

CTXM-15 (757pb)

KU163311.1 Escherichia coli strain 358B extended-spectrum beta-lactamase CTX-M-15 (blaCTX-M-15) gene, partial cds

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>GCCAGTTCACGCTGATGGCGACGGCCACCGTCACGCTGTTGTTAGGAAGTGTGCCGCTGTATGCGCAAAACGGCG
GACGTACAGCAAAAACCTTGCCGAATTAGAGCGGCAGTCGGGAGGCAGACTGGGTGTGGCATTGATTAACACAGCA
GATAATTCGCAAATACTTTATCGTGCTGATGAGCGCTTTGCGATGTGCAGCACCAGTAAAGTGATGGCCGGGCCG
CGGTGCTGAAGAAAAGTGAAAGCGAACC GAATCTGTTAAATCAGCGAGTTGAGATCAAAAAATCTGACCTTGTTA
ACTATAATCCGATTGCGGAAAAGCACGTCAATGGGACGATGTCACTGGCTGAGCTTAGCGCGGCCGCGCTACAGT
ACAGCGATAACGTGGCGATGAATAAGCTGATTGCTCACGTTGGCGGCCCGGCTAGCGTCACCGCGTTTCGCCCCGAC
AGCTGGGAGACGAAACGTTCCGTCTCGACCGTACCGAGCCGACGTTAAACACCGCCATTCCGGGCGATCCGCGTG
ATACCACTTCACCTCGGGCAATGGCGCAAACTCTGCGGAATCTGACGCTGGGTAAAGCATTGGGCGACAGCCAAC
GGGCGCAGCTGGTGACATGGATGAAAGGCAATACCACCGGTGCAGCGAGCATTAGGCTGGACTGCCTGCTTCCT
GGGTTGTGGGGGATAAAACCGGCAGCGGTGGCTATGGCACCACCAACGATATCGCGGTGATCTGGCCAAAAGATC
GTGCGCCG
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>GCCAGTTCACGCTGATGGCGACGGCCACCGTCACGCTGTTGTTAGGAAGTGTGCCGCTGTATGCGCAAAACGGCG
GACGTACAGCAAAAACCTTGCCGAATTAGAGCGGCAGTCGGGAGGCAGACTGGGTGTGGCATTGATTAACACAGCA
GATAATTCGCAAATACTTTATCGTGCTGATGAGCGCTTTGCGATGTGCAGCACCAGTAAAGTGATGGCCGGGCCG
CGGTGCTGAAGAAAAGTGAAAGCGAACC GAATCTGTTAAATCAGCGAGTTGAGATCAAAAAATCTGACCTTGTTA
ACTATAATCCGATTGCGGAAAAGCACGTCAATGGGACGATGTCACTGGCTGAGCTTAGCGCGGCCGCGCTACAGT
ACAGCGATAACGTGGCGATGAATAAGCTGATTGCTCACGTTGGCGGCCCGGCTAGCGTCACCGCGTTTCGCCCCGAC
AGCTGGGAGACGAAACGTTCCGTCTCGACCGTACCGAGCCGACGTTAAACACCGCCATTCCGGGCGATCCGCGTG
ATACCACTTCACCTCGGGCAATGGCGCAAACTCTGCGGAATCTGACGCTGGGTAAAGCATTGGGCGACAGCCAAC
GGGCGCAGCTGGTGACATGGATGAAAGGCAATACCACCGGTGCAGCGAGCATTAGGCTGGACTGCCTGCTTCCT
GGGTTGTGGGGGATAAAACCGGCAGCGGTGGCTATGGCACCACCAACGATATCGCGGTGATCTGGCCAAAAGATC
GTGCGCCG
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>GCCAGTTCACGCTGATGGCGACGGCCACCGTCACGCTGTTGTTAGGAAGTGTGCCGCTGTATGCGCAAAACGGCG
GACGTACAGCAAAAACCTTGCCGAATTAGAGCGGCAGTCGGGAGGCAGACTGGGTGTGGCATTGATTAACACAGCA
GATAATTCGCAAATACTTTATCGTGCTGATGAGCGCTTTGCGATGTGCAGCACCAGTAAAGTGATGGCCGGGCCG
CGGTGCTGAAGAAAAGTGAAAGCGAACC GAATCTGTTAAATCAGCGAGTTGAGATCAAAAAATCTGACCTTGTTA
