**Supplementary Data 1: Cloning details of plasmids and mutants generated in this study. Related to STAR Methods.**

**pPL2-2920 (pPL2-ariS)**

1. PCR amplification of insert using *Lm 10403S* as template:
   F-primer
   AAAACTGCAGTTAAATTATGACTTGATTGTGTTCTTC

   R-primer
   AAAAGTCGACATGTCAAATTTACAAGTAATTGCAAATG

   Insert sequence:
   AAAAGTCGACATGTCAAATTTACAAGTAATTGCAAATGATATGTTGCCAGTA
   ATGGAGAACGAAAAAGGCGAGAAATTCGTAAATGCACGCGAACTACATCAA
   AGCTTGCAAGTCGGTAAAAAATTTGCTACTTGGATTACCGATAAGTTTAACA
   ATTACGGATTTTCAAAGGATGAAGACTATTTCCCAATTTTGGGAGAAAGTAC
   ATTTGGCAGGCCTAGAACAGAATACTTACTAACTTTAGACACTGCTAAAGAA
   TTAGCAATGGTACAAAACAACGAAATGGGTCGATCAATTAGAAAATATTTCA
   TTGAAGTAGAAAAACAAGCGAGGAAATTAGCAACTGAATATCCAACGTTTTC
   ATACATGATAGAAGATCCAGTTGCTAGAGCTAAAAAATGGATTGAGGAACAA
   CAAGAGAAGCAAGAGGCTTTAAAGCAACTTGAGGAACAAAAGCCAAAAGTG
   GTTTTTGCGGAAGCTGTGCAAACGAGTGAGAACACGATTTTAGTAAAAGATT
   TAGCTACTATTCTAAAACAAAAAGGATTAGATATAGGACAAAACAGACTTTT
   TGAATGGTTGAGATGTAGCGGATATTTGCTAAATAAAGGGGCTTATTATAAC
   AAACCGTCACAAAAGGCGATGAATTTAGGATTGTTTGAACAAAAAACACATA
   TTCATACAGATAGAAATGGCTTAATGATAACTACCTATACACCTCGAGTTACT
   GGCAAAGGTCAAATATACCTATTAAACAAATTATTAGAAGAACACAATCAAG
   TCATAATTTAACTGCAGTTTT
2. Restriction enzyme reaction of both insert and the vector *pPL2 tetR* by PstI and SalI enzymes
3. Ligation and transformation

**pPL1-2920**

1. PCR amplification of insert using *pPL2-2920* as template:
   F-T3 primer
   ATTAACCCTCACTAAAGGGA
   R-primer
   AAAACTGCAGTTAAATTATGACTTGATTGTGTTCTTC
   Insert sequence:
   ATTAACCCTCACTAAAGGGAACAAAAGCTGGTACCGGGCCCTGAAGTTACCA
   TCACGGAAAAAGGTTATGCTGCTTTTAAGACCCACTTTCACATTTAAGTTGTT
   TTTCTAATCCGCATATGATCAATTCAAGGCCGAATAAGAAGGCTGGCTCTGC

ACCTTGGTGATCAAATAATTCGATAGCTTGTCGTAATAATGGCGGCATACTAT
CAGTAGTAGGTGTTTCCCTTTCTTCTTTAGCGACTTGATGCTCTTGATCTTCCA
ATACGCAACCTAAAGTAAAATGCCCCACAGCGCTGAGTGCATATAATGCATT
CTCTAGTGAAAAACCTTGTTGGCATAAAAAGGCTAATTGATTTTCGAGAGTTT
CATACTGTTTTTCTGTAGGCCGTGTACCTAAATGTACTTTTGCTCCATCGCGAT
GACTTAGTAAAGCACATCTAAAACTTTTAGCGTTATTACGTAAAAAATCTTGC
CAGCTTTCCCCTTCTAAAGGGCAAAAGTGAGTATGGCGCCTATCTAACATCTC
AATGGCTAAGGCGTCGAGCAAAGCCCGCTTATTTTTTACATGCCAATACAAT
GTAGGCTGCTCTACACCTAGCTTCTGGGCGAGTTTACGGGTTGTTAAACCTTC
GATTCCGACCTCATTAAGCAGCTCTAATGCGCTGTTAATCACTTTACTTTTATC
TAATCTAGACATCATTAATTCCTCCTTTTTGTTGACACTCTATCATTGATAGAG
TTATTTGTCAAACTAGTTTTTTATTTGGATCCCCTCGAGTTCATGAAAAACTA
AAAAAAATATTGACACTCTATCATTGATAGAGTATAAtTAAAATAAGCtTGAT
GggaaaggaggtgaGTCGACATGTCAAATTTACAAGTAATTGCAAATGATATGTTGC
CAGTAATGGAGAACGAAAAAGGCGAGAAATTCGTAAATGCACGCGAACTAC
ATCAAAGCTTGCAAGTCGGTAAAAAATTTGCTACTTGGATTACCGATAAGTTT
AACAATTACGGATTTTCAAAGGATGAAGACTATTTCCCAATTTTGGGAGAAA
GTACATTTGGCAGGCCTAGAACAGAATACTTACTAACTTTAGACACTGCTAA
AGAATTAGCAATGGTACAAAACAACGAAATGGGTCGATCAATTAGAAAATAT
TTCATTGAAGTAGAAAAACAAGCGAGGAAATTAGCAACTGAATATCCAACGT
TTTCATACATGATAGAAGATCCAGTTGCTAGAGCTAAAAAATGGATTGAGGA
ACAACAAGAGAAGCAAGAGGCTTTAAAGCAACTTGAGGAACAAAAGCCAAA
AGTGGTTTTTGCGGAAGCTGTGCAAACGAGTGAGAACACGATTTTAGTAAAA
GATTTAGCTACTATTCTAAAACAAAAAGGATTAGATATAGGACAAAACAGAC
TTTTTGAATGGTTGAGATGTAGCGGATATTTGCTAAATAAAGGGGCTTATTAT
AACAAACCGTCACAAAAGGCGATGAATTTAGGATTGTTTGAACAAAAAACAC
ATATTCATACAGATAGAAATGGCTTAATGATAACTACCTATACACCTCGAGTT
ACTGGCAAAGGTCAAATATACCTATTAAACAAATTATTAGAAGAACACAATC
AAGTCATAATTTAACTGCAGTTTT

3. Restriction enzyme reaction of both insert and the vector *pPL1 tetR* by PstI and PspOMI enzymes
4. Ligation and transformation

**pPL2-antA/B**

1. PCR amplification of insert using *pPL2-2920* as template:

F-primer
AAAAGTCGACATGTCAAATTTACAAGTAATTGCAAATG

R-primer
aaaaCTGCAGttaTTGCTTTAAAGCCTCTTGC

Insert sequence:

AAAAGTCGACATGTCAAATTTACAAGTAATTGCAAATGATATGTTGCCAGT
AATGGAGAACGAAAAAGGCGAGAAATTCGTAAATGCACGCGAACTACATC

AAAGCTTGCAAGTCGGTAAAAAATTTGCTACTTGGATTACCGATAAGTTTA
ACAATTACGGATTTTCAAAGGATGAAGACTATTTCCCAATTTTGGGAGAAA
GTACATTTGGCAGGCCTAGAACAGAATACTTACTAACTTTAGACACTGCTA
AAGAATTAGCAATGGTACAAAACAACGAAATGGGTCGATCAATTAGAAAA
TATTTCATTGAAGTAGAAAAACAAGCGAGGAAATTAGCAACTGAATATCCA
ACGTTTTCATACATGATAGAAGATCCAGTTGCTAGAGCTAAAAAATGGATT
GAGGAACAACAAGAGAAGCAAGAGGCTTTAAAGCAAtaaCTGCAGtttt

