaccaaaacaaacggcctagttctcgatggttgagaaaaaggcttcattgaccgaagtcgtctcgcgtctatggtttatgacaggaagat

>> ColE1 origin >>

7,280 7,300 7,320 7,340 7,360 7,380

gtgtagccgtagtttaggccaccacttcaagaactctgtagaccgcctacatacctcgtctgtctaactcctgttaccagtggctgctgccagtggcgataagtctgtg
cacatcggcatcaatccggtggtgaagtctttgagacatcgtggcggtatgttgagcgagacgattaggacaatggtcaccgacgacggtcaccgctattcagcac

>> ColE1 origin >>

7,400 7,420 7,440 7,460 7,480

tcttaccgggttgactcaagacgatagttaccggataaggcgcagcggctcgggctgaacggggggttcgtgcacacagcccagcttgagcgaacgacctacaccg
agaatggcccaacctgagttctgctatcaatggcctattccgcgtcgccagcccgaacttgcccccaagcacgtgtgtcgggtcgaacctcgcttgctggatgtggc

>> ColE1 origin >>

7,500 7,520 7,540 7,560 7,580

aactgagatacctacagcgtgagcattgagaaagcgccacgcttcccgaaggagaaaaggcggacaggtatccggtaagcggcagggctcggaacaggagagcgacg
ttgactctatggatgtcgcactcgtaactctttcgcggtgcgaagggttccctctttccgcctgtccatagccattcgcgctcccagccttgtcctctcgcgtgc

>> ColE1 origin >>

7,600 7,620 7,640 7,660 7,680 7,700

agggagcttccaggggaaacgccttggtatctttatagtcctgtcgggtttgccacctctgacttgagcgtcgatttttgtatgctcgtcaggggggaggagcct
tcctcgaaggtccccctttgcggaccatagaaatatcaggacagcccaaagcgggtggagactgaactcgcagctaaaaacactacgagcagtcctcccgctcgga

>> ColE1 origin >>

7,720 7,740 7,760 7,780 7,800

atggaaaaacgccagcaacgcggcctttttacggttcttgcccttttctggtgcttttctcacatgttcttttctgcgttatccctgattctgtggataaccgta
tacctttttgcggctggttgcgccggaaaaatgccaaggaccgaaaaacgaccggaaaaacgagtgtaagaagacgcaataggggactaagacacctattggcat

>> ColE1 origin >>

7,820 7,840 7,860 7,880 7,900

ttaccgcctttgagtgagctgataccgctcgccgcagccgaacgaccgagcgcagcagtcagtgagcaggaagcgggaagagcgcccaatacgcgaacccgcctctc
aatggcggaactcactcgactatggcgagcggcgctcggttctggtcgcgtcgtcagtcactcgtctcttcgccttctcgcgggttatgcgtttggcgagag

7,920 7,940 7,960 7,980 8,000 8,020

pBT331 (Prgef-1::BirA) (8349 bp) (from 8026-8349 bp)

cccgcgcggttgccgattcattaatgcagctggcacgacaggtttcccgactggaaagcgggcagtgagcgcaacgcaattaatgtgagttagctcactcattaggc
gggcgcgcaaccggctaagtaattacgtcgaccgtgctgtccaaagggtgacctttcgcccgtcactcgcggtgcggttaattacactcaatcgagtgagtaatccg

8,040

8,060

8,080

8,100

8,120

accccaggctttacactttatgcttccggctcgatatgttggtggaattgtgagcggataacaatttcacacaggaaacagctatgaccatgattacgccaagctgt
tgggggtccgaaatgtgaaatacgaaggccgagcatacaacacaccttaacactcgccctattgttaaagtgtgtcctttgtcgatactgggtactaatcggttcgaca

LacO

M13-rev

8,140

8,160

8,180

8,200

8,220

aagtttaaacatgatcttactaactaactattctcatttaaatTTTcagagcttaaaaatggctgaaatcactcacaacgatggatacgctaacaacttggaatga
ttcaaatttgtactagaatgattgattgataagagtaaatttaaaagtctcgaatTTTaccgactttagtgagtggtgctacctatgcgattgttgaaacctttact

8,240

8,260

8,280

8,300

8,320

8,340

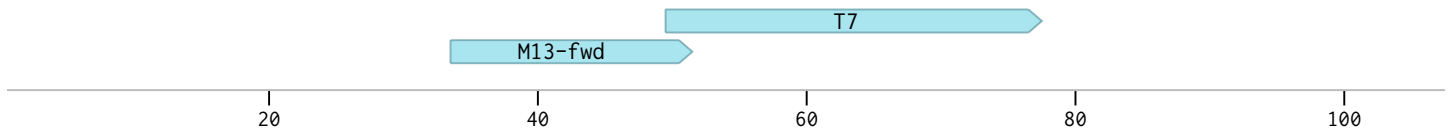
aat

tta

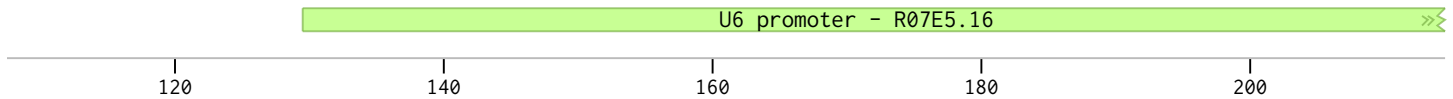
8,349

pJJR50 (3425 bp)

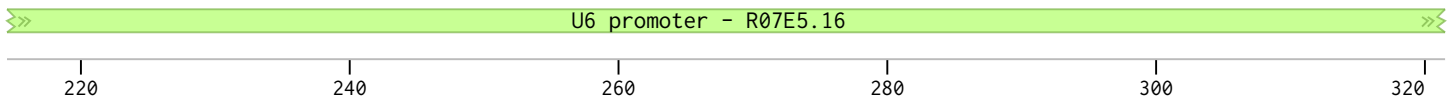
tgggtaacgccagggttttccagtcacgacgttgtaaaacgacggccagtgaattgtaatacgactcactatagggcgaattgggtaccgggccccctcgaggt
accattgcggtcccaaagggtcagtgctgcaacattttgctgccggtcacttaacattatgctgagtgatatcccgcttaacctatggcccggggggagctcca



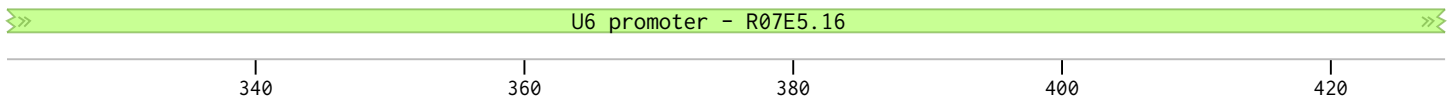
cgacggtatcgataagcttgatcaaaaaaactagcaataaaggaataaaaaactgtacaccttaaggcgacactctgttttgcaaattttatTTTTtagttgtga
gctgccatagctattcgaactagtttttttgatcggtatttccctatttttgacatgtggaatttccgctgtgagacaaaacgtttaaaataaaaatcaacact



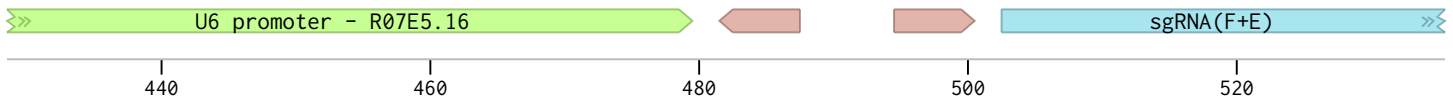
atTTTctgctgagacctgaaaatagcaacttttagtactactataatTTTgtcaacTTTTcaaaaaagcatgcaattTTTgagaaactcttataaaagctattatta
taaaagacgactctggactTTTatcgTTgaaatcatgatgatattaacagTTggaaaagTTTTTctgacgttaaaaactctTTgagaatattTtcgataataat



aaaaaacacctTTTTTccaaaattattccacaaaaaatatgTTatgaaatgcctacacctctcacacacactctttatactactctgtcaaactcacgagatgtct
TTTTTgtggaaaaaggtTTTaataaggTgtTTTTtatacaactTTacggatgtgggagagTgtgtgtgagaaatatgatgagacagTTtgagtgtctctacaga



gccgcctctTgtgtTgccctatataaacacctcctattTgcgagatgtcttATGTCTTCGAGAGAGGAAGACTAGTTTAAGAGCTATGCTGGAAACAGCATAGCAAG
cggcgagaaacacacggggatatattTgtggaggataacgctctacagaaTACAGAAGCTCTCTCTTCTGATCAAATTCTCGATACGACCTTTGTCGTATCGTTC



TTTAAATAAGGCTAGTCCGTTATCAACTTGAAAAAGTGGCACCGAGTCGGTGCTTTTTTTatcgaattcctgcagccgggggatccactagttctagagcgccg
AAATTTATTCGATCAGGCAATAGTTGAACTTTTTACCGTGGCTCAGCCACGAAAAAAAtagcttaaggacgtcgggccccctaggtgatcaagatctcgccggc



ccaccggtggagctccagctttTgttcccttttagtgagggttaatttcgagcttggcgtaatcatggtcatagctgtttcctgtgtgaaattgttatccgctcac
ggtggcgccacctcgaggtcgaaaacaagggaatcactccaattaaagctcgaaccgatttagtaccagtatcgaaaaggacacactttaacaataggcgagtg

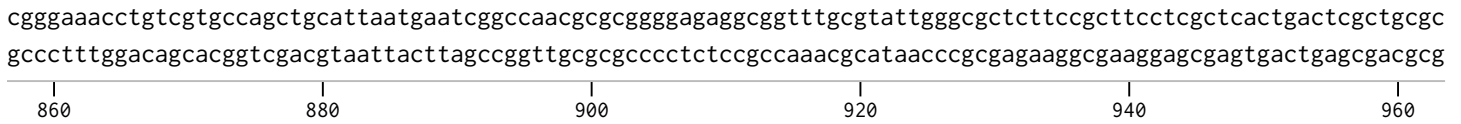


aattccacacaacatacgagccggaagcataaagtgtaaagcctggggTgcctaatagtgtgagctaaactcacattaattgCGTTgcgtcactgccgctttccagt
ttaaggTgtgtTgtatgctcgcccttctatttcacatttcggacccacggattactcactcgattgagTgtaattaacgcaacgcgagtgacgggcgaaaggTca

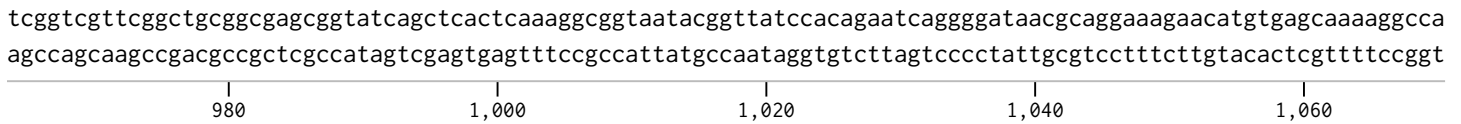


pJJR50 (3425 bp) (from 857-1819 bp)

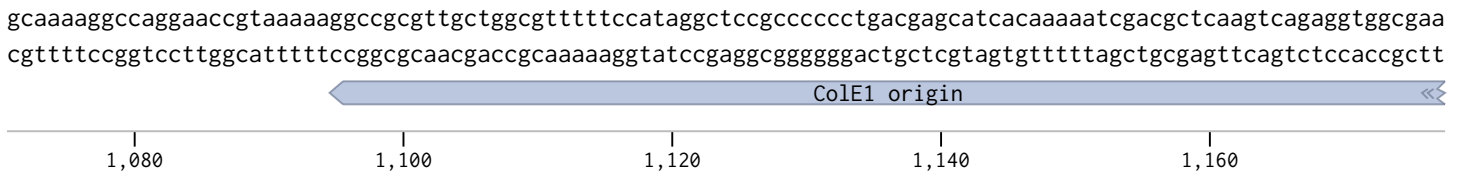
cgggaaacctgtcgtgccagctgcattaatgaatcgccaacgcgcggggagaggcggtttgcgtattgggcgtcttccgcttcctcgctcactgactcgctgcgc
gccctttggacagcacggtcgacgtaattacttagccggttgcgcgccccctctccgccaacgcataacccgcgagaaggcgaaggagcgagtgactgagcgacgcg



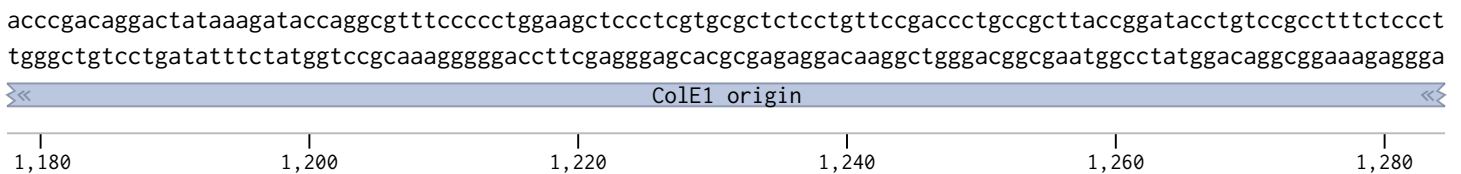
tcggctcgttcggctgcggcgagcggtatcagctcactcaaaggcggttaatacggttatccacagaatcaggggataacgcaggaagaacatgtgagcaaaaggcca
agccagcaagccgacgccgctcgccatagtcgagtgagtttccgcattatgccaataggtgtcttagtccccctattgcgtcctttctgtacactcgttttccggt



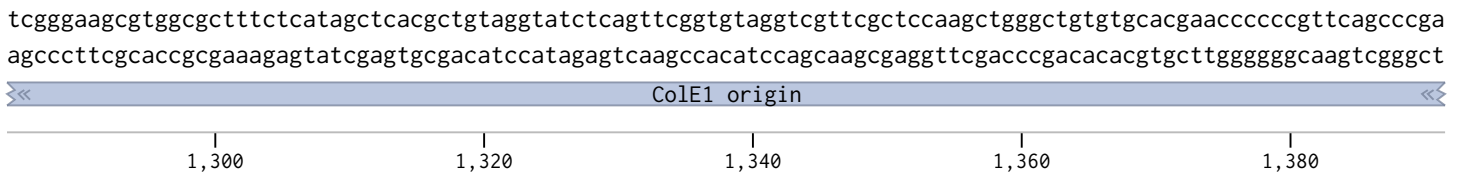
gcaaaaggccaggaaccgtaaaaaggccgcttgctggcggtttttccataggctccgccccctgacgagcatcacaaaaatcgacgctcaagtcaagggtggcgaa
cgttttccggtccttggcatttttccggcgcaacgacgcgcaaaaaggatccgaggcgggggactgctcgtagtgttttagctgcgagttcagttctccaccgctt



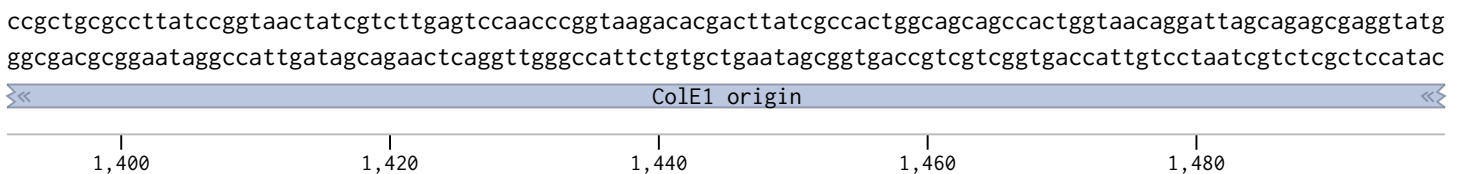
acccgacaggactataaagataaccaggcggtttccccctggaagctccctcgtgcgctctcctgtttccgacctgcccgttacggatacctgtccgcttttctcct
tgggctgtcctgatatttctatggctcgcaaaaggggaccttcgaggagcacgcgagaggacaaggctgggacggcgaatggcctatggacaggcggaaagaggga



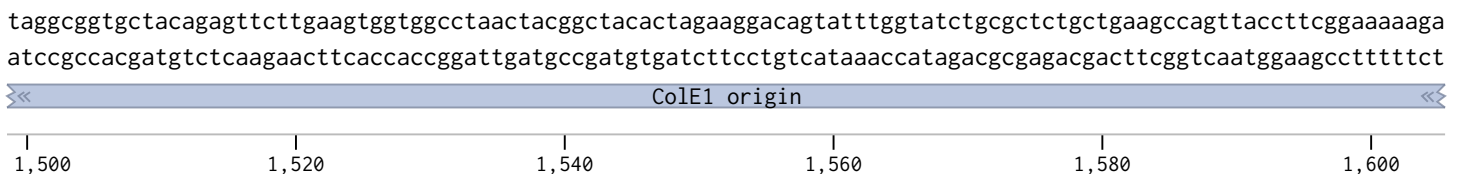
tcgggaagcgtggcgcttttctcatagctcacgctgtaggtatctcagttcgggtgtaggtcgttcgctccaagctgggctgtgtgcacgaacccccgttcagcccga
agcccttcgcaccgcgaaagagtatcgagtgcgacatccatagagtcaagccacatccagcaagcgaggttcgacccgacacacgtgcttggggggcgaagtcgggct



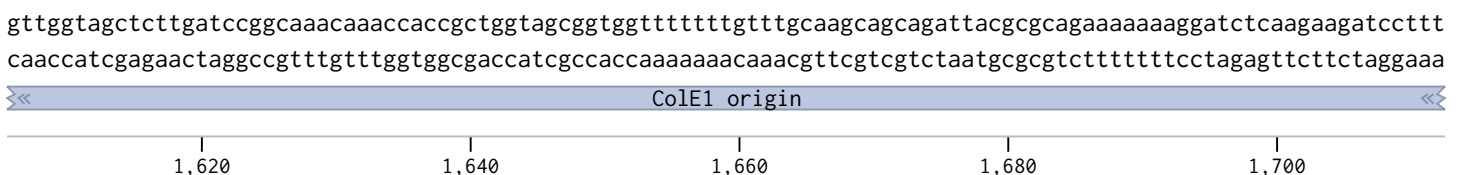
ccgctgcgccttatccggtaactatcgtcttgagtccaacccggtaagacacgacttatcgccactggcagcagccactggtaacaggattagcagagcgaggtatg
ggcgacgcggaatagccattgatagcagaactcaggttgggccattctgtgctgaatagcggtagccgtcgtcggtgaccattgtcctaatacgtctcgtccatac



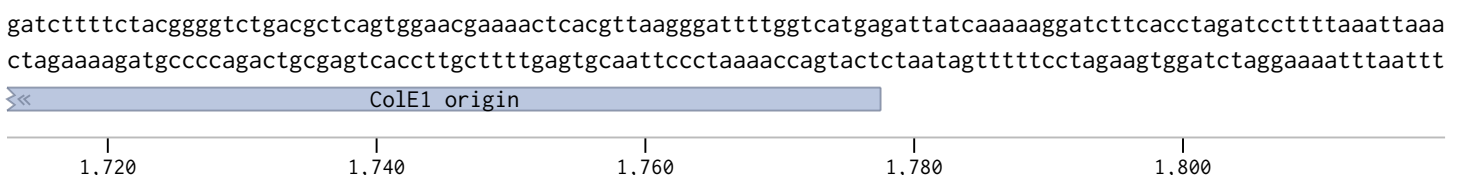
tagcggtgctacagagttcttgaagtgggtggcctaactacggctacactagaaggacagtatttggatatcgcgctctgctgaagccagttaccttcgaaaaaga
atccgccacgatgtctcaagaactcaccaccggattgatgccgatgtgatcttctgtcataaaccatagacgcgagacgacttcggtcaatggaagcctttttct



gttgtagctcttgatccggcaaaacaaccaccgctggtagcggtgggttttttgtttgcaagcagcagattacgcgcagaaaaaaggatctcaagaagatccttt
caaccatcgagaactaggccgtttgtttgggtggcgaccatcgccacaaaaaaacaaacgttcgtcgtctaatacgcgctcttttttctagagttcttctagaaa



gatcttttctacggggtctgacgctcagtggaacgaaaactcacgttaagggttttggatcatgagattatcaaaaaggatcttcacctagatccttttaattaaa
ctagaaaagatgccccagactcgagtcaccttgcgttttgagtgaattccctaaaaccagtactctaatagttttcttagaagtgatctagggaaatttaattt

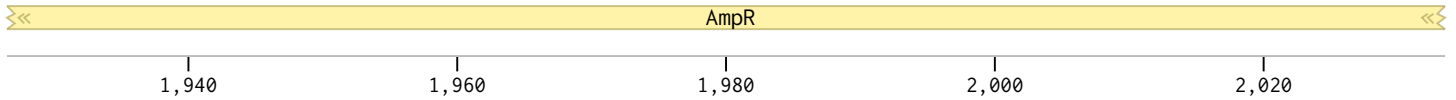


pJJR50 (3425 bp) (from 1820-2782 bp)

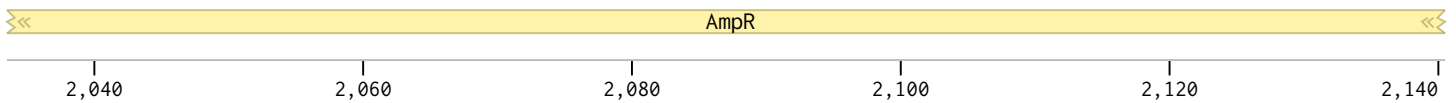
aatgaagttttaaatcaatctaagatatatgagtaaacttggctctgacagttaccaatgcttaatcagtgaggcacctatctcagcgatctgtctatttcgttca
ttacttcaaaatttagtttagatttcatatatactcatttgaaccagactgtcaatggttacgaatttagtcactccgtggatagagtcgctagacagataaagcaagt



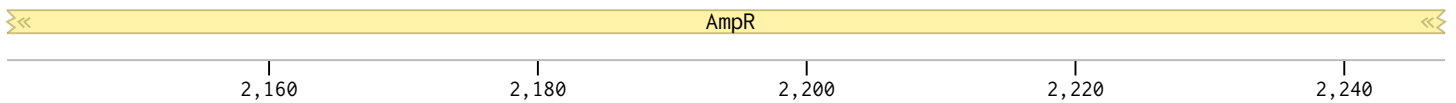
tccatagttgcctgactccccgtcgtgtagataactacgatacgggagggccttaccatctggccccagtgctgcaatgataccgcgagaccacgctcaccggctcc
aggtatcaacggactgaggggcagcacatctattgatgctatgccctcccgaatggtagaccgggtcacgacgttactatggcgctctgggtgcgagtggccgagg



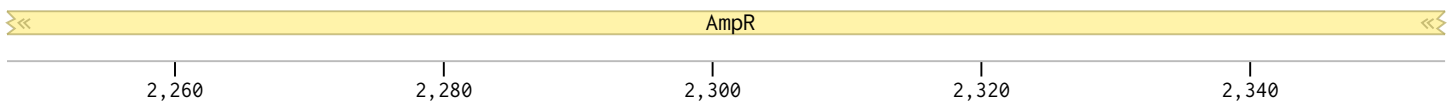
agatttatcagcaataaaccagccagccggaagggccgagcgcagaagtggctcctgcaactttatccgcctccatccagtctattaattgttgccgggaagctagag
tctaaatagtcgttatttggtcggtcggccttcccggctcgcgtcttcaccaggacgttgaaataggcggaggttaggtcagataattaacaacggcccttcgatctc



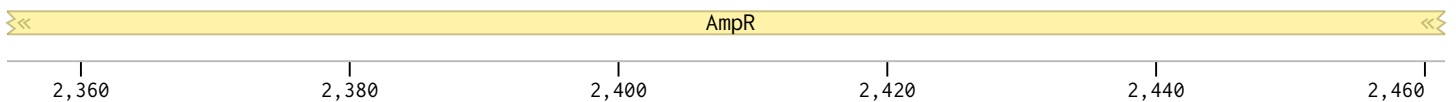
taagtagttcgcagttaatagtttgcgcaacgttgttgccattgctacaggcatcgtgggtgcacgctcgtcgtttggtaggttcattcagctccggttcccaa
attcatcaacgggtcaattatcaaacgcgttgcaacaacggtaacgatgtccgtagcaccacagtcgcgagcagcaaacataccgaagtaagtcgaggccaagggtt



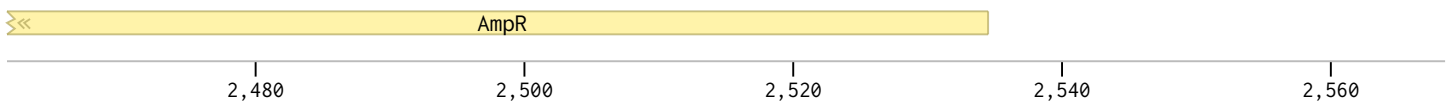
cgatcaaggcgagttacatgatcccccatgttgtgcaaaaaagcggttagctccttcggctcctccgatcgttgcagaagtaagttggccgcagtggtatcactcat
gctagttccgctcaatgtactagggggtacaacacgttttttcgccaatcgaggaagccaggaggctagcaacagctcttcattcaaccggcgtcacaatagttagta



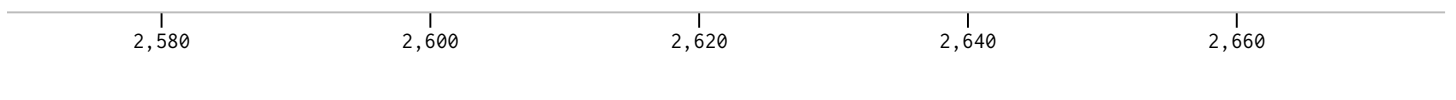
ggttatggcagcactgcataattctcttactgtcatgccatccgtaagatgcttttctgtgactggtagtactcaaccaagtcattctgagaatagtgtatcgggc
ccaataaccgtcgtgacgtattaagagaatgacagtacggtaggcattctacgaaaagacactgaccactcatgagttgggttcagtaagactcttatcacatacgccg



gaccgagttgctcttggccggcgtcaatacgggataataccgcgccacatagcagaactttaaaagtgtcatcattggaaaacgttcttcggggcgaaaactctca
ctggctcaacgagaacgggcccagttatgccctattatggcgcggtgtatcgtcttgaaattttcacgagtagtaaccttttgcaagaagccccgcttttgagagt



aggatcttaccgctgttgagatccagttcgatgtaaccactcgtgcaccaactgatcttcagcatcttttactttcaccagcgtttctgggtgagcaaaaacagg
tcctagaatggcgacaactctaggtcaagctacattgggtgagcacgtgggttgactagaagtcgtagaaaaatgaaagtggtcgcaagaccactcgttttgtcc



aaggcaaaatgccgcaaaaaaggaataaggcgacacggaatgttgaatactcatactcttcccttttcaatattatgaagcatttatcagggttattgtctca
ttccgttttacggcgttttttcccttatcccgctgtgcctttacaacttatgagtatgagaaggaaaaagtataataacttcgtaaatagtcccaataacagagt



pJIR50 (3425 bp) (from 2783-3425 bp)

tgagcggatacatatttgaatgtatttagaaaaataacaaataggggttcgcgcacatttccccgaaaagtgccacctaattgtaagcgtaatatatttgttaa
actcgcctatgtataaacttacataaatctttttatttgtttatccccaaggcgcgtgtaaaggggcttttcacgggtggatttaacattcgcaattataaaacaatt

2,800 2,820 2,840 2,860 2,880

aattcgcgttaaatttttgttaaatcagctcattttttaaccaataggccgaaatcggcgaaaatcccttataaatcaaaagaatagaccgagataggggttgagtgtt
ttaagcgcaatttataaaacaatttagtcgagtaaaaaattggttatccggccttagccgttttagggaatattagttttcttatctggctctatcccaactcaca

2,900 2,920 2,940 2,960 2,980

gttcagtttgaacaagagtccactattaaagaacgtggactccaacgtcaaagggcgaaaaaccgtctatcaggcgatggcccactacgtgaaccatcaccta
caaggtaaaccttgttctcaggtgataatttcttgcacctgaggttgcagtttcccgcttttggcagatagtcggctaccgggtgatgcacttggtagtgggat

<< F1 ori >>

3,000 3,020 3,040 3,060 3,080 3,100

atcaagtttttggggtcgaggtgccgtaaagcactaaatcggaaccctaaagggagccccgatttagagcttgacggggaaaagccggcgaaactggcgagaaagg
tagttcaaaaaacccagctccacggcatttcgtgatttagccttgggatttccctcgggggctaatactcgaactgcccccttcggccgcttgcaccgctctttcc

<< F1 ori >>

3,120 3,140 3,160 3,180 3,200

aagggagaagcgaagagcgggcgctagggcgctggcaagtgtagcggtcacgctgcgcgtaaccaccacacccgcgcgcttaatgcgccgctacaggcgcg
ttcccttctttcgtttcttcgcccgcgatcccgcgaccgttcacatcgccagtgcgacgcgcatgtggtggtgtgggcggcggaattacgcccgcgatgtcccgcgc

<< F1 ori

3,220 3,240 3,260 3,280 3,300

tcccattcgccattcaggctgcgcaactgttgggaaggcgatcggtgcgggcctcttcgctattacgccagctggcgaaagggggatgtgctgcaaggcgattaag
agggtaaagcggttaagtcgacgcgttgacaacccttcccgctagccacgcccggagaagcgataatgcggtcgaccgctttccccctacacgacgttccgctaattc

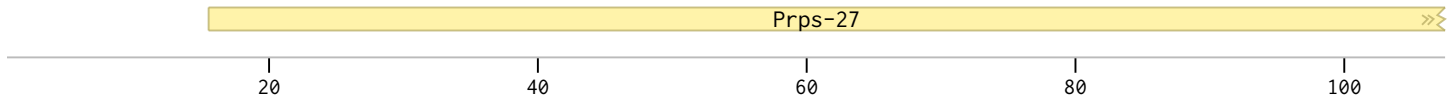
LacZ alpha

3,320 3,340 3,360 3,380 3,400 3,420

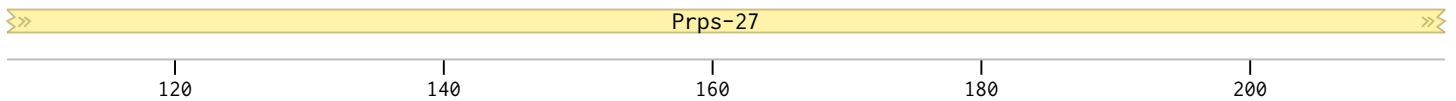
t
a
T
3,425

pMB37 (Prps-27::BirA) (5164 bp)

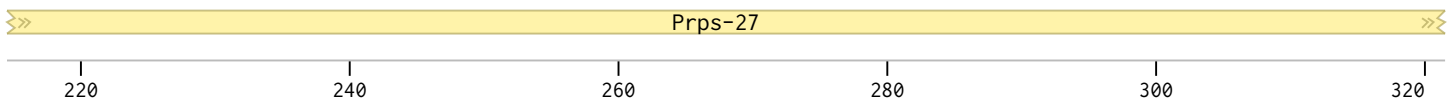
AAGCTTGGGCTGCAGttcaatcgggttttcttgcgttgcgcccaattctgatggttcttccatttctaaatttagtttaataaaaaattttaaaataatcagagt
TTCGAACCCGACGTCaagtttagccaaaaaggaacgaacgcgggttaagactaccaagaaggtaaagatttaaaatcaaattatTTTTTaaattttattatgctca



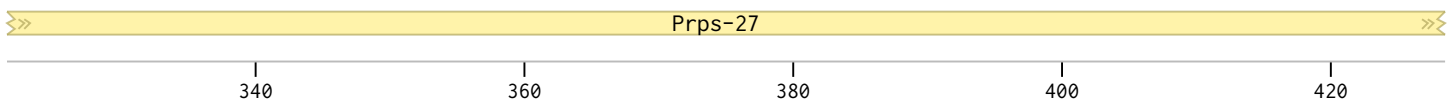
tttgagactaactttcaataaaaacaaaaaaattgcttcaaaaaagagttcgcgcgatttacgataaacacagcgcgtacgacactccgaaaaccgcgcgca
aaactctgattgaaagtatttttgggttttttaacgaagtttttctcaagcgcggctaaatgctatttgtgtcgcgcgatgctgtgaggcttttggcgcgcgt



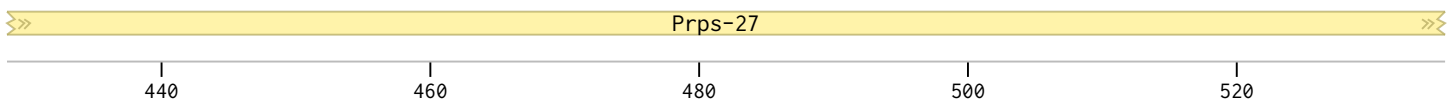
ccattacattctccgccccaccgcacggtttgcggaaggcgatgaaattgctgggcctaaaaatttaaccctttttccggtttttcaactgtttccgattttt
ggtaatgtaagaggcgggtggcgtgccaaacgccttccgctactttaacgacccgattttaaaattgggaaaaaagggaaggttgacaaaagggtctaaaaa



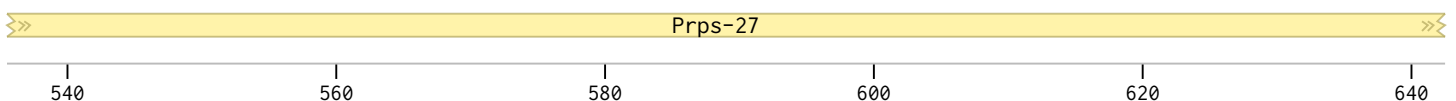
tcgatattttttcaggttttttagttagaaaagtatataaaaattgcattattttagttttcgcctcgttaatttgtgatagaaaacggccaatttgcctagatttgt
agctataaaaaaagtccaaaaatcaatctttcatatatttttaacgtaataaacatcaaaagcgcgacattaaacactatcttttgccggttaaaccgatctaaaca



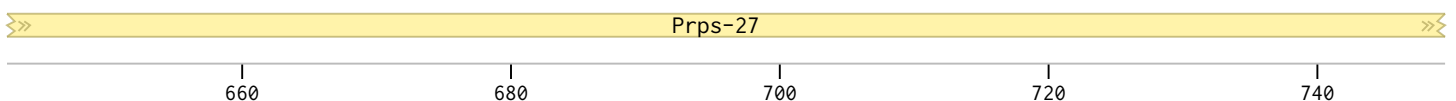
gattctaccaagtggaaatttttgggaaaatatcaatattccagatttttattcaaatcataacgtttcgaattatcagcttaataaaaactaaaaataataa
ctaagatggttcaccttaaaaacccttttatagttataaggtgctaaaaataagtttagtattgcaaagcttaatagtcgaatttattttgattttatttattt



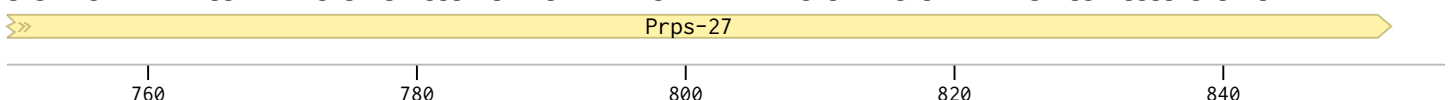
aatactaaaaaccctgaatttctcgttctcgttcagcttgagttcgttctatacacgttatcgattttgtcatttcgtttaatcatgggttttgattcatTTA
ttatgatttttgggacttaagagccaagagccaagtcgaactcaagcaagatatgtgcaatagctaaaaacagtaagcaaattagtaccctaaactaagtaaaat



aatatgaaatttgatttattcctcgtttcgaagtgggttgcgttcgcgcggttaacaaatgttattaaaaaataataaatttcgaaattttcgtaatgttc
ttatactttaaactaaataaggagcaaagcttcaaccaaacagaacaggccggccatttgtttacaataattttttatttttaagctttaaaaagcattacaag

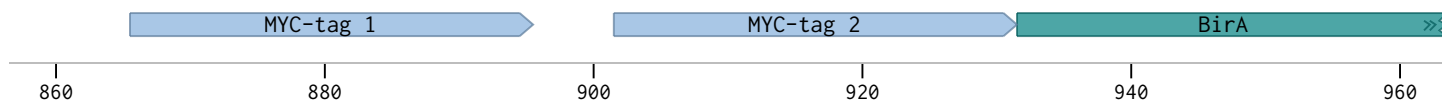


cgcaatcgtgtttttccgtttatctcgtcttcccttctttcaaatatactatttattttctcaattcacatatTTTcagccagccccgctcaacaagtggaaTGGTA
gcgttagcacaaaaaggcaaatagagcagaagggaagaaagtttatatgataataaaagagtttaagtgataaaagtcggtcggggcgagttgttcaccttaCCAT