ACTATAATCCGATTGCGGAAAAGCACGTCAATGGGACGATGTCACTGGCTGAGCTTAGCGCGGCCGCGCTACAGT
ACAGCGATAACGTGGCGATGAATAAGCTGATTGCTCACGTTGGCGGCCCGGCTAGCGTCACCGCGTTTCGCCCCGAC
AGCTGGGAGACGAAACGTTCCGTCTCGACCGTACCGAGCCGACGTTAAACACCGCCATTCCGGGCGATCCGCGTG
ATACCACTTCACCTCGGGCAATGGCGCAAACTCTGCGGAATCTGACGCTGGGTAAAGCATTGGGCGACAGCCAAC
GGGCGCAGCTGGTGACATGGATGAAAGGCAATACCACCGGTGCAGCGAGCATTAGGCTGGACTGCCTGCTTCCT
GGGTTGTGGGGGATAAAACCGGCAGCGGTGGCTATGGCACCACCAACGATATCGCGGTGATCTGGCCAAAAGATC
GTGCGCCG
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>GCCAGTTCACGCTGATGGCGACGGCCACCGTCACGCTGTTGTTAGGAAGTGTGCCGCTGTATGCGCAAAACGGCG
GACGTACAGCAAAAACCTTGCCGAATTAGAGCGGCAGTCGGGAGGCAGACTGGGTGTGGCATTGATTAACACAGCA
GATAATTCGCAAATACTTTATCGTGCTGATGAGCGCTTTGCGATGTGCAGCACCAGTAAAGTGATGGCCGGGCCG
CGGTGCTGAAGAAAAGTGAAAGCGAACC GAATCTGTTAAATCAGCGAGTTGAGATCAAAAAATCTGACCTTGTTA
ACTATAATCCGATTGCGGAAAAGCACGTCAATGGGACGATGTCACTGGCTGAGCTTAGCGCGGCCGCGCTACAGT
ACAGCGATAACGTGGCGATGAATAAGCTGATTGCTCACGTTGGCGGCCCGGCTAGCGTCACCGCGTTTCGCCCCGAC
AGCTGGGAGACGAAACGTTCCGTCTCGACCGTACCGAGCCGACGTTAAACACCGCCATTCCGGGCGATCCGCGTG
ATACCACTTCACCTCGGGCAATGGCGCAAACTCTGCGGAATCTGACGCTGGGTAAAGCATTGGGCGACAGCCAAC
GGGCGCAGCTGGTGACATGGATGAAAGGCAATACCACCGGTGCAGCGAGCATTAGGCTGGACTGCCTGCTTCCT
GGGTTGTGGGGGATAAAACCGGCAGCGGTGGCTATGGCACCACCAACGATATCGCGGTGATCTGGCCAAAAGATC
GTGCGCCG
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>GCCAGTTCACGCTGATGGCGACGGCCACCGTCACGCTGTTGTTAGGAAGTGTGCCGCTGTATGCGCAAAACGGCG
GACGTACAGCAAAAACCTTGCCGAATTAGAGCGGCAGTCGGGAGGCAGACTGGGTGTGGCATTGATTAACACAGCA
GATAATTCGCAAATACTTTATCGTGCTGATGAGCGCTTTGCGATGTGCAGCACCAGTAAAGTGATGGCCGGGCCG
CGGTGCTGAAGAAAAGTGAAAGCGAACC GAATCTGTTAAATCAGCGAGTTGAGATCAAAAAATCTGACCTTGTTA
ACTATAATCCGATTGCGGAAAAGCACGTCAATGGGACGATGTCACTGGCTGAGCTTAGCGCGGCCGCGCTACAGT
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ACAGCGATAACGTGGCGATGAATAAGCTGATTGCTCACGTTGGCGGGCCCGGCTAGCGTCACCGCGTTTCGCCCCGAC
AGCTGGGAGACGAAACGTTCCGTCTCGACCGTACCGAGCCGACGTTAAACACCGCCATTCCGGGCGATCCGCGTG
ATACCACTTCACCTCGGGCAATGGCGCAAACCTCTGCGGAATCTGACGCTGGGTAAAGCATTGGGCGACAGCCAAAC
GGGCGCAGCTGGTGACATGGATGAAAGGCAATACCACCGGTGCAGCGAGCATTACAGGCTGGACTGCCTGCTTCCT
GGGTTGTGGGGGATAAAACCGGCAGCGGTGGCTATGGCACCACCAACGATATCGCGGTGATCTGGCCAAAAGATC
GTGCGCCG