2. Restriction enzyme reaction of both insert and the vector *pPL2 tetR* by PstI and SalI enzymes
3. Ligation and transformation

**pPL2-kilAC**

1. PCR amplification of insert using *pPL2-2920* as template:

   F-primer
   AAAAGTCGACATGGTACAAAACAACGAAATG

   R-primer
   AAAACTGCAGTTAAATTATGACTTGATTGTGTTCTTC

   Insert sequence:
   AAAAGTCGACATGGTACAAAACAACGAAATGGGTCGATCAATTAGAAAATA
   TTTCATTGAAGTAGAAAAACAAGCGAGGAAATTAGCAACTGAATATCCAACG
   TTTTCATACATGATAGAAGATCCAGTTGCTAGAGCTAAAAAATGGATTGAGG
   AACAACAAGAGAAGCAAGAGGCTTTAAAGCAACTTGAGGAACAAAAGCCAA
   AAGTGGTTTTTGCGGAAGCTGTGCAAACGAGTGAGAACACGATTTTAGTAAA
   AGATTTAGCTACTATTCTAAAACAAAAAGGATTAGATATAGGACAAAACAGA
   CTTTTTGAATGGTTGAGATGTAGCGGATATTTGCTAAATAAAGGGGCTTATTA
   TAACAAACCGTCACAAAAGGCGATGAATTTAGGATTGTTTGAACAAAAAACA
   CATATTCATACAGATAGAAATGGCTTAATGATAACTACCTATACACCTCGAGT
   TACTGGCAAAGGTCAAATATACCTATTAAACAAATTATTAGAAGAACACAAT
   CAAGTCATAATTTAACTGCAGTTTT

2. Restriction enzyme reaction of both insert and the vector *pPL2 tetR* by PstI and SalI enzymes
3. Ligation and transformation

**pPL2-gp42**

1. PCR amplification of insert using *Lm EGD-e* as template:

   F-primer
   AGTGTGATGGATATCTGCAGTTAAATTATGACTTGATTGTGTTCTTCTAATAACTTGTT
   TAATAGA

R-primer
GggaaaggaggtgaGTCGACATGTCAAATTTACAAGTAATTGCAAATGAAATGTTGCCAGTT
TTAGAAAA

Insert sequence:
AGTGTGATGGATATCTGCAGTTAAATTATGACTTGATTGTGTTCTTCTAATAA
CTTGTTTAATAGATATACTTGTCCTTTTCCTGTTACTTGTGGAGTATAAGTGGT
TTTCATTAAGCCGTTTCTATCTGTATGAATATGTGTTTTTTGTTCAAACAATCC
TAAGTTCATCGCCTTTTGCGACGGTTTGTTGTAATAAGCACCTTTACTTAGCA
AATAACCGCTTCCTCTCAGCCATTCAAAAAGCCTGTTTTGTCCTATATCTAAT
CCTTTTTGTTTTAGAATAGTAGCTAAATCTTTTACTAAAATTGTGTTCTCACTC
GTTTGCACAGCTTCCGCAAAAACTACTTTCGGCTTTTGTTCCTCAAGTTTTTTT
AACACCTCTTGCTTTTCTTGTTGTTCCTCTATCCATTTTTTAGCTCTAGCGACT
GGATCTTCTATCATGTATGAAAATGCGGGATATTCAGTTGCTAATTTCCTCGC
TTGTTTTTCTACTTCAATGAAGTATTTTCTAATTGCTCGACCCATTTCGTTGTT
TTGCACCATTGCTAATTCTTTAGCAGTATCTAAAGTCAAAAAATAATTTGTTG
ATGGTCGCCCATTGGTTTTACTCAAAGTTGAGTAAAAGTCTAAACCATTCTCA
TAACCATAATTTCCAATCATTCTATATATCCAATCATTAAATCTTGTATTTACT
AAAAGCTTTTCATGAAGCATCCGGGCATCAACAAATTTTTCGCCTTGTTCATT
TTCTAAAACTGGCAACATTTCATTTGCAATTACTTGTAAATTTGACATGTCGA
CtcacctcctttccC

2. PCR amplification of Vector using *pPL2 tetR* as template:

F-primer
ACAATCAAGTCATAATTTAACTGCAGATATCCATCACACTGGC

R-primer
ATTACTTGTAAATTTGACATGTCGACtcacct

Linearized Vector sequence:
ACAATCAAGTCATAATTTAACTGCAGATATCCATCACACTGGCGGCCGCTCGAGGGG
ATCCACTAGTTCTAGAGCGGCCGCCACCGCGGTGGAGCTCCAATTCGCCCTATAGTG
AGTCGTATTGACGTCGCTATTTAACGACCCTGCCCTGAACCGACGACCGGGTCGAAT
TTGCTTTCGAATTTCTGCCATTCATCCGCTTATTATCACTTATTCAGGCGTAGcAaCCA
GGCGTTTAAGGGCACCAATAACTGCCTTAAAAAAATTACGCCCCGCCCTGCCACTCA
TCGCAGTACTGTTGTAATTCATTAAGCATTCTGCCGACATGGAAGCCATCACAGACG
GCATGATGAACCTGAATCGCCAGCGGCATCAGCACCTTGTCGCCTTGCGTATAATAT
TTGCCCATGGTGAAAACGGGGGCGAAGAAGTTGTCCATATTGGCCACGTTTAAATCA
AAACTGGTGAAACTCACCCAGGGATTGGCTGAGACGAAAAACATATTCTCAATAAA
CCCTTTAGGGAAATAGGCCAGGTTTTCACCGTAACACGCCACATCTTGCGAATATAT
GTGTAGAAACTGCCGGAAATCGTCGTGGTATTCACTCCAGAGCGATGAAAACGTTTC
AGTTTGCTCATGGAAAACGGTGTAACAAGGGTGAACACTATCCCATATCACCAGCTC
ACCGTCTTTCATTGCCATACGGAATTCCGGATGAGCATTCATCAGGCGGGCAAGAAT
GTGAATAAAGGCCGGATAAAACTTGTGCTTATTTTTCTTTACGGTCTTTAAAAAGGC
CGTAATATCCAGCTGAACGGTCTGGTTATAGGTACATTGAGCAACTGACTGAAATGC
CTCAAAATGTTCTTTACGATGCCATTGGGATATATCAACGGTGGTATATCCAGTGAT
TTTTTTCTCCATTTTAGCTTCCTTAGCTCCTGAAAATCTCGATAACTCAAAAAATACG