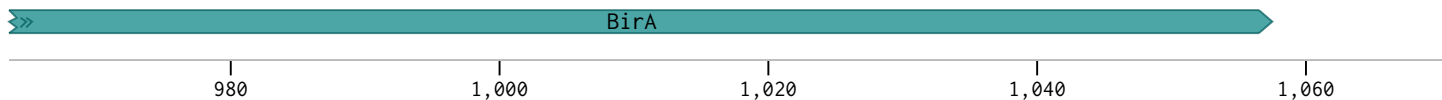


pMB37 (Prps-27::BirA) (5164 bp) (from 857-1712 bp)

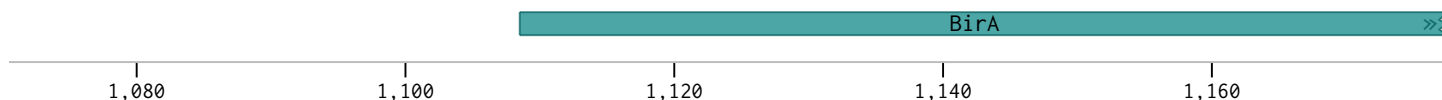
CCaaaaATGGAGCAGAAGCTCATCTCTGAGGAAGACCTCGGAGGAGAGCAGAACTCATCTCTGAAGAGGACCTCATGAAGGATAATACTGTTCCATTGAAGTTGAT
GGttttACCTCGTCTTCGAGTAGAGACTCCTTCTGGAGCCTCCTCTCGTCTTTGAGTAGAGACTTCTCTGGAGTACTTCCTATTATGACAAGGTAAGTTCAACTA



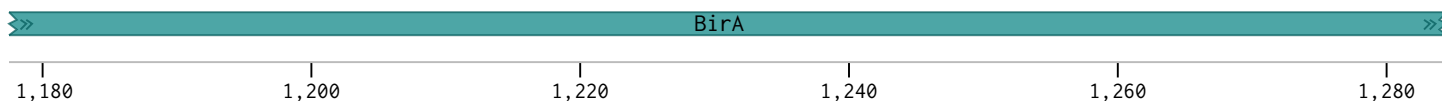
TGCTTTGCTTGCAAATGGAGAATTTTCATTCTGGAGAACAATTGGAGAGACGTTGGGAATGTCGCGTGCTGCAATTAACAAGCATATTTCAAACAgtaagttaaaca
ACGAAACGAACGTTTACCTCTTAAAGTAAGACCTCTTGTGAACCTCTCTGCAACCCTTACAGCGCACGACGTTAATTGTTTCGTATAAGTTGTcattcaaatgtt



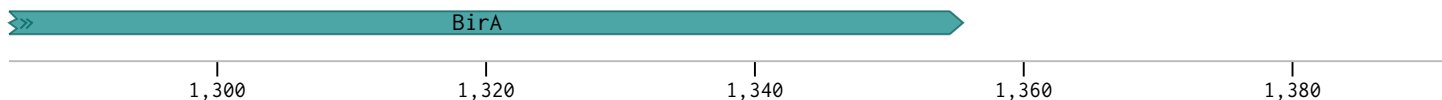
gttcggtactaactaaccatacatatttaaattttcagTTGAGAGACTGGGGAGTTGACGTTTTTACGGTTCAGGAAAGGGATATTCGCTTCCAGAGCCAATTCAG
caagccatgattgattggtatgtataaatttaaaagtcAACTCTCTGACCCCTCAACTGCAAAAATGCCAAGGTCCTTCCCTATAAGCGAAGGTCCTCGTTAAGTC



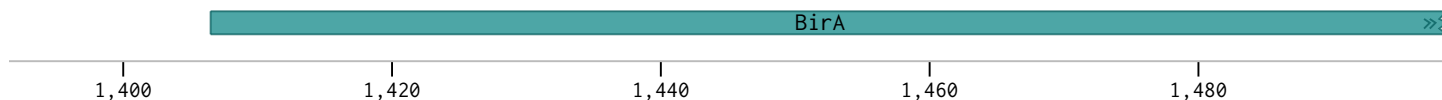
CTCTTGAATGCAAAGCAAATTTTGGGACAGCTTGATGGTGGTAGTGTTCAGTACTTCCGGTTATAGATAGTACAAATCAGTACTTGCTTGATCGAATAGGAGAATT
GAGAACTTACGTTTCGTTTAAACCCTGTCGAACTACCACCATCACACGTCATGAAGGCCAATATCTATCATGTTTAGTCATGAACGAAGTACTTATCCTCTTAA



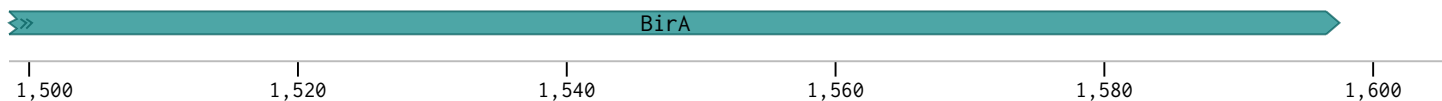
GAAATCAGGAGATGCTTGCATCGCTGAGTATCAGCAGGCTGGACGAGGACGAAGAGGACGTAAGTGGTTCTgtaagttaaacatatataactaactaacctgat
CTTAGTCCTCTACGAACGTAGCGACTCATAGTCGTCGACCTGCTCCTGCTCTCCTGCATTACCAAGAcattcaaatgttatatatatgattgattgggacta



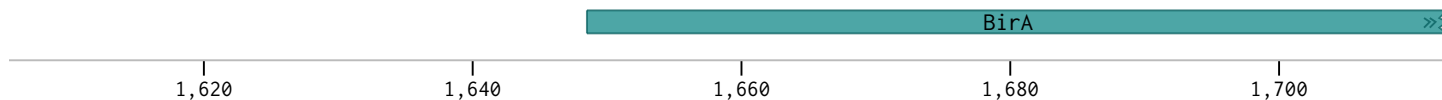
tatttaaattttcagCGCCTTCGGAGCCAATCTCTATTTGAGTATGTTCTGGCGTCTTGAACAAGGTCGGCCGCTGCTATCGGACTTTCATTGGTTATTGGAATT
ataaatttaaaagtcGCGGAAAGCCTCGGTTAGAGATAAACTCATACAAGACCGCAGAACTTGTTCAGGCCGCGACGATAGCCTGAAAGTAACCAATAACCTTAA



GTGATGGCAGAAGTTCTCCGAAAACCTGGTGCAGATAAGGTGAGAGTCAAGTGGCCTAACGATCTTTATCTTCAAGATAGAAAATTGGCCGGAATATTGgtaagttt
CACTACCGTCTTCAAGAGGCTTTGAACCACGTCTATTCCACTCTCAGTTCACCGATTGCTAGAAATAGAAGTTCTATCTTTTAACGGCCTTATAACcattcaaa



aaacatatataactaactaacctgattatttaaattttcagGTTGAGCTTACTGGAAGACGGGAGATGCTGCTCAAATTGTGATTGGAGCTGGTATCAATATGG
tttgtatatatatgattgattgggactaataaatttaaaagtcCAACTCGAATGACCTTCTGCCCTCTACGACGAGTTTAACACTAACCTCGACCATAGTTATACC



pMB37 (Prps-27::BirA) (5164 bp) (from 1713-2675 bp)

CAATGAGAAGAGTAGAAGAGTCTGTTGTTAATCAAGGTTGGATCACACTTCAAGAGGCAGGAATCAACCTTGATAGAAATACGTTGGCCGCCATGCTTATCCGAGAA
GTTACTCTTCTCATCTTCTCAGACAACAATTAGTTCCAACCTAGTGTGAAGTCTCCGTCCTTAGTTGGAATATCTTTATGCAACCGCGGTACGAATAGGCTCTT

» BirA »

1,720

1,740

1,760

1,780

1,800

TTGCGAGCTGCACTCGAACTCTTGAACAAGAAGGTCTTgtaagttaaacaatatataactaactaacctgattatttaaattttcagCCCCCTTACCTCAGTAG
AACGCTCGACGTGAGCTTGAGAAGCTTGTCTTCCAGAAcattcaatttgtatatatatgattgattgggactaataaatttaaagtccGGGAATGGAGTCATC

» BirA »

BirA »

1,820

1,840

1,860

1,880

1,900

1,920

ATGGGAGAACTTGACAATTTTATCAATCGACCAGTGAAGTTGATAATTGGAGATAAGGAAATTTTGGTATCAGTCGAGGAATTGATAAGCAAGGAGCTCTTCTCC
TACCCTCTTTGAAGTGTTAAATAGTTAGCTGGTCACTTCAACTATTAACCTTATTCCTTTAAAAACCATAGTCAGTCCTTAACCTATTCGTTCCCTCGAGAAGAGG

» BirA »

1,940

1,960

1,980

2,000

2,020

TTGAGCAAGATGGAATCATTAAACCATGGATGGGTGGAGAGATTTCTTTGCGATCTGCTGAAAAGTAAGAATTCGCTAGCCGGCCATACAAGTAATCCGGATGATCG
AACTCGTTCTACCTTAGTAATTTGGTACCTACCCACCTCTCTAAAGAAACGCTAGACGACTTTTCATTCTTAAGCGATCGGCCGGTATGTTTCATTAGGCCTACTAGC

» BirA »

2,040

2,060

2,080

2,100

2,120

2,140

ACGCCaACGTCGTTGAATTTTCAAATTTTAAATACTGAATATTTGTTTTTTTCTATTATTTATTTATTCTTTGTGTTTTTTTCTTGCTTTCTAAAAAATTAA
TGCGGtTGCAGCAACTTAAAAGTTTAAATTTATGACTTATAAACAAAAAAAGGATAATAAATAAATAAGAGAAACACAAAAAAGAACGAAAGATTTTAAAT

let-858 UTR »

2,160

2,180

2,200

2,220

2,240

TTCAATCCAAATCTAAACATTTTTTTTCTTTCCGTCTCCCAATTCGTATTCGCTCCTCTCATCTGAACACAATGTGCAAGTTTATTTATCTTCTCGCTTTCAT
AAGTTAGGTTTAGATTTGTAAAAAAGAGAAAGGCAGAGGGTTAAGCATAAGGCGAGGAGAGTAGACTTGTGTTACACGTTCAAATAAATAGAAGAGCGAAAGTA

» let-858 UTR »

2,260

2,280

2,300

2,320

2,340

TTCATTAGGACGTGGGGGAATTGGTGAAGGGGAAACACACAAAAGGATGATGGAATGAAATAAGGACACACAATATGCAACAACATTCAATTCAGAAATATGG
AAGTAATCCTGCACCCCCCTTAACCACCTTCCCCTTTGTGTGTTTCTACTACCTTTACTTTATTCCTGTGTGTTATACGTTGTTGTAAGTTAAGTCTTTATACC

» let-858 UTR »

2,360

2,380

2,400

2,420

2,440

2,460

AGGAAGGTTTAAAAGAAAACATAAAAAATATAGAGGAGGAAGGAAAAGTAAATAAAGCAAAGAAATTAGGCGAACGATGAGAATTGCTCTCGCTTggggcc
TCCTTCAAATTTTCTTTGTATTTTATATATCTCTCTTCTTTGATCATTTTTTATTCGTTTCTTAATCCGCTTGCTACTCTTAACAGGAGCGAAccggg

» let-858 UTR »

2,480

2,500

2,520

2,540

2,560

tttcgtctcgcgctttcggtgatgacggtgaaaacctctgacacatgcagctcccggagacggtcacagcttgtctgtaagcggatgccgggagcagacaagcccg
aaagcagagcgcgcaaagccactactgccacttttgagactgtgtacgtcgaggcctctgccagtgctgaacagacattcgctacggcctctgtctgttcgggc

2,580

2,600

2,620

2,640

2,660

pMB37 (Prps-27::BirA) (5164 bp) (from 2676-3638 bp)

tcagggcgcgctcagcgggtgttggcgggtgtcggggctggccttaactatgcggcatcagagcagattgtactgagagtgcaccatatgcgggtgtgaaataccgcaca
agtcccgcgagtcgcccacaaccgcccacagccccgaccgaattgatacgccgtagtctcgtctaacatgactctcacgtggtatacgccacactttatggcgtgt

2,680 2,700 2,720 2,740 2,760 2,780

gatgcgtaaggagaaaaatccgcatcaggcggccttaaggcctcgtgatacgccctatTTTTATAGGTTAATgtcatgataataatggtttcttagacgtcaggtgg
ctacgcattcctcttttatggcgtagtcgccggaattcccgagcactatgcggataaaaaatccaattacagtactattattaccaaagaatctgcagtccacc

2,800 2,820 2,840 2,860 2,880

cacttttcggggaaatgtgcgcggaaccctatttgtttatTTTTCTAAATACATTCAAATATgtatccgctcatgagacaataaacctgataaatgttcaataat
gtgaaaagccccTTTACACGCGCCTTggggataaacaataaaaagatttataagtttatacatagggcagtagtactctgttattgggactatttacgaagtatta

2,900 2,920 2,940 2,960 2,980

attgaaaaaggaagagtatgagtattcaacatttccgtgtcgccttattccctTTTTTGCGGCATTTGccttctgtttttgctcaccagaaacgctggtgaaa
taacttttcttctcatactcataagttgtaaaggcacagcgggaataaggggaaaaaacgcgtaaaacggaaggacaaaaacgagtggtgtctttgcgaccattt

3,000 3,020 3,040 3,060 3,080 3,100

gtaaaagatgctgaagatcagttgggtgcacgagtggttacatcgaactggatctcaacagcggtaagatccttgagagttttcgccccgaagaacgttttccaat
cattttctacgacttctagtcacccacgtgctcacccaatgtagcttgacctagagttgtcgccattctaggaactctcaaaagggggcttcttgcaaaaggtta

3,120 3,140 3,160 3,180 3,200

gATGAGCACTTTTAAAGTTCTGCTATGTGGCGCGGTATTATCCCGTATTGACGCCGGGCAAGAGCAAACCTCGGTGCGCCGATACACTATTCTCAGAATGACTTGGTTG
cTACTCGTGAAAATTTCAAGACGATACACCGCGCCATAATAGGGCATAAAGTGCAGCGCCGTTCTCGTTGAGCCAGCGCGTATGTGATAAGAGTCTTACTGAACCAAC

AmpR

3,220 3,240 3,260 3,280 3,300

AGTACTCACCAGTCACAGAAAAGCATCTTACGGATGGCATGACAGTAAGAGAATTATGCAGTGCTGCCATAACCATGAGTGATAAACTGCGGCCAACTTACTTCTG
TCATGAGTGGTCAGTGTCTTTTCGTAGAATGCCTACCGTACTGTCATTCTCTTAATACGTCACGACGGTATTGGTACTCACTATTGTGACGCCGGTTGAATGAAGAC

AmpR

3,320 3,340 3,360 3,380 3,400 3,420

ACAACGATCGGAGGACCGAAGGAGCTAACCGCTTTTTTGACAACATGGGGGATCATGTAACTCGCCTTGATCGTTGGGAACCGGAGCTGAATGAAGCCATACCAAA
TGTTGCTAGCCTCCTGGCTTCCTCGATTGGCGAAAAACGTGTTGTACCCCTAGTACATTGAGCGGAAGTGAACCCCTGGCCTCGACTTACTTCGGTATGGTTT

AmpR

3,440 3,460 3,480 3,500 3,520

CGACGAGCGTGACACCAGATGCCTGTAGCAATGGCAACAACGTTGCGCAAACCTATTAAGTGGCGAACTACTTACTCTAGCTTCCCGGCAACAATTAATAGACTGGA
GCTGCTCGCACTGTGGTGCTACGGACATCGTTACCGTTGTTGCAACGCTTTGATAATTGACCGCTTGATGAATGAGATCGAAGGGCCGTTGTTAATTATCTGACCT

AmpR

3,540 3,560 3,580 3,600 3,620

pMB37 (Prps-27::BirA) (5164 bp) (from 3639-4494 bp)

TGGAGGCGGATAAAGTTGCAGGACCACTTCTGCGCTCGGCCCTTCCGGCTGGCTGTTTTATTGCTGATAAATCTGGAGCCGGTGAGCGTGGGTCTCGCGGTATCATT
ACCTCCGCTATTTCAACGTCCTGGTGAAGACGCGAGCCGGAAGGCCGACCGACCAAATAACGACTATTTAGACCTCGGCCACTCGCACCCAGAGCGCCATAGTAA

>> AmpR >>

3,640 3,660 3,680 3,700 3,720 3,740

GCAGCACTGGGGCCAGATGGTAAGCCCTCCCGTATCGTAGTTATCTACACGACGGGGAGTCAGGCAACTATGGATGAACGAAATAGACAGATCGCTGAGATAGGTGC
CGTCGTGACCCCGGTCTACCATTCTGGGAGGGCATAGCATCAATAGATGTGCTGCCCTCAGTCCGTTGATACCTACTTGCTTTATCTGTCTAGCGACTCTATCCAGC

>> AmpR >>

3,760 3,780 3,800 3,820 3,840

CTCACTGATTAAGCATTGGTAACTGTCAGACCAAGTTTACTCATATATACTTTAGATTGATTTAAACTTCATTTTTAATTTAAAGGATCTAGGTGAAGATCCTTT
GAGTGACTAATTCGTAACCATTGACAGTCTGGTTCAAATGAGTATATATGAACTAACTAAATTTGAAGTAAAAATTAAATTTCTAGATCCACTTCTAGGAA

>> AmpR >>

3,860 3,880 3,900 3,920 3,940

TTGATAATCTCATGACCAAAATCCCTTAACGTGAGTTTTCGTTCCACTGAGCGTCAGACCCCGTAGAAAAGATCAAAGGATCTTCTTGAGATCCTTTTTTCTGCGC
AACTATTAGAGTACTGGTTTTAGGGAATTGCACTCAAAGCAAGGTGACTCGCAGTCTGGGCATCTTTTCTAGTTTCTAGAAGAACTCTAGGAAAAAAGACGCG

ColE1 origin >>

3,960 3,980 4,000 4,020 4,040 4,060

GTAATCTGCTGCTTGCAAACAAAAAACCACCGCTACCAGCGGTGGTTTGTGGCCGGATCAAGAGCTACCAACTCTTTTTCCGAAGGTAAGTGGCTTCAGCAGAGC
CATTAGACGACGAACGTTTGTTTTTTGGTGGCGATGGTCGCCACCAACAAACGGCCTAGTTCTCGATGGTTGAGAAAAAGGCTTCCATTGACCGAAGTCGTCTCG

>> ColE1 origin >>

4,080 4,100 4,120 4,140 4,160

GCAGATACCAAACTGTCCTTCTAGTGTAGCCGTAGTTAGGCCACCACTTCAAGAACTCTGTAGCACCGCCTACATACCTCGCTCTGCTAATCCTGTTACCAGTGG
CGTCTATGTTTTATGACAGGAAGATCACATCGGCATCAATCCGGTGGTGAAGTTCTTGAGACATCGTGGCGGATGTATGGAGCGAGACGATTAGGACAATGGTCACC

>> ColE1 origin >>

4,180 4,200 4,220 4,240 4,260 4,280

CTGCTGCCAGTGCGGATAAGTCGTGTCTTACCGGTTGGACTCAAGACGATAGTTACCGGATAAGGCGCAGCGGTGGGCTGAACGGGGGGTTCGTGCACACAGCCC
GACGACGGTCACCGCTATTGACGACAGAATGGCCCAACCTGAGTTCTGCTATCAATGGCCTATTCCGCGTCGCCAGCCCGACTTGCCCCCAAGCACGTGTGTCGGG

>> ColE1 origin >>

4,300 4,320 4,340 4,360 4,380

AGCTTGAGCGAACGACCTACACCGAACTGAGATACCTACAGCGTGAGCATTGAGAAAGCGCCACGCTTCCGAAGGGAGAAAGCGGACAGGTATCCGGTAAGCGG
TCGAACCTCGCTTGCTGGATGTGGCTTGACTCTATGGATGTCGCACTCGTAACTCTTTCGCGGTGCGAAGGGCTTCCCTCTTCCGCTGTCCATAGGCCATTGCGC

>> ColE1 origin >>

4,400 4,420 4,440 4,460 4,480

pMB37 (Prps-27::BirA) (5164 bp) (from 4495-5164 bp)

CAGGGTCGGAACAGGAGAGCGCACGAGGGAGCTTCCAGGGGAAACGCCTGGTATCTTTATAGTCCTGTCTGGGTTTCGCCACCTCTGACTTGAGCGTCGATTTTTGT
GTCCCAGCCTTGTCTCTCGCGTGCTCCCTCGAAGGTCCCCCTTTCGCGGACCATAGAAATATCAGGACAGCCCAAAGCGGTGGAGACTGAACTCGCAGCTAAAAACA

>> ColE1 origin >>

4,500 4,520 4,540 4,560 4,580 4,600

GATGCTCGTCAGGGGGCGGAGCCTATGGAAAAACGCCAGCAACGCGGCCTTTTTACGGTTCCTGGCCTTTTCTGGCCTTTTCTCACATGTTCTTTCTGCGTTA
CTACGAGCAGTCCCCCGCCTCGGATACCTTTTTGCGGTGCTTGCGCCGAAAAATGCCAAGGACCGGAAAAACGACCGGAAAAACGAGTGTACAAGAAAGGACGCAAT

>> ColE1 origin >

4,620 4,640 4,660 4,680 4,700

TCCCCTGATTCTGTGGATAACCGTATTACCGCCTTTGAGTGAGCTGATACCGCTCGCCGAGCCGAACGACCGAGCGCAGCGAGTCAGTGAGCGAGGAAGCGGAAGA
AGGGGACTAAGACACCTATTGGCATAATGGCGGAACTCACTCGACTATGGCGAGCGCGTCTGGCTTGTGGCTCGCGTCAGTCACTCGCTCCTTCGCCTTCT

4,720 4,740 4,760 4,780 4,800

GCGCCCAATACGCAAACCGCCTCTCCCCGCGGTTGGCCGATTATTAATGCAGCTGGCACGACAGGTTTCCCGACTGGAAAGCGGGCAGTGAGCGCAACGCAATTA
CGCGGGTTATGCGTTTGGCGGAGAGGGGCGCGCAACCGGCTAAGTAATTACGTCGACCGTGCTGTCCAAAGGGCTGACCTTTCGCCGTCAGTCTCGCTTTCGTTAAT

4,820 4,840 4,860 4,880 4,900 4,920

ATGTGAGTTAGTCACTCATTAGGCACCCAGGCTTTACACTTTATGCTTCCGGCTCGTATGTTGTGTGGAATTGTGAGCGGATAACAATTTACACAGGAAACAGC
TAACTCAATCGAGTGAGTAATCCGTGGGGTCCGAAATGTGAAATACGAAGGCCGAGCATACAACACACCTTAACACTCGCCTATTGTTAAAGTGTGTCTTTGTCG

LacO >>

4,940 4,960 4,980 5,000 5,020

TATGACCATGATTACGCCAAGCTgtaagttaaacaatgatcttactaactaactattctcatttaaattttcagAGCTTAAAAATGGCTGAAATCACTCACAACGAT
ATACTGGTACTAATGCGGTTTCGAcattcaaatttgactagaatgattgattgataagagtaaatttaaagtcTCGAATTTTACCGACTTTAGTGAGTGTGCTA

>>

5,040 5,060 5,080 5,100 5,120

GGATACGCTAACAACCTTGAAATGAAAT
CCTATGCGATTGTTGAACCTTTACTTTA

5,140 5,150 5,160

pMB41 (N-term Avi-2xTEV-GFP) (5052 bp)

TCGCGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGAGACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGC
AGCGCGCAAAGCCACTACTGCCACTTTTGGAGACTGTGTACGTGAGGGCCTCTGCCAGTGTGCAACAGACATTGCGCTACGGCCCTCGTGTTCGGGCAGTCCCCG

20

40

60

80

100

GCGTCAGCGGGTGTTGGCGGGTGTGGGGCTGGCTTAAGTATGCGGCATCAGAGCAGATTGTACTGAGAGTGCACCATATGCGGTGTGAAATACCGCACAGATGCGT
CGCAGTCGCCCACAACCGCCACAGCCCCGACCGAATTGATACGCCGTAGTCTCGTCTAACATGACTCTCACGTGGTATACGCCACACTTTATGGCGTGTCTACGCA

120

140

160

180

200

AAGGAGAAAATACCGCATCAGGCGCCATTGCCATTGAGGCTGCGCAACTGTTGGGAAGGGCGATCGGTGCGGGCCTCTTCGCTATTACGCCAGCTGGCGAAAGGGG
TTCTCTTTTATGGCGTAGTCCGCGTAAGCGGTAAGTCCGACGCGTTGACAACCTTCCCGTAGCCACGCGGAGAAAGCGATAATGCGGTGACCGCTTTCCCG

LacZ alpha

220

240

260

280

300

320

GATGTGCTGCAAGGCGATTAAGTTGGGTAACGCCAGGGTTTTCCAGTCACGACGTTGTAAAACGACGGCCAGTGAATTCGAGCTCtTAGACTCTGGACTTAATGATA
CTACACGACGTTCCGCTAATTCAACCCATTGCGGTCCAAAAGGGTCAGTGTGCAACATTTTGCTGCCGGTCACTTAAGCTCGAGaaTCTAGACCTGAATTACTAT

M13-fwd

Avi tag

340

360

380

400

420

TTTTGAAGCTCAgAaGATTGAATGGCATGAAtctggaggaggatctGagAAcTTTAcTTCCAAGGaGAgAAcTTTAcTTCCAAGGatctggaggaggatctATG
AAAAGCTTCGAGTcTTcTAACTTACCGTACTTagacctcctcctagaCTcTTgGAAATgAAGGTTCCtCTcTTgGAAATgAAGGTTCCtagacctcctcctagaTAC

Avi tag

2 TEV sites

440

460

480

500

520

AGTAAAGGAGAAGAACTTTTCACTGGAGTTGTCCAATTCTTGTGAATTAGATGGTGATGTTAATGGGCACAAATTTTCTGTCACTGGAGAGGGTGAAGGTGATGC
TCATTTCTCTTCTTGAAGTACCTCAACAGGGTTAAGAACAACCTAATCTACCACTACAATTACCGTGTTTAAAGACAGTCACCTCTCCCACTTCCACTACG

GFP

540

560

580

600

620

640

AACATACGGAAAACCTTACCCTTAAATTTATTTGCACTACTGGAAAACCTGTTCCATGGgtaagtttaaacatatataactaactaacctgattatttaaatt
TTGTATGCCTTTTGAATGGGAATTTAAATAAACGTGATGACCTTTTGATGGACAAGGTACcattcaaatttgatatatatgattgattgggactaataatttaa

GFP

660

680

700

720

740

ttcagCCAACACTTGTCACTACTTTCTGTTATGGTGTTCAATGCTTCTGAGATACCCAGATCATATGAAACGGCATGACTTTTTCAAGAGTGCCATGCCGAAGGT
aagtcGGTTGTGAACAGTGATGAAAGACAATACCACAAGTTACGAAGAGCTCTATGGGTCTAGTATACTTTGCCGTACTGAAAAGTTCTCACGGTACGGGCTTCCA

GFP

760

780

800

820

840

TATGTACAGGAAAGAACTATATTTTTCAAAGATGACGGGAACTACAAGACACgtaagtttaaacagttcggtagcaagttcctatactttctagagaataggaactt
ATACATGTCTTTCTTGATATAAAAAGTTTCTACTGCCCTTGATGTTCTGTGcattcaaatttgtaagccatgcttcaaggatatgaaagatctcttatccttgaa

GFP

FRT site 1

860

880

900

920

940

960

pMB41 (N-term Avi-2xTEV-GFP) (5052 bp) (from 964-1819 bp)

ccctgttgacaattaatcatcggcatagtatatcggcatagtataatacgacaaggtgaggaactaaaccaggaggcagatcatgagtctgaaagaaaaacacaa
gggacaactgttaattagtagccgtatcatatagccgtatcatattatgctgttccactccttgatttgggtcctccgtctagtactcagactttctttttgtgtt

galk

980

1,000

1,020

1,040

1,060

tctctgtttgccaacgcatttggctaccctgccactcacaccattcaggcgcttggccgctgaatttgatttggtgaacacaccgactacaacgacggtttcgttct
agagacaaacggttgcgtaaaccgatgggacggtgagtgtggttaagtccgcgaccggcgcacttaactaaccacttgtgtggctgatgtgtgctgcaaagcaaga

galk

1,080

1,100

1,120

1,140

1,160

gccctgcgcgattgattatcaaaccgtgatcagttgtgcaccacgcgatgaccgtaaagttcgcgtgatggcagccgattatgaaaatcagctcgacgagttttccc
cgggacgcgctaactaatagtttggcactagtcaacacgtggtgcgctactggcatttcaagcgcaactaccgtcggctaatacttttagtcgagctgctcaaaaggg

galk

1,180

1,200

1,220

1,240

1,260

1,280

tcgatgcgcccattgtcgcacatgaaaactatcaatgggctaactacgttcgtggcgtggtgaaacatctgcaactgcgtaacaacagcttcggcggcgtggacatg
agctacgcgggtaacagcgtgtacttttgatagttaccgattgatgcaagcaccgcaccactttgtagacgttgacgcattgttgtcgaagccgccacactgtac

galk

1,300

1,320

1,340

1,360

1,380

gtgatcagcggcaatgtgccgcagggtgccgggttaagtcttccgcttcactggaagtcgcggtcgggaaccgtattgcagcagctttatcatctgccgtggacgg
cactagtcgccgttacacggcgtcccacggcccaattcaagaaggcgaagtgcacgttcagcgccagccttggcataacgtcgtcgaaatagtagacggcgacctgcc

galk

1,400

1,420

1,440

1,460

1,480

cgcaaaatcgcgcttaacggtcaggaagcagaaaaccagtttgttaggctgtaactgcgggatcatggatcagctaatttccgcgctcggcaagaaagatcatgcct
gcgtgttttagcggaattgccagtccttcgtcttttggtaaacatccgacattgacgccttagtacctagtcgattaaaggcgcgagccgttctttctagtacgga

galk

1,500

1,520

1,540

1,560

1,580

1,600

tgctgatcgattgccgctcactggggaccaaagcagtttccatgcccaaagggtgtggctgtcgtcatcatcaacagtaacttcaaacgtaccctgggtggcagcgaa
acgactagctaacggcgagtgaccctgggtttcgtcaaaggtaggggtttccacaccgacagcagtagtagttgtcattgaagtttgcattgggaccaaccgtcgctt

galk

1,620

1,640

1,660

1,680

1,700

tacaacaccgctcgtgaacagtgcgaaaccgggtgcgcgtttcttccagcagccagccctgcgtgatgtcaccattgaagagttcaacgctgttgccgatgaactgga
atgttgtgggcagcacttgtcacgctttggccacgcgcaaagaaggctcgtcggtcgggacgcactacagtggttaacttctcaagttgcgacaacgcgtacttgacct

galk

1,720

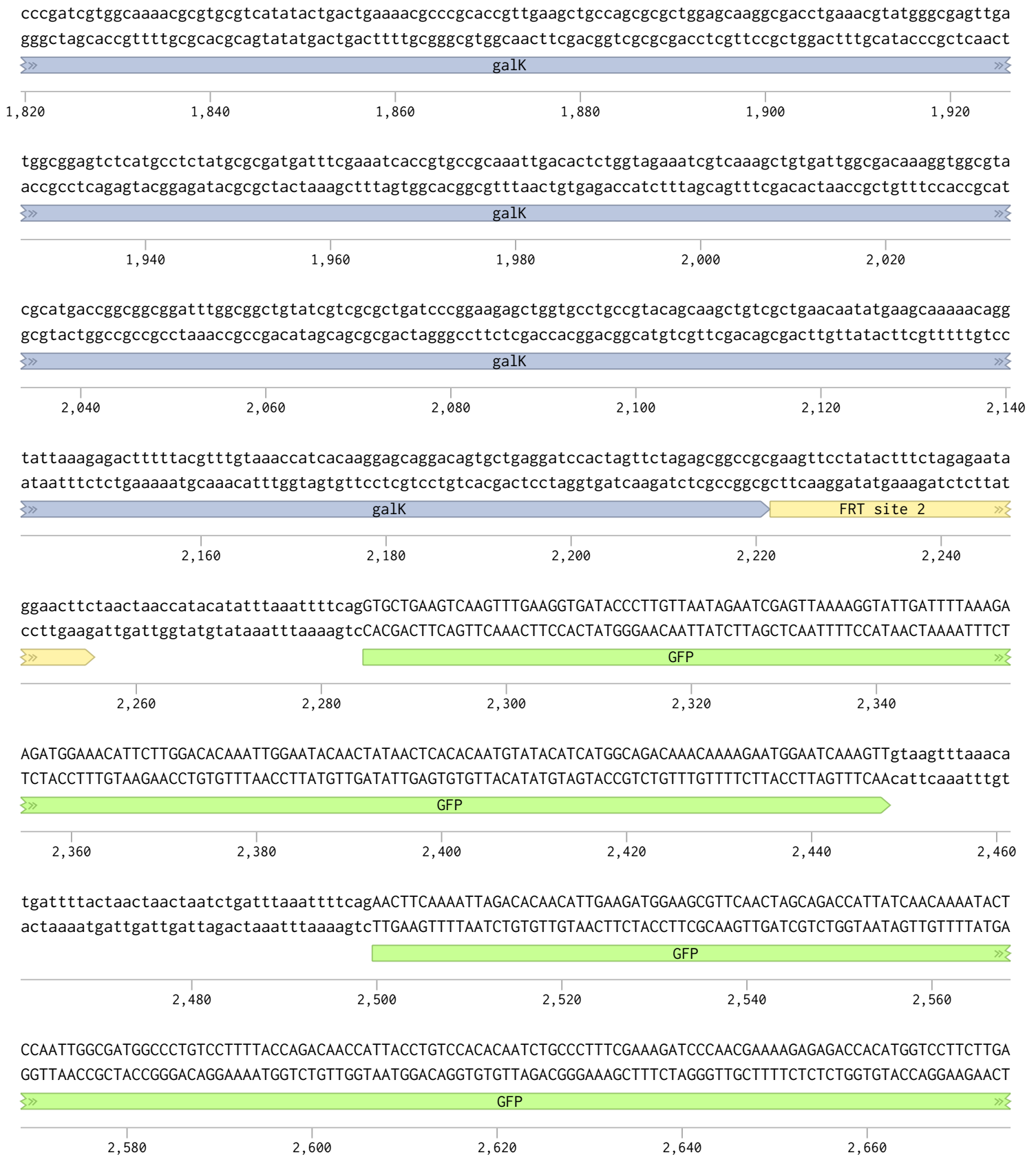
1,740

1,760

1,780

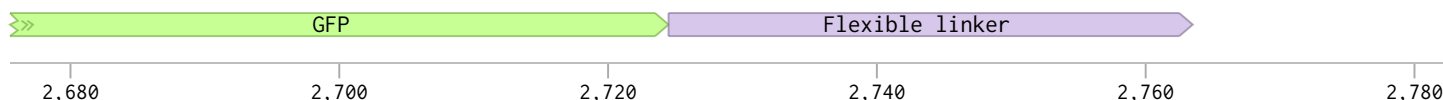
1,800

pMB41 (N-term Avi-2xTEV-GFP) (5052 bp) (from 1820-2675 bp)

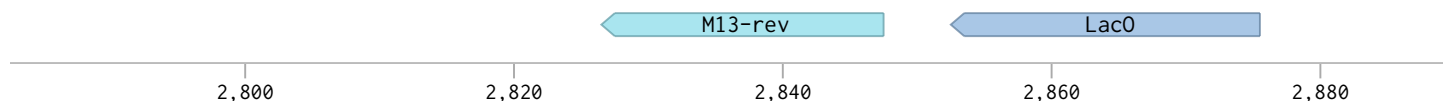


pMB41 (N-term Avi-2xTEV-GFP) (5052 bp) (from 2676-3638 bp)

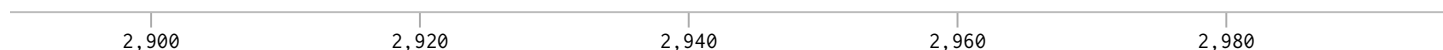
GTTTGTAAACAGCTGCTGGGATTACACATGGCATGGATGAACTATACAAAggaggaggatctggaggaggaggatctggaggaggaggtTCCGATTCCATCGGATCC
CAAACATTGTCGACGACCCTAATGTGTACCGTACCTACTTGATATGTTTcctcctcctagacctcctcctcctagacctcctcctccaAGGCCTAAGGTAGCCTAGG