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>GCCAGTTCACGCTGATGGCGACGGCCACCGTCACGCTGTTGTTAGGAAGTGTGCCGCTGTATGCGCAAACGGCG
GACGTACAGCAAAAACCTTGCCGAATTAGAGCGGCAGTCGGGAGGCAGACTGGGTGTGGCATTGATTAACACAGCA
GATAATTTCGCAAATACTTTATCGTGCTGATGAGCGCTTTGCGATGTGCAGCACCAGTAAAGTGATGGCCGGGGCCG
CGGTGCTGAAGAAAAGTGAAAGCGAACCGAATCTGTTAAATCAGCGAGTTGAGATCAAAAAATCTGACCTTGTTA
ACTATAATCCGATTGCGGAAAAGCACGTCAATGGGACGATGTCACTGGCTGAGCTTAGCGCGGCCGCGCTACAGT
ACAGCGATAACGTGGCGATGAATAAGCTGATTGCTCACGTTGGCGGGCCCGGCTAGCGTCACCGCGTTTCGCCCCGAC
AGCTGGGAGACGAAACGTTCCGTCTCGACCGTACCGAGCCGACGTTAAACACCGCCATTCCGGGCGATCCGCGTG
ATACCACTTCACCTCGGGCAATGGCGCAAACCTCTGCGGAATCTGACGCTGGGTAAAGCATTGGGCGACAGCCAAAC
GGGCGCAGCTGGTGACATGGATGAAAGGCAATACCACCGGTGCAGCGAGCATTACAGGCTGGACTGCCTGCTTCCT
GGGTTGTGGGGGATAAAACCGGCAGCGGTGGCTATGGCACCACCAACGATATCGCGGTGATCTGGCCAAAAGATC
GTGCGCCG

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KU163311.1 Escherichia coli strain 358B extended-spectrum beta-lactamase CTX-M-15 (blaCTX-M-15) gene, partial cds

>GCCAGTTCACGCTGATGGCGACGGCCACCGTCACGCTGTTGTTAGGAAGTGTGCCGCTGTATGCGCAAACGGCG
GACGTACAGCAAAAACCTTGCCGAATTAGAGCGGCAGTCGGGAGGCAGACTGGGTGTGGCATTGATTAACACAGCA
GATAATTTCGCAAATACTTTATCGTGCTGATGAGCGCTTTGCGATGTGCAGCACCAGTAAAGTGATGGCCGGGGCCG
CGGTGCTGAAGAAAAGTGAAAGCGAACCGAATCTGTTAAATCAGCGAGTTGAGATCAAAAAATCTGACCTTGTTA
ACTATAATCCGATTGCGGAAAAGCACGTCAATGGGACGATGTCACTGGCTGAGCTTAGCGCGGCCGCGCTACAGT
ACAGCGATAACGTGGCGATGAATAAGCTGATTGCTCACGTTGGCGGGCCCGGCTAGCGTCACCGCGTTTCGCCCCGAC
AGCTGGGAGACGAAACGTTCCGTCTCGACCGTACCGAGCCGACGTTAAACACCGCCATTCCGGGCGATCCGCGTG
ATACCACTTCACCTCGGGCAATGGCGCAAACCTCTGCGGAATCTGACGCTGGGTAAAGCATTGGGCGACAGCCAAAC
GGGCGCAGCTGGTGACATGGATGAAAGGCAATACCACCGGTGCAGCGAGCATTACAGGCTGGACTGCCTGCTTCCT
GGGTTGTGGGGGATAAAACCGGCAGCGGTGGCTATGGCACCACCAACGATATCGCGGTGATCTGGCCAAAAGATC
GTGCGCCG

CMY2 (1146pb)

ON412783.1 Escherichia coli IS1380-like element ISEc9 family transposase gene, partial cds;
and class C beta-lactamase CMY-2 gene, complete cds