CCCGGTAGTGATCTTATTTCATTATGGTGAAAGTTGGAACCTCTTACGTGCCGATCA
ACGTCTCATTTTCGCCAAAAGTTGGCCCAGGGCTTCCCGGTATCAACAGGGACACCA
GGATTTATTTATTCTGCGAAGTGATCTTCCGTCACAGGTATTTATTCGGCGCAAAGTG
CGTCGGGTGATGCTGCCAACTTACTGATTTAGTGTATGATGGTGTTTTTGAGGTGCTC
CAGTGGCTTCTGTTTCTATCAGCTGTCCCTCCTGTTCAGCTACTGACGGGGTGGTGCG
TAACGGCAAAAGCACCGCCGGACATCAGCGCTAGCGGAGTGTATACTGGCTTACTA
TGTTGGCACTGATGAGGGTGTCAGTGAAGTGCTTCATGTGGCAGGAGAAAAAAGGC
TGCACCGGTGCGTCAGCAGAATATGTGATACAGGATATATTCCGCTTCCTCGCTCAC
TGACTCGCTACGCTCGGTCGTTCGACTGCGGCGAGCGGAAATGGCTTACGAACGGG
GCGGAGATTTCCTGGAAGATGCCAGGAAGATACTTAACAGGGAAGTGAGAGGGCCG
CGGCAAAGCCGTTTTTCCATAGGCTCCGCCCCCCTGACAAGCATCACGAAATCTGAC
GCTCAAATCAGTGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCC
CCTGGCGGCTCCCTCGTGCGCTCTCCTGTTCCTGCCTTTCGGTTTACCGGTGTCATTC
CGCTGTTATGGCCGCGTTTGTCTCATTCCACGCCTGACACTCAGTTCCGGGTAGGCA
GTTCGCTCCAAGCTGGACTGTATGCACGAACCCCCCGTTCAGTCCGACCGCTGCGCC
TTATCCGGTAACTATCGTCTTGAGTCCAACCCGGAAAGACATGCAAAAGCACCACTG
GCAGCAGCCACTGGTAATTGATTTAGAGGAGTTAGTCTTGAAGTCATGCGCCGGTTA
AGGCTAAACTGAAAGGACAAGTTTTGGTGACTGCGCTCCTCCAAGCCAGTTACCTCG
GTTCAAAGAGTTGGTAGCTCAGAGAACCTTCGAAAAACCGCCCTGCAAGGCGGTTTT
TTCGTTTTCAGAGCAAGAGATTACGCGCAGACCAAAACGATCTCAAGAAGATCATCT
TATTAATCAGATAAAATATTTCTAGATTTCAGTGCAATTTATCTCTTCAAATGTAGCA
CCTGAAGTCAGCCCCATACGATATAAGTTGTAATTCTCCGCCGCTTGCCCTCATCTGT
TACGCCGGCGGTAGCCGGCCAGCCTCGCAGAGCAGGATTCCCGTTGAGCACCGCCA
GGTGCGAATAAGGGACAGTGAAGAAGGAACACCCGCTCGCGGGTGGGCCTACTTCA
CCTATCCTGCCCGGCTGACGCCGTTGGATACACCAAGGAAAGTCTACACGAACCCTT
TGGCAAAATCCTGTATATCGTGCGAAAAAGGATGGATATTCCGAAAAAATCGCTAT
AATGACCCCGAAGCAGGGTTATGCAGCGGAAAAGCGCTGCTTCCCTGCTGTTTTGTG
GAATATCTACCGACTGGAAACAGGCAAATGCAGGAAATTACTGAACTGAGGGGACA
GGCGAGAGGCATGCGTGGAGGGAAAGAAGAACGCTGTTGAAAAAATCTTCTCTGGA
CTACTTGAAACAAAAGAATTAAAGTCATTTTATAAAAACCTTGAGAAAAAACATCTT
GATATAAAAACTATTTATAACGAATATTTATTTCAATGTAATAATAAATAATATTTA
TTATTACATAAAATGTTTGTGGTATTATTTGTGGTATATATATCCTAAATGGCTTTAT
ATCAGTGTGTGTTAATCCCTCTCAGGACGTTAAATAGTAATGTAAAGAAATCTCTAA
AACGTTGAAAAGCCTTGATATTAAAGGGCGGATGAATGTTTTGGAGTTTTTTTTATA
TCGTATAATACCCGTTTTATTCCGTTGTTTTTGTGGCATTTGTGGTAAAATTTGTGGT
ATTTTCATCTGTTTTTAGTGTGAAAAAAGCATCTACTTTGGACTGATTATGTTGTCTT
AAATTAGAGCTTAGATGACTATAGTATTTTAATGTTGTATTAATGTCATCATGACCA
AGCCTATCAGCTACATAAATAATATCCATACCCGCTTCTACACATAAGCCTGTATGC
GTATGTCGTAGCTTGTGTAATGTCACTGGTTCAGAATTGATTGTACTACATATCTTCT
TCAAAGCTTTATTACAAGACGCGTTGTCTACTGGCTTATTGTGGTAAGTGATGAATA
ATAACATCAATGGATTCTTAATAGCATGTTCCTTCATATAATCAGTATGCCAATTCA
AATACGAATGTAAATATTGAGCGGTAGAGTTATCAATATAGATCACTCGTGATTTTT
TTGTTTTGGTATCAATGAATGTATTAGTGTACTTGTAATCCCAAGCTTTATTCACAGT
TATTGAACGTTTAGTGAAATTAATATCCTTCTTTGTTAGTGCAATAATTTCTTCGAAC
CTCATGCCTGTCTGGACAGCTAGAAAGATAACTGCTCGTGATATAGAATGAAATTTT
GCAAGTTCTTCTAATAGTAAATGAACTTTGTCTGTTTCCATAAATTGTGCTTTATTTT