CGGGCCCGTCGACTGCAGAGGCCTGCATGCAAGCTTGGCGTAATCATGGTCATAGCTGTTTCCTGTGTGAAATTGTTATCCGCTCACAATTCCACACAACATACGAG
GCCCGGGCAGCTGACGTCTCCGGACGTACGTTTGAACCGCATTAGTACCAGTATCGACAAAGGACACACTTTAACAATAGGCGAGTGTTAAGGTGTGTTGTATGCTC



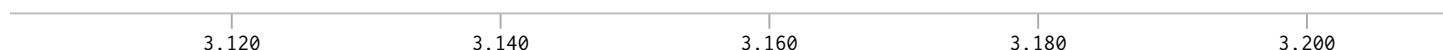
CCGAAGCATAAAGTGTAAGCCTGGGGTGCCTAATGAGTGAGCTAACTCACATTAATTGCGTTGCGCTCACTGCCGCTTTCAGTCGGGAAACCTGTCGTGCCAG
GGCCTTCGTATTTACATTTTCGGACCCACGGATTACTCACTCGATTGAGTGTAAATTAACGCAACGCGAGTGACGGGCGAAAGTCAAGCCTTTGGACAGCACGGTC



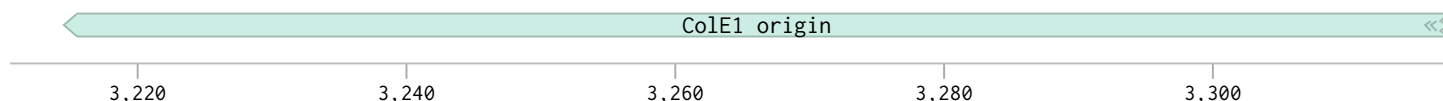
CTGCATTAATGAATCGGCCAACGCGCGGGGAGAGCGGTTTGGTATTGGGCGCTCTTCCGCTTCTCGCTCACTGACTCGCTGCGCTCGGTGTTTCGGTGCAGCG
GACGTAATTACTTAGCCGTTGCGCGCCCTCTCCGCCAACGCATAACCCGCGAGAAGGCGAAGGAGCGAGTGACTGAGCGACGCGAGCCAGCAAGCCGACGCCGC



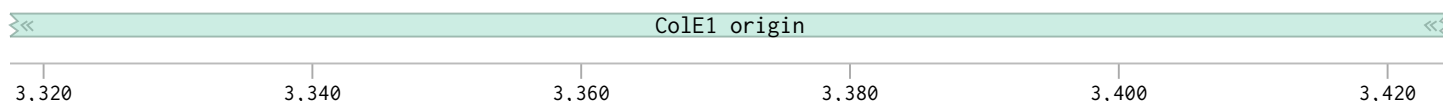
AGCGGTATCAGCTCAAGGCGGTAATACGTTATCCACAGAATCAGGGGATAACGAGGAAAGAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTA
TCGCCATAGTCGAGTGAGTTTCCGCCATTATGCCAATAGGTGTCTTAGTCCCTATTGCGTCCTTTCTTGTACACTCGTTTTCCGGTGTGTTTCCGGTCTTGCCAT



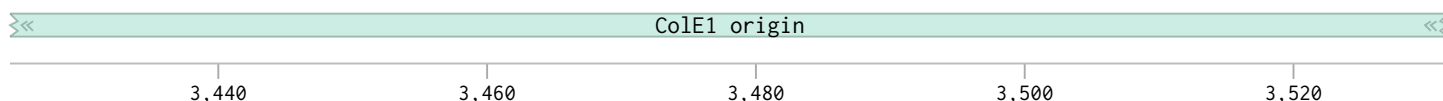
AAAAGGCCGCTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGA
TTTTCCGGCGCAACGACCGCAAAAGGTATCCGAGGCGGGGGACTGCTCGTAGTGTTTTAGTCGCGAGTTCAGTCTCCACCGCTTTGGGCTGTCCTGATATTTCT



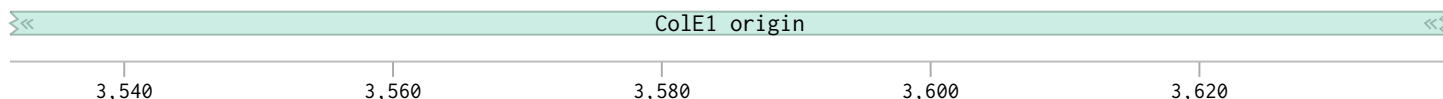
TACCAGGCGTTTCCCCCTGGAAGCTCCCTCGTGCCTCTCCTGTTCCGACCCTGCCGCTTACCGGATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTGCGCTTTT
ATGGTCCGCAAGGGGGACCTTCGAGGGAGCAGCGAGAGGACAAGGCTGGGACGGCGAATGGCCTATGGACAGGCGGAAAGAGGGAAGCCCTTCGCACCGCGAAAG



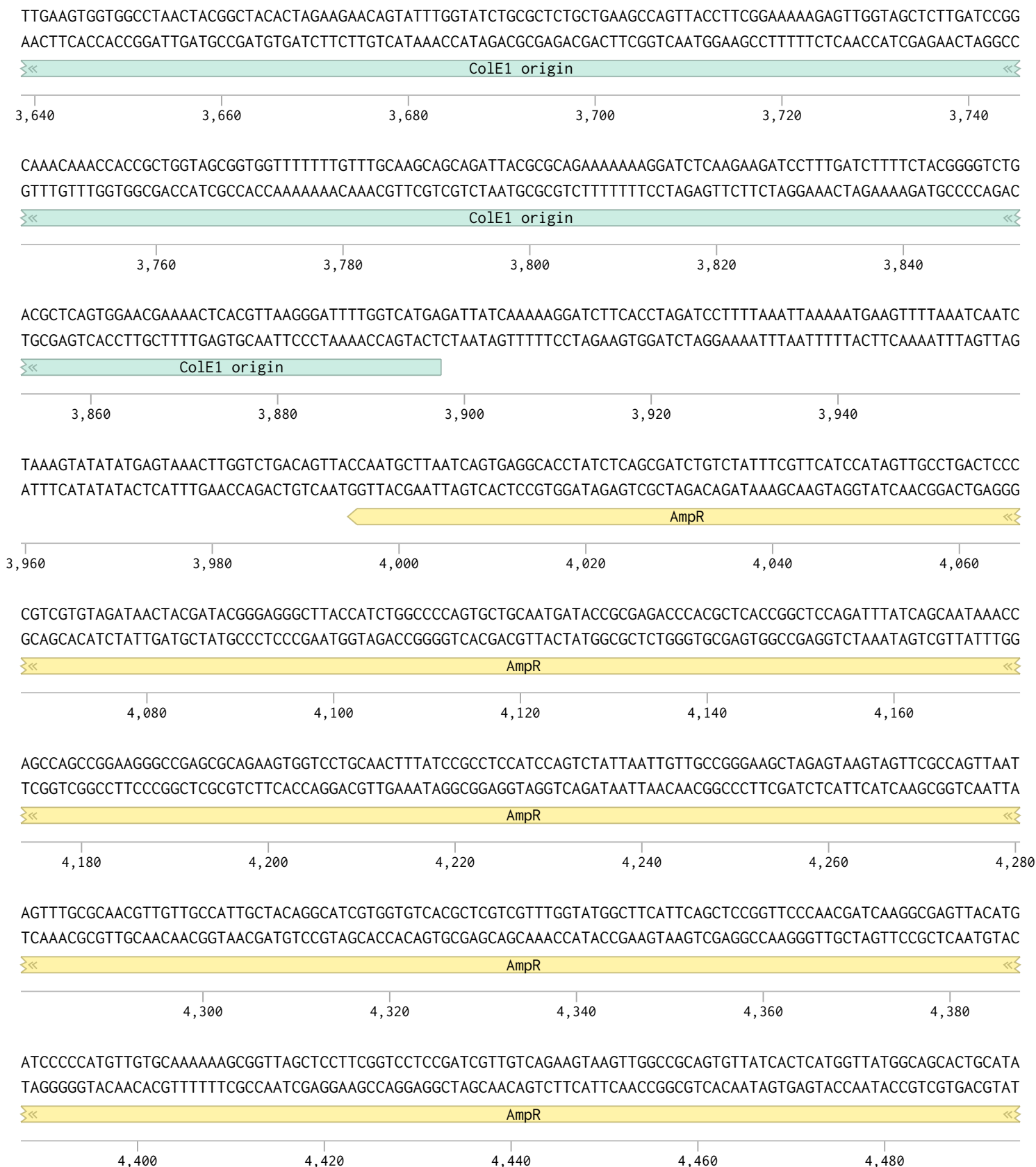
TCATAGCTCAGCTGTAGGTATCTCAGTTCGGTGTAGGTGCTCGCTCCAAGCTGGGCTGTGTGCACGAACCCCCGTTTCAGCCCGACCGTGCCTTATCCGGTA
AGTATCGAGTGCACATCCATAGAGTCAAGCCACATCCAGCAAGCGAGGTTTCGACCCGACACACGTGCTTGGGGGCAAGTCGGGCTGGCGACGCGGAATAGCCAT



ACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTTC
TGATAGCAGAACTCAGGTTGGGCCATTCTGTGCTGAATAGCGGTGACCGTCGTCGGTGACCATTGTCTTAATCGTCTCGCTCCATACATCCGCCACGATGTCTCAAG



pMB41 (N-term Avi-2xTEV-GFP) (5052 bp) (from 3639-4494 bp)



pMB41 (N-term Avi-2xTEV-GFP) (5052 bp) (from 4495-5052 bp)

ATTCTCTTACTGTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGAGAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCG
TAAGAGAATGACAGTACGGTAGGCATTCTACGAAAAGACACTGACCACTCATGAGTTGGTTCAGTAAGACTCTTATCACATACGCCGCTGGCTCAACGAGAACGGGC

>> AmpR <<

4,500 4,520 4,540 4,560 4,580 4,600

GCGTCAATACGGGATAATACCGCGCCACATAGCAGAACTTTAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGCGAAAACTCTCAAGGATCTTACCGCTGTTGAG
CGCAGTTATGCCCTATTATGGCGCGGTGTATCGTCTTGAAATTTTCACGAGTAGTAACCTTTTGAAGAAGCCCCGCTTTTGAGAGTTCCTAGAATGGCGACAACCTC

>> AmpR <<

4,620 4,640 4,660 4,680 4,700

ATCCAGTTCGATGTAACCCACTCGTGCACCCAACTGATCTTCAGCATCTTTTACTTTTACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAATGCCGCAAAA
TAGGTCAAGCTACATTGGGTGAGCACGTGGGTTGACTAGAAGTCGTAGAAAATGAAAGTGGTCGCAAAGACCCACTCGTTTTTGCCTTCCGTTTTACGGCGTTTTT

4,720 4,740 4,760 4,780 4,800

AGGGAATAAGGGCGACACGAAATGTTGAATACTCATACTCTTCCTTTTTCAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAA
TCCCTTATTCGGCTGTGCCTTTACAACCTTATGAGTATGAGAAGGAAAAAGTTATAATAACTTCGTAAATAGTCCCAATAACAGAGTACTCGCCTATGTATAAACTT

4,820 4,840 4,860 4,880 4,900 4,920

TGTATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCGGAAAAGTGCCACCTGACGTCTAAGAAACCATTTATTATCATGACATTAACTATAAAAAATAG
ACATAAATCTTTTTATTTGTTTATCCCAAGGCGCGTGTAAAGGGGCTTTTCACGGTGGACTGCAGATTCTTTGGTAATAATAGTACTGTAATTGGATATTTTTATC

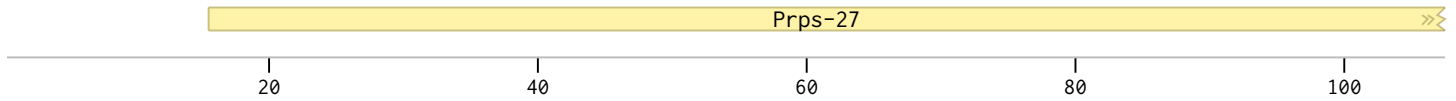
4,940 4,960 4,980 5,000 5,020

GCGTATCACGAGGCCCTTTTCGTC
CGCATAGTGCTCCGGGAAAGCAG

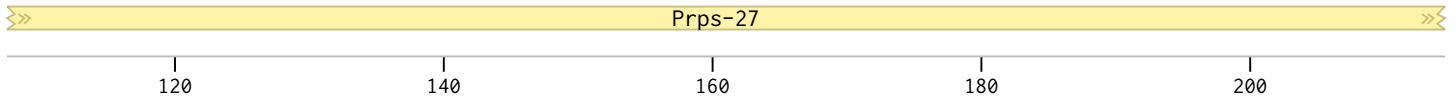
5,030 5,040 5,050

pMB43 (4876 bp)

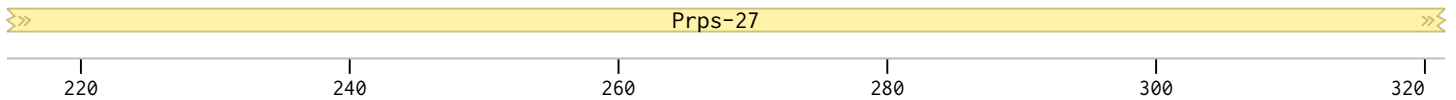
AAGCTTGGGCTGCAGttcaatcggtttttccttgcttgcgcccaattctgatggttcttccattttctaaatttttagtttaataaaaaatttttaaaataatcagagt
TTCGAACCCGACGTCaagtttagccaaaaaggaacgaacgcgggttaagactaccaagaaggtaaagattttaaatacaattatTTTTTaaattttattatgctca



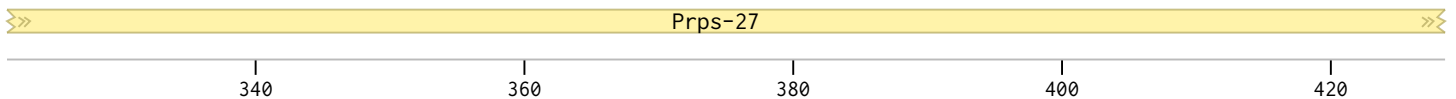
tttgagactaactttcaataaaaacaaaaaaattgcttcaaaaaagagttcgcgccgatttacgataaacacagcgcgctacgacactccgaaaaccgcgcgca
aaactctgattgaaagtatttttgggttttttaacgaagtttttctcaagcgcggttaaattgctatttgtgtcgcgcatgctgtgaggcttttggcgcgcgct



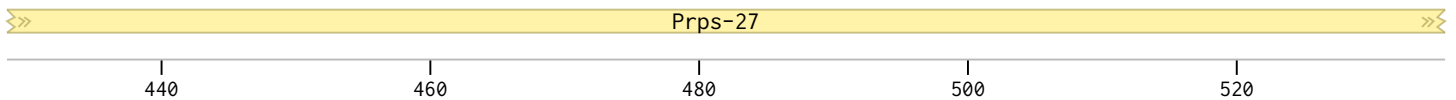
ccattacattctccgccccaccgcacggtttgcggaaggcgatgaaattgctgggcctaaaaatttaaccctttttccggtttttcaactgtttccgattttt
ggtaattgtaagaggcgggtggcgtgccaaacgccttccgctactttaacgacccgattttaaattgggaaaaaagggaaggttgacaaaagggtctaaaaa



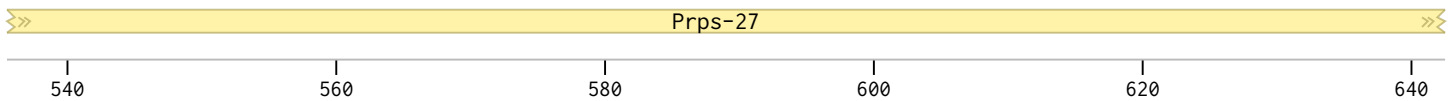
tcgatattttttcaggttttttagttagaaaagtatataaaaattgcattattttagttttcgctcgtaatttgtgatagaaaacggccaatttgcctagatttgt
agctataaaaaaagtccaaaaatcaatctttcatatatttttaacgtaataaacatcaaaagcgagcattaaacactatcttttgccggttaaacggatctaaaca



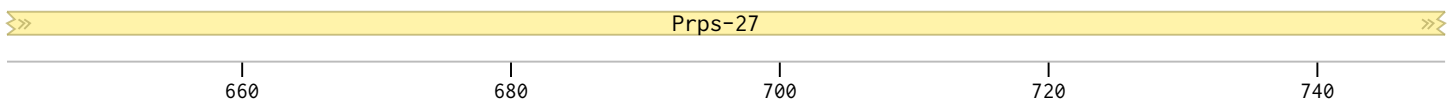
gattctaccaagtggaatttttgggaaaatatcaatattccagatttttattcaaatcataacgtttcgaaattatcagcttaataaaaactaaaaataataa
ctaagatggttcaccttaaaaacccttttatagttataagggtgctaaaaataagtttagtattgcaaagcttaatagtcgaatttattttgattttatttattt



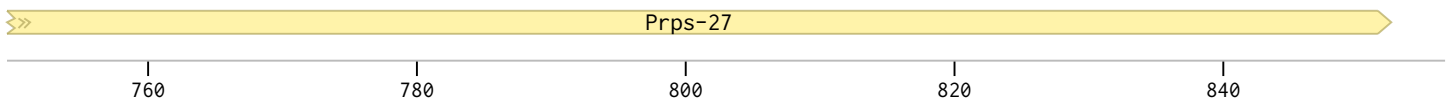
aatactaaaaaccctgaatttctcggttctcggttcagcttgagttcggttctatacacgttatcgattttgtcatttcgtttaatcatgggttttgattcatTTA
ttatgatttttgggacttaagagccaagagccaagtcgaactcaagcaagatatgtgcaatagctaaaaacagtaaagcaaattagtaccctaaactaagtaaaat



aatatgaaatttgatttattcctcgtttcgaagtgggttcttctcgccggttaacaaatgttattaaaaaataataaatttcgaaattttcgtaatgttc
ttatactttaaactaaataaggagcaaagcttcaaccaaacagaacaggccggccatttgtttacaataattttttatttttaaagctttaaaaagcattacaag

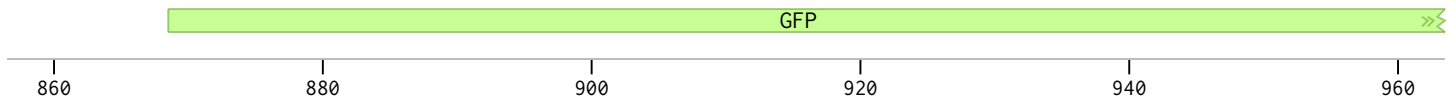


cgcaatcgtgtttttccgtttatctcgtcttcccttctttcaaatatactatttattttctcaattcacatatTTTcagccagccccgctcaacaagtggaaTGGTA
gcgttagcacaaaaaggcaaatagagcagaagggaagaaagtttatatgataataaaagagtttaagtgataaaagtcggtcggggcgagttgttcaccttaCCAT

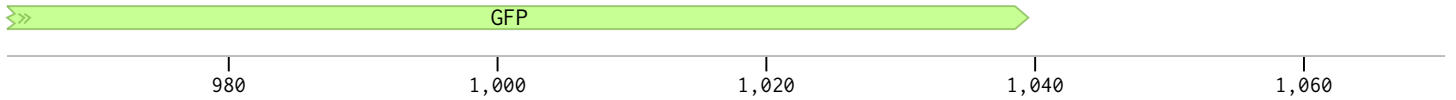


pMB43 (4876 bp) (from 857-1712 bp)

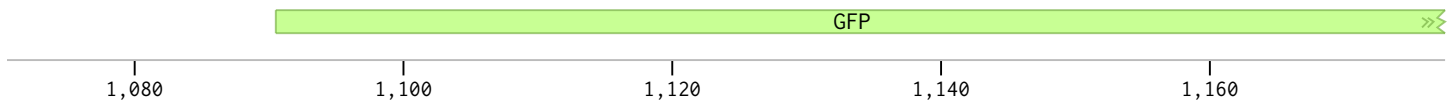
CCGGTAGAAAAAATGAGTAAAGGAGAAGAACTTTTCACTGGAGTTGTCCCAATTCTTGTGAATTAGATGGTGATGTTAATGGGCACAAATTTTCTGTCAGTGGAGA
GGCCATCTTTTTTACTCATTTCTTCTTGAAGGACCTCAACAGGGTTAAGAACAACCTAATCTACCACTACAATTACCCGTGTTTAAAGACAGTCACCTCT



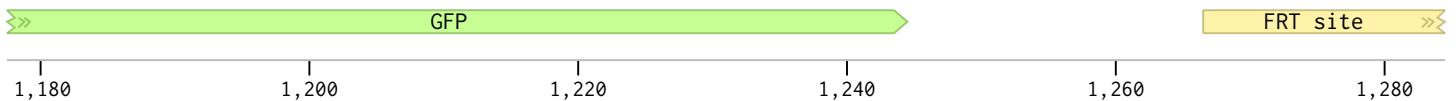
GGGTGAAGGTGATGCAACATACGAAAACTTACCCTTAAATTTATTTGCACTACTGGAAAACTACCTGTTCCATGGGtaagtttaacatatataactaactaacc
CCCACTTCCACTACGTTGTATGCCTTTTGAATGGGAATTTAAATAACGTGATGACCTTTTGATGGACAAGGTACcattcaaatttgtatatatatgattgattgg



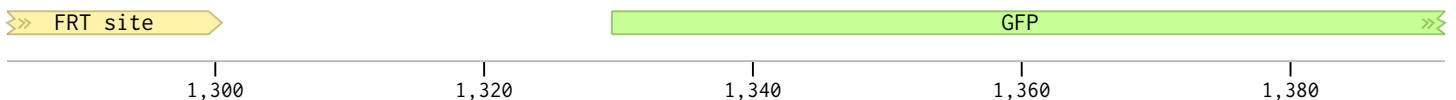
ctgattatTTAAATTTTcagccaacacttgtcactactttctgttatgggtgttcaatgcttctcgagataccagatcatatgaacggcatgactTTTTcaagagt
gactaataaaatTTAAAGtcggttgtgaacagtgatgaagacaataccacaagttacgaagagctctatgggtctagtatactttgccgtactgaaaagtTctca



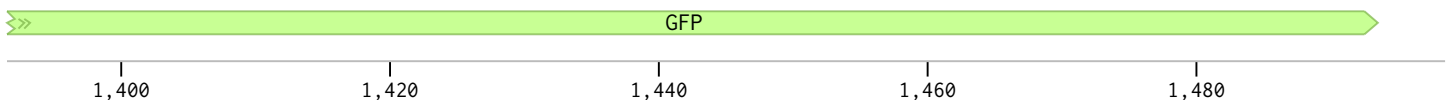
gccatgccgaaggttatgtacaggaaagaactatTTTTcaaagatgacgggaactacaagacacgtaagTTAAACagttcggtagcaagttcctatactttct
cggtaggggttccaatacatgtcctttcttgatataaaaagtttctactgcccttgatgttctgtgcattcaaatttgtcaagccatgcttcaaggatatgaaga



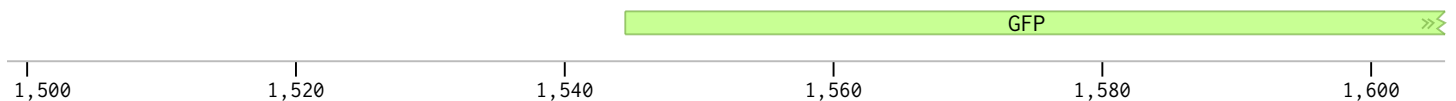
agagaataggaacttctaactaaccatacatatTTAAATTTTcaggtgctgaagtcagtttgaaggtgatacccttgttaatagaatcgagttAAAAGgtattgat
tctcttatccttgaagattgattgggtatgtataaaatTTAAAGtcacgacttcagttCAAacttccactatgggaacaattatcttagctcaattttccataacta



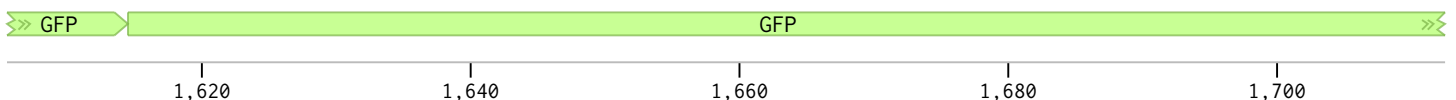
TTAAAGAagatggaacattcttggacacaaattggaatacaactataactcacacaatgtatacatcatggcagacaaaacaaagaatggaatcaaagttgtaag
aaatttcttctaccttTgtaagaacctgtgttAAccttatgttgatattgagtggttacatatgtagtaccgtctgtttgttttcttaccttagtttcaacattc



TTAAACatgattttactaactaactaatctgatttAAATTTTcagaacttCAAaattagacacaacattgaagatggaagcgttcaactagcagaccattatcaac
aaatttgtactaaaatgattgattgattagactaaatTTAAAGtccttgaagtttAActctgtgttgtaacttctaccttcgcaagttgatcgtctggtaatagttg



aaaatactcCAATTGGCGATGGCCCTGTCCTTTTACCAGACAACCATTACCTGTCCACACAATCTGCCCTTTCGAAAGATCCCAACGAAAAGAGAGACCACATGGTC
ttttatgagGTTAACCGCTACCGGGACAGGAAAAATGGTCTGTTGGTAATGGACAGGTGTGTTAGACGGGAAAGCTTTCTAGGGTTGCTTTTCTCTCTGGTGTACCAG

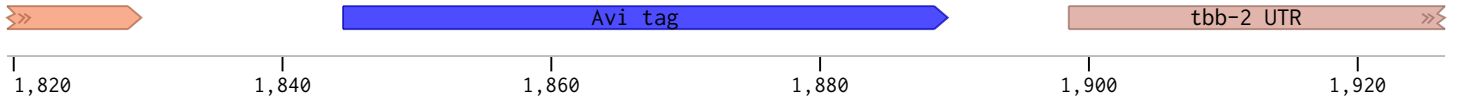


pMB43 (4876 bp) (from 1713-2675 bp)

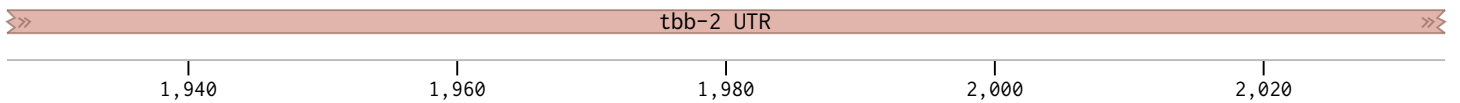
CTTCTTGAGTTTGTAAACAGCTGCTGGGATTACACATGGCATGGATGAACTATACAAAtctggaggaggatctGAAAATCTTTATTTCCAAGGAtccGAgAacCTTTA
GAAGAACTCAAACATTGTGACGACCCTAATGTGTACCGTACCTACTTGATATGTTTagacctcctcctagaCTTTTAGAAATAAAGGTTCTTagCTcTTgGAAAT



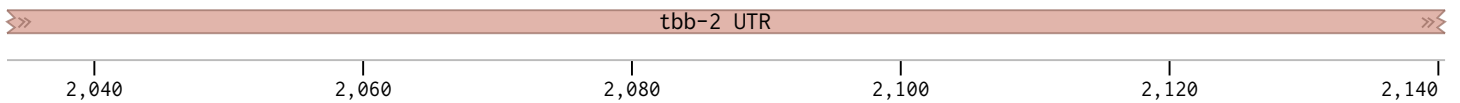
cTTCCAAGGAtctggaggaggatctGGACTTAATGATATTTTGAAGCTCagAagATTGAATGGCATGAAtaaGCTAGCatgcaagatcctttcaagattcccttc
gAAGGTTCTTagacctcctcctagaCCTGAATTACTATAAAAGCTTCGAGTcTtCTAACTTACCGTACTTattCGATCGtacgttcttaggaaagtctgtaagggaag



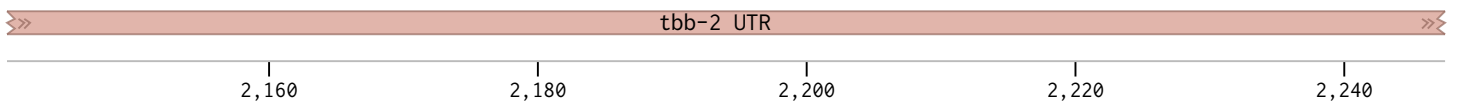
ttctctatcactcttctttcttttgtcaaaaaattctctcgctaatttatttgccttttttaagtgtattattttatgactttttatagtcactgaaaagtttgc
aatgagatagtgagaagaaagaaaaacagtttttaagagagcgattaataaacgaaaaaattacaataataaaatactgaaaaatcagtgacttttcaaacgta



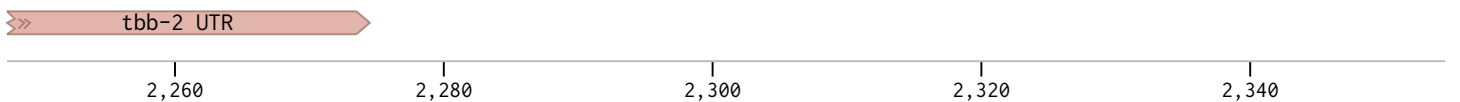
ctgagtgaagtgaatgctatcaaatgtgattctgtctgatgtactttcacatctcttcaattccattttgaagtgccttaaacccgaaaggttgagaaaaatg
gactcacttcacttacgatagttttacactaagacagactacatgaaagtgttagagagaagttaaggtaaaacttcacgaaattgggctttccaactctttttac



cgagcgctcaaatatttgtattgtgttcgttgagtgaccaacaaaaagaggaaactttattgtgccgccaagaaaaaagtctcattgcctaagagaacatatgtg
gctcgagagtttataaacataacacaagcaactcactgggtgtttttctccttgaaataaacacggcggttctttttcagagtaacggattctctttgtatacac



gttgaaatcttccagatcgtggatcaGGGCCCTTTCGTCTCGCGCTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAGACGGTCACAGCTTG
caacctttagaaggtctagcacctagtCCCGGAAAGCAGAGCGCGCAAGGCACTACTGCCACTTTTGGAGACTGTGTACGTGAGGGCCTCTGCCAGTGTGCAAC



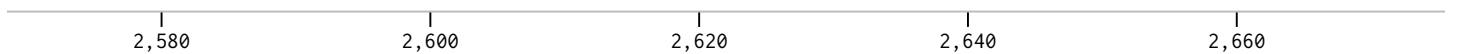
TCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCAGCGGGTGTGGCGGGTGTGCGGGCTGGCTTAACATATGCGGCATCAGAGCAGATTGTACTGA
AGACATTGCGCTACGGCCCTCGTCTGTTTCGGGCAGTCCCGCGCAGTCGCCACAACCGCCACAGCCCCGACCGAATTGATACGCCGTAGTCTCGTCTAACATGACT



GAGTGCACCATATGCGGTGTGAAATACCGCACAGATGCGTAAGGAGAAAAATACCGCATCAGGCGGCCTTAAGGGCCTCGTGATACGCCTATTTTTATAGGTTAATGT
CTCACGTGGTATACGCCACACTTTATGGCGTGTCTACGCATTCTCTTTTATGGCGTAGTCCGCCGAATTCGCGGAGCACTATGCGGATAAAAAATATCCAATTACA



CATGATAATAATGGTTTCTTAGACGTCAGGTGGCACTTTTCGGGAAATGTGCGCGGAACCCCTATTTGTTTATTTTCTAAATACATTCAAATATGTATCCGCTCA
GTACTATTATTACCAAAGAATCTGCAGTCCACCGTGAAAAGCCCTTTACACGCGCCTTGGGGATAAACAATAAAAGATTTATGTAAGTTTATACATAGGCGAGT



pMB43 (4876 bp) (from 2676-3638 bp)

TGAGACAATAACCTGATAAATGCTTCAATAATATTGAAAAAGGAAGAGTATGAGTATTCAACATTTCCGTGTCGCCCTTATCCCTTTTTGCGGCATTTTGCCTT
ACTCTGTTATTGGGACTATTTACGAAGTTATTATAACTTTTTCTTCTCATACTCATAAGTTGTAAAGGCACAGCGGAATAAGGGAAAAACGCCGTAAACGGAA

2,680 2,700 2,720 2,740 2,760 2,780

CCTGTTTTGCTCACCAGAAACGCTGGTGAAAGTAAAAGATGCTGAAGATCAGTTGGGTGCACGAGTGGGTACATCGAACTGGATCTCAACAGCGGTAAGATCCT
GGACAAAAACGAGTGGGTCTTTGCGACCACTTTCACTTTCTACGACTTCTAGTCAACCCACGTGCTCACCAATGTAGCTTGACCTAGAGTTGTCGCCATTCTAGGA

2,800 2,820 2,840 2,860 2,880

TGAGAGTTTTCGCCCCGAAGAACGTTTTCCAATGATGAGCACTTTTAAAGTTCTGCTATGTGGCGCGGTATTATCCCGTATTGACGCCGGGAAGAGCAACTCGGTC
ACTCTCAAAAGCGGGGCTTCTTGCAAAAGTTACTACTCGTGAAAAATTTCAAGACGATACACCGGCCATAATAGGGCATAACTGCGGCCCTTCTCGTTGAGCCAG

AmpR

2,900 2,920 2,940 2,960 2,980

GCCGCATACACTATTCTCAGATGACTTGGTTGAGTACTCACCAGTCACAGAAAAGCATCTTACGGATGGCATGACAGTAAGAGAATTATGCAGTGCTGCCATAACC
CGGCGTATGTGATAAGAGTCTTACTGAACCAACTCATGAGTGGTCAGTGTCTTTTCGTAGAATGCCTACCGTACTGTATTCTCTTAATACGTCACGACGGTATTGG

AmpR

3,000 3,020 3,040 3,060 3,080 3,100

ATGAGTGATAAACTGCGGCCAACTTACTTCTGACAACGATCGGAGGACCGAAGGAGCTAACCGCTTTTTGCACAACATGGGGGATCATGTAACTCGCCTTGATCG
TACTCACTATTGTGACGCCGGTTGAATGAAGACTGTTGCTAGCCTCCTGGCTTCTCGATTGGCGAAAAACGTGTTGTACCCCTAGTACATTGAGCGGAACCTAGC

AmpR

3,120 3,140 3,160 3,180 3,200

TTGGAACCGGAGCTGAATGAAGCCATACCAAACGACGAGCGTGACACCACGATGCCTGTAGCAATGGCAACAACGTTGCGCAAATTAATACTGGCGAACTACTTA
AACCCTTGGCCTCGACTTACTTCGGTATGTTTGTCTGCTCGCACTGTGGTGCTACGGACATCGTTACCGTTGTTGCAACGCGTTTGATAATTGACCCTTGATGAAT

AmpR

3,220 3,240 3,260 3,280 3,300

CTCTAGTTCCTCCGGCAACAATTAATAGACTGGATGGAGGCGGATAAAGTTGCAGGACCACTTCTGCGCTCGGCCCTCCGGCTGGCTGGTTTATTGCTGATAAATCT
GAGATCGAAGGGCCGTTGTTAATTATCTGACCTACCTCCGCCTATTTCAACGTCCTGGTGAAGACGCGAGCCGGAAGGCCGACCGACCAATAACGACTATTAGA

AmpR

3,320 3,340 3,360 3,380 3,400 3,420

GGAGCCGGTGAGCGTGGGTCTCGCGGTATCATTGCAGCACTGGGGCCAGATGGTAAGCCCTCCCGTATCGTAGTTATCTACACGACGGGGAGTCAGGCAACTATGGA
CCTCGGCCACTCGCACCCAGAGCGCCATAGTAACGTCGTGACCCCGGTCTACCATTGGGAGGGCATAGCATCAATAGATGTGCTGCCCTCAGTCCGTTGATACCT

AmpR

3,440 3,460 3,480 3,500 3,520

TGAACGAAATAGACAGATCGCTGAGATAGGTGCCTCACTGATTAAGCATTGGTAACTGTCAGACCAAGTTTACTCATATATACTTTAGATTGATTTAAACTTCATT
ACTTGCTTTATCTGTCTAGCGACTCTATCCACGGAGTGACTAATTCGTAACCATTGACAGTCTGGTTCAAATGAGTATATATGAAATCTAACTAAATTTGAAGTAA

AmpR

3,540 3,560 3,580 3,600 3,620

pMB43 (4876 bp) (from 3639-4601 bp)