>ATGATGAAAAAATCGTTATGCTGCGCTCTGCTGCTGACAGCCTCTTTCTCCACATTTGCTGCCGCAAAAACAGA
ACAACAGATTGCCGATATCGTTAATCGCACCATCACCCCGTTGATGCAGGAGCAGGCTATTCCGGGTATGGCCGT
TGCCGTTATCTACCAGGGAAAACCTTATTATTTACCTGGGGTAAAGCCGATATCGCCAATAACCACCCAGTCAC
GCAGCAAACGCTGTTTTGAGCTAGGATCGGTTAGTAAGACGTTTAAACGGCGTGTTGGGCGGCGATGCTATCGCCCC
CGGCGAAATTAAGCTCAGCGATCCGGTCACGAAATACTGGCCAGAACTGACAGGCAAACAGTGGCAGGGTATCCG
CCTGCTGCACTTAGCCACCTATACGGCAGGCGGCCTACCGCTGCAGATCCCCGATGACGTTAGGGATAAAGCCGC
ATTACTGCATTTTTATCAAACTGGCAGCCGCAATGGACTCCGGGCGCTAAGCGACTTTACGCTAACTCCAGCAT
TGGTCTGTTTGGCGCGCTGGCGGTGAAACCTCAGGAATGAGTTACGAAGAGGCAATGACCAGACGCGTCCTGCA
ACCATTAAAACTGGCGCATACCTGGATTACGGTTCCGCAGAACGAACAAAAAGATTATGCCTGGGGCTATCGCGA
AGGGAAGCCCGTACACGTTTCTCCGGGACAACCTTGACGCCGAAGCCTATGGCGTGAAATCCAGCGTTATTGATAT
GGCCCGCTGGGTTTCAGGCCAACATGGATGCCAGCCACGTTTCAGGAGAAAACGCTCCAGCAGGGCATTGCGCTTGC
GCAGTCTCGCTACTGGCGTATTGGCGATATGTACCAGGGATTAGGCTGGGAGATGCTGAACTGGCCGCTGAAAGC
TGATTTCGATCATCAACGGCAGCGACAGCAAAGTGGCATTGGCAGCGCTTCCCGCCGTTGAGGTAAACCCGCCCGC
CCCCGCAGTGAAAGCCTCATGGGTGCATAAAACGGGCTCCACTGGTGGATTGGCAGCTACGTAGCCTTCGTTCC
AGAAAAAACCTTGGCATCGTGATGCTGGCAAACAAAAGCTATCCTAACCTGTCCGTGTCGAGGCGGCCTGGCG
CATTCTTGAAAGCTGCAATAA

CMY2 (901pb)

ON412783.1 Escherichia coli IS1380-like element ISEc9 family transposase gene, partial cds;
and class C beta-lactamase CMY-2 gene, complete cds

>ATGATGAAAAAATCGTTATGCTGCGCTCTGCTGCTGACAGCCTCTTTCTCCACATTTGCTGCCGCAAAAACAGA
ACAACAGATTGCCGATATCGTTAATCGCACCATCACCCCGTTGATGCAGGAGCAGGCTATTCCGGGTATGGCCGT
TGCCGTTATCTACCAGGGAAAACCTTATTATTTACCTGGGGTAAAGCCGATATCGCCAATAACCACCCAGTCAC
GCAGCAAACGCTGTTTTGAGCTAGGATCGGTTAGTAAGACGTTTAAACGGCGTGTTGGGCGGCGATGCTATCGCCCC
CGGCGAAATTAAGCTCAGCGATCCGGTCACGAAATACTGGCCAGAACTGACAGGCAAACAGTGGCAGGGTATCCG
CCTGCTGCACTTAGCCACCTATACGGCAGGCGGCCTACCGCTGCAGATCCCCGATGACGTTAGGGATAAAGCCGC
ATTACTGCATTTTTATCAAACTGGCAGCCGCAATGGACTCCGGGCGCTAAGCGACTTTACGCTAACTCCAGCAT

TGGTCTGTTTTGGCGCGCTGGCGGTGAAACCCCTCAGGAATGAGTTACGAAGAGGCAATGACCAGACGCGTCCTGCA
ACCATTA AAACTGGCGCATACCTGGATTACGGTTCGCGAGAACGAACAAAAAGATTATGCCTGGGGCTATCGCGA
AGGGAAGCCCGTACACGTTTTCTCCGGGACAACCTTGACGCCGAAGCCTATGGCGTGAAATCCAGCGTTATTGATAT
GGCCCGCTGGGTTT CAGGCCAACATGGATGCCAGCCACGTT CAGGAGAAAAACGCTCCAGCAGGGCATTGCGCTTGC
GCAGTCTCGCTACTGGCGTATTGGCGATATGTACCAGGGATTAGGCTGGGAGATGCTGAACTGGCCGCTGAAAGC
TG

CMY2 (1040pb)