TCGCTACGTCCTGTCCGCTTATATGAGCCCCTATAGTGGGGTTTTTCTTCATGTAACC
TAAATGAACAGCCTTGTTAAAAATCGCTCTAATTTTGCGGTGTCTGGTGTCTACAGT
GGATATTGCATAGTCTACAGATAAATGATTAATAAATTGTTGATATTGAACCGCATC
AATCGAATTAAGTTTAATTTTTTCATCGAAATAATCAACGAATTGATTATAAGCAAG
ATCGTATAAATTAATAGTAGATTGACTACTTTTCCCATCTTTAAATGTTTTCATGAAT
AGCGTATAAAATTCTTTGAAGTTCCATTCTTTCAGAGAACTACTATCATGCTGAACTT
GTTTTAATAATTTAGATGCTTTATACATTAAGTTTGTTTCACTTGTATCTGTCAAACG
CTTTTCTTTCCATTCACCATCGACTTTTATACGTAGGCGAACACAATATTTACCGTTT
GCTAATTTTTTTATCTTCATTAATACCACCACCTGTTTATTTTTGGAGATCTTTTTTTC
AGAAAATCCCAGTACGTAATTAAGTATTTGAGAATTAATTTTATATTGATTAATACT
AAGTTTACCCAGTTTTCACCTAAAAAACAAATGATGAGATAATAACTCCAAAGGCTA
AAGAGGACTATACCAACTATTTGTAATAATTCTGTAACAGTTGAAAAGCGAACGTGT
ATTCTTAGGGCTTGAGATGTACTGCTGGGTAAACCTTTATAGTGTAAGTGGGATGTG
AACGTTAATCAACAACTTTCGCTATGGGAAACCTATTGTTTTTTGTTAATAGAAAAA
CTTAATACATTTGTAATATAAAAACCGGCAGTTTTTCCGTTCTTCGTGACTCGAAATG
AATTGCCAGATGAGTTTATGGTATTCTATAATAGAAGGTATGGAGGATGTTATATAA
TGAGACAGAATTATGATGATCGAAAGCTAGCTTGGCACTGGCCGTCGTTTTACAACG
TCGTGACTGGGAAAACCCTGGCGTTACCCAACTTAATCGCCTTGCAGCACATCCCCC
TTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAACAGTT
GCGCAGCCTGAATGGCGAATGGCGCCTGATGCGGTATTTTCTCCTTACGCATCTGTG
CGGTATTTCACACCGCATATCAAATGGTTCGGATCTGGAGCTGTAATATAAAAACCT
TCTTCAACTAACGGGGCAGGTTAGTGACATTAGAAAACCGACTGTAAAAAGTACAG
TCGGCATTATCTCATATTATAAAAGCCAGTCATTAGGCCTATCTGACAATTCCTGAA
TAGAGTTCATAAACAATCCTGCATGATAACCATCACAAACAGAATGATGTACCTGTA
AAGATAGCGGTAAATATATTGAATTACCTTTATTAATGAATTTTCCTGCTGTAATAAT
GGGTAGAAGGTAATTACTATTATTATTGATATTTAAGTTAAACCCAGTAAATGAAGT
CCATGGAATAATAGAAAGAGAAAAAGCATTTTCAGGTATAGGTGTTTTGGGAAACA
ATTTCCCCGAACCATTATATTTCTCTACATCAGAAAGGTATAAATCATAAAACTCTTT
GAAGTCATTCTTTACAGGAGTCCAAATACCAGAGAATGTTTTAGATACACCATCAAA
AATTGTATAAAGTGGCTCTAACTTATCCCAATAACCTAACTCTCCGTCGCTATTGTAA
CCAGTTCTAAAAGCTGTATTTGAGTTTATCACCCTTGTCACTAAGAAAATAAATGCA
GGGTAAAATTTATATCCTTCTTGTTTTATGTTTCGGTATAAAACACTAATATCAATTT
CTGTGGTTATACTAAAAGTCGTTTGTTGGTTCAAATAATGATTAAATATCTCTTTTCT
CTTCCAATTGTCTAAATCAATTTTATTAAAGTTCATTTGATATGCCTCCTAAATTTTT
ATCTAAAGTGAATTTAGGAGGCTTACTTGTCTGCTTTCTTCATTAGAATCAATCCTTT
TTTAAAAGTCAATATTACTGTAACATAAATATATATTTTAAAAATATCCCACTTTATC
CAATTTTCGTTTGTTGAACTAATGGGTGCTTTAGTTGAAGAATAAAGACCACATTAA
AAAATGTGGTCTTTTGTGTTTTTTTAAAGGATTTGAGCGTAGCGAAAAATCCTTTTCT
TTCTTATCTTGATAATAAGGGTAACTATTGCCCAGATCCGAACCATTTGATATGGTG
CACTCTCAGTACAATCTGCTCTGATGCCGCATAGTTAAGCCAGCCCCGACACCCGCC
AACACCCGCTGACGCGCCCTGACGGGCTTGTCTGCTCCCGGCATCCGCTTACAGACA
AGCTGTGACCGTCTCCGGGAGCTGCATGTGTCAGAGGTTTTCACCGTCATCACCGAA
ACGCGCGAGACGAAAGGGCCTCGTGATACGCCTATTTTTATAGGTTAATGTCATGAT
AATAATGGTTTCTTAGACGTCATTAACCCTCACTAAAGGGAACAAAAGCTGGTACCG
GGCCCTGAAGTTACCATCACGGAAAAAGGTTATGCTGCTTTTAAGACCCACTTTCAC
ATTTAAGTTGTTTTTCTAATCCGCATATGATCAATTCAAGGCCGAATAAGAAGGCTG

GCTCTGCACCTTGGTGATCAAATAATTCGATAGCTTGTCGTAATAATGGCGGCATAC
TATCAGTAGTAGGTGTTTCCCTTTCTTCTTTAGCGACTTGATGCTCTTGATCTTCCAAT
ACGCAACCTAAAGTAAAATGCCCCACAGCGCTGAGTGCATATAATGCATTCTCTAGT
GAAAAACCTTGTTGGCATAAAAAGGCTAATTGATTTTCGAGAGTTTCATACTGTTTT
TCTGTAGGCCGTGTACCTAAATGTACTTTTGCTCCATCGCGATGACTTAGTAAAGCA
CATCTAAAACTTTTAGCGTTATTACGTAAAAAATCTTGCCAGCTTTCCCCTTCTAAAG
GGCAAAAGTGAGTATGGCGCCTATCTAACATCTCAATGGCTAAGGCGTCGAGCAAA
GCCCGCTTATTTTTTACATGCCAATACAATGTAGGCTGCTCTACACCTAGCTTCTGGG
CGAGTTTACGGGTTGTTAAACCTTCGATTCCGACCTCATTAAGCAGCTCTAATGCGC
TGTTAATCACTTTACTTTTATCTAATCTAGACATCATTAATTCCTCCTTTTTGTTGACA
CTCTATCATTGATAGAGTTATTTGTCAAACTAGTTTTTTATTTGGATCCCCTCGAGTT
CATGAAAAACTAAAAAAAATATTGACACTCTATCATTGATAGAGTATAAtTAAAATA
AGCtTGATGggaaaggaggtgaGTCGACATGTCAAATTTACAAGTAAT

3. Gibson Assembly and transformation

**pPL2-lin2418**

1. PCR amplification of insert using *Listeria innocua clip 11262* as template:

F-primer
GGATCCCCTCGAGCGGCCGCCAGTGTGATGGATATCTGCAGtcaatttgctactaatgattgttctaa
aaacttatttacaaagtacag

R-primer
AGAGTATAAtTAAAATAAGCtTGATGggaaaggaggtgaGTCGACatgacaaatttaaaactcttcaatt
ttgaaggaagcaaagtaagaactgt

Insert sequence:
GGATCCCCTCGAGCGGCCGCCAGTGTGATGGATATCTGCAGtcaatttgctactaatgatt
gttctaaaaacttatttacaaagtacagttgacctttaccagtcacttttgctgtgatcgctgtatgtgccccacttgatctcataattgc
agtttctttaatcttgaaaagtccaagctccatgcttttctgcgtcggacgattgtagtccgttcctcttcttgaaatgagatagccgttc
tggcgtaaccattcaaacaagcgcttttccccaatgtctacaccgttttgttggatcaacttagcaagatcacggattaaaatggttc
cctctgtatcgcttacagcgtctgcaaataatactttcgggcgttgcgcttctatttttgctcagcctctaatcgcttggacttttcttctt
taaggttcgttgccagtctgattaaaaagtctggatcagtaattgccttctcgattgtgtcatctgtcatgtatgcgccgtgtttacgaa
tggacggtaagacttcatccattaaccaattttcaaatttttctgcacttggtaaatctgatcttagaactaatctataaacatcagattc
gcttaataccagtgttcttcgtggtctacctaacgaatcgttcaccaatgattcagcaggttttttacaatgatccctcatagcttttga
ggattggagtaacctaatattgatgcaacatcaatgcctacaaagaacggttcttcatcaagaattacagttcttactttgcttccttca
aaattgaagagttttaaatttgtcatGTCGACtcacctcctttccCATCAaGCTTATTTTAaTTATACTCT

2. PCR amplification of Vector using *pPL2 tetR* as template:

F-primer
ACAATCAAGTCATAATTTAACTGCAGATATCCATCACACTGGC

R-primer
ATTACTTGTAAATTTGACATGTCGACtcacct

3. Gibson Assembly and transformation

**ariS-Y99A mutant**

1. PCR amplification of two inserts using *Lm 10403S as template*:
   F-primer
   AAAAGGTACCGGAAAACAATTAAGAAAAGGAATTACAGC
   R-primer
   cgcttgtttttctacttcaatgaaAGCtttctaattgatcgacccattt