TTTAATTTAAAGGATCTAGGTGAAGATCCTTTTTGATAATCTCATGACCAAAATCCCTTAACGTGAGTTTTCGTTCCACTGAGCGTCAGACCCCGTAGAAAAGATC
AAATTAAATTTCTAGATCCACTTCTAGGAAAACTATTAGAGTACTGGTTTTAGGGAATTGCACTCAAAAGCAAGGTGACTCGCAGTCTGGGGCATCTTTCTAG

ColE1 origin

3,640 3,660 3,680 3,700 3,720 3,740

AAAGGATCTTCTTGAGATCCTTTTTTCTGCGCTAATCTGCTGCTTGCAAACAAAAAACACCGCTACCAGCGGTGGTTTGTGGCCGGATCAAGAGCTACCAAC
TTTCTAGAAGAACTCTAGGAAAAAAGACGCGCATTAGACGACGAACGTTTGTTTTTTGGTGGCGATGGTCGCCACCAACAAACGGCCTAGTTCTCGATGGTTG

ColE1 origin

3,760 3,780 3,800 3,820 3,840

TCTTTTTCCGAAGGTAAGTGGCTTCAGCAGAGCGCAGATACCAAATACTGTCCTTCTAGTGTAGCCGTAGTTAGGCCACCACTTCAAGAACTCTGTAGCACCCTA
AGAAAAAGGCTTCCATTGACCGAAGTCGCTCGCGTCTATGGTTTATGACAGGAAGATCACATCGGCATCAATCCGGTGGTGAAGTTCTTGAGACATCGTGGCGGAT

ColE1 origin

3,860 3,880 3,900 3,920 3,940

CATACCTCGCTCTGCTAATCCTGTTACCAAGTGGCTGCTGCCAGTGGCGATAAGTCGTGTCTTACCGGTTGGACTCAAGACGATAGTTACCGGATAAGGCGCAGCGG
GTATGGAGCGAGACGATTAGGACAATGGTCACCGACGACGGTCACCGCTATTGACGACAGAATGGCCCAACCTGAGTTCTGCTATCAATGGCCTATTCGCGTCGCGC

ColE1 origin

3,960 3,980 4,000 4,020 4,040 4,060

TCGGGCTGAACGGGGGTTTCGTGCACACAGCCAGCTTGGAGCGAACGACCTACACCGAACTGAGATACCTACAGCGTGAGCATTGAGAAAGCGCCACGCTTCCCGA
AGCCCGACTTGCCCCCAAGCACGTGTGTCGGGTCGAACCTCGCTTGTGGATGTGGCTTGAATCTATGGATGTCGCACTCGTAACTCTTCGCGGTGCGAAGGGCT

ColE1 origin

4,080 4,100 4,120 4,140 4,160

AGGGAGAAAGGCGGACAGGTATCCGGTAAGCGGCAGGGTCGGAACAGGAGAGCGCACGAGGGAGCTTCCAGGGGAAACGCCTGGTATCTTTATAGTCTGTCGGGT
TCCTCTTTCCGCTGTCCATAGGCCATTGCGCGTCCCAGCCTTGCTCTCGCGTGCTCCCTCGAAGGTCCCCCTTTCGCGACCATAGAAATATCAGGACAGCCCA

ColE1 origin

4,180 4,200 4,220 4,240 4,260 4,280

TTCGCCACCTCTGACTTGAGCGTCGATTTTTGTGATGCTCGTCAGGGGGCGGAGCCTATGAAAAACGCCAGCAACGCGGCCCTTTTACGTTTCTGGCCTTTTGC
AAGCGGTGGAGACTGAACTCGCAGCTAAAAACACTACGAGCAGTCCCCCGCCTCGGATACCTTTTTGCGGTGCTTGCGCCGAAAAATGCCAAGGACCGGAAAAACG

ColE1 origin

4,300 4,320 4,340 4,360 4,380

TGGCCTTTTGCTCACATGTTCTTCTGCGTTATCCCCTGATTCTGTGGATAACCGTATTACCGCCTTTGAGTGAGCTGATACCGCTCGCCGAGCCGAACGACCGA
ACCGGAAAACGAGTGTACAAGAAAGGACGCAATAGGGGACTAAGACACCTATTGGCATAATGGCGGAAACTCACTCGACTATGGCGAGCGCGCTCGGCTTGCTGGCT

4,400 4,420 4,440 4,460 4,480

GCGCAGCGAGTCAGTGAGCGAGGAAGCGGAAGAGCGCCCAATACGCAAACCGCTCTCCCGCGCGTTGGCCGATTCTTAATGCAGCTGGCACGACAGGTTTCCCG
CGCGTCGCTCAGTCACTCGCTCCTTCGCCTTCTCGCGGTTATGCGTTTGGCGGAGAGGGGCGCGCAACCGGCTAAGTAATTACGTCGACCGTGCTGTCCAAAGGGC

4,500 4,520 4,540 4,560 4,580 4,600

pMB43 (4876 bp) (from 4602-4876 bp)

ACTGGAAAGCGGGCAGTGAGCGCAACGCAATTAATGTGAGTTAGCTCACTCATTAGGCACCCCAGGCTTTACACTTTATGCTTCCGGCTCGTATGTTGTGTGGAATT
TGACCTTTGCGCCGTCCTCGCGTTGCGTTAATTACACTCAATCGAGTGAGTAATCCGTGGGTCCGAAATGTGAAATACGAAGGCCGAGCATACAACACACCTTAA



4,620

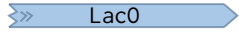
4,640

4,660

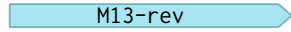
4,680

4,700

GTGAGCGGATAACAATTTACACAGGAAACAGCTATGACCATGATTACGCCAAGCTgtaagtttaacatgatcttactaactaactattctcatttaaattttcag
CACTCGCCTATTGTTAAAGTGTGTCCTTTGTCGATACTGGTACTAATGCGGTTCGAcattcaaatttgtagtagaatgattgattgataagagtaaatttaaagtc



Lac0



M13-rev

4,720

4,740

4,760

4,780

4,800

AGCTTAAAAATGGCTGAAATCACTCACAACGATGGATACGCTAACAACCTTGGAATGAAAT
TCGAATTTTACCGACTTTAGTGAGTGTGCTACCTATGCGATTGTTGAACCTTTACTTTA

4,820

4,830

4,840

4,850

4,860

4,870

pMB71 (Pelt-2::BirA) (7993 bp)

AAGCTTGGGCTGCAGTAATTTTCGAAATGTATGAACTCCAATTCTTGATAACCAATTCCTGACTCTGTAACATTATTATTATAATCCTATTACCCACCTTTTTTCCC
TTCGAACCCGACGTCATTAAAGCTTTACATACTTGAGGTTAAGAACTATTGGTTAAGGACTGAGACATTGATAATAATAATATTAGGATAATGGGTGGAAAAAAGGG

elt-2 promoter »»

20 40 60 80 100

ATTCTGCTCTTAGTTCTCCCCAACCCGTACATTTTCTCAACTAATgAAGACAATGAGAAAGTGAGAGAGAATAAGACGAACTGAAAAGAATGTGTAACAGTTTAT
TAAGACGAGAATCAAGAGGGGGTTGGGCATGTAAAAGAGTTGATTacTTCTGTACTCTTCACTCTCTCTTATTCTGCTTGACTTTTCTTACACATTTGTCAAATA

elt-2 promoter elt-2 promoter »»

120 140 160 180 200

TGCCTCTCGATTGTACCATCTAGTGTCTTGTCTGTGCATAACTACTGATAACAGATCGAATGTGAAAGACCCAATAAATGCTTGAAAGTATCAAATATGTTTAGA
ACGGAGAGCTAACATGGTAGATCACAGAACAGCACAGTATTGATGACTATTGTCTAGCTTACACTTTCTGGGTTATTTACGAACCTTTCATAGTTTATACAAATCT

elt-2 promoter »»

220 240 260 280 300 320

AATAGTATTTAGAGACTTATGTGGGACGAAAAAACAGGAGCATTAAGAATACAGTTGCAAACATTCATCAAGTTATAATCTAATAATATAAATcCAAAATGTTAAT
TTATCATAAATCTCTGAATACACCTGCTTTTTTGTCTCGTAATTCTTATGTCAACGTTTGTAAGTAGTTCAATATTAGATTATTATTTAgGTTTTTACAATTA

elt-2 promoter »»

340 360 380 400 420

GATAAAAAATGATGATCAAAGTAGGAAATTAGTGGCGAGAAAAACAATAAATCATCAGAAAATGACTGATCTTGAGTAGAGTGCTTTTTTGTAGATTTCTGATTCTA
CTATTTTTTACTACTAGTTTCATCCTTTAATCACCGCTCTTTTGTATTAGTAGTCTTTTACTGACTAGAACTCATCTCACGAAAAAACATCTAAAGACTAAGAT

elt-2 promoter »»

440 460 480 500 520

AAACTGAAAAAAACTAAAAATGCTCGATGAGTCATACTAATTGAAAAATAATCAGATTGAAAACGTTAAAAATGACTTGCTAACATACTTCCATGGTTATTTTT
TTTGACTTTTTTTTTGATTTTTACGAGCTACTCAGTATGATTAACCTTTTTATTAGTCTAACTTTTGAATTTTACATGAACGATTGTATGAAGGTACCAATAAAAA

elt-2 promoter »»

540 560 580 600 620 640

GAACACAAATAAAGTTATATACATCTTTACCGGCACCAGAAGAAATCACCGCTAACCAATGTTTCAGTTTTTACCTGAATATCCCTGAAAGTACAAAAAATCAATGT
CTTGTGTTTTATTTCAATATATGTAGAAATGGCCGTGGTCTTCTTTAGTGGCGATTGGTTACAAGTCAAAAATGGACTTATAGGGACTTTTCATGTTTTTTTAGTTACA

elt-2 promoter »»

660 680 700 720 740

TCAATCAAGTTTTTGCATGCCTTCGTGTGATGGCTCGCACCAAGTATTCTGACAGTTATAAAATGTTTCCTGTGATCATGAATTTGAAAAAAGAAGTATGGGA
AGTTAGTTCAAAAACGTACGGAAGCACACTACCGAGCGTGGTTCATAAGACTGTCAATATTTTACAAAGGACACTAGTACTTAACTTTTTTTTTCTTGACTACCCT

elt-2 promoter »»

760 780 800 820 840

pMB71 (Pelt-2::BirA) (7993 bp) (from 857-1712 bp)

AAATGTGATATTCATAAATGAAATGTTTAATAAACAAAAAAGAACCGTCATCACAATCTACTCTGAAACGTTACAGTTCCTAATTGACCAATTCAGAATTTTTTG
TTTACACTATAAGTATTTACTTTACAAATTATTTGTTTTTTCTTGGCAGTAGTGTGTTAGATGAGACTTTGCAAGTGCAAGGATTAAGTCTTAAAAAAC

»» elt-2 promoter »»

860 880 900 920 940 960

TACTGACTTAATAAATATAAATTTACAGTTTTAAGAAACATAAATTGAATTATATAAATAAAAAAAAAAACTAAAATGAAGACGTGATGGAATGTTTCACGTATT
ATGACTGAATTATTTATATTTAAATGTCAAAATCTTTGTATTTAACTTAATATATTTATTTTTTTTTTTGATTTTACTTCTGCACTACCTTACAAAGTGCATAA

»» elt-2 promoter »»

980 1,000 1,020 1,040 1,060

AAAAAGCTCTCGGACCGTTTGACATCCAGAAATTATGTGAAAGTGATTTTCTAACCTTTGACGTCAAAAAAGTTTTCTTTTTTGAAAGATACGCTGTTTAGAAA
TTTTTTCGAGAGCCTGGCAACTGTAGGTCTTTAATACACTTTCACTAAAAGATTGGGAACTGCAGTTTTTCAAAAAGAAAAAATTTCTATGCGACAAATCTTT

»» elt-2 promoter »»

1,080 1,100 1,120 1,140 1,160

TACTTATACAGCTGATTTTAGAATCTCCAAAAACCTTCAATTACTTAACAACTTTCTAAATAAAGATTTTGATTTTGATTTTCTTTGAACTTCAAACCCCCGT
ATGAATATGTCGACTAAAATCTTAGAGTTTTTTGGAAGTTAATGAATTGTTTGAAAGATTTATTTCTTAAACTAAAATAAGAACTTGAAGTTGGGGGGCA

»» elt-2 promoter »»

1,180 1,200 1,220 1,240 1,260 1,280

TAAAAAACCAATTAAAAAAAAGATACCAGATTAATTTTAAAGTGAAAAATATAAATTTATTCCTGACTGTTAAAAACGTTTATAAACGGAGTCACAACACTCATA
ATTTTTGGTTTAATTTTTTTCTATGGTCTAATTAATTTTCACTTTTTATTTAAATAAGGGCTGACAATTTTTGCCAAATATTTGCCTCAGTGTGTGAGTAT

»» elt-2 promoter »»

1,300 1,320 1,340 1,360 1,380

TACAACTATCGACACCAATAAATAAATTCGAAAGCTAATTGTGTCATTTTCGGATATAGAGAGTAGTGTGAGCAGATGTGTTTTGCAGAACTAAATTGATGACACT
ATGTTGATAGCTGTGGTTTATTTATTGAAGCTTTTCGATTAACACAGTAAAGCCTATATCTCTCATCACACTCGTCTACACAAAAACGTTCTTGATTTAACTACTGTGA

»» elt-2 promoter »»

1,400 1,420 1,440 1,460 1,480

ATTATGGAATATAATGACCAAATGTTAAATGTGTTAAGGTTTGATATCAAAACCTGTATTTTCTTTTTATACAGAATTGATAATGTTATCTTCAATTGATTTCTACT
TAATACCTTATATTACTGGTTTACAATTTACACAATTCCAAATATAGTTTTGGACATAAAAGAAAAATATGTCTTAACCTATTACAATAGAAGTTAACTAAAGATGA

»» elt-2 promoter »»

1,500 1,520 1,540 1,560 1,580 1,600

TCTGAGCTACGGCGATACGAGGACGCATTCTCAACGATAATGTTGCCATTTTGTCTGATAATTTTTTTACTGATTGTTTCAGAACACCCATAGTTTTTCTCTATTA
AGACTCGATGCCGCTATGCTCCTGCGTAAGAGTTGCTATTACAACGGTAAACAGGACTATTAAAAAATGACTAACAAAGTCTTGTGGGTATCAAAAAGAGATAAT

»» elt-2 promoter »»

1,620 1,640 1,660 1,680 1,700

pMB71 (Pelt-2::BirA) (7993 bp) (from 1713-2568 bp)

AACGTTTCATCCTTGACTTCCCCGAGTTTGCTGGCTGAATAGGAAATTTGAAGACAAAAAGGAAAGAATCGGCTCAAACGTCATGCAACTGATAAGGCGACCGTACTT
TTGCAAGTAGGAACTGAAGGGGCTCAAACGACCGACTTATCCTTTAAACTTCTGTTTTCTTTCTTAGCCGAGTTGCAGTACGTTGACTATTCCGCTGGCATGAA

»» elt-2 promoter »»

1,720 1,740 1,760 1,780 1,800

CATTTCAAAGAAGCTCACTTACTGAGCGCAAACATTGAGAAATGAGAGCAAAAGAAGTGGTTTTACAACATGCTAATGTTTTAGACCTTGACCCAATAATATTA
GTAAAGTTTTCTTCGAGTGAATGACTCGGTTTGAACCTTTACTCTCGTTTTCTTACCAAAATGTTGTACGATTACAAAACTCGAACATGGGTTATTATAAT

»» elt-2 promoter »»

1,820 1,840 1,860 1,880 1,900 1,920

CTGTAGTATACAGTTCGGAGAGCATATGGTTGAAATCTTGAAATACCAATTTATCACTAGTTTGATTGTGTTATCGATGTATAAAGATATATTTTATCATTTTTGAT
GACATCATATGTCAAGCCTCTCGTATACCAACTTTAGAACTTTATGGTTAAATAGTGATCAAACAAACAATAGCTACATATTTCTATATAAAATAGTAAAACTA

»» elt-2 promoter »»

1,940 1,960 1,980 2,000 2,020

TATTATCTGATATTGTGGGTGTGAAGTAATATTATGTGCGTGTGGCTGATTATCGAAAAAACTGAAAATTATCAATTTTTCTACAGGTTATCTTTTTTGT
ATAATAGACTATAACACCCCACTTCATTATAATACACGCACACCCGACTAATAGCTTTTTTGACTTTTAATAGTTAAAAAGATGTCCAATAGAAAAACA

»» elt-2 promoter »»

2,040 2,060 2,080 2,100 2,120 2,140

TATTTTTCATTATTGTATTCTTCATACTCCTTATCCTGCCGAATCACAAAAGTTCAGACAACCTGAAGGTCGCATCACGTTTTGTTTATAAGAATGTTGAACTGG
ATAAAAAGTAATAACATAAGAAGTATGAGGAATAGGACGGGCTTAGTGTTTTCAAGGCTGTGTAACCTCCAGCGTAGTGCAAAACAAATATTCTTACAACCTGACC

»» elt-2 promoter »»

2,160 2,180 2,200 2,220 2,240

TCAGCTTTGGAGACAGAACTGTCCTCCAAATGTTGAATATGTTTCCGTAAACACACTGTGTAACAAAAAGCGTACCCTTTGATCCGGTATTCTTGAAAAAACAT
AGTCGAAACCTCTGTCTTGACAGGAGGTTTACAACCTTATACAAAGGCATTTTGTGTGACACATTGTTTTTCGATGGGAACTAGGCCATAAGAACTTTTTTGTA

»» elt-2 promoter »»

2,260 2,280 2,300 2,320 2,340

AGAAGGGCGTACTTTTCATATCTCACAATATGCGTTTTTATTTTATAATAATATCATTATTGATAATTATGTATTTGTATGTTTTCTTGCTTTAAAAATTAT
TCTTCCGCATGAAAAGTATAGAGTGTATACGCAAAAAATAAAATATTATTATAGTAAATACTATTAATATACATAAACATACAAAAGAACAGAAATTTTAATA

»» elt-2 promoter »»

2,360 2,380 2,400 2,420 2,440 2,460

GGTGTGACATCACAGTTTAAAAATTATATGAAACTAATGAGTGAAAAGTTAAAAATGTATAGTTTGCCGTATTTTCTCCATTAGTATTGTATTCAAACTTATTTT
CCCACTGTAGTGCAAAATTTTAATATACTTTTGATTACTCACTTTTCAATTTTACATATCAAACGGCATAAAAGAGGTAATCATAACATAAGTTTGAATAAAG

»» elt-2 promoter »»

2,480 2,500 2,520 2,540 2,560

pMB71 (Pelt-2::BirA) (7993 bp) (from 2569-3424 bp)

CAATTGGTGAGCACTATAAACTTTGTAGGGTAATTGAGGTTCAATACTAATTTTTGAATATCTAGCTTTTGACAAATTATTCAAGTTTTGACAATGATGCCTTATCA
GTTAACCACTCGTGATATTTGAAACATCCCATTAACCCAAGTTATGATTAACCACTTATAGATCGAAAAGTGTAAATAAGTTCAAACTGTTACTACGGAATAGT

»» elt-2 promoter »»

2,580 2,600 2,620 2,640 2,660

AATTAACCACTCGTGATATTTGAAACATCCCATTAACCCAAGTTATGATTAACCACTTATAGATCGAAAAGTGTAAATAAGTTCAAACTGTTACTACGGAATAGT
TTAATTTTTTTTAAATGGTATTTAAGAAGTTCGAAAAGTGTAAATAAGTTCAAACTGTTACTACGGAATAGT

»» elt-2 promoter »»

2,680 2,700 2,720 2,740 2,760 2,780

AATTAACCACTCGTGATATTTGAAACATCCCATTAACCCAAGTTATGATTAACCACTTATAGATCGAAAAGTGTAAATAAGTTCAAACTGTTACTACGGAATAGT
TTAATTTTTTTTAAATGGTATTTAAGAAGTTCGAAAAGTGTAAATAAGTTCAAACTGTTACTACGGAATAGT

»» elt-2 promoter »»

2,800 2,820 2,840 2,860 2,880

CAAAATTGGATATATGTATCCATCAAAAGTCTGATCGCCTGTTTTATCTACTTATTGTCTCCTCAGTTGATTTTTTTGTAGTTATTATAAACGCTACTTTGAAACCA
GTTTTAACCTATATACATAGGTAGTTTTTCAAGTACGCGACAAAATAGATGAATAACAGAGGAGTCAACTAAAAAACATCAATAATATTTGCGATGAACTTTGGT

»» elt-2 promoter »»

2,900 2,920 2,940 2,960 2,980

ATATTTTCTTCTCATTCCACTTTTTTCAATTACCAACTACCGTACATGCAATGATGGGCGGACCCGAGTCCCATGTTTGGCTGGAAGTGGTGGTTGTCTGCGTAT
TATAAAGAAGGAGTAAGGTGAAAAAGTTAATGGTTGATGGCATGTACGTTACTACCGCCTGGGCTCAGGTACAAACCGACCTTACCCACCAACAGACGCATA

»» elt-2 promoter »»

3,000 3,020 3,040 3,060 3,080 3,100

ATGAGCGACAGAGGTCGGGGCTGAACTGATAAGAATAGTCGACACTAACGCCATAATCGCTAGCCAGCCATCATGCACACCGAGCTCGGTGTGCACACCATCTTTC
TACTCGCTGTCTCCAGCCCCGACTTTGACTATTCTTATCAGCTGTGATTGCGGTATTAGCGATCGGTGAGTACGTGTGGCTCGAGCCACACGTGTGGTAGAAAG

»» elt-2 promoter »»

3,120 3,140 3,160 3,180 3,200

TTTTCAAACCAATACGCTTTGTGCCTTATTGACAAATTTCTTTTTGATAAAATCAGCCTATCTATACTTCCCAATCATTTTTAGTCTTATCGTTGAACAGCTATCG
AAAAGTTTGGTTATGCGAAACACGGAAGTAAGTGTAAAGAAAAACTATTTAGTCGGATAGATATGAAGGTTAGTAAAAATCAGAATAGCAACTTGTGATAGC

»» elt-2 promoter »»

3,220 3,240 3,260 3,280 3,300

AGGTGCCACTGTTTTCACTGATATCTTCTAAGTTACTATGGCATTAAACATCTTTGTGTTCTTATTTTATGGGTTATTTTAATTAATTTTTGCAGTTAATTTTTGGAA
TCCACGGTGACAAAAGTGACTATAGAAGATTCAATGATACCGTAATTGTAGAAACACAAGAATAAAATACCAATAAAATTAATTAACCACTGTTTAAACCTT

»» elt-2 promoter »»

3,320 3,340 3,360 3,380 3,400 3,420

pMB71 (Pelt-2::BirA) (7993 bp) (from 3425-4280 bp)

TGAGCAAGAAAATGTTAATTGTAATATCTTCGTCTGAAAATTGTCTTCAAATAGTTTTAATTTTAAAGGCAGTATTTAAGAAAATACACTTCTCGAAGCATTTTTGA
ACTCGTTCTTTTACAATTAACATTATAGAAGCAGACTTTTAAACAGAAGTTTATCAAAATTAATAATTTCCGTCATAAATCTTTTATGTGAAGAGCTTCGTAAAAACT

» elt-2 promoter »

3,440 3,460 3,480 3,500 3,520

ATTTTTGAATTTTAAACTGCTTGATGTTTTAGGTGCCACTGTTTTATTGATAAGTTTTGATGTATAAATGCTTGATTTTCTTGGCATTCTAATAAAATAGAAAAT
TAAAACTTAAAAATTTGACGAACACAAAATCCACGGTGACAAAAGTAAGTATTCAAACTACATATTTACGAACAAAAGAACCGTAAGATTATTTTATCTTTGA

» elt-2 promoter »

3,540 3,560 3,580 3,600 3,620

AGAAAATAGATTATAGCCCGGTGCCCTATAGTGAGTCGTATTGGTACCaaaaATGGAGCAGAAGCTCATCTCTGAGGAAGACCTCGGAGGAGAGCAGAAACTCATC
TCTTTTATCTAATATCGGGCCACGGGATCACTCAGCATAACCATGGttttTACCTCGTCTTCGAGTAGAGACTCCTTCTGGAGCCTCCTCTCGTCTTTGAGTAG

» MYC-tag 1 MYC-tag 2 »

3,640 3,660 3,680 3,700 3,720 3,740

TCTGAAGAGGACCTCATGAAGGATAATACTGTTCCATTGAAGTTGATTGCTTTGCTTGCAAAATGGAGAATTTTATTCTGGAGAACAACCTGGAGAGACGTTGGGAAT
AGACTTCTCTGGAGTACTTCTATTATGACAAGGTAACCTCAACTAACGAAACGAACGTTTACCTCTTAAAGTAAGACCTCTTGTGAACCTCTCTGCAACCCTTA

» MYC-tag 2 BirA »

3,760 3,780 3,800 3,820 3,840

GTCGCGTGCTGCAATTAACAAGCATATTCAAACAgtaagtttaaacagttcgggtactaactaaccatacatattttaattttcagTTGAGAGACTGGGGAGTTGACG
CAGCGCACGACGTTAATTGTTCTGATAAGTTTGTcattcaaatttgtaagccatgattgattggatgtataaatttaaaagtcAACTCTCTGACCCTCAACTGC

» BirA BirA »

3,860 3,880 3,900 3,920 3,940

TTTTACGGTTCAGGAAAGGGATATTCGCTTCAGAGCCAATTCAGCTCTTGAATGCAAAGCAAATTTGGGACAGCTTGATGGTGGTAGTGTTCAGTACTTCCG
AAAAATGCCAAGGTCCTTTCCCTATAAGCGAAGGTCCTCGTTAAGTCGAGAACTTACGTTTCGTTTAAAACCTGTGCAACTACCACCATCACAACGTCATGAAGGC

» BirA »

3,960 3,980 4,000 4,020 4,040 4,060

GTTATAGATAGTACAAATCAGTACTTGCTTGATCGAATAGGAGAATTGAAATCAGGAGATGCTTGCATCGCTGAGTATCAGCAGGCTGGACGAGGACGAAGAGGACG
CAATATCTATCATGTTTAGTCATGAACGAACTAGCTTATCCTCTTAACCTTAGTCCTCTACGAACGTAGCGACTCATAGTCGTCGACCTGCTCCTGCTTCTCCTGC

» BirA »

4,080 4,100 4,120 4,140 4,160

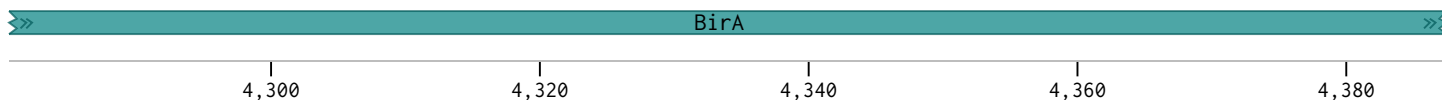
TAAGTGGTCTGtaagtttaaacatatataactaactaaccctgattattttaattttcagCGCCTTTTCGGAGCCAATCTCTATTTGAGTATGTTCTGGCGTCTTG
ATTCACCAAGAcattcaaatttgatatatatgattgattgggactaataaatttaaaagtcGCGGAAAGCCTCGGTTAGAGATAAACTCATAAAGACCGCAGAAC

» BirA BirA »

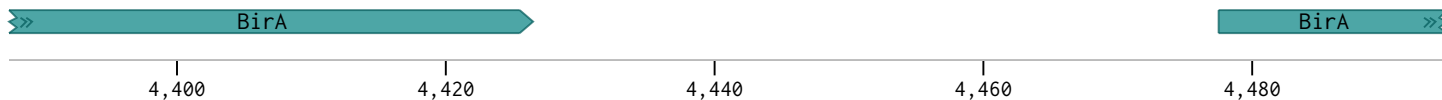
4,180 4,200 4,220 4,240 4,260 4,280

pMB71 (Pelt-2::BirA) (7993 bp) (from 4281-5243 bp)

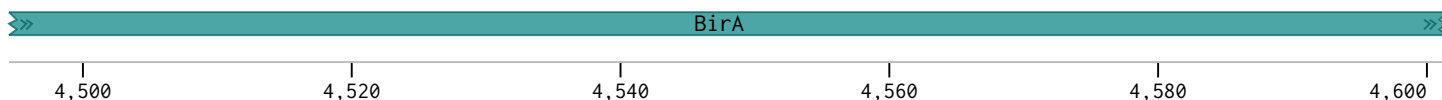
ACAAGGTCGGCCGCTGCTATCGACTTTCATTGGTTATTGGAATTGTGATGGCAGAAGTTCTCCGAAAACCTGGTGCAGATAAGGTGAGAGTCAAGTGGCCTAAC
TTGTTCCAGGCCGCGACGATAGCCTGAAAGTAACCAATAACCTTAACACTACCGTCTTCAAGAGGCTTTTGAACCAGTCTATTCCACTCTCAGTTCACCGGATTG



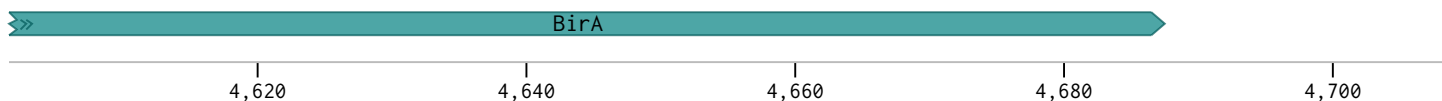
GATCTTTATCTTCAAGATAGAAAATTGGCCGAATATTGgtaagtttaacatatataactaactaacctgattattttaattttcagGTTGAGCTTACTGGAAA
CTAGAAATAGAAGTTCTATCTTTTAACCGGCCTTATAACcattcaaatttgtatatatatgattgattgggactaataaattttaaaagtcCAACTCGAATGACCTTT



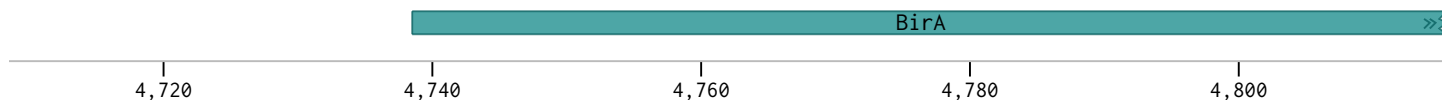
GACGGGAGATGCTGCTCAAATTGTGATTGGAGCTGGTATCAATATGGCAATGAGAAGAGTAGAAGAGTCTGTTGTTAATCAAGGTTGGATCACACTTCAAGAGGCAG
CTGCCCTCTACGACGAGTTTAACACTAACCTCGACCATAGTTATACCGTTACTCTTCTCATCTTCTCAGACAACAATTAGTTCCAACCTAGTGTGAAGTTCTCCGTC



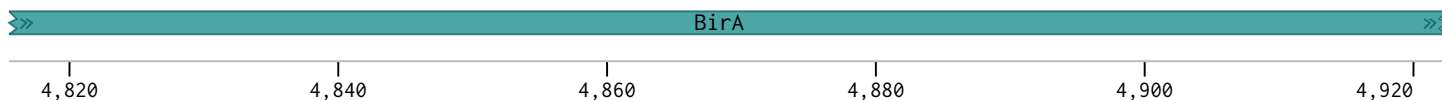
GAATCAACCTTGATAGAAATACGTTGGCCGCCATGCTTATCCGAGAATTGCGAGCTGCACTCGAACTCTTGAACAAGAAGGTCTTgtaagtttaacatatata
CTTAGTTGGAATATCTTTATGCAACCGCGGTACGAATAGGCTCTTAACGCTCGACGTGAGCTTGAGAAGCTTGTTCTTCCAGAACattcaaatttgtatatata



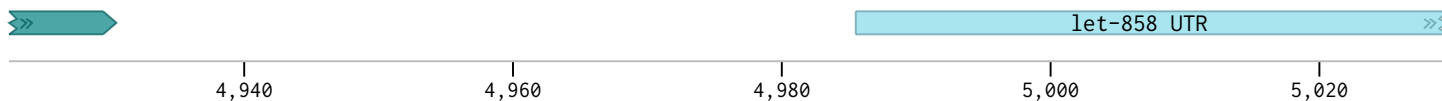
ctaactaacctgattattttaattttcagGCCCCCTTACCTCAGTAGATGGGAGAACTTGACAATTTTATCAATCGACCAGTGAAGTTGATAATTGGAGATAAGGA
gattgattgggactaataaattttaaaagtcCGGGGAATGGAGTCATCTACCCTCTTTGAACTGTTAAATAGTTAGCTGGTCACTTCAACTATTAACCTCTATTCT



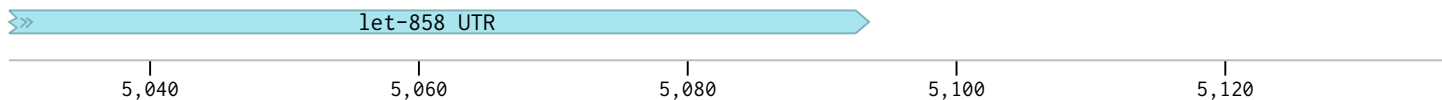
AATTTTTGGTATCAGTCGAGGAATTGATAAGCAAGGAGCTTCTCCTTGAGCAAGATGGAATCATTAAACCATGGATGGGTGGAGAGATTCTTTGCGATCTGCTG
TTAAAAACCATAGTCAGCTCCTTAACCTATTGTTCTCCTCGAGAAGAGGAACTGTTCTACCTTAGTAATTTGGTACCTACCCACCTCTCTAAAGAAACGCTAGACGAC



AAAAGTAAGAATTTCGCTAGCCGCCATACAAGTAATCCGGATGATCGACGCCaACGTCGTTGAATTTTCAAATTTTAAATACTGAATATTTGTTTTTTTCTATTA
TTTTATTCTTAAGCGATCGCCGGTATGTTTCATTAGGCCTACTAGCTGCGGtGCAGCAACTTAAAAGTTTAAATTTATGACTTATAACAAAAAAGGATAAT



TTTATTTATTCTCTTTGTGTTTTTTTCTTGCTTTCTAAAAAATTAATTCAATCCAAATCTAAacatttttttctctttccgtctcccaattcgtattccgctcc
AAATAAATAAGAGAAACACAAAAAAGAACGAAAGATTTTAAATTAAGTTAGGTTTAGATTtgtaaaaaaaagagaaaggcagagggttaagcataaggcgagg



tctcatctgaacacaatgtgcaagtttatcttctctcgctttcatttcatttaggacgtggggggaattggtggaagggggaacacacaaaaggatgatggaat
agagtagacttgtgttacagttcaaataaatagaagagcgaaagtaagtaatcctgcaccccccttaaccaccttccccctttgtgtgttttctactaccttta



pMB71 (Pelt-2::BirA) (7993 bp) (from 5244-6313 bp)

gaaataaggacacacaatatgcaacaacattcaattcagaaatatggaggaaggttttaaagaaaacataaaaatatatagaggaggaaggaaaactagtaaaaaat
ctttattcctgtgtgttatacgttggttaagtttaagtcctttatacctccttccaaattttcttttgatttttatatactcctccttcttttgatcatttttta

5,260 5,280 5,300 5,320 5,340

aagcaaagaatttaggcgaacgatgAGAATTGTCCTCGCTTGGGCCCTTTCGTCTCGCGCGTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAG
ttcgttttctttaatccgcttgctacTCTTAACAGGAGCGAACC CGGAAAGCAGAGCGCGCAAAGCCACTACTGCCACTTTTGGAGACTGTGTACGTCGAGGGCCTC

5,360 5,380 5,400 5,420 5,440

ACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCAGCGGGTGTGGCGGGTGTGGGGCTGGCTTAACATGCGGCATCAGA
TGCCAGTGTGAACAGACATTCGCTACGGCCCTCGTCTGTTTCGGGCAGTCCCGCGCAGTCGCCACAACCGCCACAGCCCCGACCGAATTGATACGCCGTAGTCT

5,460 5,480 5,500 5,520 5,540 5,560

GCAGATTGTACTGAGAGTGCACCATATGCGGTGTGAAATACCGCACAGATGCGTAAGGAGAAAAATACCGCATCAGGCGGCCTTAAGGGCCTCGTGATACGCCTATTT
CGTCTAACATGACTCTACGTGGTATACGCCACACTTTATGGCGTGTCTACGCATTCTCTTTTATGGCGTAGTCCGCCGAATTCGGGAGCACTATGCGGATAAA

5,580 5,600 5,620 5,640 5,660

TTATAGGTTAATGTCATGATAATAATGGTTTCTTAGACGTCAGGTGGCACTTTTCGGGGAAATGTGCGCGGAACCCCTATTTGTTTATTTTTCTAAATACATTCAAA
AATATCCAATTACAGTACTATTATTACAAAGAATCTGCAGTCCACCGTGAAGGCCCTTTACACGCGCCTTGGGGATAAACAATAAAAGATTATGTAAGTTT