ON412783.1 Escherichia coli IS1380-like element ISEc9 family transposase gene, partial cds;
and class C beta-lactamase CMY-2 gene, complete cds

>ATGATGAAAAAATCGTTATGCTGCGCTCTGCTGCTGACAGCCTCTTTCTCCACATTTGCTGCCGCAAAAACAGA
ACAACAGATTGCCGATATCGTTAATCGCACCATCACCCCGTTGATGCAGGAGCAGGCTATTCCGGGTATGGCCGT
TGCCGTTATCTACCAGGGAACCCCTATTATTTACCTGGGGTAAAGCCGATATCGCCAATAACCAACCAGTCAC
GCAGCAAACGCTGTTTTGAGCTAGGATCGGTTAGTAAGACGTTTAAACGGCGTGTTGGGCGGCGATGCTATCGCCCG
CGGCGAAATTAAGCTCAGCGATCCGGTCACGAAATACTGGCCAGAACTGACAGGCAAAACAGTGGCAGGGTATCCG
CCTGCTGCACTTAGCCACCTATACGGCAGGCGGCCTACCGCTGCAGATCCCCGATGACGTTAGGGATAAAGCCGC
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TGGTCTGTTTTGGCGCGCTGGCGGTGAAACCCCTCAGGAATGAGTTACGAAGAGGCAATGACCAGACGCGTCCTGCA
ACCATTA AAACTGGCGCATACCTGGATTACGGTTCGCGAGAACGAACAAAAAGATTATGCCTGGGGCTATCGCGA
AGGGAAGCCCGTACACGTTTTCTCCGGGACAACCTTGACGCCGAAGCCTATGGCGTGAAATCCAGCGTTATTGATAT
GGCCCGCTGGGTT CAGGCCAACATGGATGCCAGCCACGTT CAGGAGAAAAACGCTCCAGCAGGGCATTGCGCTTGC
GCAGTCTCGCTACTGGCGTATTGGCGATATGTACCAGGGATTAGGCTGGGAGATGCTGAACTGGCCGCTGAAAGC
TGATTTCGATCATCAACGGCAGCGACAGCAAAAGTGGCATTGGCAGCGCTTCCCGCCGTTGAGGTAAACCCGCCCGC
CCCCGAGTGAAAGCCTCATGGGTGCATAAAACGGGCTCCACTGGTGGATTTGGCAGCTACGTAGC

OXA-1 (1031pb)

MH208296.1 Escherichia coli strain Syl6 class 1 integron oxacillin-hydrolyzing class D beta-
lactamase OXA-1 (blaOXA) gene, blaOXA-1 allele and aminoglycoside 3'- (9) - O -
adenyltransferase (aadA1) gene, complete cds

>ACGCAGCAGGGCAGTCGCCCTAAACAAAGTTGGGCGAACCCGGAGCCTCATTAATTTGTTAGCCGTTAAAAATTA
AGCCCTTTTACCAAACCAATACTTATTATGAAAAACACAATACATATCAACTTCGCTATTTTTTTTAATAATTGCAA
ATATTATCTACAGCAGCGCCAGTGCATCAACAGATATCTCTACTGTTGCATCTCCATTATTTGAAGGAACTGAAG
GTTGTTTTTTTACTTTACGATGCATCCACAAACGCTGAAATTGCTCAATTCAATAAAGCAAAAGTGTGCAACGCAAA
TGGCACCAGATTCAACTTTCAAGATCGCATTATCACTTATGGCATTGATGCGGAAATAATAGATCAGAAAAACCA
TATTCAAATGGGATAAAACCCCCAAAGGAATGGAGATCTGGAACAGCAATCATAACCAAAGACGTGGATGCAAT
TTTCTGTTGTTTGGGTTTCGCAAGAAATAACCCAAAAAATTGGATTAAATAAAATCAAGAATTATCTCAAAGATT
TTGATTATGGAATCAAGACTTCTCTGGAGATAAAGAAAGAAACAACGGATTAACAGAAGCATGGCTCGAAAAGTA
GCTTAAAAATTTTACCAGAAGAACAATTCATTCCTGCGTAAAATTATTAATCACAATCTCCAGTTAAAAACT
CAGCCATAGAAAACACCATAGAGAACATGTATCTACAAGATCTGGATAATAGTACAAAACGTATGGGAAAACTG
GTGCAGGATTACAGCAAATAGAACCTTACAAAACGGATGGTTTTGAAGGGTTTATTATAAGCAAATCAGGACATA
AATATGTTTTTGTGTCCGCACTTACAGGAACTTGGGGTGAATTTAATCAAGCATAAAAAGCCAAGAAAAATG
CGATCACCATTCTAAACACACTAAATTTATAAAAAATCTAATGGCAAAATCGCCCAACCTTCAATCAAGTCGGG
ACGCCAAAAGCAAGCTTTTGGCTCCCTCGCTGGCGCTCGGCGCCCTTATTTCAA