   Fragment A sequence:
   AAAAGGTACCGGAAAACAATTAAGAAAAGGAATTACAGCGGTTAAATTAGATTTAAAAG
   CAGGATCATTGCCAGTTGTGCAAGTGGAATATCACCCATTCACAATCAGCGAAGAAATGC
   GAAGACTGTTATGGTCTGGAAAATACTAAAAACCATAATTTAGGAGGAAGAAAAATGAA
   TAACATCAAACAAGCAATTATTAAACTAGAAACAATTTTAGAAAATGGTAATGCGATAG
   AGAGCGGCTCATTCGTTAAATACAGCGTTATAAAAAATATTTTAAATTTACTTGAAAAA
   GATCAAGAGCTAAAAATTATCGAAATGGAAGTAGAGCTGAATGGAGTAGAGGATTCTAT
   AGAAAACGCCGCTTTGTTAGAAAAGAGATTAAGTGAAGCCAAATCTTTGGTGGAAGACT
   TGGCTAGCACTATAAACTCGTTAGAAATTAAGGTGAAGTGAtttacttgatttttacagtaaattcat
   tccCGCAATCGGGACATGAGTTTACTCCAGGTTTAACTGTAAATACATGTGAACATTCGG
   GACAGGTCCCTTCCGTTCCATTTTTAATAATATCTTCCTTGGCGATTTTTAGGCTTTGTT
   CTTTAATTTGTCTCTCTAATTTTTTTGAATCAAATTTAATTTTAACTCCCATTTTACCCA
   CCTCCCTTCACAAAAACTATAGCACTGTGAAAGGGCGAACAGAAAGGAGAACAAAATGT
   CAAATTTACAAGTAATTGCAAATGATATGTTGCCAGTAATGGAGAACGAAAAAGGCGAG
   AAATTCGTAAATGCACGCGAACTACATCAAAGCTTGCAAGTCGGTAAAAAATTTGCTAC
   TTGGATTACCGATAAGTTTAACAATTACGGATTTTCAAAGGATGAAGACTATTTCCCAA
   TTTTGGGAGAAAGTACATTTGGCAGGCCTAGAACAGAATACTTACTAACTTTAGACACT
   GCTAAAGAATTAGCAATGGTACAAAACAACgaaatgggtcgatcaattagaaaaGCTttcattgaagta
   gaaaaacaagcg
   F-primer
   aaatgggtcgatcaattagaaaaGCTttcattgaagtagaaaaacaagcg
   R-primer
   AAAAGGATCCTTCTGAAATAGCTTGTTTTGCGG

   Fragment B sequence:
   aaatgggtcgatcaattagaaaaGCTttcattgaagtagaaaaacaagcgAGGAAATTAGCAACTGAATAT
   CCAACGTTTTCATACATGATAGAAGATCCAGTTGCTAGAGCTAAAAAATGGATTGAGGA
   ACAACAAGAGAAGCAAGAGGCTTTAAAGCAACTTGAGGAACAAAAGCCAAAAGTGGTTT
   TTGCGGAAGCTGTGCAAACGAGTGAGAACACGATTTTAGTAAAAGATTTAGCTACTATT
   CTAAAACAAAAAGGATTAGATATAGGACAAAACAGACTTTTTGAATGGTTGAGATGTAG
   CGGATATTTGCTAAATAAAGGGGCTTATTATAACAAACCGTCACAAAAGGCGATGAATT
   TAGGATTGTTTGAACAAAAAACACATATTCATACAGATAGAAATGGCTTAATGATAACT
   ACCTATACACCTCGAGTTACTGGCAAAGGTCAAATATACCTATTAAACAAATTATTAGA
   AGAACACAATCAAGTCATAATTTAAGCGCCGCCTACCACAACGGCGCTCGCAGACAACAA
   TAGCCACGGGGAGCGACTAACAATAGTATATAACGATAAGTTGTTAATTAGTCGCTGAA
   AAATAAACAAAAAAGGATTGAGATATTATGTTTCAAAGATCAATATCAGCACCAACCGC
   GATGCAAGTTTTAGCAGAAACTCGCACGCAAAAAGAGCTAGCGATTGATAGTTATGTAA

CACCAGCACTAATAAGTAATCAGATAAAAGGAAAACGAACAGTTTCACTTGAACAAGCA
GAACAGTTAATTGATAGCTACAACGAACCAGAAAGCACCTATTTATTCGCACATGAATT
TTCAAACGGAATGATACCGCCTTTGTTTGACGGCTTAGACAACCATCACGCTTCTTTAAC
TAACCGCTTTGAACTAGAAGTTGAAGAAGCGATAAACACACTGAAAAACGGCTTAGAGA
CGATGACATATAGCTTGAGAAAAGGTGACATGCTACAACGAGAAGCCGCAAAACAAGCT
ATTTCAGAAGGATCCTTTT

2. Overlap extension PCR using both inserts as mutual template:

F-primer
AAAAGGTACCGGAAAACAATTAAGAAAAGGAATTACAGC
R-primer
AAAAGGATCCTTCTGAAATAGCTTGTTTTGCGG

Overlap extension PCR product sequence:
AAAAGGTACCGGAAAACAATTAAGAAAAGGAATTACAGCGGTTAAATTAGATTTAAAAG
CAGGATCATTGCCAGTTGTGCAAGTGGAATATCACCCATTCACAATCAGCGAAGAAATGC
GAAGACTGTTATGGTCTGGAAAATACTAAAAACCATAATTTAGGAGGAAGAAAAATGAA
TAACATCAAACAAGCAATTATTAAACTAGAAACAATTTTAGAAAATGGTAATGCGATAG
AGAGCGGCTCATTCGTTAAATACAGCGTTATAAAAAATATTTTAAATTTACTTGAAAAA
GATCAAGAGCTAAAAATTATCGAAATGGAAGTAGAGCTGAATGGAGTAGAGGATTCTAT
AGAAAACGCCGCTTTGTTAGAAAAGAGATTAAGTGAAGCCAAATCTTTGGTGGAAGACT
TGGCTAGCACTATAAACTCGTTAGAAATTAAGGTGAAGTGAtttacttgatttttacagtaaattcat
tccCGCAATCGGGACATGAGTTTACTCCAGGTTTAACTGTAAATACATGTGAACATTCGG
GACAGGTCCCTTCCGTTCCATTTTTAATAATATCTTCCTTGGCGATTTTTAGGCTTTGTT
CTTTAATTTGTCTCTCTAATTTTTTTGAATCAAATTTAATTTTAACTCCCATTTTACCCA
CCTCCCTTCACAAAAACTATAGCACTGTGAAAGGGCGAACAGAAAGGAGAACAAAATGT
CAAATTTACAAGTAATTGCAAATGATATGTTGCCAGTAATGGAGAACGAAAAAGGCGAG
AAATTCGTAAATGCACGCGAACTACATCAAAGCTTGCAAGTCGGTAAAAAATTTGCTAC
TTGGATTACCGATAAGTTTAACAATTACGGATTTTCAAAGGATGAAGACTATTTCCCAA
TTTTGGGAGAAAGTACATTTGGCAGGCCTAGAACAGAATACTTACTAACTTTAGACACT
GCTAAAGAATTAGCAATGGTACAAAACAACgaaatgggtcgatcaattagaaaaGCTttcattgaagta
gaaaaacaagcgAGGAAATTAGCAACTGAATATCCAACGTTTTCATACATGATAGAAGATCC
AGTTGCTAGAGCTAAAAAATGGATTGAGGAACAACAAGAGAAGCAAGAGGCTTTAAAGC
AACTTGAGGAACAAAAGCCAAAAGTGGTTTTTGCGGAAGCTGTGCAAACGAGTGAGAAC
ACGATTTTAGTAAAAGATTTAGCTACTATTCTAAAACAAAAAGGATTAGATATAGGACA
AAACAGACTTTTTGAATGGTTGAGATGTAGCGGATATTTGCTAAATAAAGGGGCTTATT
ATAACAAACCGTCACAAAAGGCGATGAATTTAGGATTGTTTGAACAAAAAACACATATT
CATACAGATAGAAATGGCTTAATGATAACTACCTATACACCTCGAGTTACTGGCAAAGG
TCAAATATACCTATTAAACAAATTATTAGAAGAACACAATCAAGTCATAATTTAAGCGC
CGCCTACCACAACGGCGCTCGCAGACAACAATAGCCACGGGGAGCGACTAACAATAGTAT
ATAACGATAAGTTGTTAATTAGTCGCTGAAAAATAAACAAAAAAGGATTGAGATATTAT
GTTTCAAAGATCAATATCAGCACCAACCGCGATGCAAGTTTTAGCAGAAACTCGCACGCA
AAAAGAGCTAGCGATTGATAGTTATGTAACACCAGCACTAATAAGTAATCAGATAAAAG
GAAAACGAACAGTTTCACTTGAACAAGCAGAACAGTTAATTGATAGCTACAACGAACCA