5,680 5,700 5,720 5,740 5,760

TATGTATCCGCTCATGAGACAATAACCTGATAAATGCTTCAATAATATTGAAAAAGGAAGATGAGTATTCAACATTTCCGTGTCGCCCTTATCCCTTTTTTG
ATACATAGGCGAGTACTCTGTTATTGGGACTATTACGAAGTTATTATAACTTTTCTTCTCATACTCATAAGTTGTAAGGCACAGCGGAATAAGGGAAAAAAC

5,780 5,800 5,820 5,840 5,860 5,880

CGGCATTTTGCCTTCTGTTTTGCTCACCCAGAAACGCTGGTGAAAGTAAAAGATGCTGAAGATCAGTTGGGTGCACGAGTGGGTACATCGAACTGGATCTCAAC
GCCGTAACGGAAGGACAAAAACGAGTGGGTCTTTCGACCACTTTTCTACGACTTCTAGTCAACCCACGTGCTACCCAATGTAGCTTGACCTAGAGTTG

5,900 5,920 5,940 5,960 5,980

AGCGGTAAGATCCTTGAGAGTTTTGCCCCGAAGAACGTTTTCCAATGATGAGCACTTTTAAAGTTCTGCTATGTGGCGCGGTATTATCCCGTATTGACGCCGGGCA
TCGCCATTCTAGAACTCTCAAAAGCGGGGCTTCTTGCAAAGGTTACTACTCGTGAAAATTTCAAGACGATACACCGCCATAATAGGGCATACTGCGGCCCGT

AmpR

>>

6,000 6,020 6,040 6,060 6,080

AGAGCAACTCGGTCGCCGCATACACTATTCTCAGAATGACTTGGTTGAGTACTCACCAGTCACAGAAAAGCATCTTACGGATGGCATGACAGTAAGAGAATTATGCA
TCTCGTTGAGCCAGCGCGTATGTGATAAGAGTCTTACTGAACCAACTCATGAGTGGTCAGTGTCTTTTCGTAGAATGCCTACCGTACTGTATTCTCTTAATACGT

AmpR

>>

6,100 6,120 6,140 6,160 6,180 6,200

GTGCTGCCATAACCATGAGTGATAAACTGCGGCCAACTTACTTCTGACAACGATCGGAGGACCGAAGGAGCTAACCGCTTTTTTGACAACATGGGGGATCATGTA
CACGACGGTATTGGTACTCACTATTGTGACGCCGGTTGAATGAAGACTGTTGTAGCCTCCTGGCTTCTCGATTGGCGAAAAACGTGTTGTACCCCTAGTACAT

AmpR

>>

6,220 6,240 6,260 6,280 6,300

pMB71 (Pelt-2::BirA) (7993 bp) (from 6314-7169 bp)

ACTCGCCTTGATCGTTGGGAACCGGAGCTGAATGAAGCCATACAAACGACGAGCGTGACACCACGATGCCTGTAGCAATGGCAACAACGTTGCGCAAACATTAAAC
TGAGCGGAAC TAGCAACCCTTGGCCTCGACTTACTTCGGTATGGTTTGCTGCTCGCACTGTGGTGTACGGACATCGTTACCGTTGTTGCAACGCGTTTGATAATTG

»» AmpR »»

6,320 6,340 6,360 6,380 6,400 6,420

TGGCGAACTACTTACTCTAGCTTCCCGGCAACAATTAATAGACTGGATGGAGGCGGATAAAGTTGCAGGACCACTTCTGCGCTCGGCCCTTCCGGCTGGCTGGTTTA
ACCGCTTGATGAATGAGATCGAAGGGCGTTGTTAATTATCTGACCTACCTCCGCCTATTTCACGTCCTGGTGAAGACGCGAGCCGGGAAGGCCGACCGACCAAT

»» AmpR »»

6,440 6,460 6,480 6,500 6,520

TTGCTGATAAATCTGGAGCCGGTGAGCGTGGGTCTCGCGGTATCATTGCAGCACTGGGGCCAGATGGTAAGCCCTCCCGTATCGTAGTTATCTACACGACGGGGAGT
AACGACTATTTAGACCTCGGCCACTCGCACCCAGAGCGCCATAGTAACGTCGTGACCCGGTCTACCATTCCGGAGGGCATAGCATCAATAGATGTGCTGCCCTCA

»» AmpR »»

6,540 6,560 6,580 6,600 6,620

CAGGCAACTATGGATGAACGAAATAGACAGATCGCTGAGATAGGTGCCTCACTGATTAAGCATTGGTAAGTGTGACACCAAGTTTACTCATATATACTTTAGATTGA
GTCGGTTGATACCTACTTGCTTTATCTGTCTAGCGACTCTATCCACGGAGTGACTAATTCGTAACCATTGACAGTCTGGTTCAAATGAGTATATATGAAATCTAACT

»» AmpR »

6,640 6,660 6,680 6,700 6,720 6,740

TTTAAACTTCATTTTTAATTTAAAGGATCTAGGTGAAGATCCTTTTTGATAATCTCATGACCAAAATCCCTTAACGTGAGTTTTCGTTCCACTGAGCGTCAGACC
AAATTTGAAGTAAAAATTAATTTTCTAGATCCACTTCTAGGAAAACTATTAGAGTACTGGTTTTAGGGAATTGCACTCAAAGCAAGGTGACTCGCAGTCTGG

ColE1 origin »»

6,760 6,780 6,800 6,820 6,840

CCGTAGAAAAGATCAAAGGATCTTCTTGAGATCCTTTTTTCTGCGCGTAATCTGCTGCTTGCAAACAAAAAACACCGCTACCAGCGGTGGTTTGTGGCCGAT
GGCATCTTTCTAGTTTCTAGAAAGCTCTAGGAAAAAGACGCGCATTAGACGACGAACGTTTGTGTTTTTGGTGGCGATGGTCGCCACCAACAAACGCGCTA

»» ColE1 origin »»

6,860 6,880 6,900 6,920 6,940

CAAGAGCTACCAACTCTTTTTCCGAAGGTAAGTGGCTTCAGCAGAGCGCAGATACCAAACTGTCTTCTAGTGTAGCCGTAGTTAGGCCACCACTTCAAGAACTC
GTTCTCGATGGTTGAGAAAAAGGCTTCCATTGACCGAAGTCGTCTCGCGTCTATGGTTTATGACAGGAAGATCACATCGGCATCAATCCGGTGGTGAAGTTCTTGAG

»» ColE1 origin »»

6,960 6,980 7,000 7,020 7,040 7,060

TGTAGCACCGCTACATACCTCGCTCTGCTAATCCTGTTACCAGTGGCTGCTGCCAGTGGCGATAAGTCGTGTCTTACCGGTTGGACTCAAGACGATAGTTACGG
ACATCGTGGCGGATGTATGGAGCGAGACGATTAGGACAATGGTCACCGACGACGGTCACCGCTATTGACACAGAATGGCCCAACCTGAGTTCTGCTATCAATGGCC

»» ColE1 origin »»

7,080 7,100 7,120 7,140 7,160

pMB71 (Pelt-2::BirA) (7993 bp) (from 7170-7993 bp)

ATAAGGCGCAGCGGTGGGCTGAACGGGGGGTTCGTGCACACAGCCCAGCTTGGAGCGAACGACCTACACCGAACTGAGATACCTACAGCGTGAGCATTGAGAAAGC
TATTCCGCGTCGCCAGCCGACTTGCCCCCAAGCACGTGTGTCGGGTGGAACCTCGCTTGCTGGATGTGGCTTGACTCTATGGATGTCGCACTCGTAACCTTTTCG

» ColE1 origin »

7,180

7,200

7,220

7,240

7,260

GCCACGCTTCCCGAAGGGAGAAAGGCGGACAGGTATCCGGTAAGCGGCAGGGTCGGAACAGGAGAGCGCACGAGGGAGCTTCCAGGGGAAACGCCTGGTATCTTTA
CGGTGCGAAGGGCTTCCTCTTCCGCTGTCCATAGGCCATTCGCGTCCCAGCCTTGCTCTCGCGTGTCCCTCGAAGGTCCCCCTTTGCGGACCATAGAAAT

» ColE1 origin »

7,280

7,300

7,320

7,340

7,360

7,380

TAGTCTGTGCGGTTTCGCCACCTCTGACTTGAGCGTCGATTTTTGTGATGCTCGTCAGGGGGCGGAGCCTATGAAAAACGCCAGCAACGCGGCTTTTTACGGT
ATCAGGACAGCCAAAGCGGTGGAGACTGAACTCGCAGCTAAAAACACTACGAGCAGTCCCCCGCTCGGATACCTTTTTGCGGTCGTTGCGCCGAAAAATGCCA

» ColE1 origin »

7,400

7,420

7,440

7,460

7,480

TCCTGGCCTTTTGCTGGCCTTTTGCTCACATGTTCTTCTGCGTTATCCCCTGATTCTGTGGATAACCGTATTACCGCCTTTGAGTGAGCTGATACCGCTCGCCGC
AGGACCGGAAAAACGACCGGAAAAACGAGTGTACAAGAAAGGACGCAATAGGGGACTAAGACACCTATTGGCATAATGGCGGAACTCACTCGACTATGGCGAGCGGCG

7,500

7,520

7,540

7,560

7,580

AGCCGAACGACCGAGCGCAGCGAGTCAGTGAGCGAGGAAGCGGAAGAGCGCCCAATACGCAAACCGCCTCTCCCGCGCGTTGGCCGATTCAATATGCAGCTGGCA
TCGCTTGCTGGCTCGCGTCGCTCAGTCACTCGCTCCTTCGCTTCTCGCGGTTATGCGTTTGGCGGAGAGGGGCGCAACCGGCTAAGTAATTACGTCGACCGT

7,600

7,620

7,640

7,660

7,680

7,700

CGACAGGTTTCCCGACTGGAAGCGGGCAGTGAGCGCAACGCAATTAATGTGAGTTAGTCACTCATTAGGCACCCAGGCTTTACACTTTATGCTTCCGGCTCGTA
GCTGTCCAAAGGGCTGACCTTTCGCCCCGCTCACTCGCTTGCGTTAATTACACTCAATCGAGTGAGTAATCCGTGGGTCCGAAATGTGAAATACGAAGGCCGAGCAT

7,720

7,740

7,760

7,780

7,800

TGTTGTGTGGAATTGTGAGCGGATAACAATTTACACAGGAAACAGCTATGACCATGATTACGCCAAGCTgtaagttaaacaatgatcttactaactaactattctc
ACAACACACCTTAACACTCGCCTATTGTTAAAGTGTGCTTTGTCGATACTGGTACTAATGCGGTTTCGAcattcaaatttgtactagaatgattgattgataagag

LacO

M13-rev

7,820

7,840

7,860

7,880

7,900

atttaaattttcagAGCTTAAAAATGGCTGAAATCACTCACAACGATGGATACGCTAACAACCTTGGAATGAAAT
taaatttaaagtcTGAATTTTACCGACTTTAGTGAGTGTGCTACCTATGCGATTGTTGAACCTTTACTTTA

7,920

7,930

7,940

7,950

7,960

7,970

7,980

7,990

pMB72 (C-term GFP-2xTEV-Avi) (5052 bp)

TCGCGCGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAGACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGC
AGCGCGCAAAGCCACTACTGCCACTTTTGGAGACTGTGTACGTCGAGGGCCTCTGCCAGTGTGCAACAGACATTGCGCTACGGCCCTCGTCTGTTGCGGCAGTCCCC

20

40

60

80

100

GCGTCAGCGGGTGTTGGCGGGTGTCGGGGCTGGCTTAAGTATGCGGCATCAGAGCAGATTGTACTGAGAGTGCACCATATGCGGTGTGAAATACCGCACAGATGCGT
CGCAGTCGCCCACAACCGCCACAGCCCCGACCGAATTGATACGCCGTAGTCTCGTCTAACATGACTCTCACGTGGTATACGCCACACTTTATGGCGTGTCTACGCA

120

140

160

180

200

AAGGAGAAAATACCGCATCAGGCGCCATTGCGCATTCAGGCTGCGCAACTGTTGGGAAGGGCGATCGGTGCGGGCCTCTTCGCTATTACGCCAGCTGGCGAAAGGGG
TTCCTCTTTTATGGCGTAGTCCGCGTAAGCGGTAAGTCCGACGCGTTGACAACCTTCCCGCTAGCCACGCGCGGAGAAGCGATAATGCGGTGACCGCTTTCCCC

LacZ alpha

220

240

260

280

300

320

GATGTGCTGCAAGGCGATTAAGTTGGGTAACGCCAGGGTTTTCCAGTCACGACGTTGTAACGACGCGCCAGTGAATTCGAGCTCGGTACCCGGGGATCCTCTAGA
CTACACGACGTTCCGCTAATTCAACCCATTGCGGTCCAAAAGGGTCAGTGCTGCAACATTTTGCTGCCGTCACCTAAGCTCGAGCCATGGGCCCTAGGAGATCT

M13-fwd

340

360

380

400

420

TCCGGAggaggaggatctggaggaggaggatctggaggaggaggaATGAGTAAAGGAGAAGAACTTTTCACTGGAGTTGTCCCAATTCTTGTTGAATTAGATGGTGA
AGGCCTctctcctctagacctcctcctctagacctcctcctcctTACTCATTCTCTTCTTGAAAAGTGACCTCAACAGGGTTAAGAACAACCTAATCTACCCT

GFP

440

460

480

500

520

TGTTAATGGGCACAAATTTTCTGTCAGTGGAGAGGGTGAAGGTGATGCAACATACGGAAACTTACCCTTAAATTTATTTGCACTACTGGAAACTACCTGTTCCAT
ACAATTACCCGTGTTTAAAAGACAGTCACCTCTCCCACTTCCACTACGTTGTATGCCTTTTGAATGGGAATTTAAATAAACGTGATGACCTTTTGATGGACAAGGTA

GFP

540

560

580

600

620

640

GGtaagtttaacatatataactaactaacctgattatttaaattttcagccaacacttgtcactactttctgttatggtgttcaatgcttctcgagataccca
CCattcaaatgttatatatatgattgattgggactaataaatttaaagtcggttgtgaacagtgatgaaagacaataccacaagttacgaagagctctatgggt

GFP

660

680

700

720

740

gatcatatgaaacggcatgactttttcaagagtgccatgccgaaggttatgtacaggaaagaactatatttttcaaagatgacgggaactacaagacacgtaagtt
ctagtatactttgccgtactgaaaaagtctcacggtacgggcttccaatacatgtcctttcttgatataaaaagtcttactgcccttgatgttctgtgattcaa

GFP

760

780

800

820

840

taaacagttcggtagaagttcctatactttctagagaataggaacttccctgttgacaattaatcatcggcatagtatatcggcatagtataatcagacaaggtga
atttgcagccatgcttcaaggatgatgaagatctcttatccttgaagggacaactgttaattagtagccgtatcatatagccgtatcatattatgctgttccact

FRT site

galK

860

880

900

920

940

960

pMB72 (C-term GFP-2xTEV-Avi) (5052 bp) (from 964-1819 bp)

ggaactaaaccaggaggcagatcatgagtctgaagaaaaaacacaatctctgtttgccaacgcatttggctaccctgccactcacaccattcaggcgcctggccg
ccttgatttgggtcctccgtctagtactcagactttctttttgtgttagagacaaacggttgcgtaaacgatgggacggtgagtggtgtaagtccgcggaccggc

» galk »

980 1,000 1,020 1,040 1,060

cgtaatttgattggtgaacacaccgactacaacgacggtttcgttctgccctgcgcgattgattatcaaaccgtgatcagttgtgcaccacgcatgaccgtaaag
gcacttaactaaccacttgtgtggctgatgttgctgcaaagcaagacgggacgcgctaactaatagtttggcactagtcaacacgtggtgcgctactggcatttc

» galk »

1,080 1,100 1,120 1,140 1,160

ttcgcgtgatggcagccgattatgaaaatcagctcgacgagttttccctcgatgcgccattgtcgcacatgaaaactatcaatgggctaactacgttcgtggcgtg
aagcgcactaccgtcggctaatacttttagtcgagctgctcaaaaggagctacgcgggtaacagcgtgtacttttgatagttaccgattgatgcaagcaccgcac

» galk »

1,180 1,200 1,220 1,240 1,260 1,280

gtgaaacatctgcaactgcgtaacaacagcttcggcggcgtggacatggatgatcagcggcaatgtgccgcagggtgccgggttaagttcttccgcttcactggaagt
cactttgtagacgttgacgcattgttgtcgaagccgccgacctgtaccactagtcgccgttacacggcgtcccacggccaattcaagaaggcgaagtgcacttca

» galk »

1,300 1,320 1,340 1,360 1,380

cgcggtcggaaaccgtattgcagcagctttatcatctgccgctggacggcgcaaaatcgcgcttaacgggtcaggaagcagaaaaccagttttaggctgtaactgcg
gcgccagccttggcataacgtcgtcgaaatagtagacggcgacctgccgctgttttagcggaattgccagtccttcgtcttttgggtcaaacatccgacattgacgc

» galk »

1,400 1,420 1,440 1,460 1,480

ggatcatggatcagctaatttccgcgctcggcaagaaagatcatgccttgctgatcgattgccgctcactggggaccaaagcagtttccatgcccaaagggtgtggct
cctagtacctagtcgattaaaggcgcgagccgttcttttctagtacggaacgactagctaaccggcgagtgaccctggtttcgtcaaaggtagcgggtttccacaccga

» galk »

1,500 1,520 1,540 1,560 1,580 1,600

gtcgtcatcatcaacagtaacttcaaacgtaccctgggtggcagcgaatacaacacccgtcgtgaacagtgcgaaaccgggtgcgcgtttcttccagcagccagccct
cagcagtagtagttgtcattgaagtttgcattgggaccaaccgtcgttatgttgtgggcagcacttgtcacgctttggccacgcgcaaagaaggctcgtcggtcggga

» galk »

1,620 1,640 1,660 1,680 1,700

gcgtgatgtcaccattgaagagttcaacgctgttgcgcatgaactggaccgatcgtggcaaacgcgtgcgtcatatactgactgaaaacgcccgcaccgttgaag
cgactacagtggtaacttctcaagttgcgacaacgcgtacttgacctgggctagcaccgttttgcgcacgcagtatatgactgacttttgcgggcgtggcaacttc

» galk »

1,720 1,740 1,760 1,780 1,800

pMB72 (C-term GFP-2xTEV-Avi) (5052 bp) (from 1820-2675 bp)

ctgccagcgcgctggagcaaggcgacgtgaaacgtatgggcgagttgatggcggagtctcatgcctctatgcgcatgatttcgaaatcacctgcccgaattgac
gacggctcgcgacgtcgttccgctggactttgcatacccgctcaactaccgcctcagagtacggagatacgctactaaagctttagtggcacggcggttaactg

galk

1,820 1,840 1,860 1,880 1,900 1,920

actctggtagaaatcgtaaagctgtgattggcgacaaaggtggcgtacgcatgaccggcgcggtattggcggtgtatcgtcgcgctgatcccgaagagctggt
tgagaccatcttttagcagtttcgacactaaccgctgtttccaccgcatgcgtactggccgccgctaaccgccgacatagcagcgcgactagggccttctcgacca

galk

1,940 1,960 1,980 2,000 2,020

gcctgccgtacagcaagctgtcgtgaacaatatgaagcaaaaacaggtattaaagagactttttacgtttgtaaaccatcacaaggagcaggacagtgtgaggat
cggacggcatgtcgttcgacagcgacttggtatacttcgtttttgtccataatttctctgaaaaatgcaaacatttggtagtgttcctcgtcctgtcacgactccta

galk

2,040 2,060 2,080 2,100 2,120 2,140

ccactagttctagagcgccgcaagttcctatactttctagagaataggaacttctaactaaccatacatatttaaattttcaggtgctgaagtcaagtttgaagg
ggtgatcaagatctcgcggcgcttcaaggatatgaagatctcttatccttgaagattgattggtatgtataaaatttaaagtcacgacttcagttcaacttcc

galk FRT site GFP

2,160 2,180 2,200 2,220 2,240

tgatacccttggttaatagaatcgagttaaaaggtattgattttaagaagatggaaacattcttggacacaaattggaatacaactataactcacacaatgtataca
actatgggaacaattatcttagctcaattttccataactaaaatttcttctaccttggtaagaacctgtgtttaacctatgttgatattgagtggttacatatgt

GFP

2,260 2,280 2,300 2,320 2,340

tcattggcagacaaaacaaagaatggaatcaaagttgtaagtttaacatgattttactaactaactaatctgatttaaaatttcagaacttcaaaattagacacaac
agtaccgtctgtttgttttcttaccttagtttcaacattcaaaattgtactaaaatgattgattgattagactaaatttaaagcttgaagttttaatctgtgttg

GFP GFP

2,360 2,380 2,400 2,420 2,440 2,460

attgaagatggaagcgttcaactagcagaccattatcaacaaaatactcCAATTGGCGATGGCCCTGTCCTTTACCAGACAACCATTACCTGTCCACACAATCTGC
taacttctaccttcgcaagttgatcgtctggtaatagttgttttatgagGTTAACCGCTACCGGGACAGGAAAATGGTCTGTTGTAATGGACAGGTGTGTTAGACG

GFP GFP

2,480 2,500 2,520 2,540 2,560

CCTTTCGAAAGATCCCAACGAAAAGAGAGACCACATGGTCCTTCTTGAGTTTGAACAGCTGCTGGGATTACACATGGCATGGATGAACCTATACAAAtctggaggag
GGAAAGCTTCTAGGTTGCTTTTCTCTCTGGTGTACCAGGAAGAACTCAAACATTGTCGACGACCTAATGTGTACCGTACCTACTTGATATGTTTAgacctctc

GFP

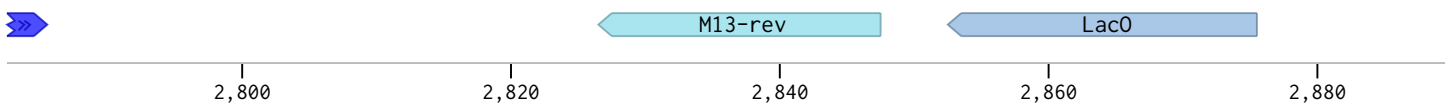
2,580 2,600 2,620 2,640 2,660

pMB72 (C-term GFP-2xTEV-Avi) (5052 bp) (from 2676-3638 bp)

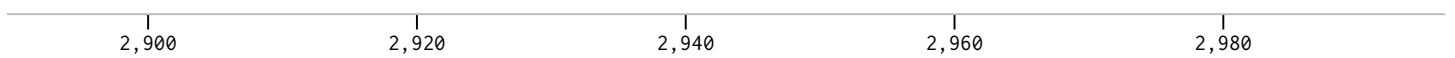
gatctGAAAATCTTTATTTCCAAGGAtccGAgAAcTTTAcTTCCAAGGAtctggaggaggatctGGACTTAATGATATTTTCGAAGCTCagAAgATTGAATGGCAT
ctagaCTTTTAGAAATAAAGGTTCTTaggCTcTTgGAAATgAAGGTTCTTagacctcctcctagaCCTGAATTACTATAAAAGCTTCGAGTcTTcTAACTTACCGTA



GAAtaaAGATCTGTGACCTGCAGGCATGCAAGCTTGGCGTAATCATGGTCATAGCTGTTTCTGTGTGAAATTGTTATCCGCTCACAATTCCACACAACATACGAG
CTTattTCTAGACAGCTGGACGTCCGTACGTTTGAACCGCATTAGTACCAGTATCGACAAAGGACACACTTTAACAATAGGCGAGTGTTAAGGTGTGTTGTATGCTC



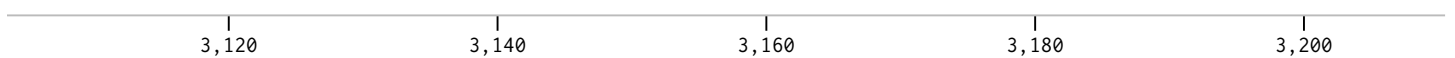
CCGGAAGCATAAAGTGTAAGCCTGGGGTGCCTAATGAGTGAGCTAACTCACATTAATTGCGTTGCGCTCACTGCCCGCTTTCCAGTCGGGAAACCTGTCGTGCCAG
GGCCTTCGTATTTACATTTTCGGACCCACCGATTACTCACTCGATTGAGTGTAATTAACGCAACGCGAGTGACGGGCGAAAGTCCAGCCCTTTGGACAGCACGGTC



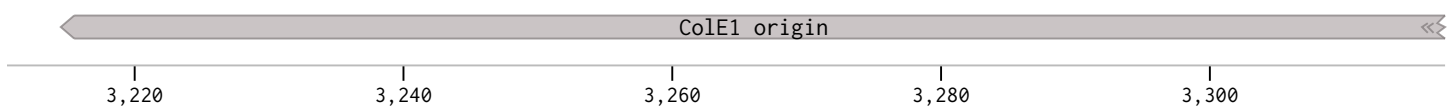
CTGCATTAATGAATCGGCCAACGCGCGGGGAGAGGCGGTTTGGCTATTGGGCGCTCTTCCGCTTCTCGCTCACTGACTCGCTGCGCTCGGTGTTTCGGCTGCGGCG
GACGTAATTACTTAGCCGTTGCGCGCCCTCTCCGCCAAACGCATAACCCGCGAGAAGGCGAAGGAGCGAGTGACTGAGCGACGCGAGCCAGCAAGCCGACGCCGC



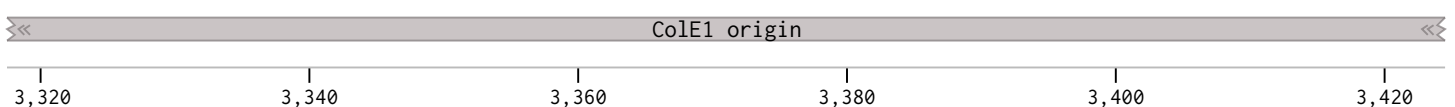
AGCGGTATCAGCTCAAGGCGGTAATACGGTTATCCACAGAATCAGGGGATAACGCAGGAAAGAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTA
TCGCCATAGTCGAGTGAGTTTCCGCCATTATGCCAATAGGTGTCTTAGTCCCTATTGCGTCCTTTCTTGTACACTCGTTTTCCGGTGTGTTTCCGGTCTTGGCAT



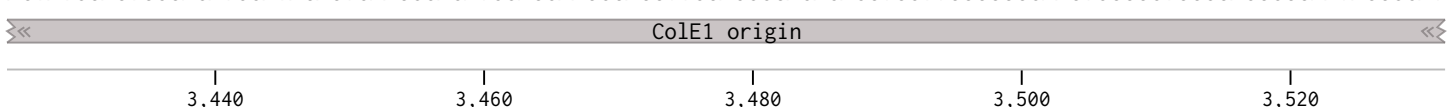
AAAAGGCCGCTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGA
TTTTCCGGCGCAACGACCGCAAAAGGTATCCGAGGCGGGGGACTGCTCGTAGTGTTTTAGTCGCGAGTTCAGTCTCCACCGCTTTGGGCTGTCCTGATATTTCT



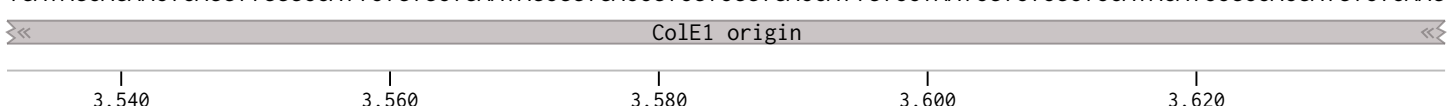
TACCAGGCGTTTCCCCTGGAAGCTCCCTCGTGCCTCTCCTGTTCCGACCCTGCCGCTTACCGGATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTGCGCTTTT
ATGGTCCGCAAGGGGGACCTTCGAGGGAGCACGCGAGAGGACAAGGCTGGGACGGCGAATGGCCTATGGACAGGCGGAAAGAGGGAAGCCCTTCGCACCGCGAAAG



TCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTGCTTCCGCTCAAGCTGGGCTGTGTGCACGAACCCCCGTTTCAGCCCGACCGTGCCTTATCCGGTA
AGTATCGAGTGCACATCCATAGAGTCAAGCCACATCCAGCAAGCGAGGTTTCGACCCGACACACGTGCTTGGGGGCAAGTCGGGCTGGCGACGCGGAATAGGCCAT



ACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTTC
TGATAGCAGAACTCAGGTTGGGCCATTCTGTGCTGAATAGCGGTGACCGTCTCGGTGACCATTTGCTCCTAATCGTCTCGCTCCATACATCCGCCACGATGTCTCAAG



pMB72 (C-term GFP-2xTEV-Avi) (5052 bp) (from 3639-4494 bp)

TTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGAAAAAGAGTTGGTAGCTCTTGATCCGG
AACTTCACCACCGGATTGATGCCGATGTGATCTTCTTGTCAATAACCATAGACGCGAGACGACTTCGGTCAATGGAAGCCTTTTCTCAACCATCGAGAACTAGGCC

ColE1 origin

3,640 3,660 3,680 3,700 3,720 3,740

CAAAACAAACCACCGCTGGTAGCGGTGGTTTTTTTGGTTGCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGGTCTG
GTTTGGTTGGTGGCGACCATCGCCACCAAAAAACAAACGTTTCGTCGTCTAATGCGCGTCTTTTTTCTAGAGTTCTTCTAGGAACTAGAAAAGATGCCCCAGAC

ColE1 origin

3,760 3,780 3,800 3,820 3,840

ACGCTCAGTGAACGAAAACTCACGTTAAGGGATTTTGGTCATGAGATTATCAAAAAGGATCTTCACCTAGATCCTTTTAAATTAAAAATGAAGTTTTAAATCAATC
TGCGAGTCACCTTGCTTTTGAGTGCAATTCCTAAAACAGTACTCTAATAGTTTTTCTAGAAAGTGATCTAGGAAATTTAATTTTACTTCAAAATTTAGTTAG

ColE1 origin

3,860 3,880 3,900 3,920 3,940

TAAAGTATATATGAGTAAACTTGGTCTGACAGTTACCAATGCTTAATCAGTGAGGCACCTATCTCAGCGATCTGTCTATTTTCTGTTTCATCCATAGTTGCCTGACTCCC
ATTCATATATACTCATTTGAACCAGACTGTCAATGGTTACGAATTAGTCACTCCGTGGATAGAGTCGCTAGACAGATAAAGCAAGTAGGTATCAACGGACTGAGGG

AmpR

3,960 3,980 4,000 4,020 4,040 4,060

CGTCGTGTAGATAACTACGATACGGGAGGGCTTACCATCTGGCCCCAGTGCTGCAATGATACCGCGAGACCCACGCTCACCGGCTCCAGATTTATCAGCAATAAACC
GCAGCACATCTATTGATGCTATGCCCTCCGAATGGTAGACCGGGTCACGACGTTACTATGGCGCTCTGGGTGCGAGTGGCCGAGGTCTAAATAGTCGTTATTTGG

AmpR

4,080 4,100 4,120 4,140 4,160

AGCCAGCCGAAGGGCCGAGCGCAGAAGTGGTCCTGCAACTTTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGGAAGCTAGAGTAAGTAGTTCGCCAGTTAAT
TCGGTCGGCCTTCCCGGCTCGCGTCTTACCAGGACGTTGAAATAGCGGAGGTAGGTAGAGTAATTAACAACGGCCCTTCGATCTCATTCAAGCGGTCAATTA

AmpR

4,180 4,200 4,220 4,240 4,260 4,280

AGTTTGCGCAACGTTGTTGCCATTGCTACAGGCATCGTGGTGTACGCTCGTGGTTGGTATGGCTTCATTAGCTCCGGTTCCCAACGATCAAGGCGAGTTACATG
TCAAACGCGTTGCAACAACGGTAACGATGTCCGTAGCACCACAGTGCGAGCAGCAAACCATACCGAAGTAAGTCGAGGCCAAGGGTTGCTAGTTCCGCTCAATGTAC

AmpR

4,300 4,320 4,340 4,360 4,380

ATCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCTCCGATCGTTGTGAGAAGTAAGTTGGCCGAGTGTTATCACTCATGGTTATGGCAGCACTGCATA
TAGGGGGTACAACACGTTTTTTCGCCAATCGAGGAAGCCAGGAGGTAGCAACAGTCTTCATTCAACCGCGTCACAATAGTGAGTACCAATACCGTCGTGACGTAT

AmpR

4,400 4,420 4,440 4,460 4,480

pMB72 (C-term GFP-2xTEV-Avi) (5052 bp) (from 4495-5052 bp)

ATTCTCTTACTGTCATGCCATCCGTAAGATGCTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGAGAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCG
TAAGAGAATGACAGTACGGTAGGCATTCTACGAAAAGACACTGACCACTCATGAGTTGGTTCAGTAAGACTCTTATCACATACGCCGCTGGCTCAACGAGAACGGGC

>> AmpR <<

4,500 4,520 4,540 4,560 4,580 4,600

GCGTCAATACGGGATAATACCGCGCCACATAGCAGAACTTTAAAAGTGCTCATCATTGGAAAACGTTCTTCGGGGCGAAAACTCTCAAGGATCTTACCGCTGTTGAG
CGCAGTTATGCCCTATTATGGCGCGGTGTATCGTCTTGAAATTTTCACGAGTAGTAACCTTTTGAAGAAGCCCCGCTTTTGAGAGTTCCTAGAATGGCGACAACCTC

>> AmpR <<

4,620 4,640 4,660 4,680 4,700

ATCCAGTTCGATGTAACCCACTCGTGCACCCAAGTATCTTCAGCATCTTTTACTTTTACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAATGCCGCAAAA
TAGGTCAAGCTACATTGGGTGAGCAGCTGGGTTGACTAGAAGTCGTAGAAAATGAAAGTGGTCGCAAAGACCCACTCGTTTTTGCCTTCCGTTTTACGGCGTTTTT

4,720 4,740 4,760 4,780 4,800

AGGGAATAAGGGCGACACGAAATGTTGAATACTCATACTCTTCCTTTTTCAATATTATTGAAGCATTTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAA
TCCCTTATTCCTGCTGTGCCTTTACAAGTATGAGTATGAGAAGGAAAAAGTTATAATAACTTCGTAAATAGTCCCAATAACAGAGTACTCGCCTATGTATAAACTT

4,820 4,840 4,860 4,880 4,900 4,920

TGTATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCGAAAAGTGCCACCTGACGTCTAAGAAACATTATTATCATGACATTAACTATAAAAAATAG
ACATAAATCTTTTTATTTGTTTATCCCAAGGCGCGTGTAAAGGGGCTTTTCACGGTGGACTGCAGATTCTTTGGTAATAATAGTACTGTAATTGGATATTTTTATC

4,940 4,960 4,980 5,000 5,020

GCGTATCACGAGGCCCTTTCGTC
CGCATAGTGCTCCGGGAAAGCAG

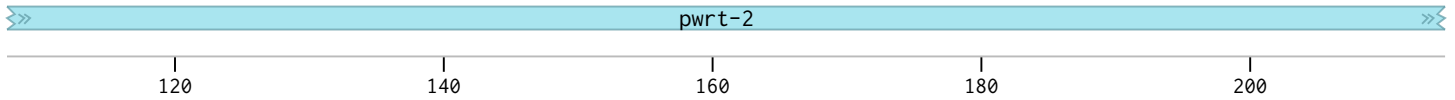
5,030 5,040 5,050

pMB73 (Pwrt-2::BirA) (5999 bp)

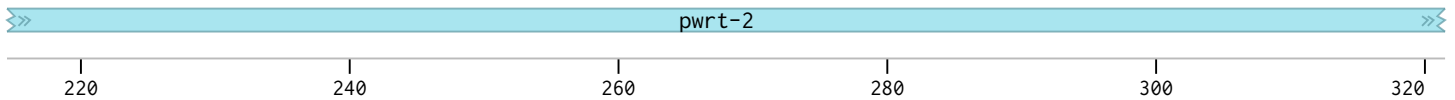
AAGCTTGGGCTGCAGCAGGTCGACTCCAGTAATTtcacaacatccgggaaaagaagtgaaaaaaggactcgagcaactgtacaagaaaattgagaagaacctggtt
 TTCGAACCCGACGTCGTCAGCTGAGGTgCATTAAggtgtgttaggcccttttcttctacttttttctctgagctcggttgacatgttcttttaactcttcttgaccaa