TEM1 (1069pb)

CP099722.1 Escherichia coli strain EC21GDE043 plasmid pGDE043-mcr1, complete sequence

>TTCTTGAAGACGAAAGGGCCTCGTGATACGCCTATTTTTATAGGTTAATGTCATGATAATAATGGTTTCTTAGA
CGTCAGGTGGCACTTTTCGGGGAAATGTGCGCGGAACCCCTATTTGTTTATTTTTCTAAATACATTCAAAATATGT
ATCCGCTCATGACACAATAACCCCTGGTAAATGCTTCAATAATATTGAAAAAGGAAGAGTATGAGTATTCAACATT
TTCGTGTGCCCTTATTCCCTTTTTTGGCGCATTTTGCCTTCTGTTTTTGTCTACCCAGAAACGCTGGTGAAAG
TAAAAGATGCTGAAGATCAGTTGGGTGCACGAGTGGGTTACATCGAACTGGATCTCAACAGCGGTAAGATCCTTG
AGAGTTTTTCGCCCCGAAGAACGTTTTTCCAATGATGAGCACTTTTAAAGTTCTGCTATGTGGTGCAGTATTATCCC
GTGTTGACGCCGGGCAAGAGCAACTCGGTGCGCGCATACACTATTCTCAGAATGACTTGGTTGAGTACTCACCAG
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CTGCTGCCAACTTACTTCTGACAACGATCGGAGGACCGAAGGAGCTAACCGCTTTTTTGCACAACATGGGGGATC
ATGTAATTCGCCTTGATCGTTGGGAACCGGAGCTGAATGAAGCCATACCAAACGACGAGCGTGACACCACGATGC
CTGCAGCAATGGCAACAACGTTGCGCAAACTATTAACCTGGCGAACTACTTACTCTAGCTTCCCGGCAACAATTA
TAGACTGGATGGAGGCGGATAAAGTTGCAGGACCACTTCTGCGCTCGGCCCTTCCGGCTGGCTGGTTTATTGCTG
ATAAATCTGGAGCCGGTGAGCGTGGGTCTCGCGGTATCATTGCAGCACTGGGGCCAGATGGTAAGCCCTCCCGTA
TCGTAGTTATCTACACGACGGGGAGTCAGGCAACTATGGATGAACGAAATAGACAGATCGCTGAGATAGGTGCCT
CACTGATTAAGCATTGGTAA

TEM1 (739pb)

CP099722.1 Escherichia coli strain EC21GDE043 plasmid pGDE043-mcr1,
complete sequence

>TTCTTGAAGACGAAAGGGCCTCGTGATACGCCTATTTTTATAGGTTAATGTCATGATAATAATGGTTTCTTAGA
CGTCAGGTGGCACTTTTCGGGGAAATGTGCGCGGAACCCCTATTTGTTTATTTTTCTAAATACATTCAAAATATGT

ATCCGCTCATGAGACAATAACCCTGGTAAATGCTTCAATAATATTGAAAAAGGAAGAGTATGAGTATTCAACATT
TTCGTGTGCGCCCTTATTCCCTTTTTTTCGCGGCATTTTGCCTTCCTGTTTTTGTCTACCCAGAAACGCTGGTGAAAAG
TAAAAGATGCTGAAGATCAGTTGGGTGCACGAGTGGGTTACATCGAACTGGATCTCAACAGCGGTAAGATCCTTG
AGAGTTTTTCGCCCCGAAGAACGTTTTTCCAATGATGAGCACTTTTAAAGTTCTGCTATGTGGTGCGGTATTATCCC
GTGTTGACGCCGGGCAAGAGCAACTCGGTGCGCGCATACACTATTCTCAGAATGACTTGGTTGAGTACTCACCAG
TCACAGAAAAGCATCTTACGGATGGCATGACAGTAAGAGAATTATGCAGTGCTGCCATAACCATGAGTGATAACA
CTGCTGCCAACTTACTTCTGACAACGATCGGAGGACCGAAGGAGCTAACCGCTTTTTTGCACAACATGGGGGATC
ATGTAACTCGCCTTGATCGTTGGGAACCGGAGCTGAATGAAGCCATACCAAACGACGAGCGTGAC