GAAAGCACCTATTTATTCGCACATGAATTTTCAAACGGAATGATACCGCCTTTGTTTGAC
GGCTTAGACAACCATCACGCTTCTTTAACTAACCGCTTTGAACTAGAAGTTGAAGAAGCG
ATAAACACACTGAAAAACGGCTTAGAGACGATGACATATAGCTTGAGAAAAGGTGACAT
GCTACAACGAGAAGCCGCAAAACAAGCTATTTCAGAAGGATCCTTTT

3. Restriction enzyme reaction of both insert and the vector *pLR16* by KpnI and BamHI enzymes
4. Ligation and transformation

**pPL2-ariS-Y99A**

1. PCR amplification of insert using *Lm ariS-Y99A* as template:

F-primer
AAAACTGCAGTTAAATTATGACTTGATTGTGTTCTTC

R-primer
AAAAGTCGACATGTCAAATTTACAAGTAATTGCAAATG

Insert sequence:
AAAAGTCGACATGTCAAATTTACAAGTAATTGCAAATGATATGTTGCCAG
TAATGGAGAACGAAAAAGGCGAGAAATTCGTAAATGCACGCGAACTACA
TCAAAGCTTGCAAGTCGGTAAAAAATTTGCTACTTGGATTACCGATAAGT
TTAACAATTACGGATTTTCAAAGGATGAAGACTATTTCCCAATTTTGGGA
GAAAGTACATTTGGCAGGCCTAGAACAGAATACTTACTAACTTTAGACAC
TGCTAAAGAATTAGCAATGGTACAAAACAACgaaatgggtcgatcaattagaaaaGCTtt
cattgaagtagaaaaacaagcgAGGAAATTAGCAACTGAATATCCAACGTTTTCATAC
ATGATAGAAGATCCAGTTGCTAGAGCTAAAAAATGGATTGAGGAACAAC
AAGAGAAGCAAGAGGCTTTAAAGCAACTTGAGGAACAAAAGCCAAAAGT
GGTTTTTGCGGAAGCTGTGCAAACGAGTGAGAACACGATTTTAGTAAAAG
ATTTAGCTACTATTCTAAAACAAAAAGGATTAGATATAGGACAAAACAGA
CTTTTTGAATGGTTGAGATGTAGCGGATATTTGCTAAATAAAGGGGCTTAT
TATAACAAACCGTCACAAAAGGCGATGAATTTAGGATTGTTTGAACAAAA
AACACATATTCATACAGATAGAAATGGCTTAATGATAACTACCTATACAC
CTCGAGTTACTGGCAAAGGTCAAATATACCTATTAAACAAATTATTAGAA
GAACACAATCAAGTCATAATTTAACTGCAGTTTT

2. Restriction enzyme reaction of both insert and the vector *pPL2 tetR* by PstI and SalI enzymes
3. Ligation and transformation

**pPL2-ariS -6his**

1. PCR amplification of insert using *Lm 10403S* as template:

F-primer
AAAACTGCAGTTAAATTATGACTTGATTGTGTTCTTC

R-primer
TTTTCTGCAGTTAGTGGTGGTGGTGGTGGTGCTCGAGAATTATGACTTGATTGTGTTCTT
C

Insert sequence:

aGTCGACATGTCAAATTTACAAGTAATTGCAAATGATATGTTGCCAGTAATGG
AGAACGAAAAAGGCGAGAAATTCGTAAATGCACGCGAACTACATCAAAGCT
TGCAAGTCGGTAAAAAATTTGCTACTTGGATTACCGATAAGTTTAACAATTAC
GGATTTTCAAAGGATGAAGACTATTTCCCAATTTTGGGAGAAAGTACATTTG
GCAGGCCTAGAACAGAATACTTACTAACTTTAGACACTGCTAAAGAATTAGC
AATGGTACAAAACAACGAAATGGGTCGATCAATTAGAAAATATTTCATTGAA
GTAGAAAAACAAGCGAGGAAATTAGCAACTGAATATCCAACGTTTTCATACA
TGATAGAAGATCCAGTTGCTAGAGCTAAAAAATGGATTGAGGAACAACAAG
AGAAGCAAGAGGCTTTAAAGCAACTTGAGGAACAAAAGCCAAAAGTGGTTT
TTGCGGAAGCTGTGCAAACGAGTGAGAACACGATTTTAGTAAAAGATTTAGC
TACTATTCTAAAACAAAAAGGATTAGATATAGGACAAAACAGACTTTTTGAA
TGGTTGAGATGTAGCGGATATTTGCTAAATAAAGGGGCTTATTATAACAAAC
CGTCACAAAAGGCGATGAATTTAGGATTGTTTGAACAAAAAACACATATTCA
TACAGATAGAAATGGCTTAATGATAACTACCTATACACCTCGAGTTACTGGC
AAAGGTCAAATATACCTATTAAACAAATTATTAGAAGAACACAATCAAGTCA
TAATTCTCGAGCACCACCACCACCACCACTAACTGCAGA

2. Restriction enzyme reaction of both insert and the vector *pPL2 tetR* by PstI and SalI enzymes
3. Ligation and transformation