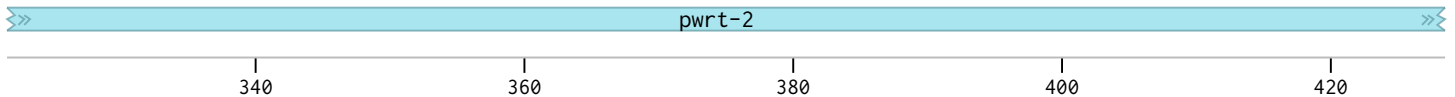
gccaattcatcacttttgcaagttgtatggagagatatgcaagagcaatttgtcaagcaaatgcggaatacaacaaactgattctcacttgttaccaggctcgaa
cggttaagtagtgaaaacgttcaacatacctctctatacgttctcgtaaacagttcgtttaacgccttatgttgtttgactaagagtgaacaatgggtccgagctt



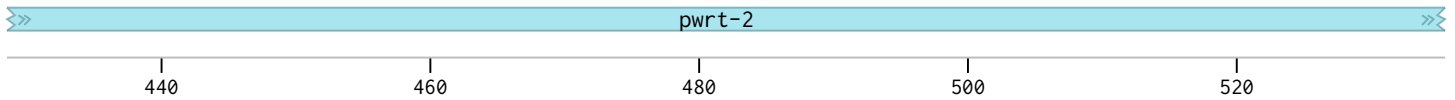
gattgagctcgaagtttcactgacactgtacttcagtcttctcagaaattgtcacaacactaatattacgacgaataattttattgaaatttgtgttttaatt
ctaactcgagcttcaaagggtgactgtgacatgaagtcaagaagagctttaacgagttgtgtgtattataatgctgcttattaaaataacttaaaacaacaaaatta



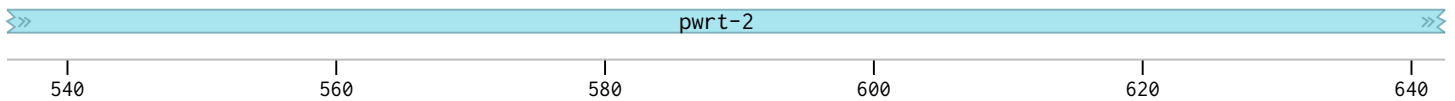
tcat ttaaaatttag ttttaattatcagaactctaatacttactgaaccatgctttgtaatatatttatttatctattctgtaatagggtgaacttcgttacattac
agtaaa ttttaaatcaaaattaaatagtccttgagattatgaatgacttggtacgaaacattatataaaataaatagataagacattatccacttgaagcaatgtaatg



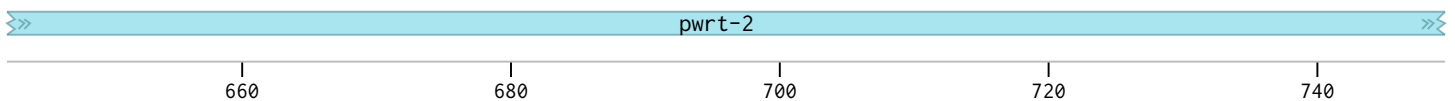
tgatgtctgtaataataaatttacgggtgttccccattcgaaaatagtagtaatgcttgctttttgaaaaataaatgtcttgcttggtgactttttatttcacgtatt
actacagacattatatttaaatgccacaaaggggtaagcttttatcatcttacgaacgaaaaaacctttttatttacagaacgaaccactgaaaaataaagtgcataa



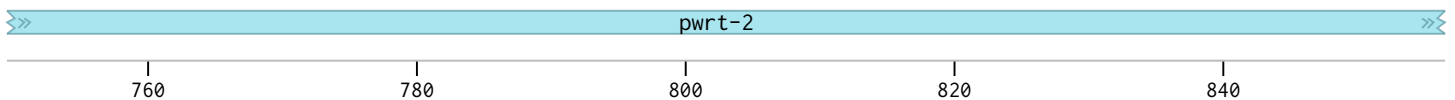
ttcaaatgctcacaaaaatttcacggaactgacttcttggttacacattttagaaaattttgactgaatgtttgcattgaactggtaacttaagaatctgacatgc
aagtttacgagtggttttaaaagtgccttgactgaagaaccaatgtgtaaacatctttaaaactgacttacaaacgtaacttgaccagttgaattcttagactgtacg



aaatggtgtgttttctgaagaacacactttggcaacttttaataaaaaaggggtgtaacacgatttaaactaataaaaaacaacttctataatgttattccgtttat
tttaccacacaaaagacttcttgtgtgaaaccgttgaaaattatttttccccacattgtgctaatttagattatttttgttgaagatattacaataaggcaata



atctcactttatgttttacattttactcttatatacatctttttgactcattttatacagggtgggccataattatggaccacctgtactttatatcttattttaaact
tagagtgaataacaaaatgtaaaatgagaataatgttaaaaaactgagtaaatatgtccaccagggtatttaatacctgggtgggacatgaatatagaataaaatttga



pMB73 (Pwrt-2::BirA) (5999 bp) (from 857-1712 bp)

at t t c a t g t a a g a a t t g t t t t a a c a g c g c a t t t t t t t t c a t c a c t c g a t t t a a g g t a a a t t g a t a g g c c g c a a t c t a t t t t g g a a a c t t c a g a c a a a a t t t a a
t a a a g t a c a t t c t t a a c a a a a t t g t c g c g t a a a a a a g t a g t g a g c t a a a t t t c c a t t t t a a c t a t c c g g c g t t a g a t a a a c c t t t t g a a g t c t t g t t t t a a a t

» p w r t - 2 »

860 880 900 920 940 960

c a t t t t a a g a g g t a a c t g t g a a g g t t t a a g a g a a t t a t a a a c c g a t c t a a c c a c t a a a c a t g g t a a c g t a g a a a a g t a a a a t t a g g g g a g g g g g g a t g t t t a t t
g t a a a a t t c t c c a t t g a c a c t t c c a a a t a t t c t c t t a a t a t t t g g c t a g a t t g g t g a t t t g t a c a t t g c a t c t t t t c a t t t t a a t c c c c t c c c c c t a c a a a t a a

» p w r t - 2 »

980 1,000 1,020 1,040 1,060

t a t t c t t g g t t t t c a a t t c t t a t c a g a c t c t g t a a g t a a a t g a a c a t a a c t t g t t c g a a t a g t g t a g g a a t t t c a a c a a g c t a c a a a t c t a g c t c c a c a t a c g c
a t a a g a a c c a a a a g t t a a g a a t a g t c t g a g a c a t t t c a t t t t a c t t g a t t g a a c a a g c t t a t c a c a t c c t t a a g t t t g t t c g a t g t t t a g a t c g a g g t g t a t g c g

» p w r t - 2 »

1,080 1,100 1,120 1,140 1,160

g t g g a a t a g c c g g t c a t a a a t c g t c t t c c g t t a a c c g c a t g g c t a g a t c c a c a c c g a t t c c a t t t t t c t t g a a t a a a c a a t a g c t t g a t g a a a a t t g g g t a g c c a c
c a c c t t a t c g g c c a g t a t t t a g c a g a g g c a a t t g g c g t a c c g a t c t a g g t g t g g c t a a g g t a a a a g a a c t t a t t t g t t a t c g a a c t a c t t t t a a c c c a t c g g t g

» p w r t - 2 »

1,180 1,200 1,220 1,240 1,260 1,280

c g a a a a a c t g a t t c g c g a t c c g g a t t a t t g g t g a c a a c a t a c g g c a a g t g a a a g t g t t g c a c t g a t a g a a c c g a t a c g a g a a t a t g c c t t t t g g g c c c c c c c c
g c t t t t t g a c t a a g c g c t a g g c c t a a t a a c c a c t g t t t g t a t g c c g t t c a c t t t c a a c g t g a c t a t c t t t g g c t a t g c t c t t a t a c g g a a a c c c g g g g g g g g

» p w r t - 2 »

1,300 1,320 1,340 1,360 1,380

c c c c c c c c t a c g g c t t c a c t c c c g g t g t t g t a g a t c t g a c t t t c a c t t g c c t t a t c t c g a g g a a t c t g g a g a g g a g a g g a g g a c a a c c g a t c c g c g c g c g t a
g g g g g g g g a t g c c g a a g t a g g g c c a c a a c a t c t a g a c t g a a a g t g a a c g g a a t a g a c t c c t t a g a c c t c c c t c t c c c t g t t g g c t a g g c g c g c g c g a t

» p w r t - 2 »

1,400 1,420 1,440 1,460 1,480

a c a a t a c g g g a g a t a t a g a g g a a a g c a g c a a a a g a c a t t t t g a t g a c c t t a t t t t c t t g t c g t t g t c g a g a c g g c c a t t g t c c t t c c a c g c c c a g c t t t t c a t t
t g t t a t g c c c t c t a t a t c t c c t t t t c g t c g t t t t t c t g t a a a c t a c t g g a t a a a a g a a c a g c a a c a g c t c t g c c g g t a a c a g g g a a g g t g c g g g t c g a a a g t a a

» p w r t - 2 »

1,500 1,520 1,540 1,560 1,580 1,600

g t a g t t c a a a t c g c t t c t c a t t g a c a a t C A A C T G C C A A T T G T T T C T C G G g a t c C C C G G G T G C C T A T A G T G A G T C G T A T T G G T A C C a a a a T G G A G C A G A A G C T C
c a t c a a g t t t a g c g a a g a g t a a c t g t t a G T T G G A C G G T T A C A A A G A G C C c t a g G G G C C A C G G A T A T C A C T C A G C A T A A C C A T G G t t t t A C C T C G T C T T C G A G

» p w r t - 2 »

1,620 1,640 1,660 1,680 1,700

pMB73 (Pwrt-2::BirA) (5999 bp) (from 1713-2568 bp)

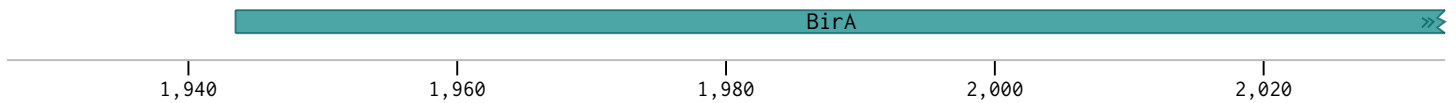
ATCTCTGAGGAAGACCTCGGAGGAGAGCAGAACTCATCTCTGAAGAGGACCTCATGAAGGATAATACTGTTCCATTGAAGTTGATTGCTTTGCTTGCAAATGGAGA
TAGAGACTCCTTCTGGAGCCTCCTCTCGTCTTTGAGTAGAGACTTCTCCTGGAGTACTTCTATTATGACAAGGTAACCTCAACTAACGAAACGAACGTTTACCTCT



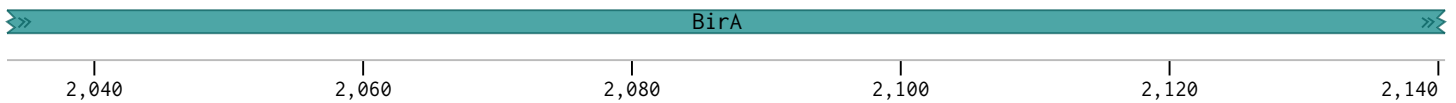
ATTCATTCTGGAGAACAACCTTGAGAGACGTTGGGAATGTCGCGTGCTGCAATTAACAAGCATATTCAAACAgtaagtttaaacagttcgggtactaactaaccata
TAAAGTAAGACCTCTTGTTGAACCTCTCTGCAACCTTACAGCGCACGACGTTAATTGTTCTGATAAGTTTGTcattcaaattgtcaagccatgattgattggtat



catatttaaattttcagTTGAGAGACTGGGGAGTTGACGTTTTTACGGTTCAGGAAAGGGATATTCGCTTCAGAGCCAATTCAGCTCTTGAATGCAAAGCAAATT
gtataaaatttaaagtcAACTCTGACCCCTCAACTGCAAAAATGCCAAGGTCCTTTCCTATAAGCGAAGGTCTCGGTTAAGTCGAGAACTTACGTTTCGTTTAA



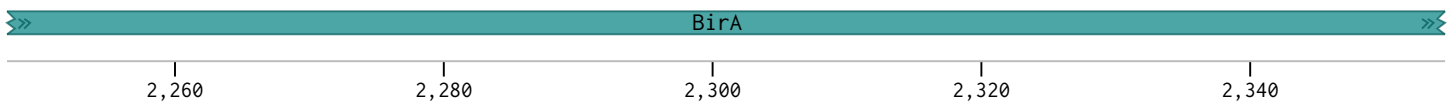
TTGGGACAGCTTGATGGTGGTAGTGTTGCAGTACTTCCGGTTATAGATAGTACAAATCAGTACTTGCTTGATCGAATAGGAGAATTGAAATCAGGAGATGCTTGCAT
AACCCTGTGCAACTACCACCATCACACGTCATGAAGGCCAATATCTATCATGTTTAGTCATGAACGAACTAGCTTATCCTCTTAACCTTATAGTCTCTACGAACGTA



CGCTGAGTATCAGCAGGCTGGACGAGGACGAAGAGGACGTAAGTGGTCTGtaagtttaacatatataactaactaacctgattatttaaattttcagCGCCTT
GCGACTCATAGTCGTCGACCTGCTCCTGCTTCTCTGCATTACCAAGAcattcaaattgtatatatatgattgattgggactaataaaatttaaagtcGCGGAA



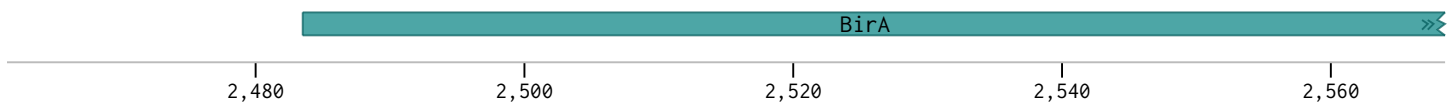
TCGGAGCCAATCTCTATTTGAGTATGTTCTGGCGTCTTGAACAAGGTCCGGCCGCTGCTATCGGACTTTCATTGGTTATTGGAATTGTGATGGCAGAAGTTCTCCGA
AGCCTCGGTTAGAGATAAACTCATACAAGACCGCAGAAGTTGTTCCAGGCCGCGCAGCATAGCCTGAAAGTAACCAATAACCTTAACACTACCGTCTTCAAGAGGCT



AACTTGGTGCAGATAAGGTGAGAGTCAAGTGGCCTAACGATCTTTATCTTCAAGATAGAAAATTGGCCGAATATTGtaagtttaacatatataactaactaa
TTGAACCACGTCTATTCCACTCTCAGTTCACCGGATTGCTAGAAATAGAAGTCTATCTTTAACCGGCCTTATAACcattcaaattgtatatatatgattgatt

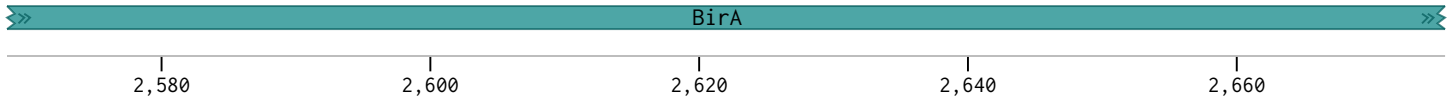


ccctgattatttaaattttcagGTTGAGCTTACTGGAAGACGGGAGATGCTGCTCAAATTGTGATTGGAGCTGGTATCAATATGGCAATGAGAAGAGTAGAAGAGT
gggactaataaaatttaaagtcCAACTCGAATGACCTTTCTGCCCTCTACGACGAGTTTAACTAACCTCGACCATAGTTATACCGTTACTCTTCTCATCTTCTCA



pMB73 (Pwrt-2::BirA) (5999 bp) (from 2569-3531 bp)

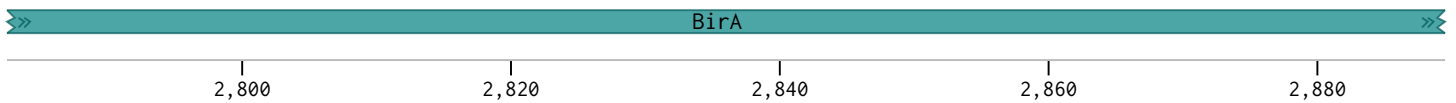
CTGTTGTTAATCAAGGTTGGATCACACTTCAAGAGGCAGGAATCAACCTTGATAGAAATACGTTGGCCGCCATGCTTATCCGAGAATTGCGAGCTGCACTCGAACTC
GACAAACATTAGTTCCAACCTAGTGTGAAGTTCTCCGTCCTTAGTTGGAACATCTTTATGCAACCGGCGGTACGAATAGGCTCTTAACGCTCGACGTGAGCTTGAG



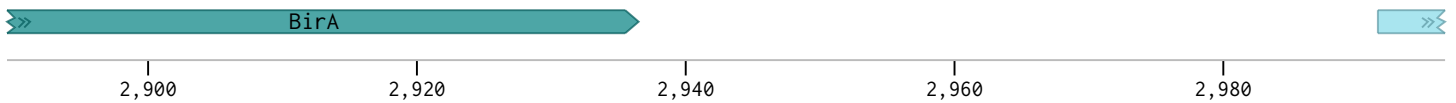
TTCGAACAAGAAGGCTTTgtaagtttaacatatatataactaaccctgattattttaattttcagGCCCCCTTACCTCAGTAGATGGGAGAACTTGACAATTT
AAGCTTGTTCTTCCAGAAcattcaaatgttatatatatgattgattgggactaataaatttaaagtcCGGGGAATGGAGTCATCTACCTCTTTGAACTGTTAAA



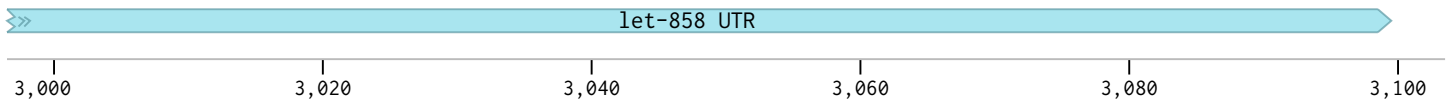
TATCAATCGACCAGTGAAGTTGATAATTGGAGATAAGGAAATTTTGGTATCAGTCGAGGAATTGATAAGCAAGGAGCTCTTCTCCTTGAGCAAGATGGAATCATT
ATAGTTAGCTGGTCACTTCACTATTAACCTCTATTCTTTAAAAACCATAGTCAGCTCCTTAACATTTCGTTCTCGAGAAGAGGAACCTGTTCTACCTTAGTAAT



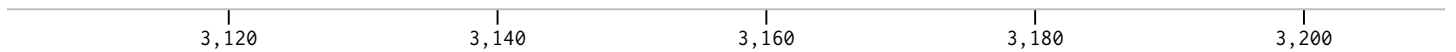
AACCATGGATGGGTGGAGAGATTTCTTTGCGATCTGCTGAAAAGTAAGAATTCGCTAGCCGCCATACAAGTAATCCGGATGATCGACGCCaACGTCGTTGAATTTT
TTGGTACCTACCCACCTCTCTAAAGAACGCTAGACGACTTTTCATTCTTAAGCGATCGCCGGTATGTTTCATTAGGCCTACTAGCTGCGGtTGCAGCAACTTAAAA



CAATTTTAAATACTGAATATTTGTTTTTTTCTATTATTTATTTATTCTCTTTGTGTTTTTTTCTTGCTTTCTAAAAATTAATTCAATCCAATCTAAacatt
GTTTAAATTTATGACTTATAAACAAAAAAGGATAATAAATAAATAAGAGAAACACAAAAAAGAACGAAAGATTTTTTAATTAAGTTAGTTTAGATTgttaa



tttttttctctttccgtctccaattcgtattccgctcctctcatctgaacacaatgtgcaagtttattatcttctcgctttcatttcatttaggacgtggggggaa
aaaaaaagagaaaggcagagggttaagcataaggcagaggagtagacttgtgttacacgttcaaataaatagaagagcgaaagtaaagtaatcctgcacccccctt



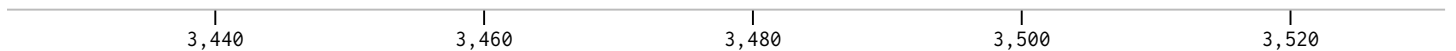
ttggtggaaggggaaacacacaaaaggatgatggaatgaataaggacacacaatatgcaacaacattcaattcagaaatatggaggaaggtttaaaagaaaaca
aaccaccttcccccttgtgtgttttctactacctttactttattcctgtgtgttatacgttgttgaagtaagtctttatacctccttccaaattttcttttgt



taaaaatatatagagggaaggaaaactagtaaaaaataagcaaagaaattaggcgaacgatgAGAATTGCTCTCGCTTGGGCCCTTTCGTCTCGCGCTTTCGGT
atttttatatatctcctccttcttttgatcatTTTTATTCTGTTTCTTAAATCCGCTTGTCTTAAACAGGAGCGAACCCGGGAAAGCAGAGCGCGCAAGGCCA



GATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAGACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCAGCGGGTGT
CTACTGCCACTTTTGGAGACTGTGTACGTCGAGGGCCTCTGCCAGTGTGCAACAGACATTGCGCTACGGCCCTCGTCTGTTTCGGGCAGTCCCGCGCAGTCGCCACA



pMB73 (Pwrt-2::BirA) (5999 bp) (from 3532-4494 bp)

TGGCGGGTGTGCGGGCTGGCTTAAGTATGCGGCATCAGAGCAGATTGTACTGAGAGTGCACCATATGCGGTGTGAAATACCGCACAGATGCGTAAGGAGAAAATACC
ACCGCCACAGCCCCGACCGAATTGATACGCCGTAGTCTCGTCTAACATGACTCTCACGTGGTATACGCCACACTTTATGGCGTGTCTACGCATTCTCTTTTATGG

3,540 3,560 3,580 3,600 3,620

GCATCAGGCGGCCTTAAGGGCCTCGTGATACGCCTATTTTTATAGGTTAATGTCATGATAATAATGGTTTCTTAGACGTGAGTGGCACTTTTCGGGGAAATGTGCG
CGTAGTCCGCCGAATTCCCGGAGCACTATGCGGATAAAAAATCCAATTACGTACTATTATTACCAAAGAATCTGCAGTCCACCGTGAAAAGCCCTTTACACGC

3,640 3,660 3,680 3,700 3,720 3,740

CGGAACCCCTATTTGTTTTTTTTCTAAATACATTCAAATATGTATCCGCTCATGAGACAATAACCTGATAAATGCTTCAATAATATTGAAAAAGGAAGAGTATGA
GCCTTGGGGATAAACAAATAAAAAAGATTTATGTAAGTTTATACATAGGCGAGTACTCTGTTATTGGGACTATTTACGAAGTTATTATAACTTTTTCTCTCATACT

3,760 3,780 3,800 3,820 3,840

GTATTCAACATTTCCGTGTCGCCCTTATTCCTTTTTTGCGGCATTTTGCCTTCCTGTTTTTGTCTACCCAGAAACGCTGGTGAAAGTAAAAGATGCTGAAGATCAG
CATAAGTTGTAAAGGCACAGCGGGAATAAGGGAAAAACGCCGTAAACGGAAGGACAAAAACGAGTGGGCTTTGCGACCACTTTTCAATTTCTACGACTTCTAGTC

3,860 3,880 3,900 3,920 3,940

TTGGGTGCACGAGTGGGTTACATCGAACTGGATCTCAACAGCGGTAAGATCCTTGAGAGTTTTCGCCCCGAAGAAGCTTTTCCAATGATGAGCACTTTTAAAGTTCT
AACCCACGTGCTCACCAATGTAGCTTGACCTAGAGTTGTCGCCATTCTAGGAACTCTCAAAAGCGGGGCTTCTTGCAAAGGTTACTACTCGTGAAAATTTCAAGA

AmpR

3,960 3,980 4,000 4,020 4,040 4,060

GCTATGTGGCGCGGTATTATCCCGTATTGACGCCGGCAAGAGCAACTCGGTGCGCCGATACACTATTCTCAGAATGACTTGGTTGAGTACTACCAAGTCACAGAAA
CGATACACCGCGCCATAATAGGGCATAACTGCGGCCGTTCTCGTTGAGCCAGCGCGTATGTGATAAGAGTCTTACTGAACCAACTCATGAGTGGTCAGTGTCTTT

AmpR

4,080 4,100 4,120 4,140 4,160

AGCATCTTACGGATGGCATGACAGTAAGAGAATTATGCAGTGCTGCCATAACCATGAGTGATAAACTGCGGCCAACTTACTTCTGACAACGATCGGAGGACCGAAG
TCGTAGAATGCCTACCGTACTGTCATTCTCTTAATACGTACGACGGTATTGGTACTCACTATTGTGACGCCGGTTGAATGAAGACTGTTGCTAGCCTCCTGGCTTC

AmpR

4,180 4,200 4,220 4,240 4,260 4,280

GAGCTAACCGCTTTTTTGACAACATGGGGGATCATGTAACCTCGCCTTGATCGTTGGGAACCGGAGCTGAATGAAGCCATACCAAACGACGAGCGTGACACCACGAT
CTCGATTGGCGAAAAACGTGTTGTACCCCTAGTACATTGAGCGGAAGTACCAACCTTGGCCTCGACTTACTTCGGTATGGTTTGTCTGCTCGCACTGTGGTGCTA

AmpR

4,300 4,320 4,340 4,360 4,380

GCCTGTAGCAATGGCAACAACGTTGCGCAAACTATTAAGTGGCGAACTACTTACTCTAGCTTCCCGGCAACAATTAATAGACTGGATGGAGGCGGATAAAGTTGCAG
CGGACATCGTTACCGTTGTTGCAACGCGTTTGATAATTGACCGCTTGATGAATGAGATCGAAGGGCGGTTGTTAATTATCTGACCTACCTCCGCTATTTCAACGTC

AmpR

4,400 4,420 4,440 4,460 4,480

pMB73 (Pwrt-2::BirA) (5999 bp) (from 4495-5350 bp)

GACCACTTCTGCGCTCGGCCCTTCCGGCTGGCTGGTTTATTGCTGATAAATCTGGAGCCGGTGAGCGTGGGTCTCGCGGTATCATTGCAGCACTGGGGCCAGATGGT
CTGGTGAAGACGCGAGCCGGAAGGCCGACCGACCAAATAACGACTATTTAGACCTCGGCCACTCGCACCAGAGCGCCATAGTAACGTCGTGACCCCGGTCTACCA

>> AmpR >>

4,500 4,520 4,540 4,560 4,580 4,600

AAGCCCTCCCGTATCGTAGTTATCTACACGACGGGGAGTCAGGCAACTATGGATGAACGAAATAGACAGATCGCTGAGATAGGTGCCTCACTGATTAAGCATTGGTA
TTCGGGAGGGCATAGCATCAATAGATGTGCTGCCCTCAGTCCGTTGATACCTACTTGCTTTATCTGTCTAGCGACTCTATCCACGGAGTGACTAATTCGTAACCAT

>> AmpR >

4,620 4,640 4,660 4,680 4,700

ACTGTCAGACCAAGTTTACTCATATATACTTTAGATTGATTTAAACTTCATTTTTAATTTAAAGGATCTAGGTGAAGATCCTTTTTGATAATCTCATGACCAAAA
TGACAGTCTGGTTCAAATGAGTATATGAAATCTAACTAAATTTGAAGTAAAAATTAATTTTCTAGATCCACTTCTAGGAAAACTATTAGAGTACTGGTTTT

>>

4,720 4,740 4,760 4,780 4,800

TCCCTTAACGTGAGTTTTCGTTCCACTGAGCGTCAGACCCCGTAGAAAAGATCAAAGGATCTTCTTGAGATCCTTTTTTCTGCGCGTAATCTGCTGCTTGCAAACA
AGGGAATTGCACTCAAAGCAAGGTGACTCGCAGTCTGGGCATCTTTTCTAGTTTCTAGAGAAGTCTAGGAAAAAAGACGCGCATTAGACGACGAACGTTTGT

>> ColE1 origin >>

4,820 4,840 4,860 4,880 4,900 4,920

AAAAAACCACCGCTACCAGCGTGTTTTGTTTGCCGGATCAAGAGCTACCAACTCTTTTTCCGAAGGTAAGTGGCTTCAGCAGAGCGCAGATACCAAATACTGTCCT
TTTTTTGGTGCGATGGTCGCCACCAACAAACGGCCTAGTTCTCGATGGTTGAGAAAAAGGCTTCATTGACCGAAGTCGTCTCGCTCTATGGTTTATGACAGGA

>> ColE1 origin >>

4,940 4,960 4,980 5,000 5,020

TCTAGTGTAGCCGTAGTTAGGCCACCACTTCAAGAACTCTGTAGCACCGCCTACATACCTCGCTCTGCTAATCCTGTTACCAGTGGCTGCTGCCAGTGGCGATAAGT
AGATCACATCGGCATCAATCCGGTGGTGAAGTCTTGAGACATCGTGGCGGATGTATGGAGCGAGACGATTAGGACAATGGTCACCGACGACGGTCACCGCTATTCA

>> ColE1 origin >>

5,040 5,060 5,080 5,100 5,120

CGTGTCTTACCGGTTGGAAGTCAAGACGATAGTTACCGGATAAGGCGCAGCGTGGGCTGAACGGGGGTTCTGTGCACACAGCCAGCTTGAGCGAAGCAGCTAC
GCACAGAATGGCCCAACCTGAGTTCTGCTATCAATGGCCTATTCCGCGTCGCCAGCCGACTTGCCCCCAAGCACGTGTGTCGGGTGCAACCTCGCTTGCTGGATG

>> ColE1 origin >>

5,140 5,160 5,180 5,200 5,220 5,240

ACCGAACTGAGATACCTACAGCGTGAGCATTGAGAAAGCGCCACGCTTCCGAAGGGAGAAAGGCGGACAGGTATCCGTAAGCGGCAGGGTCGGAACAGGAGAGCG
TGGCTTGACTCTATGGATGTCGCACTCGTAACTTTTCGCGGTGCGAAGGGCTTCCCTTTTCCGCTGTCCATAGGCCATTGCGCGTCCAGCCTTGTCTCTCGC

>> ColE1 origin >>

5,260 5,280 5,300 5,320 5,340

pMB73 (Pwrt-2::BirA) (5999 bp) (from 5351-5999 bp)

CACGAGGGAGCTTCCAGGGGAAACGCCTGGTATCTTTATAGTCCTGTCGGGTTTCGCCACCTCTGACTTGAGCGTCGATTTTTGTGATGCTCGTCAGGGGGCGGA
GTGCTCCCTCGAAGTCCCCCTTTGCGGACCATAGAAATATCAGGACAGCCAAAGCGGTGGAGACTGAACTCGCAGCTAAAAAACTACGAGCAGTCCCCCGCCT

» ColE1 origin »

5,360

5,380

5,400

5,420

5,440

GCCTATGGAAAAACGCCAGCAACGCGGCCTTTTTACGGTTCCTGGCCTTTTGCTGGCCTTTTGCTCACATGTTCTTTCTGCGTTATCCCCTGATTCTGTGGATAAC
CGGATACCTTTTTGCGGTCGTTGCGCCGAAAAATGCCAAGGACCGGAAAAACACCGGAAAAACGAGTGTACAAGAAAGGACGCAATAGGGGACTAAGACACCTATTG

» ColE1 origin »

5,460

5,480

5,500

5,520

5,540

5,560

CGTATTACCGCCTTTGAGTGAGCTGATACCGCTCGCCGAGCCGAACGACCGAGCGCAGCGAGTCACTGAGCGAGGAAGCGGAAGAGCGCCCAATACGCAAACCGCC
GCATAATGGCGGAACTCACTCGACTATGGCGAGCGGCTCGGCTTGCTGGCTCGCTCGCTCAGTCACTCGCTCCTTCGCCTTCTCGCGGGTTATGCGTTTGGCGG

5,580

5,600

5,620

5,640

5,660

TCTCCCGCGCGTTGGCCGATTCATTAATGCAGCTGGCACGACAGGTTTCCCGACTGGAAAGCGGGCAGTGAGCGCAACGCAATTAATGTGAGTTAGCTCACTCATT
AGAGGGGCGCGCAACCGGCTAAGTAATTACGTCGACCGTGCTGTCCAAAGGGCTGACCTTTCGCCCGTCACTCGCGTTGCGTTAATTACACTCAATCGAGTGAGTAA

5,680

5,700

5,720

5,740

5,760

AGGCACCCCAGGCTTTACACTTTATGCTTCCGGCTCGTATGTTGTGTGGAATTGTGAGCGGATAACAATTTACACAGGAAACAGCTATGACCATGATTACGCCAAG
TCCGTGGGTCGCGAAATGTGAAATACGAAGGCCGAGCATACAACACACCTTAACACTCGCCTATTGTTAAAGTGTGTCCTTTGTCGATACTGGTACTAATGCGGTTT

Lac0

M13-rev

5,780

5,800

5,820

5,840

5,860

5,880

CTgtaagtttaaacatgatcttactaactaactattctcatttaaattttcagAGCTTAAAAATGGCTGAAATCACTCACAACGATGGATACGCTAACAACCTTGAA
GAcattcaaatttgtagtagaatgattgattgataagagtaaatttaaagtcTCGAATTTTACCGACTTTAGTGAGTGTTGCTACCTATGCGATTGTTGAACCTT

5,900

5,920

5,940

5,960

5,980

ATGAAAT

TACTTTA

5,999

pMB76 (7778 bp)

AAGCTTGGGCTGCAGTAATTTGAAATGTATGAACTCCAATTCTTGATAACCAATTCCTGACTCTGTAATAATTATTATTATAATCCTATTACCCACCTTTTTTCCC
TTCGAACCCGACGTCATTAAAGCTTTACATACTTGAGGTTAAGAACTATTGGTTAAGGACTGAGACATTGATAATAATAATATTAGGATAATGGGTGGAAAAAAGGG

elt-2 promoter »»

20 40 60 80 100

ATTCTGCTCTTAGTTCTCCCCAACCCGTACATTTTCTCAACTAATgAAGACAATGAGAAAGTGAGAGAGAATAAGACGAACTGAAAAGAATGTGTAACAGTTTAT
TAAGACGAGAATCAAGAGGGGGTTGGGCATGTAAAAGAGTTGATTacTTCTGTACTCTTCACTCTCTCTTATTCTGCTTGACTTTTCTACACATTTGTCAAATA

elt-2 promoter »» elt-2 promoter »»

120 140 160 180 200

TGCCTCTCGATTGTACCATCTAGTGTCTTGTCTGTGCATAACTACTGATAACAGATCGAATGTGAAAGACCCAATAAATGCTTGAAAGTATCAAATATGTTTAGA
ACGGAGAGCTAACATGGTAGATCACAGAACAGCACACGTATTGATGACTATTGTCTAGCTTACACTTTCTGGGTTATTTACGAACCTTTCATAGTTTATACAAATCT

elt-2 promoter »»

220 240 260 280 300 320

AATAGTATTTAGAGACTTATGTGGACGAAAAAACAGGAGCATTAAGAATACAGTTGCAAACATTCATCAAGTTATAATCTAATAATATAAATcCAAAATGTTAAT
TTATCATAAATCTCTGAATACACCTGCTTTTTTGTCTCGTAATTCTTATGTCAACGTTTGTAAGTAGTTCAATATTAGATTATTATTTAgGTTTTTACAATTA

elt-2 promoter »»

340 360 380 400 420

GATAAAAAATGATGATCAAAGTAGGAAATTAGTGGCGAGAAAAACAATAAATCATCAGAAAATGACTGATCTTGAGTAGAGTGCTTTTTTGTAGATTTCTGATTCTA
CTATTTTTTACTACTAGTTTCATCCTTTAATCACCGCTCTTTGTATTAGTAGTCTTTACTGACTAGAACTCATCTCACGAAAAAACATCTAAAGACTAAGAT

elt-2 promoter »»

440 460 480 500 520

AAACTGAAAAAAACTAAAAATGCTCGATGAGTCATACTAATTGAAAAATAATCAGATTGAAAACGTTAAAAATGACTTGCTAACATACTTCCATGGTTATTTTT
TTTGACTTTTTTTTTGATTTTTACGAGCTACTCAGTATGATTAACCTTTTTATTAGTCTAACTTTTGAATTTTACATGAACGATTGTATGAAGGTACCAATAAAAA

elt-2 promoter »»

540 560 580 600 620 640

GAACACAAATAAAGTTATATACATCTTTACCGGCACCAGAAGAAATCACCGCTAACCAATGTTTCAGTTTTTACCTGAATATCCCTGAAAGTACAAAAAATCAATGT
CTTGTGTTTTATTTCAATATATGTAGAAATGGCCGTGGTCTTCTTTAGTGGCGATTGGTTACAAGTCAAAAATGGACTTATAGGGACTTTTCATGTTTTTTTAGTTACA

elt-2 promoter »»