TEM_C (974pb)

CP099722.1 Escherichia coli strain EC21GDE043 plasmid pGDE043-mcr1, complete sequence

>TTCTTGAAGACGAAAGGGCCTCGTGATACGCCTATTTTTATAGGTTAATGTCATGATAATAATGGTTTCTTAGA
CGTCAGGTGGCACTTTTCGGGGAAATGTGCGCGGAACCCCTATTTGTTTATTTTTCTAAATACATTCAAATATGT
ATCCGCTCATGAGACAATAACCCTGGTAAATGCTTCAATAATATTGAAAAAGGAAGAGTATGAGTATTCAACATT
TTCGTGTGCGCCCTTATTCCCTTTTTTTCGCGGCATTTTGCCTTCCTGTTTTTGTCTACCCAGAAACGCTGGTGAAAAG
TAAAAGATGCTGAAGATCAGTTGGGTGCACGAGTGGGTTACATCGAACTGGATCTCAACAGCGGTAAGATCCTTG
AGAGTTTTTCGCCCCGAAGAACGTTTTTCCAATGATGAGCACTTTTAAAGTTCTGCTATGTGGTGCGGTATTATCCC
GTGTTGACGCCGGGCAAGAGCAACTCGGTGCGCGCATACACTATTCTCAGAATGACTTGGTTGAGTACTCACCAG
TCACAGAAAAGCATCTTACGGATGGCATGACAGTAAGAGAATTATGCAGTGCTGCCATAACCATGAGTGATAACA
CTGCTGCCAACTTACTTCTGACAACGATCGGAGGACCGAAGGAGCTAACCGCTTTTTTGCACAACATGGGGGATC
ATGTAACTCGCCTTGATCGTTGGGAACCGGAGCTGAATGAAGCCATACCAAACGACGAGCGTGACACCACGATGC
CTGCAGCAATGGCAACAACGTTGCGCAAACTATTAAGTGGCGAACTACTTACTCTAGCTTCCCGGCAACAATTAA
TAGACTGGATGGAGGCGGATAAAGTTGCAGGACCACTTCTGCGCTCGGCCCTTCCGGCTGGCTGGTTTATTGCTG
ATAAATCTGGAGCCGGTGAGCGTGGGTCTCGCGGTATCATTGCAGCACTGGGGCCAGATGGTAAGCCCTCCCGTA

TEM_C (1049pb)

CP099722.1 Escherichia coli strain EC21GDE043 plasmid pGDE043-mcr1, complete sequence

>TTCTTGAAGACGAAAGGGCCTCGTGATACGCCTATTTTTATAGGTTAATGTCATGATAATAATGGTTTCTTAGA
CGTCAGGTGGCACTTTTCGGGGAAATGTGCGCGGAACCCCTATTTGTTTATTTTTCTAAATACATTCAAATATGT
ATCCGCTCATGAGACAATAACCCTGGTAAATGCTTCAATAATATTGAAAAAGGAAGAGTATGAGTATTCAACATT
TTCGTGTGCGCCCTTATTCCCTTTTTTTCGCGGCATTTTGCCTTCCTGTTTTTGTCTACCCAGAAACGCTGGTGAAAAG
TAAAAGATGCTGAAGATCAGTTGGGTGCACGAGTGGGTTACATCGAACTGGATCTCAACAGCGGTAAGATCCTTG
AGAGTTTTTCGCCCCGAAGAACGTTTTTCCAATGATGAGCACTTTTAAAGTTCTGCTATGTGGTGCGGTATTATCCC
GTGTTGACGCCGGGCAAGAGCAACTCGGTGCGCGCATACACTATTCTCAGAATGACTTGGTTGAGTACTCACCAG
TCACAGAAAAGCATCTTACGGATGGCATGACAGTAAGAGAATTATGCAGTGCTGCCATAACCATGAGTGATAACA
CTGCTGCCAACTTACTTCTGACAACGATCGGAGGACCGAAGGAGCTAACCGCTTTTTTGCACAACATGGGGGATC
ATGTAACTCGCCTTGATCGTTGGGAACCGGAGCTGAATGAAGCCATACCAAACGACGAGCGTGACACCACGATGC
CTGCAGCAATGGCAACAACGTTGCGCAAACTATTAAGTGGCGAACTACTTACTCTAGCTTCCCGGCAACAATTAA
TAGACTGGATGGAGGCGGATAAAGTTGCAGGACCACTTCTGCGCTCGGCCCTTCCGGCTGGCTGGTTTATTGCTG
ATAAATCTGGAGCCGGTGAGCGTGGGTCTCGCGGTATCATTGCAGCACTGGGGCCAGATGGTAAGCCCTCCCGTA
TCGTAGTTATCTACACGACGGGGAGTCAGGCAACTATGGATGAACGAAATAGACAGATCGCTGAGATAGGTGCCCT