**pPL2-ariS-Y99A-6his**

1. PCR amplification of insert using *Lm ariS-Y99A S* as template:

F-primer
AAAACTGCAGTTAAATTATGACTTGATTGTGTTCTTC

R-primer
TTTTCTGCAGTTAGTGGTGGTGGTGGTGGTGCTCGAGAATTATGACTTGATTGTGTTCTT
C

Insert sequence:

aGTCGACATGTCAAATTTACAAGTAATTGCAAATGATATGTTGCCAGTAATGG
AGAACGAAAAAGGCGAGAAATTCGTAAATGCACGCGAACTACATCAAAGCT
TGCAAGTCGGTAAAAAATTTGCTACTTGGATTACCGATAAGTTTAACAATTAC
GGATTTTCAAAGGATGAAGACTATTTCCCAATTTTGGGAGAAAGTACATTTG
GCAGGCCTAGAACAGAATACTTACTAACTTTAGACACTGCTAAAGAATTAGC

AATGGTACAAAACAACgaaatgggtcgatcaattagaaaaGCTttcattgaagtagaaaaacaagcgAGG
AAATTAGCAACTGAATATCCAACGTTTTCATACATGATAGAAGATCCAGTTG
CTAGAGCTAAAAAATGGATTGAGGAACAACAAGAGAAGCAAGAGGCTTTAA
AGCAACTTGAGGAACAAAAGCCAAAAGTGGTTTTTGCGGAAGCTGTGCAAAC
GAGTGAGAACACGATTTTAGTAAAAGATTTAGCTACTATTCTAAAACAAAAA
GGATTAGATATAGGACAAAACAGACTTTTTGAATGGTTGAGATGTAGCGGAT
ATTTGCTAAATAAAGGGGCTTATTATAACAAACCGTCACAAAAGGCGATGAA
TTTAGGATTGTTTGAACAAAAAACACATATTCATACAGATAGAAATGGCTTA
ATGATAACTACCTATACACCTCGAGTTACTGGCAAAGGTCAAATATACCTATT
AAACAAATTATTAGAAGAACACAATCAAGTCATAATTCTCGAGCACCACCAC
CACCACCACTAACTGCAG

2. Restriction enzyme reaction of both insert and the vector *pPL2 tetR* by PstI and SalI enzymes
3. Ligation and transformation

**pPL2-recA**

1. PCR amplification of insert using *Lm 10403S* as template:

   F-primer
   aaaaGTCGACgtgaatgatcgtcaagcggc

   R-primer
   ttttCTGCAGttattcatcatctagtaaacttaatgtttcttcttttcg

   Insert sequence:

   GTCGACgtgaatgatcgtcaagcggcattagaccaagctttaaaacaaattgaaaaacaattcggtaaaggctccattatga
   aattaggggaacattcagatcaaaatatatctactatttctagtggttcattagcgttagatattgctttaggagttggcggataccctc
   gtggacgtattatcgaagtatacggaccagagagttccggtaaaacaactgttgcgcttcatgcaattgcggaagtacaagcaca
   aggcggaacagcagcatttatcgatgctgagcatgcgttggatccggcttatgctaaaaacctaggtgtaaatattgatgaattatt
   actatctcaaccagatacaggagaacaagctttagagattgctgaagctttagttagaagtggtgcagttgatatgttagtaattgac
   tccgttgcagcacttgtaccacgtgctgaaatcgaaggcgagatgggcgatgctcatgttggattacaagcacgtttaatgtccca
   agcattgcgtaaactttctggtgttattaataaatcaaaaaccattgctattttcattaaccaaattcgtgaaaaagttggtgttatgtttg
   gtaacccagaaatcacaccaggtggacgtgcgcttaaattctattctactgtacgtttagaagtaagacgtgcggaacaactgaag
   caaggtacagatgtaatgggtaacaaaacaaaaatcaaagttgtaaaaaataaagtagcgccaccattccgtattgccgaagtag
   atattatgtatggtgaaggtatttcgcgtgaaggtgagcttgttgatatggctgctgaagtggatgtaatcaataagagtggttcgtg
   gtattcttataaagaagaacgcatcggtcaaggccgtgagaatgcaaaacaatatctgaaagaacacacagatattcgtgatgag
   atttctaagcgcgttcgtgaagaatatgaaattgatggaagcagcaaagagcctcttgacgaaaaagaagaaacattaagtttact
   agatgatgaataa

2. Restriction enzyme reaction of both insert and the vector *pPL2 tetR* by PstI and SalI enzymes
3. Ligation and transformation

**pPL2-recA-ariS**

1. PCR amplification of insert using *ppl2-aris-6His* as template:
   F-primer
   aaaaaaCTGCAGGggaaaggaggtgaGTCGACATG

   R-primer
   aaaaaaGAGCTCTTAGTGGTGGTGGTGGTGGTGC

   Insert sequence:

   ggaaaggaggtgaGTCGACATGTCAAATTTACAAGTAATTGCAAATGATATGTTGCC
   AGTAATGGAGAACGAAAAAGGCGAGAAATTCGTAAATGCACGCGAACTACA
   TCAAAGCTTGCAAGTCGGTAAAAAATTTGCTACTTGGATTACCGATAAGTTTA
   ACAATTACGGATTTTCAAAGGATGAAGACTATTTCCCAATTTTGGGAGAAAG
   TACATTTGGCAGGCCTAGAACAGAATACTTACTAACTTTAGACACTGCTAAA
   GAATTAGCAATGGTACAAAACAACGAAATGGGTCGATCAATTAGAAAATATT
   TCATTGAAGTAGAAAAACAAGCGAGGAAATTAGCAACTGAATATCCAACGTT
   TTCATACATGATAGAAGATCCAGTTGCTAGAGCTAAAAAATGGATTGAGGAA
   CAACAAGAGAAGCAAGAGGCTTTAAAGCAACTTGAGGAACAAAAGCCAAAA
   GTGGTTTTTGCGGAAGCTGTGCAAACGAGTGAGAACACGATTTTAGTAAAAG
   ATTTAGCTACTATTCTAAAACAAAAAGGATTAGATATAGGACAAAACAGACT
   TTTTGAATGGTTGAGATGTAGCGGATATTTGCTAAATAAAGGGGCTTATTATA
   ACAAACCGTCACAAAAGGCGATGAATTTAGGATTGTTTGAACAAAAAACACA
   TATTCATACAGATAGAAATGGCTTAATGATAACTACCTATACACCTCGAGTTA
   CTGGCAAAGGTCAAATATACCTATTAAACAAATTATTAGAAGAACACAATCA
   AGTCATAATTCTCGAGCACCACCACCACCACCACTAA
2. Restriction enzyme reaction of both insert and the vector *pPL2 tetR-recA* by PstI and SacI enzymes
3. Ligation and transformation