660 680 700 720 740

TCAATCAAGTTTTTGCATGCCTTCGTGTGATGGCTCGCACCAAGTATTCTGACAGTTATAAAATGTTTCCTGTGATCATGAATTTGAAAAAAGAAGTATGGGA
AGTTAGTTCAAAAACGTACGGAAGCACACTACCGAGCGTGGTTCATAAGACTGTCAATATTTTACAAAGGACACTAGTACTTAACTTTTTTTTTCTTGACTACCCT

elt-2 promoter »»

760 780 800 820 840

pMB76 (7778 bp) (from 857-1712 bp)

AAATGTGATATTCATAAATGAAATGTTTAATAAACAAAAAAGAACCGTCATCACAATCTACTCTGAAACGTTACAGTTCCTAATTGACCAATTCAGAATTTTTTG
TTTACACTATAAGTATTTACTTTACAAATTATTTGTTTTTTCTTGGCAGTAGTGTGTTAGATGAGACTTTGCAAGTGCAAGGATTAAGTCTTAAAAAAC

»» elt-2 promoter »»

860 880 900 920 940 960

TACTGACTTAATAAATATAAATTTACAGTTTTAAGAAACATAAATTGAATTATATAAATAAAAAAAAAAACTAAAATGAAGACGTGATGGAATGTTTCACGTATT
ATGACTGAATTATTTATATTTAAATGTCAAAATCTTTGTATTTAACTTAATATATTTATTTTTTTTTTTGATTTTACTTCTGCACTACCTTACAAAGTGCATAA

»» elt-2 promoter »»

980 1,000 1,020 1,040 1,060

AAAAAGCTCTCGGACCGTTTGACATCCAGAAATTATGTGAAAGTGATTTTCTAACCTTTGACGTCAAAAAAGTTTTCTTTTTTGAAAGATACGCTGTTTAGAAA
TTTTTTCGAGAGCCTGGCAACTGTAGTCTTTAATACACTTTCACTAAAAGATTGGGAACTGCAGTTTTTCAAAAAGAAAAAATTTCTATGCGACAAATCTTT

»» elt-2 promoter »»

1,080 1,100 1,120 1,140 1,160

TACTTATACAGCTGATTTTAGAATCTCCAAAAACCTTCAATTACTTAACAACTTTCTAAATAAGAATTTTGATTTTGATTTTCTTTGAACTTCAAACCCCCGT
ATGAATATGTCGACTAAAATCTTAGAGTTTTTTGGAAGTTAATGAATTGTTTGAAAGATTTATTTCTTAAACTAAACTAAAAGAACTTGAAGTTGGGGGGCA

»» elt-2 promoter »»

1,180 1,200 1,220 1,240 1,260 1,280

TAAAAAACCAAATTAATAAAGATAACCAGATTAATTTTAAAGTGAAAAATATAAATTTATTCCTGACTGTTAAAAACGGTTTATAAACGGAGTCACAACACTCATA
ATTTTTGGTTTAATTTTTTTCTATGGTCTAATTAATTTTCACTTTTTATTTAAATAAGGGCTGACAATTTTTGCCAAATATTTGCCTCAGTGTGTGAGTAT

»» elt-2 promoter »»

1,300 1,320 1,340 1,360 1,380

TACAACTATCGACACCAAATAAATAAATTCGAAAGCTAATTGTGTCATTTTCGGATATAGAGAGTAGTGTGAGCAGATGTGTTTTGCAGAACTAAATTGATGACACT
ATGTTGATAGCTGTGGTTTATTTATTGAAGCTTTTCGATTAACACAGTAAAGCCTATATCTCTCATCACACTCGTCTACACAAAAACGTCTTGATTTAACTACTGTGA

»» elt-2 promoter »»

1,400 1,420 1,440 1,460 1,480

ATTATGGAATATAATGACCAAATGTTAAATGTGTTAAGGTTTGATATCAAAACCTGTATTTTCTTTTTATACAGAATTGATAATGTTATCTTCAATTGATTTCTACT
TAATACCTTATATTACTGGTTTACAATTTACACAATTCAAACTATAGTTTTGGACATAAAAGAAAAATATGTCTTAACTATTACAATAGAAGTTAACTAAAGATGA

»» elt-2 promoter »»

1,500 1,520 1,540 1,560 1,580 1,600

TCTGAGCTACGGCGATACGAGGACGCATTCTCAACGATAATGTTGCCATTTTGTCTGATAATTTTTTTACTGATTGTTTCAGAACACCCATAGTTTTTCTCTATTA
AGACTCGATGCCGCTATGCTCCTGCGTAAGAGTTGCTATTACAACGGTAAACAGGACTATTAATAAATGACTAACAAAGTCTTGTGGGTATCAAAAAGAGATAAT

»» elt-2 promoter »»

1,620 1,640 1,660 1,680 1,700

pMB76 (7778 bp) (from 1713-2568 bp)

AACGTTTCATCCTTGACTTCCCCGAGTTTGCTGGCTGAATAGGAAATTTGAAGACAAAAAGGAAAGAATCGGCTCAAACGTCATGCAACTGATAAGGCGACCGTACTT
TTGCAAGTAGGAACTGAAGGGGCTCAAACGACCGACTTATCCTTTAAACTTCTGTTTTCTTTCTTAGCCGAGTTGCAGTACGTTGACTATTCCGCTGGCATGAA

»» elt-2 promoter »»

1,720

1,740

1,760

1,780

1,800

CATTTCAAAGAAGCTCACTTACTGAGCGCAAACATTGAGAAATGAGAGCAAAAGAAGTGGTTTTACAACATGCTAATGTTTTAGACCTTGACCAATAATATTA
GTAAAGTTTTCTTCGAGTGAATGACTCGCGTTTGAACCTTTACTCTCGTTTTCTTACCAAAATGTTGTACGATTACAAAAATCTGGAACATGGTTATTATAAT

»» elt-2 promoter »»

1,820

1,840

1,860

1,880

1,900

1,920

CTGTAGTATACAGTTCGGAGAGCATATGGTTGAAATCTTGAAATACCAATTTATCACTAGTTTGATTGTGTTATCGATGTATAAAGATATATTTTATCATTTTTGAT
GACATCATATGTCAAGCCTCTCGTATACCAACTTTAGAATTTATGGTTAAATAGTGATCAAACAAACAATAGCTACATATTTCTATATAAAATAGTAAAACTA

»» elt-2 promoter »»

1,940

1,960

1,980

2,000

2,020

TATTATCTGATATTGTGGGTGTGAAGTAATATTATGTGCGTGTGGCTGATTATCGAAAAAACTGAAAATTATCAATTTTTCTACAGTTATCTTTTTTGT
ATAATAGACTATAACACCCCACTTCATTATAATACACGCACACCCGACTAATAGCTTTTTTGAATTTAATAGTTAAAAAGATGTCCAATAGAAAAACA

»» elt-2 promoter »»

2,040

2,060

2,080

2,100

2,120

2,140

TATTTTTCATTATTGTATTCTTCATACTCCTTATCCTGCCGAATCACAAAAGTTCAGACAACCTGAAGGTCGCATCACGTTTTGTTTATAAGAATGTTGAACTGG
ATAAAAAGTAATAACATAAGAAGTATGAGGAATAGGACGGGCTTAGTGTTTTCAAGTCTGTTGAACTTCCAGCGTAGTGCAAAACAAATATTCTTACAACCTGACC

»» elt-2 promoter »»

2,160

2,180

2,200

2,220

2,240

TCAGCTTTGGAGACAGAACTGTCCTCCAAATGTTGAATATGTTTCCGTAAACACACTGTGTAACAAAAAGCGTACCCTTTGATCCGGTATTCTTGAAAAAACAT
AGTCGAAACCTCTGTCTTGACAGGAGGTTTACAACCTTATACAAAGGCATTTTGTGTGACACATTGTTTTTCGCATGGGAACTAGGCCATAAGAATTTTTTTGTA

»» elt-2 promoter »»

2,260

2,280

2,300

2,320

2,340

AGAAGGGCGTACTTTTCATATCTCACAAATATGCGTTTTTTATTTTATAATAATATCATTATTGATAATTATGTATTTGTATGTTTTCTTGTCTTTAAATTAT
TCTTCCGCATGAAAAGTATAGAGTGTATACGCAAAAAATAAAATATTATTATAGTAAATACTATTAATATACATAAACATACAAAAGAACAGAAATTTTAATA

»» elt-2 promoter »»

2,360

2,380

2,400

2,420

2,440

2,460

GGTGTGACATCACAGTTTAAAAATTATATGAAACTAATGAGTGAAAAGTTAAAAATGTATAGTTTGCCGTATTTTCTCCATTAGTATTGTATTCAAACTTATTTT
CCCACTGTAGTGTCAAATTTTAAATATACTTTTGATTACTCACTTTTCAATTTTACATATCAAACGGCATAAAAGAGGTAATCATAACATAAGTTTGAATAAAG

»» elt-2 promoter »»

2,480

2,500

2,520

2,540

2,560

pMB76 (7778 bp) (from 2569-3424 bp)

CAATTGGTGAGCACTATAAACTTTGTAGGGTAATTGAGGTTCAATACTAATTTTTGAATATCTAGCTTTTGACAAATTATTCAAGTTTTGACAATGATGCCTTATCA
GTTAACCACCTCGTGATATTTGAAACATCCCATTAACCTCAAGTTATGATTAATAAACTTATAGATCGAAAAGTGTAAATAAGTTCAAACTGTTACTACGGAATAGT

»» elt-2 promoter »»

2,580 2,600 2,620 2,640 2,660

AATTAATAAATTACCATAAATTCTTGAAAGCTTTTGATTTTGTTCCTCTGTGAAGGATAGTAATTTATCAACATTTTAACTAGATACATCTGTTCTGGCAATA
TTAATTTTTTTTAAATGGTATTTAAGAAGCTTTGAAAACTAAAACAAAGTGAGACACTTCTATCATTAAATAGTTGTAAATTTGATCTATGTAGACAAGACCGTTAT

»» elt-2 promoter »»

2,680 2,700 2,720 2,740 2,760 2,780

AATTAAGCAAGACTATTACTATGTGCAGTATTAATAGCTGCATTGCAACTTGTTTGAAAGTTTCAGTGAAAACGCAAACTCAATTTAATTTTCAAGTTTGTGTTG
TTAATTTTCGTTCTGATAATGATACACGTCATAATTATCGACGTAACGTTGAACAACTTTCAAAGTCACTTTTGCCTTTTGTAGTTAAATTTAAAGTTCAACAAAC

»» elt-2 promoter »»

2,800 2,820 2,840 2,860 2,880

CAAAATTGGATATATGTATCCATCAAAAGTCTGATCGCCTGTTTTATCTACTTATTGTCTCCTCAGTTGATTTTTTTGTAGTTATTATAAACGCTACTTTGAAACCA
GTTTTAACCTATATACATAGGTAGTTTTTCAGACTAGCGGACAAAATAGATGAATAACAGAGGAGTCAACTAAAAAACATCAATAATATTTGCGATGAACTTTGGT

»» elt-2 promoter »»

2,900 2,920 2,940 2,960 2,980

ATATTTTCTCCTCATTCCACTTTTTTCAATTACCAACTACCGTACATGCAATGATGGGCGGACCCGAGTCCCATGTTTGGCTGGAAGTGGTGGTTGTCTGCGTAT
TATAAAGAAGGAGTAAGGTGAAAAAGTTAATGGTTGATGGCATGTACGTTACTACCGCCTGGGCTCAGGGTACAAACCGACCTTACCCACCAACAGACGCATA

»» elt-2 promoter »»

3,000 3,020 3,040 3,060 3,080 3,100

ATGAGCGACAGAGGTCGGGGCTGAACTGATAAGAATAGTCGACACTAACGCCATAATCGCTAGCCAGCCATCATGCACACCGAGCTCGGTGTGCACACCATCTTTC
TACTCGCTGTCTCCAGCCCCGACTTTGACTATTCTTATCAGCTGTGATTGCGGTATTAGCGATCGGTGAGTACGTGTGGCTCGAGCCACACGTGTGGTAGAAAG

»» elt-2 promoter »»

3,120 3,140 3,160 3,180 3,200

TTTTCAAACCAATACGCTTTGTGCCTTCATTGACAATTTTCTTTTTGATAAAATCAGCCTATCTATACTTCCCAATCATTTTTAGTCTTATCGTTGAACAGCTATCG
AAAAGTTTGGTTATGCGAAACACGGAAGTAAGTGTAAAAAGAAAACTATTTTAGTCGGATAGATATGAAGGGTTAGTAAAAATCAGAATAGCAACTTGTGATAGC

»» elt-2 promoter »»

3,220 3,240 3,260 3,280 3,300

AGGTGCCACTGTTTTCACTGATATCTTCTAAGTTACTATGGCATTAAACATCTTTGTGTTCTTATTTTATGGGTTATTTTAATTAATTTTGCAGTTAATTTTGGAA
TCCACGGTGACAAAAGTGACTATAGAAGATTCAATGATACCGTAATTGTAGAAACACAAGAATAAAATACCAATAAAATTAATTAACCGTCAATTAACCACTT

»» elt-2 promoter »»

3,320 3,340 3,360 3,380 3,400 3,420

pMB76 (7778 bp) (from 3425-4280 bp)

TGAGCAAGAAAATGTTAATTGTAATATCTTCGTCTGAAAATTGTCTTCAAATAGTTTTAATTTTAAAGGCAGTATTTAAGAAAATACACTTCTCGAAGCATTTTTGA
ACTCGTTCTTTTACAATTAACATTATAGAAGCAGACTTTTAAACAGAAGTTTATCAAAATTAATAATTTCCGTCATAAATCTTTTATGTGAAGAGCTTCGTAATAAACT

»» elt-2 promoter »»

3,440 3,460 3,480 3,500 3,520

ATTTTGAATTTTAAACTGCTTGATGTTTTAGGTGCCACTGTTTTATTGATAAGTTTTGATGTATAAATGCTTGATTTTCTTGGCATTCTAATAAAATAGAAACT
TAAAACTTAAAAATTTGACGAACACAAAATCCACGGTGACAAAAGTAACTATTCAAACTACATTTACGAACAAAAGAACCGTAAGATTATTTTATCTTTGA

»» elt-2 promoter »»

3,540 3,560 3,580 3,600 3,620

AGAAAATAGATTATAGCCCGGTGCCCTATAGTGAGTCGTATTGGTACCGGTAGAAAAATGAGTAAAGGAGAAGAACTTTTCACTGGAGTTGTCCAATTCTTGTT
TCTTTTATCTAATATCGGGCCACGGGATCACTCAGCATAACCATGGCCATCTTTTTACTCATTTCCTTCTTGAAAAGTGACCTCAACAGGGTTAAGAACAA

»» GFP »»

3,640 3,660 3,680 3,700 3,720 3,740

GAATTAGATGGTGATGTTAATGGGCACAAATTTCTGTCACTGGAGAGGGTGAAGGTGATGCAACATACGGAACCTTACCCTTAAATTTATTTGCACTACTGGAAA
CTTAATCTACCACTACAATTACCCGTGTTTAAAGACAGTCACCTCTCCCACTTCCACTACGTTGTATGCCTTTTGAATGGGAATTTAAATAAACGTGATGACCTTT

»» GFP »»

3,760 3,780 3,800 3,820 3,840

ACTACCTGTTCCATGGtaagttaaacaatatataactaactaacctgattatttaaattttcagccaacacttgtcactactttctgttatgggtgttcaatgct
TGATGGACAAGGTACCcattcaaatgttatatatatgattgattgggactaataaatttaaagtcggttgtgaacagtgtgaaagacaataaccacaagttacga

»» GFP »» GFP »»

3,860 3,880 3,900 3,920 3,940

tctcgagataccagatcatatgaaacggcatgactttttcaagagtgccatgccgaaggttatgtacaggaaagaactatatttttcaagatgacgggaactac
agagctctatgggtctagtatactttgccgtactgaaaaagttctcacggtacgggcttccaatacatgtcctttcttgatataaaaagtttctactgcccttgatg

»» GFP »»

3,960 3,980 4,000 4,020 4,040 4,060

aagacacgtaagttaaacagttcggtagcaagttcctatactttctagagaataggaacttctaactaaccatacatatttaaattttcaggtgctgaagtcaagt
ttctgtgcatcctcaaatgttcaagccatgcttcaaggatatgaaagatctcttatccttgaagattgattggtatgtataaatttaaagtcacgacttcagttca

»» FRT site »» GFP »»

4,080 4,100 4,120 4,140 4,160

ttgaaggtgatacccttgtaataagaatcgagttaaaaggtattgattttaagaagatggaaacattcttggacacaaattggaatacaactataactcacacaat
aacttccactatgggaacaattatcttagctcaattttccataactaaaatttcttctacctttgtaagaacctgtgttaacctatgttgatattgagtggtta

»» GFP »»

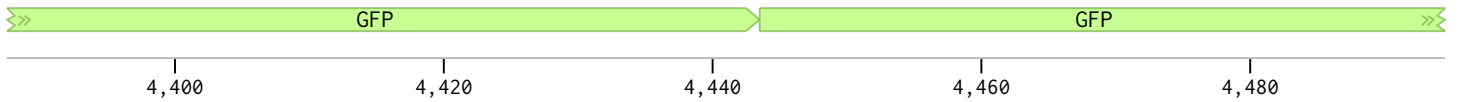
4,180 4,200 4,220 4,240 4,260 4,280

pMB76 (7778 bp) (from 4281-5243 bp)

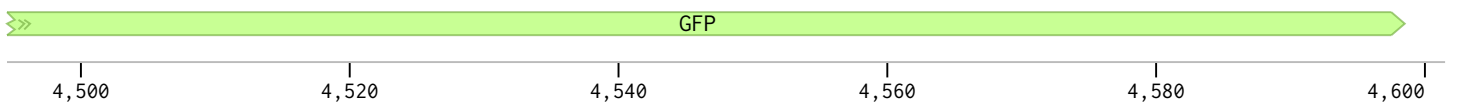
gtatacatcatggcagacaaaacaaagaatggaatcaaagttgtaagtttaaacatgattttactaactaactaatctgatttaattttcagaacttcaaaattag
catatgtagtaccgtctgtttgttttcttaccttagtttcaacattcaaatttgtactaaaatgattgattgattagactaaatttaaagtcttgaagttttaatc



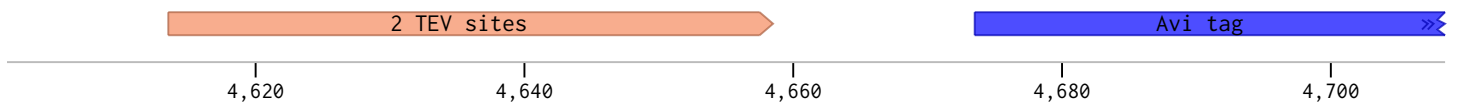
acacaacattgaagatggaagcgttcaactagcagaccattatcaacaaaatactcCAATTGGCGATGGCCCTGTCCTTTACCAGACAACCATTACCTGTCCACAC
tgtgttgtaacttctaccttcgcaagttgatcgctctggtaatagttgttttatgagGTTAACCGCTACCGGGACAGGAAAATGGTCTGTTGGTAATGGACAGGTGTG



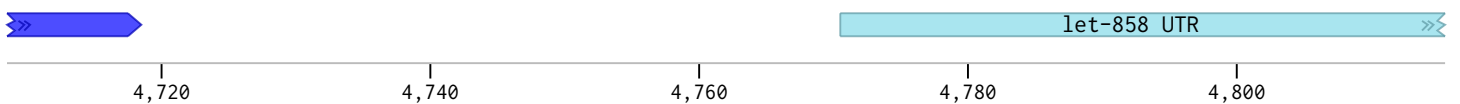
AATCTGCCCTTTGAAAGATCCCAACGAAAAGAGAGACCACATGGTCCTTCTTGAGTTTGAACAGCTGCTGGGATTACACATGGCATGGATGAACATACAAAtct
TTAGACGGGAAAGCTTTCTAGGGTTGCTTTTCTCTCTGTTGTACCAGGAAGAACTCAAACATTGTCGACGACCCTAATGTGTACCGTACCTACTTGATATGTTTtaga



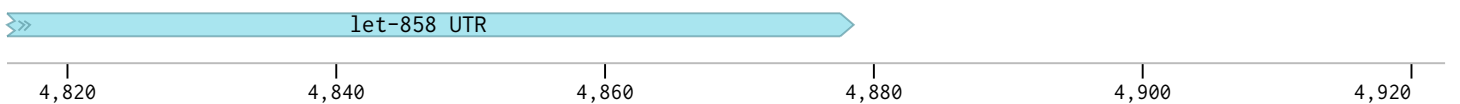
ggaggaggatctGAAAATCTTTATTTCCAAGGAtccGAgAAcTTTAcTTCCAAGGAtctggaggaggatctGGACTTAATGATATTTTCGAAGCTCagAAgATTGA
cctcctcctagaCTTTTAGAAATAAAGGTTCTTaggCTcTtgGAAAtgAAAGTTCTTagacctcctcctagaCCTGAATTACTATAAAAGCTTCGAGTcTtTcTAACT



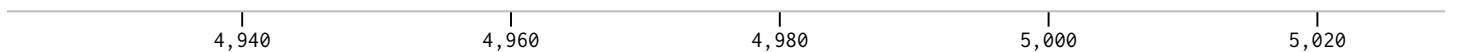
ATGGCATGAAtaaGCTAGCCGCCATACAAGTAATCCGGATGATCGACGCCaACGTCGTTGAATTTTCAAATTTTAAATACTGAATATTTGTTTTTTTCTATTAT
TACCGTACTTAttCGATCGCCGGTATGTTcATTAGGCCTACTAGTcGCGtTGCAGCAACTTAAAAGTTTAAATTTATGACTTATAACAAAAAAGGATAATA



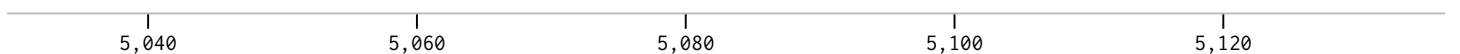
TTATTTATTCTCTTTGTGTTTTTTTCTTGCTTTCTAAAAAATTAATTCAATCCAAATCTAAacatttttttctctttccgtctcccaattcgattccgctcct
AATAAATAAGAGAAACACAAAAAAGAACGAAAGATTTTTTAATTAAGTTAGGTTTAGATTtgtaaaaaaaagagaaaggcagagggttaagcataaggcgagga



ctcatctgaacacaatgtgcaagtttatttatcttctcgtttcatttcatttaggacgtggggggaattggtggaagggggaacacacaaaaggatgatggaatg
gagtagacttggtgttacacgttcaataaatagaagagcgaagtaaaagtaatcctgcaccccccttaaccaccttccccctttgtgtgttttctactacctttac



aaataaggacacacaatatgcaacaacattcaattcagaaatatggaggaaggtttaaagaaaacataaaaatatatagaggaggaaggaaaactagtaaaaaata
tttattcctgtgtgttatacgttggtgtaagtttaagtttatactccttccaaattttcttttgtatttttatatatctcctccttcttttgatcatTTTTat



agcaaagaaattaggcgaacgatgAGAATTGTCCTCGCTTGGGCCCTTTCTGTCGCGGTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAGA
tcgtttctttaatccgcttgctacTCTTAACAGGAGCGAACCCGGGAAAGCAGAGCGCGCAAGCCACTACTGCCACTTTTGGAGACTGTGTACGTCGAGGCGCTCT



pMB76 (7778 bp) (from 5244-6206 bp)

CGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCAGCGGGTGTGGCGGGTGTGGGGCTGGCTTAACATATGCGGCATCAGAG
GCCAGTGTGGAACAGACATTTCGCTACGGCCCTCGTCTGTTTCGGGCAGTCCCGCGCAGTCGCCCACAACCGCCACAGCCCCGACCGAATTGATACGCGTAGTCTC

5,260 5,280 5,300 5,320 5,340

CAGATTGTACTGAGAGTGCACCATATGCGGTGTGAAATACCGCACAGATGCGTAAGGAGAAAAATACCGCATCAGGCGGCCTTAAGGGCCTCGTGATACGCCTATTTT
GTCTAACATGACTCTCACGTGGTATACGCCACACTTTATGGCGTGTCTACGCATTCTCTTTTATGGCGTAGTCCGCCGGAATCCCGGAGCACTATGCGGATAAAA

5,360 5,380 5,400 5,420 5,440

TATAGTTAATGTCATGATAAATATGGTTTCTTAGACGTACAGTGGCACTTTTCGGGGAATGTGCGCGGAACCCCTATTTGTTATTTTTCTAAATACATTCAAAT
ATATCCAATTACAGTACTATTATTACCAAAGAATCTGCAGTCCACCGTGAAAAGCCCTTTACACGCGCCTTGGGGATAAACAATAAAAAAGATTTATGTAAGTTTA

5,460 5,480 5,500 5,520 5,540 5,560

ATGTATCCGCTCATGAGACAATAACCCTGATAAATGCTTCAATAATATTGAAAAAGGAAGAGTATGAGTATTCAACATTTCCGTGTCGCCCTTATTCCTTTTTTGC
TACATAGCGGAGTACTCTGTTATTGGGACTATTTACGAAGTTATTATAACTTTTTCTTCTCATACTCATAAGTTGTAAAGGCACAGCGGGAATAAGGGAAAAACG

5,580 5,600 5,620 5,640 5,660

GGCATTTTGCCTTCTGTTTTTGTCAACCCAGAAACGCTGGTGAAAGTAAAAGATGCTGAAGATCAGTTGGGTGCACGAGTGGGTACATCGAACTGGATCTCAACA
CCGTAAAACGGAAGGACAAAACGAGTGGGTCTTTGCGACCACTTTTCAATTTCTACGACTTCTAGTCAACCCACGTGCTCACCAATGTAGCTTGACCTAGAGTTGT

5,680 5,700 5,720 5,740 5,760

GCGGTAAGATCCTTGAGAGTTTTCGCCCCGAAGAACGTTTTCCAATGATGAGCACTTTTAAAGTTCTGCTATGTGGCGCGGTATTATCCCGTATTGACGCCGGGCAA
CGCCATTCTAGGAACCTCAAAAGCGGGGCTTCTTGCAAAAGGTTACTACTCGTGAAAATTTCAAGACGATACACCGCGCCATAATAGGGCATAACTGCGGCCCGTT

AmpR

5,780 5,800 5,820 5,840 5,860 5,880

GAGCAACTCGGTGCGCCGATACACTATTCTCAGAATGACTTGGTTGAGTACTACCAGTCACAGAAAAGCATCTTACGGATGGCATGACAGTAAGAGAATTATGCAG
CTCGTTGAGCCAGCGGCGTATGTGATAAGAGTCTTACTGAACCAACTCATGAGTGGTCAGTGTCTTTTCGTAGAATGCCTACCGTACTGTCATTCTCTTAATACGTC

AmpR

5,900 5,920 5,940 5,960 5,980

TGCTGCCATAACCATGAGTGATAAACTGCGGCCAACTTACTTCTGACAACGATCGGAGGACCGAAGGAGCTAACCGCTTTTTTGCACAACATGGGGGATCATGTAA
ACGACGGTATTGGTACTCACTATTGTGACGCCGGTTGAATGAAGACTGTTGCTAGCCTCCTGGCTTCTCGATTGGCGAAAAACGTGTTGTACCCCTAGTACATT

AmpR

6,000 6,020 6,040 6,060 6,080

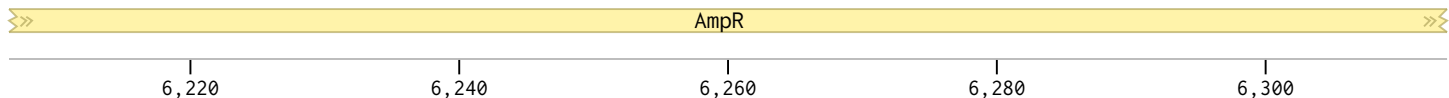
CTCGCCTTGATCGTTGGGAACCGGAGCTGAATGAAGCCATACCAAACGACGAGCGTGACACCACGATGCCTGTAGCAATGGCAACAACGTTGCGCAAACCTATTAAC
GAGCGGAAC TAGCAACCCTTGGCCTGACTTACTTCGGTATGTTTGTGCTCGCACTGTGGTGCTACGGACATCGTTACCGTTGTTGCAACGCGTTTGATAATTGA

AmpR

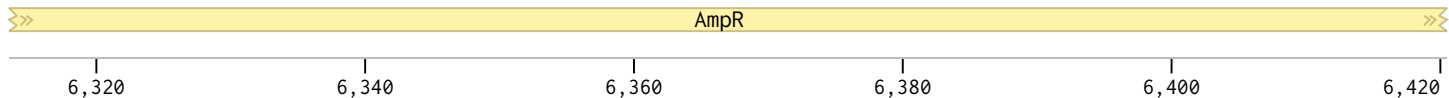
6,100 6,120 6,140 6,160 6,180 6,200

pMB76 (7778 bp) (from 6207-7062 bp)

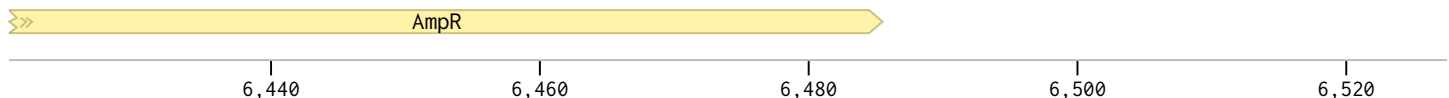
GGCGAACTACTTACTCTAGCTTCCCGGCAACAATTAATAGACTGGATGGAGGCGGATAAAGTTGCAGGACCACTTCTGCGCTCGGCCCTTCCGGCTGGCTGGTTTAT
CCGCTTGATGAATGAGATCGAAGGGCCGTTGTTAATTATCTGACCTACCTCCGCCTATTTCAACGTCTGGTGAAGACGCGAGCCGGAAGGCCGACCGACCAATA



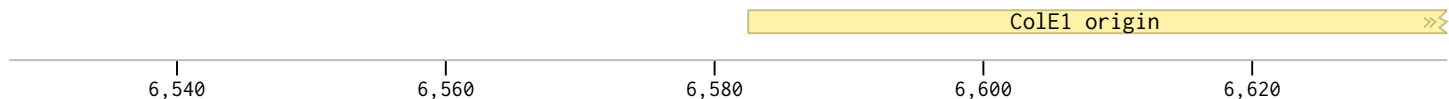
TGCTGATAAATCTGGAGCCGGTGAGCGTGGGTCTCGCGGTATCATTGCAGCACTGGGGCCAGATGGTAAGCCCTCCCGTATCGTAGTTATCTACACGACGGGGAGTC
ACGACTATTTAGACCTCGGCCACTCGCACCCAGAGCGCCATAGTAACGTCGTGACCCCGTCTACCATTCGGGAGGGCATAGCATCAATAGATGTGCTGCCCTCAG



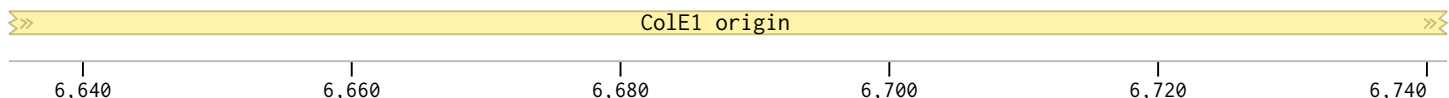
AGGCAACTATGGATGAACGAAATAGACAGATCGCTGAGATAGGTGCCTCACTGATTAAGCATTGGTAACTGTCAGACCAAGTTTACTCATATATACTTTAGATTGAT
TCCGTTGATACCTACTTGCTTTATCTGTCTAGCGACTCTATCCACGGAGTGACTAATTCGTAACCATTGACAGTCTGGTTCAAATGAGTATATGAAATCTAACTA



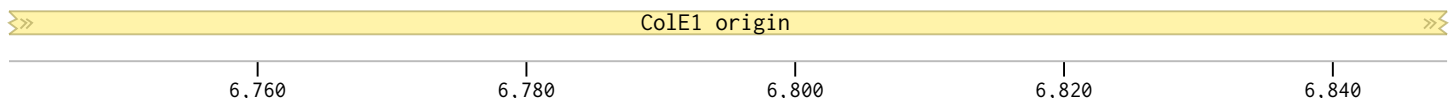
TTAAACTTCATTTTAAATTTAAAGGATCTAGGTGAAGATCCTTTTTGATAATCTCATGACCAAAATCCCTTAACGTGAGTTTTCGTTCCACTGAGCGTCAGACCC
AATTTTGAAGTAAAAATTAATTTTCTAGATCCACTTCTAGGAAAACTATTAGAGTACTGGTTTTAGGGAATTGCACTCAAAGCAAGGTGACTCGCAGTCTGGG



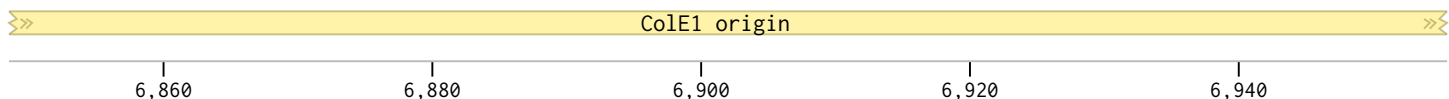
CGTAGAAAAGATCAAAGGATCTTCTTGAGATCCTTTTTTCTGCGCGTAATCTGCTGCTTGCAAACAAAAAACCACCGCTACCAGCGGTGGTTTGTGGCCGATC
GCATCTTTTCTAGTTTCTAGAGAAGTCTAGGAAAAAAGACGCGCATTAGACGACGAACGTTTGTTTTTTGGTGCGCATGGTGCACCAACAAACGGCCTAG



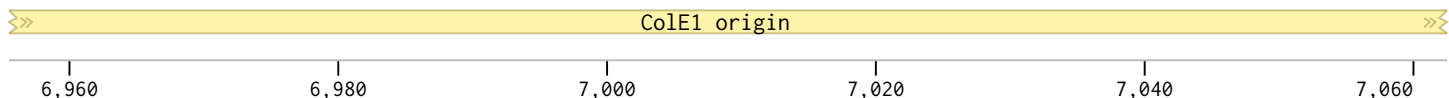
AAGAGCTACCAACTCTTTTTCCGAAGGTAAGTGGCTTCAGCAGAGCGCAGATACCAAATACTGTCCTTCTAGTGTAGCCGTAGTTAGGCCACCACTTCAAGAACTCT
TTCTCGATGGTTGAGAAAAAGGCTTCCATTGACCGAAGTCGTCTCGCGTCTATGGTTTATGACAGGAAGTACATCGGCATCAATCCGGTGGTGAAGTTCTTGAGA



GTAGACCGCCTACATACCTCGCTCTGCTAATCCTGTTACCACTGGCTGCTGCCAGTGGCGATAAGTCGTGTCTTACCGGGTTGGACTCAAGACGATAGTTACCGGA
CATCGTGGCGGATGTATGGAGCGAGACGATTAGGACAATGGTCACCGACGACGGTCACCGCTATTGACACAGAATGGCCCAACCTGAGTTCTGCTATCAATGGCCT



TAAGGCGCAGCGGTGGGCTGAACGGGGGTTTCGTGCACACAGCCAGCTTGGAGCGAACGACCTACACCGAACTGAGATACCTACAGCGTGAGCATTGAGAAAGCG
ATTCCGCGTCGCCAGCCGACTTGCCCCCAAGCACGTGTGCGGGTGAACCTCGTTGCTGGATGTGGCTTGACTCTATGGATGTCGCACTCGTAACTCTTTCGC



pMB76 (7778 bp) (from 7063-7778 bp)

CCACGCTTCCCGAAGGGAGAAAGGCGGACAGGTATCCGGAAGCGGCAGGGTCGGAACAGGAGAGCGCACGAGGGAGCTTCCAGGGGAAACGCCTGGTATCTTTAT
GGTGCGAAGGGCTTCCCTCTTTCCGCCTGTCCATAGGCCATTGCGCGTCCCAGCCTTGTCCTCTCGCGTGCTCCCTCGAAGTCCCCCTTTGCGGACCATAGAAATA

ColE1 origin

7,080 7,100 7,120 7,140 7,160

AGTCCTGTGGGTTTCGCCACCTCTGACTTGAGCGTCGATTTTTGTGATGCTCGTCAGGGGGGCGGAGCCTATGGAAAAACGCCAGCAACGCGGCCTTTTACGGTT
TCAGGACAGCCCAAAGCGGTGGAGACTGAACTCGCAGCTAAAAACACTACGAGCAGTCCCCCGCCTCGGATACCTTTTTCGCGTCGTTGCGCCGAAAAATGCCAA