**lexA3 mutant**

1. PCR amplification of insert using *Lm 10403S* as template:

pBHE_lexA3_A aaaaGGATCCcacctctgaatagtcgcttccc
pBHE_lexA3_B gataggcatATcTgctgttacttttccgataataggaatatttac
pBHE_lexA3_C ggaaaagtaacagcAgATatgcctatcacagcaattgagaac
pBHE_lexA3_D ttttCTGCAGggccatatccaagggaagtcag
Insert sequence:
GATCCcacctctgaatagtcgcttcccccgccaaccactgtacacattaaaataatccctaaaacgatgcaagtaagtacaaatata
atagaaacataaaatttatcccaaattaattttaaagtcattaataatccctccaaaaaagaatgtatgttcgcttttctatattatagaacaac
cgttcgtacatgtcaataaaaaaacgaacctttgtttgcatattggtttccctttgctatacttgaattataaaataaccataaatttaatgag

gtgaaaccatgaaaatatctaaacgccaacaagatatatatgaatttattaaatcagaagtaaaagaaaaaggttatccaccttccgtacg
tgaaattggtgaagcagtgggtctcgcatccagttctactgttcatgggcatcttgctcgccttgaaggtaaagggctaattagacgtga
ccctacaaagcctcgtgcgattgaaatattatctttggaagatgaagcagaaactcccaatgttgtaaatattcctattatcggaaaagtaa
cagcAgATatgcctatcacagcaattgagaacatcgatgagtatttcccactgccagaatacatggctgctggtgaaaccaatgtctt
catgttagaaattgatggtgaaagtatgataaatgccggaattcttgatggagataaagtaatcgttagacagcaaagttccgcaatcaat
ggagaaatcgtcgtagctatgaccgatgaaaatgaagctacatgtaaacgattctataaagaagctaatcatttcagacttcaacccgaa
aatgatgctttagagcctattcttttaaataacgtaacaatccttggaaaagtaatcgggctttatagagatattcgctaattttatttcttaaac
aggtggtttttaagatgatttatttcgaaaccgaaagacttatcgcaagagattatttagaacgtgactaccttccttttagtcaaatgaatg
cagatgaagaagtaatgaaatacttcccagctagattgactcaagtagaaagtaacgcactacttgatagaaaccaaaaagaactgact
tcccttggatatggccCTGCA

2. Restriction enzyme reaction of both insert and the vector pBHE261 by BamHI and PstI
3. Ligation and transformation

**pBHE-antA/B, for generating antA/B deletion mutant**

1. PCR amplification of insert using *Lm 10403S* and *pBHE261* as templates:

F vec : tgacggcttagacaaccatcaattcgtaatcatgtcatagctgtttcctg
R vec: agcagtttctatctccttgcttggcactggccg
A: ctatgacatgattacgaattgatggttgtctaagccgtcaaaca
B: tgtcaaatttacaagtaattcttgaggaacaaaagccaaaagtggt
C: tttggcttttgttcctcaagaattacttgtaaatttgacattttgttctccttttctg
D: aaaacgacggccagtgccaagcaaggagatagaaactgctgttatgg

Insert sequence:
gatggttgtctaagccgtcaaacaaaggcggtatcattccgtttgaaaattcatgtgcgaataaataggtgctttctggttcgttgtagctat
caattaactgttctgcttgttcaagtgaaactgttcgttttccttttatctgattacttattagtgctggtgttacataactatcaatcgctagctct
ttttgcgtgcgagtttctgctaaaacttgcatcgcggttggtgctgatattgatctttgaaacataatatctcaatccttttttgtttatttttcagc
gactaattaacaacttatcgttatatactattgttagtcgctccccgtggctattgttgtctgcgagcgccgttgtggtaggcggcgcttaaa
ttatgacttgattgtgttcttctaataatttgtttaataggtatatttgacctttgccagtaactcgaggtgtataggtagttatcattaagccattt
ctatctgtatgaatatgtgttttttgttcaaacaatcctaaattcatcgccttttgtgacggtttgttataataagccccttttatttagcaaatatcc
gctacatctcaaccattcaaaaagtctgttttgtcctatatctaatccttttttgttttagaatagtagctaaatcttttactaaaatcgtgttctcac
tcgtttgcacagcttccgcaaaaaccacttttggcttttgttcctcaagaattacttgtaaatttgacattttgttctccttttctgttcgccctttca
cagtgctatagtttttgtgaagggaggtgggtaaaatgggagttaaaattaaatttgattcaaaaaaattagagagacaaattaaagaaca
aagcctaaaaatcgccaaggaagatattattaaaaatggaacggaagggacctgtcccgaatgttcacatgtatttacagttaaacctg
gagtaaactcatgtcccgattgcgggaatgaatttactgtaaaaatcaagtaaatcacttcaccttaatttctaacgagtttatagtgctagc
caagtcttccaccaaagatttggcttcacttaatctcttttctaacaaagcggcgttttctatagaatcctctactccattcagctctacttcca
tttcgataatttttagctcttgatctttttcaagtaaatttaaaatatttttttataacgctgtatttaacgaatgagccgctctctatcgcattaccat
tttctaaaattgtttctagtttaataattgcttgtttgatgttattcatttttcttcctcctaaattatggtttttagtattttccagaccataacagtctt
cgcatttcttcgctgattgtgaatgggtgatattccacttgcacaactggcaatgatcctgcttttaaatctaatttaaccgctgtaattccttttt
cttaattgttttccattgatttctaatactccataacagcagtttctatctccttgc

2. Gibson assembly and transformation

**pBHE-kilAC, for generating kilAC deletion mutant**

1. PCR amplification of insert using *Lm 10403S* and *pBHE261* as templates:

F vec : acgaaggttacgagtcgaagttcgtaatcatgtcatagctgtttcctgtgtgaaattgt
R vec: agctcttgatctttttcaagcaggcatgcaagcttg
A: agctatgacatgattacgaacttcgactcgtaaccttcgtaact
B: acactgctaaagaattagcataagcgccgcctaccac
C: gttgtggtaggcggcgcttatgctaattctttagcagtgtctaaagttagtaagtattc
D: GGTACCTTACTTGATTTTTACAGTAAATTCATTCCC

Insert sequence:

gaacttcgactcgtaaccttcgtaactagccgatactaaaacttcgctcattttccgcaactccttactaatccagatttttgataatatagat
cgcgtttgtttaaaacttgttgtaaatctatgttgaaagctttcgcaatgctagtgtttagtgttaaagcagatgcaactacatctgttatttctg
aaatagcttgttttgcggcttctcgttgtagcatgtcacctttttctcaagctatatgtcatcgtctctaagccgtttttcagtgtgtttatcgcttc
ttcaacttctagttcaaagcggttagttaaagaagcgtgatggttgtctaagccgtcaaacaaaggcggtatcattccgtttgaaaattcat
gtgcgaataaataggtgctttctggttcgttgtagctatcaattaactgttctgcttgttcaagtgaaactgttcgttttccttttatctgattactt
attagtgctggtgttacataactatcaatcgctagctctttttgcgtgcgagtttctgctaaaacttgcatcgcggttggtgctgatattgatct
ttgaaacataatatctcaatccttttttgtttatttttcagcgactaattaacaacttatcgttatatactattgttagtcgctccccgtggctattgt
tgtctgcgagcgccgttgtggtaggcggcgcttatgctaattctttagcagtgtctaaagttagtaagtattctgttctaggcctgccaaat
gtactttctcccaaaattgggaaatagtcttcatcctttgaaaatccgtaattgttaaacttatcggtaatccaagtagcaaatttttttaccgac
ttgcaagctttgatgtagttcgcgtgcatttacgaatttctcgccttttttcgttctccattactggcaacatatcatttgcaattacttgtaaattt
gacattttgttctcctttctgttcgccctttcacagtgctatagttttgtgaagggaggtgggtaaaatgggagttaaaattaaatttgattca
aaaaaattagagagacaaattaaagaacaaagcctaaaaatcgccaaggaagatattattaaaaatggaacggaagggacctgtccc
gaatgttcacatgtatttacagttaaacctggagtaaactcatgtcccgattgcgggaatgaatttactgtaaaaatcaagtaaatcacttc
accttaatttctaacgagtttatagtgctagccaagtcttccaccaaagatttggcttcacttaatctcttttctaacaaagcggcgttttctat
agaatcctctactccattcagctctacttccatttcgataatttttagctcttgatctttttcaag

2. Gibson assembly and transformation