ColE1 origin

7,180 7,200 7,220 7,240 7,260

CCTGGCCTTTTGCTGGCCTTTTGCTCACATGTTCTTTCCTGCGTTATCCCCTGATTCTGTGGATAACCGTATTACCGCCTTTGAGTGAGCTGATACCGCTCGCCGCA
GGACCGGAAAAACGACCGGAAAAACGAGTGTAAGAAGGACGCAATAGGGGACTAAGACACCTATTGGCATAATGGCGGAACTCACTCGACTATGGCGAGCGGCGT

7,280 7,300 7,320 7,340 7,360 7,380

GCCGAACGACCGAGCGCAGCGAGTCAGTGAGCGAGGAAGCGGAAGAGCGCCCAATACGCAAACCGCCTCTCCCCGCGCGTTGGCCGATTCAATATGCAGCTGGCAC
CGGCTTGCTGGCTCGCGTCGCTCAGTCACTCGCTCCTTCGCTTCTCGCGGTTATGCGTTTGGCGGAGAGGGGCGCGCAACCGGCTAAGTAATTACGTCGACCGTG

7,400 7,420 7,440 7,460 7,480

GACAGGTTTCCCGACTGGAAAGCGGGCAGTGAGCGCAACGCAATTAATGTGAGTTAGCTCACTCATTAGGCACCCAGGCTTTACACTTTATGCTTCGGCTCGTAT
CTGTCCAAAGGGCTGACCTTTTCGCGGTCAGTCACTCGCGTTGCGTTAATTACACTCAATCGAGTGAGTAATCCGTGGGTCCGAAATGTGAAATACGAAGGCCGAGCATA

7,500 7,520 7,540 7,560 7,580

GTTGTGTGAATTGTGAGCGGATAACAATTTACACAGGAAACAGCTATGACCATGATTACGCCAAGCTgtaagtttaacatgatcttactaactaactattctca
CAACACACCTTAACACTCGCCTATTGTTAAAGTGTGTCCTTGTGATACTGGTACTAATGCGGTTGCAGattcaaatttgtagtagaatgattgattgataagagt

Lac0 M13-rev

7,600 7,620 7,640 7,660 7,680 7,700

tttaaattttcagAGCTTAAAAATGGCTGAAATCACTCACAAACGATGGATACGCTAACAACCTTGAAATGAAAT
aaatttaaagtcTCGAATTTTACCGACTTTAGTGAGTGTGCTACCTATGCGATTGTTGAACCTTTACTTTA

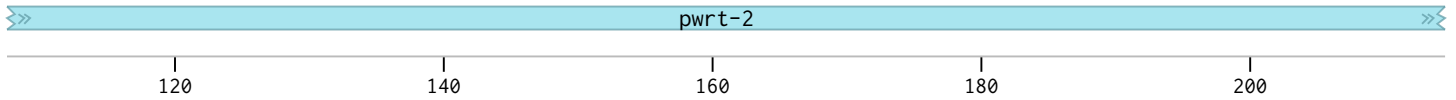
7,710 7,720 7,730 7,740 7,750 7,760 7,770

pMB77 (5784 bp)

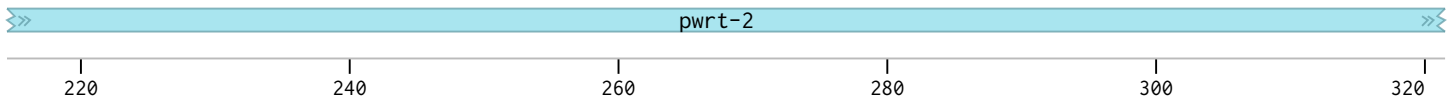
AAGCTTGGGCTGCAGCAGGTCGACTCCAcGTAATTtcacaacatccgggaaaaagaagtgaaaaaaggactcgagcaactgtacaagaaaattgagaagaacctggtt
TTCGAACCCGACGTCGTCAGGTGAGGTgCATTAAagtgtgtaggcccttttcttactttttcctgagctcgttgacatgttcttttaactcttcttggacaa



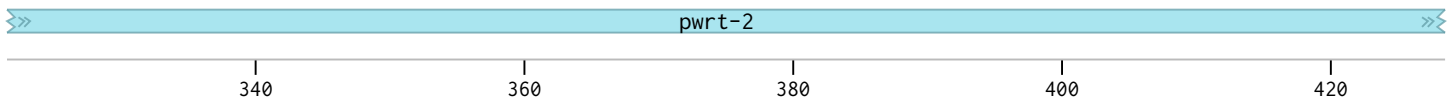
gccaatcctcacttttgcagttgtatggagagatatgcaagagcaatttgcagcaaatgacggaatacaacaaactgattctcacttgttaccaggctcgaa
cggtaagtagtgaaaacgttcaacatacctctctatacgttctcgttaaacagttcgtttaacgccttatgttgttggactaagagtgaacaatgggtccgagctt



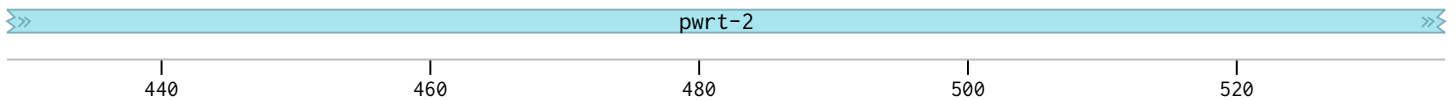
gattgagctcgaagtttccactgacactgtacttcagttcttctcagaaattgctcaacaacactaatattacgacgaataattttattgaattttgtgttttaatt
ctaactcgagcttcaaaggtgactgtgacatgaagtcaagaagagtccttaacgagttgttgtgattataatgctgcttattaaataacttaaaacaacaaaatta



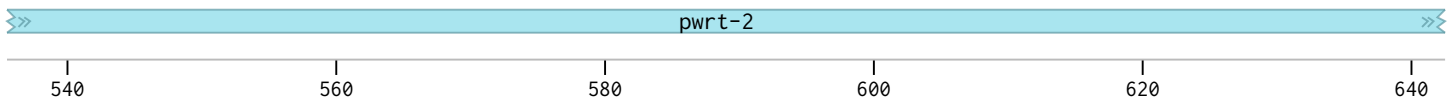
tcatttaaaatttagttttaatttatcagaactctaatacttactgaacctgcttggtaatatattttatctattctgtaatagggtgaacttcgttacattac
agtaaattttaaatcaaaattaaatagctcttgagattatgaatgacttggtagaacattatataaataaataagataagacattatccacttgaagcaatgtaatg



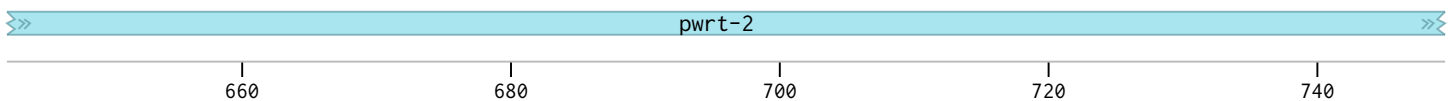
tgatgtctgtaatatataaatttacgggtgttccccattcgaaaatagtagtaatgcttgctttttgaaaaataaatgtcttgcttggtagcttttatttcacgtatt
actacagacattatatttaaatgccacaaggggtaagcttttatcatcattacgaacgaaaaaactttttattacagaacgaaccactgaaaataaagtgcataa



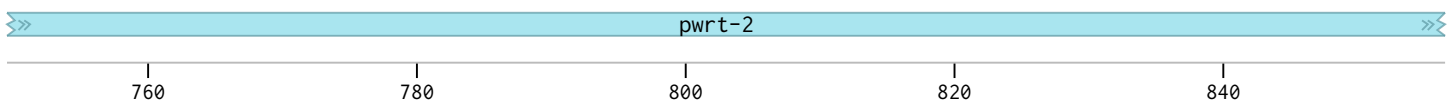
ttcaaatgctcacaaaaatttcacggaactgacttcttggttacacatttgtagaattttgactgaatgtttgcattgaactggtcaacttaagaatctgacatgc
aagtttacgagtggttttaagtgcttgactgaagaaccaatgtgtaaacatctttaaaactgacttacaacgtaacttgaccagttgaattcttagactgtacg



aaatggtgtgttttctgaagaacacactttggcaacttttaataaaaaaggggtgtaacacgatttaaatctaataaaaaaacttctataatgttattccgtttat
ttaccacacaaaagacttcttgtgtgaaacggtgaaaattatttttccccacattgtgctaaatttagattattttgttgaagatattacaataaggcaataa



atctcactttatgttttacattttactcttatatacatttttgactcattttatacagggtggtccataattatggaccacctgtacttatatcttattttaaact
tagagtgaatacaaaatgtaaaatgagaatatatgtaaaaaactgagtaaatatgtcccaccaggtattaataacctggtgggacatgaatatagaataaatttga



pMB77 (5784 bp) (from 857-1712 bp)

atttcattgtaagaattgttttaacagcgcatTTTTTTCatcactcgatttaaaggtaaaattgataggccgcaatctatTTTggaaaacttcagaacaaaatttaa
taaagtacattcttaacaaaattgtcgcgtaaaaaaagtagtgagctaaatttccattttaactatccggcgtagataaaacctTTTgaagtcttgTTTtaatt

» pwrt-2 »

860 880 900 920 940 960

cattttaagaggtaactgtgaaggTTTataagagaattataaacgatctaaccactaaacatggtaacgtagaaaaagtaaaattaggggaggggggatgtttatt
gtaaaattctccattgacacttccaaatattctcttaatatTTggctagattgggtgattgtaccattgcatctTTTcattttaatccccctccccctacaaataa

» pwrt-2 »

980 1,000 1,020 1,040 1,060

tattcttggtTTTcaattcttatcagactctgtaaagtaaaatgaacataactgttcgaatagtgttaggaatttcaacaagctacaaatctagctccacatacgc
ataagaaccaaagTTaagaatagtctgagacatttcatTTTtacttgattgaacaagcttatcacatccttaaagTTTgttcgatgtttagatcgagggtgtatgcg

» pwrt-2 »

1,080 1,100 1,120 1,140 1,160

gtggaatagccggtcataaatcgTcttccgttaaccgcatggctagatccacaccgattccattTTTcttgaataaaacaatagcttgatgaaaattgggtagccac
caccttatcgccagTatttagcagaaggcaattggcgtagcgatctaggTgtggctaaggtaaaaagaacttattTTgttatcgaactactTTTaaacccatcggtg

» pwrt-2 »

1,180 1,200 1,220 1,240 1,260 1,280

cgaaaaaactgattcgcgatccggattattggtgacaaacatacggcaagtgaagTgttcactgatagaaaccgatacgagaatatgcTTTTgggcccccccc
gctTTTTgactaagcgctaggcctaataaccactgtttgatgcccgttcactTTTcacaacgtgactatctTTggctatgctcttatacggaaaaccggggggggg

» pwrt-2 »

1,300 1,320 1,340 1,360 1,380

ccccccccctacggcttcaactcccggtgtttagatctgactTTTcacttgccttatctcgaggaatctggagaggagaaggagggacaaccgatccgcgcgcgta
gggggggggatgccgaagtgagggccacaacatctagactgaaagtgaacggaatagagctccttagacctctccttctcctcctgttggctaggcgcgcgcat

» pwrt-2 »

1,400 1,420 1,440 1,460 1,480

acaatacgggagatatagaggaaaagcagcaaaaagacattttgatgaccttatTTTctgtcgttgtcgagacggccattgtcccttccacgccagctTTTcatt
tgttatgccctctatatctcTTTTcgtcgtTTTTctgtaaaactactggaataaaagaacagcaacagctctgccggtaacagggaaggtgcgggtcgaaaagtaa

» pwrt-2 »

1,500 1,520 1,540 1,560 1,580 1,600

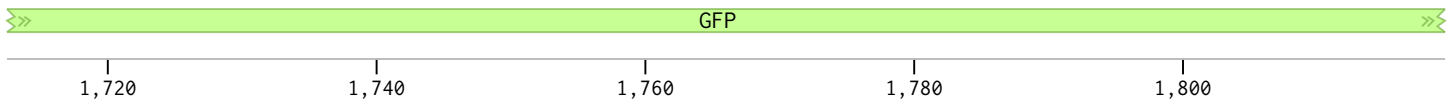
gtagttcaaatcgcttctcattgacaatCAACCTGCCAATTGTTTCTCGGggtatCCCGGGTGCCCTATAGTGAGTCGTATTGGTACCGGTAGAAAAATGAGTAA
catcaagTTtagcgaagagtaactgttaGTTGGACGGTTAACAAAGAGCCcctagGGGCCACGGGATCACTCAGCATAACCATGGCCATCTTTTTTACTCATTT

» pwrt-2 » GFP »

1,620 1,640 1,660 1,680 1,700

pMB77 (5784 bp) (from 1713-2568 bp)

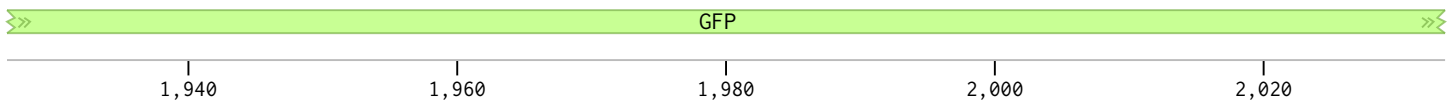
GGAGAAGAACTTTTCACTGGAGTTGTCCCAATTCTTGTTGAATTAGATGGTGATGTTAATGGGCACAAATTTCTGTCACTGGAGAGGGTGAAGGTGATGCAACATA
CCTCTTCTTGAAAAGTGACCTCAACAGGGTTAAGAACAACCTTAATCTACCACTACAATTACCCGTGTTTAAAGACAGTCACCTCTCCCACTTCCACTACGTTGTAT



CGGAAAACCTACCTTAAATTTATTTGCACTACTGGAAAACCTACCTGTTCCATGGGtaagtttaacatatataactaactaacctgattatTTaaatTTTcagc
GCCTTTTGAATGGGAATTTAAATAAACGTGATGACCTTTTGATGGACAAGGTACCCattcaaatTTgtatatatatgattgattgggactaataaatTTaaaagtcg



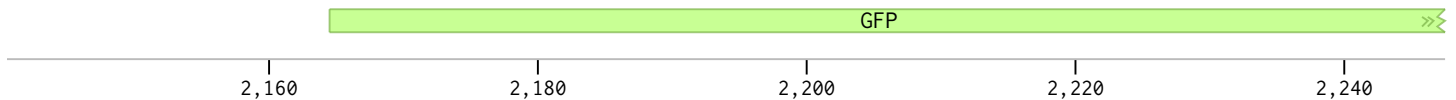
caacacttgtcactacttttctgttatggtgttcaatgcttctcgagataccagatcatatgaaacggcatgactttttcaagagtgccatgccgaaggttatgta
gttgtgaacagtgatgaaagacaataaccacaagttacgaagagctctatgggtctagtatactttgccgtactgaaaaagttctcacggtacgggcttccaatacat



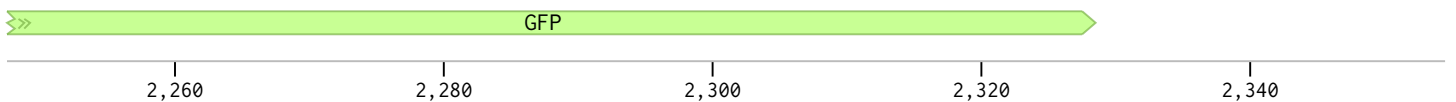
caggaaagaactatatTTTTcaagatgacgggaactacaagacacgtaagtttaacagttcggtagcaagttcctatactttctagagaataggaacttctaact
gtcctttcttgatataaaaagtttctactgcccttgatgttctgtgcattcaaatTTgtcaagccatgcttcaaggatatgaaagatctcttatccttgaagattga



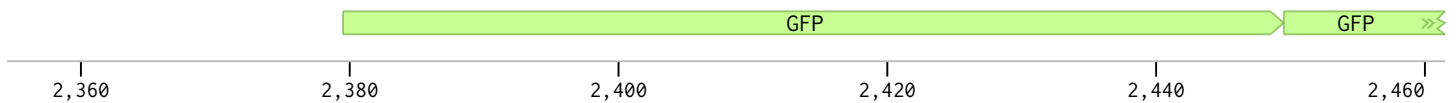
aaccatacatatTTaaatTTTcaggtgtgaagtcaagtttgaaggatgatacccttgTTaatagaatcgagttaaaggattgattTTaaagaagatggaacatt
ttggtatgtataaatTTaaaagttccacgacttcagttcaaaacttcactatgggaacaattatcttagctcaatTTTccataactaaaatttcttctacctttgtaa



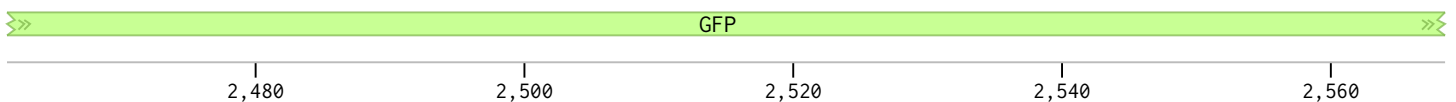
cttgacacaaattggaatacaactataactcacacaatgtatacatcatggcagacaaaacaaagaatggaatcaaagttgtaagtttaacatgattttactaac
gaacctgtgtttaaccttatgttgatattgagtggttacatatgtagtaccgtctgtttgttttcttaccttagtttcaacattcaaattTgtactaaaatgattg



taactaatctgattTTaaatTTTcagaacttcaaaattagacacaacattgaagatggaagcgttcaactagcagaccattatcaacaaatctcCAATTGGCGATG
attgattagactaaatTTaaaagtttgaagttttaatctgtgttgaacttctaccttcgcaagtgatcgtctggtaatagttgttttatgagGTTAACCGCTAC

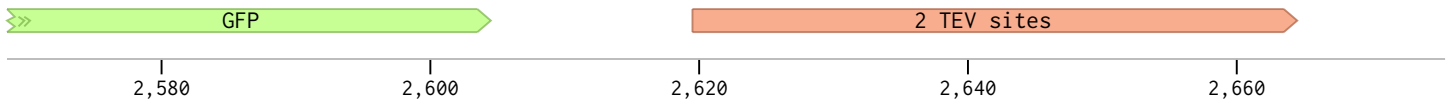


GCCCTGTCCTTTTACCAGACAACCATACCTGTCCACACAATCTGCCCTTTGAAAGATCCCAACGAAAAGAGAGACCACATGGTCCTTCTTGAGTTTGTAAACAGCT
CGGGACAGGAAAAATGGTCTGTTGGTAATGGACAGGTGTGTTAGACGGGAAAGCTTTCTAGGGTTGCTTTTCTCTGGTGTACCAGGAAGAACTCAAACATTGTGCA



pMB77 (5784 bp) (from 2569-3638 bp)

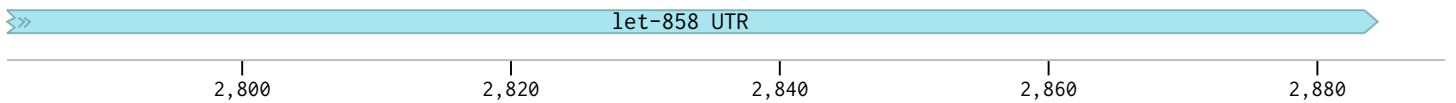
GCTGGGATTACATGGCATGGATGAACTATACAAAtctggaggaggatctGAAAATCTTTATTTCCAAGGAtccGAgAacCTTTAcTTCCAAGGAtctggaggagg
CGACCCTAATGTGTACCGTACCTACTTGATATGTTTagacctcctcctagaCTTTAGAAATAAAGGTTCTTaggCTcTTgGAAATgAAGGTTCTTagacctcctcc



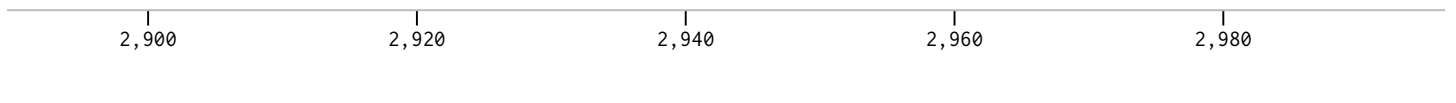
atctGGACTTAATGATATTTTCGAAGCTCagAagATTGAATGGCATGAAtaaGCTAGCCGGCCATACAAGTAATCCGGATGATCGACGCCaACGTCGTTGAATTTTC
tagaCCTGAATTACTATAAAAGCTTCGAGTcTTcTAACTTACCGTACTTattCGATCGGCCGGTATGTTcATTAGGCCTACTAGCTGCGGtGCAGCAACTTAAAG



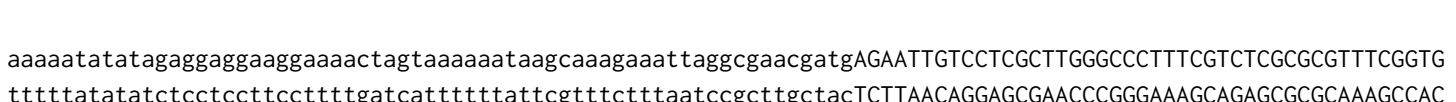
AAATTTTAAATACTGAATATTTGTTTTTTTCTATTATTTATTTATCTCTTTGTGTTTTTTTCTTGCTTTCTAAAAATTAATTCAATCCAAATCTAAacattt
TTTAAATTTATGACTTATAACAAAAAAGGATAATAATAAATAAGAGAAACACAAAAAAGAACGAAAGATTTTAAATTAAGTTAGGTTTAGATTtgtaaa



tttttctctttccgtctcccaattcgtattccgctcctctcatctgaacacaatgtgcaagtttatcttctcgttttcatttcatttaggacgtggggggaat
aaaaaagagaaaggcagagggttaagcataaggcaggagagtagacttggtgttacacgttcaaataatagaagagcgaaagtaaagtaatcctgcacccccctta

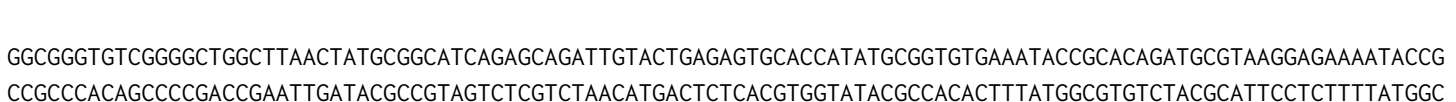


tgggtggaaggggaaacacacaaaaggatgatggaatgaataaggacacacaatatgcaacaacattcaattcagaatatggaggaaggtttaaagaaaacat
accaccttccccctttgtgtgttttctactacctttactttatcctgtgtgttatacgttggttgtaagtttaagctttataacctccttccaaattttcttttcta



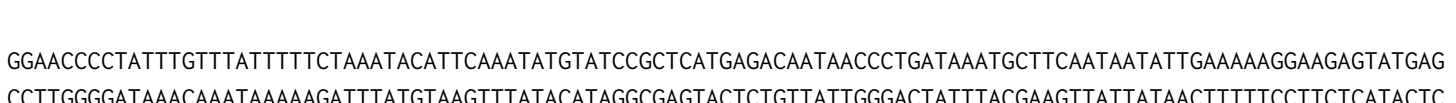
aaaaatatatagaggaggaaggaaaactagtaaaaaataagcaaagaattaggcgaacgatgAGAATTGTCCTCGCTTGGGCCCTTCGTCTCGCGCGTTTCGGTG
ttttatatatctcctccttcttttgatcattttttatcgtttctttaatccgcttgctacTCTTAACAGGAGCGAACCCGGGAAAGCAGAGCGCGCAAAGCCAC

ATGACGGTGAAAACCTCTGACACATGCAGCTCCCGGAGACGGTCACAGCTTGCTGTGAAGCGGATGCCGGGAGCAGACAAGCCCGTCAGGGCGCGTCAGCGGGTGTT
TACTGCCACTTTTGGAGACTGTGTACGTGAGGGCCTCTGCCAGTGTGCAACAGACATTTCGCTACGGCCCTCGTCTGTTGGGGCAGTCCCGCGCAGTCGCCCCAAC



GGCGGGTGTGCGGGCTGGCTTAACTATGCGGCATCAGAGCAGATTGTACTGAGAGTGACCATATGCGGTGTGAAATACCGCACAGATGCGTAAGGAGAAAATACCG
CCGCCCACAGCCCCGACCGAATTGATACGCCGTAGTCTCGTCTAATGACTCTCACGTGGTATACGCCACACTTTATGGCGTGTCTACGATTCTCTTTTATGGC

CATCAGGCGGCCTTAAGGGCCTCGTGATACGCCTATTTTTATAGGTTAATGTCATGATAATAATGGTTTCTTAGACGTGAGGTGGCACTTTTCGGGAAATGTGCGC
GTAGTCCGCCGAATCCCGGAGCACTATGCGGATAAAATATCCAATTACAGTACTATTATTACCAAGAATCTGCAGTCCACCGTAAAAGCCCTTTACACGCG



GGAACCCCTATTTGTTTATTTTCTAAATACATTCAAATATGTATCCGCTCATGAGACAATAACCCTGATAAATGCTTCAATAATATTGAAAAAGGAAGAGTATGAG
CCTTGGGGATAAAACAAATAAAAGATTATGTAAGTTTATACATAGCGAGTACTCTGTTATTGGGACTATTACGAAGTTATTATAACTTTTTCTTCTCATACTC

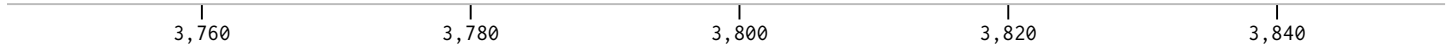
pMB77 (5784 bp) (from 3639-4601 bp)

TATTCAACATTTCCGTGTCGCCCTTATTCCTTTTTTGCGGCATTTTGCCTTCCTGTTTTGCTCACCCAGAAACGCTGGTGAAAGTAAAAGATGCTGAAGATCAGT
ATAAGTTGTAAAGGCACAGCGGGAATAAGGGAAAAAACGCCGTAACGGAAGGACAAAAACGAGTGGGTCTTTCGACCACTTTCATTTTCTACGACTTCTAGTCA



TGGGTGCACGAGTGGGTTACATCGAACTGGATCTCAACAGCGGTAAGATCCTTGAGAGTTTTGCCCCGAAGAACGTTTTCCAATGATGAGCACTTTTAAAGTTCTG
ACCCACGTGCTACCCAATGTAGCTTGACCTAGAGTTGTCGCCATTCTAGGAAGTCTCAAAGCGGGGCTTCTTGCAAAGGTTACTACTCGTGAAAAATTTCAAGAC

AmpR >>



CTATGTGGCGCGGTATTATCCCGTATTGACGCCGGGCAAGAGCAACTCGGTGCGCCGATACACTATTCTCAGAATGACTTGGTTGAGTACTCACCAGTCACAGAAAA
GATACACCGGCCATAATAGGGCATAACTGCGGCCCGTTCTCGTTGAGCCAGCGCGTATGTGATAAGAGTCTTACTGAACCAACTCATGAGTGGTCAGTGTCTTTT

>> AmpR >>



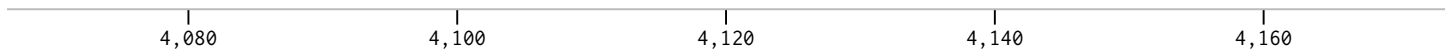
GCATCTTACGGATGGCATGACAGTAAGAGAATTATGCAGTGCTGCCATAACCATGAGTGATAAACTGCGGCCAACTTACTTCTGACAACGATCGGAGGACCGAAGG
CGTAGAATGCCTACCGTACTGTCTTCTTAATACGTCACGACGGTATTGGTACTCACTATTGTGACGCCGGTTGAATGAAGACTGTTGCTAGCCTCCTGGCTTCC

>> AmpR >>



AGCTAACCGCTTTTTTGACAACATGGGGGATCATGTAACCTCGCCTTGATCGTTGGGAACCGGAGCTGAATGAAGCCATACCAAACGACGAGCGTGACACCACGATG
TCGATTGGCGAAAAACGTGTTGTACCCCTAGTACATTGAGCGGAACTAGCAACCTTGGCCTCGACTTACTTCGGTATGTTTGGCTGCTCGCACTGTTGGTGCTAC

>> AmpR >>



CCTGTAGCAATGGCAACAACGTTGCGCAAATTAACCTGGCGAACTACTTACTCTAGCTTCCGCGCAACAATTAATAGACTGGATGGAGGCGGATAAAGTTGCAGG
GGACATCGTTACCGTTGTTGCAACGCGTTTGATAATTGACCGCTTGATGAATGAGATCGAAGGGCCGTTGTTAATTATCTGACCTACCTCCGCTATTTCACGTCC

>> AmpR >>



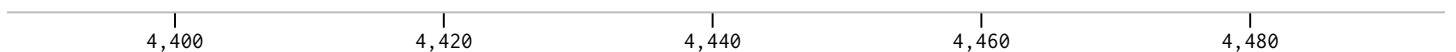
ACCACTTCTGCGCTCGGCCCTTCCGGCTGGCTGGTTTATTGCTGATAAATCTGGAGCCGGTGAGCGTGGGTCTCGCGGTATCATTGCAGCACTGGGGCCAGATGGTA
TGGTGAAGACGCGAGCCGGGAAGGCCGACCGACCAAATAACGACTATTTAGACCTCGGCCACTCGACCCAGAGCGCCATAGTAACGTCGTGACCCCGGTCTACCAT

>> AmpR >>



AGCCCTCCCGTATCGTAGTTATCTACACGACGGGGAGTCAGGCAACTATGGATGAACGAAATAGACAGATCGCTGAGATAGGTGCCTCACTGATTAAGCATTGGTAA
TCGGGAGGGCATAGCATCAATAGATGTGCTGCCCTCAGTCCGTTGATACCTACTTGCTTTATCTGTCTAGCGACTCTATCCACGGAGTGACTAATTCGTAACCAT

>> AmpR >>



CTGTCAGACCAAGTTTACTCATATATACTTTAGATTGATTTAAACTTCATTTTTAATTTAAAGGATCTAGGTGAAGATCCTTTTTGATAATCTCATGACCAAAAT
GACAGTCTGGTTCAAATGAGTATATATGAAATCTAACTAAATTTGAAGTAAAAATTAATTTTCTAGATCCACTTCTAGGAAAACTATTAGAGTACTGGTTTTA

>>



pMB77 (5784 bp) (from 4602-5564 bp)

CCCTTAACGTGAGTTTTCGTTCCACTGAGCGTCAGACCCCGTAGAAAAGATCAAAGGATCTTCTTGAGATCCTTTTTTCTGCGCGTAATCTGCTGCTTGCAAACAA
GGGAATTGCACTCAAAGCAAGGTGACTCGAGTCTGGGCATCTTTTCTAGTTTCTAGAAAGCTCTAGGAAAAAAGACGCGCATTAGACGACGAACGTTTGT

» ColE1 origin »

4,620 4,640 4,660 4,680 4,700

AAAAACCACCGCTACCAGCGGTGGTTTGTGGCCGATCAAGAGCTACCAACTCTTTTCCGAAGGTAAGTGGCTTCAGCAGAGCGCAGATACCAAATACTGTCCTT
TTTTTGGTGGCGATGGTCGCCACCAACAAACGCGCTAGTTCTCGATGGTTGAGAAAAAGGCTTCCATTGACCGAAGTCGTCTCGCTCTATGTTTATGACAGGAA

» ColE1 origin »

4,720 4,740 4,760 4,780 4,800

CTAGTGTAGCCGTAGTTAGGCCACCACTTCAAGAACTCTGTAGACCGCCTACATACCTCGCTCTGCTAATCCTGTTACCAGTGGCTGCTGCCAGTGGCGATAAGTC
GATCACATCGGCATCAATCCGGTGGTGAAGTTCTTGAGACATCGTGGCGGATGTATGGAGCGAGACGATTAGGACAATGGTCACCGACGACGGTCACCGCTATTACG

» ColE1 origin »

4,820 4,840 4,860 4,880 4,900 4,920

GTGTCTTACCGGTTGGACTCAAGACGATAGTTACCGGATAAGGCGCAGCGGTGGGCTGAACGGGGGTTCTGTCACACAGCCCAGCTTGAGCGAACGACCTACA
CACAGAATGGCCCAACCTGAGTTCTGCTATCAATGGCCTATTCCGCGTCGCCAGCCGACTTGCCCCCAAGCACGTGTGTCGGTTCGAACCTCGCTTGCTGGATGT

» ColE1 origin »

4,940 4,960 4,980 5,000 5,020

CCGAAGTGAATACCTACAGCGTGAGCATTGAGAAAGCGCCACGCTTCCCGAAGGGAGAAAGGCGGACAGGTATCCGGTAAGCGGCAGGGTCGGAACAGGAGAGCGC
GGCTTGACTCTATGGATGTCGCACTCGTAACCTTTTCGCGGTGCGAAGGGCTTCCTCTTCCGCTGTCCATAGGCCATTGCGCGTCCAGCCTTGTCTCTCGCG

» ColE1 origin »

5,040 5,060 5,080 5,100 5,120

ACGAGGGAGCTTCCAGGGGAAACGCCTGGTATCTTTATAGTCCTGTGGGTTTCGCCACCTTGACTTGAGCGTCGATTTTTGTGATGCTCGTCAGGGGGGCGGAG
TGCTCCCTCGAAGGTCCCCCTTTGCGGACCATAGAAATATCAGGACAGCCAAAGCGGTGGAGACTGAACTCGCAGCTAAAAACACTACGAGCAGTCCCCCGCCTC

» ColE1 origin »

5,140 5,160 5,180 5,200 5,220 5,240

CCTATGAAAAACGCCAGCAACGCGGCCCTTTTACGGTTCTTGGCCTTTTGCTGGCCTTTTGCTCACATGTTCTTCTGCGTTATCCCCTGATTCTGTGGATAACC
GGATACCTTTTTCGCGTCGTTGCGCCGAAAAATGCCAAGGACCGGAAAACGACCGGAAAACGAGTGACAAGAAAGGACGCAATAGGGGACTAAGACACCTATTGG

» ColE1 origin »

5,260 5,280 5,300 5,320 5,340

GTATTACCGCCTTTGAGTGAGCTGATACCGCTCGCCGACGCCAAGACCGAGCGCAGCGAGTCAGTGAGCGAGGAAGCGGAAGAGCGCCCAATACGCAAACCGCT
CATAATGGCGGAAACTCACTCGACTATGGCGAGCGGCTCGGCTTGTGGCTCGCGTCGCTCAGTCACTCGCTCCTTCGCTTCTCGCGGTTATGCGTTTGGCGGA

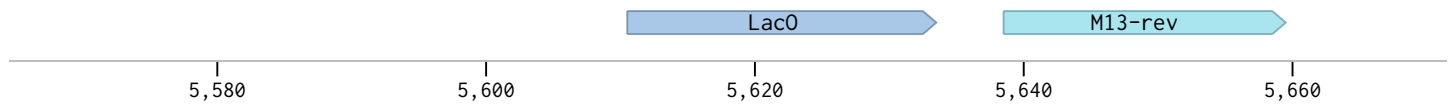
5,360 5,380 5,400 5,420 5,440

CTCCCCGCGCGTTGGCCGATTCAATTAATGCAGCTGGCACGACAGTTTCCCGACTGGAAGCGGGCAGTGAGCGCAACGCAATTAATGTGAGTTAGCTCACTCATT
GAGGGGCGCGCAACCGGCTAAGTAATTACGTGACCGTGCTGTCCAAAGGGCTGACCTTTCGCGCGTCACTCGCGTTGCGTTAATTACACTCAATCGAGTGAGTAAT

5,460 5,480 5,500 5,520 5,540 5,560

pMB77 (5784 bp) (from 5565-5784 bp)

GGCACCCCAGGCTTTACACTTTATGCTTCCGGCTCGTATGTTGTGTGGAATTGTGAGCGGATAACAATTTACACAGGAAACAGCTATGACCATGATTACGCCAAGC
CCGTGGGGTCCGAAATGTGAAATACGAAGGCCGAGCATACAACACACCTTAACACTCGCCTATTGTTAAAGTGTGTCCTTTGTCGATACTGGTACTAATGCGGTTTCG



TgtaagtttaaacatgatcttactaactaactattctcatttaaattttcagAGCTTAAAAATGGCTGAAATCACTCACAACGATGGATACGCTAACAACCTTGAAAA
AcattcaaatttgtactagaatgattgattgataagagtaaatttaaagtcTCGAATTTTACCGACTTTAGTGAGTGTTGCTACCTATGCGATTGTTGAACCTTT



TGAAAT

ACTTTA

5,780