aac-6' (Ib) -cr: (755pb)

NG_067971.1 Serratia marcescens subsp. marcescens S89 pPCMI3 aac(6')-Ib-cr gene for
fluoroquinolone-acetylating aminoglycoside 6'-N-acetyltransferase AAC(6')-Ib-cr9, complete CDS

>GTTGCTTCGTGGCGGCGCTTGCGTGCTACGCTAAGCTTCGCACGCCGCTTGCCACTGCGCACCGCGGCTTAACT
CAGGCGTTAGCCACCAAGAAGGTGCCATGAAAACATTTAACGATTCCGTACACTGCGCCTCATGACTGAGCATG
ACCTTGCGATGCTCTATGAGTGGCTAAATCGATCTCATATCGTTCGAGTGGTGGGGCGGAGAAGAAGCACGCCCGA
CACTTGCTGACGTACAGGAACAGTACTTGCCAAAGCGTTTTAGCGCAAGAGTCCGTCACTCCATACATTGCAATGC
TGAATGGAGAGCCGATTGGGTATGCCAGTCGTACGTTGCTCTTGGAAGCGGGGACGGAAGGTGGGAAGAAGAAA
CCGATCCAGGAGTACGCGGAATAGACCAGTTACTGGCGAATGCATCACAACTGGGCAAAGGCTTGGGAACCAAGC
TGGTTTCGAGCTCTGGTTGAGTTGCTGTTCAATGATCCCCGAGGTACCAAGATCCAAACGGACCCGTCGCCGAGCA
ACTTGCGAGCGATCCGATGCTACGAGAAAGCGGGTTTTGAGAGGCAAGGTACCGTAACCAACCCCATATGGTCCAG
CCGTGTACATGGTTCAAACACGCCAGGCATTTCGAGCGAACACGCAGTGATGCCTAACCTTCCATCGAGGGGGAC
GTCCAAGGGCTGGCGCCCTTGGCCGCCCTCATGTCAAACGTTGAGCGACTGCTTACCCGTTTGACGGTCGCGCC
CTCCTG

aac-6' (Ib) -cr: (654pb)

NG_067971.1 Serratia marcescens subsp. marcescens S89 pPCMI3 aac(6')-Ib-cr gene for
fluoroquinolone-acetylating aminoglycoside 6'-N-acetyltransferase AAC(6')-Ib-cr9, complete CDS

>GTTGCTTCGTGGCGGCGCTTGCGTGCTACGCTAAGCTTCGCACGCCGCTTGCCACTGCGCACCGCGGCTTAACT
CAGGCGTTAGCCACCAAGAAGGTGCCATGAAAACATTTAACGATTCCGTACACTGCGCCTCATGACTGAGCATG
ACCTTGCGATGCTCTATGAGTGGCTAAATCGATCTCATATCGTTCGAGTGGTGGGGCGGAGAAGAAGCACGCCCGA
CACTTGCTGACGTACAGGAACAGTACTTGCCAAGCGTTTTAGCGCAAGAGTCCGTCACTCCATACATTGCAATGC
TGAATGGAGAGCCGATTGGGTATGCCAGTCGTACGTTGCTCTTGGAAGCGGGGACGGAAGGTGGGAAGAAGAAA
CCGATCCAGGAGTACGCGGAATAGACCAGTTACTGGCGAATGCATCACAACTGGGCAAAGGCTTGGGAACCAAGC

TGGTTCGAGCTCTGGTTGAGTTGCTGTTCAATGATCCCGAGGTCACCAAGATCCAAACGGACCCGTCGCCGAGCA
ACTTGCGAGCGATCCGATGCTACGAGAAAGCGGGGTTTGGAGAGGCAAGGTACCGTAACCAACCCCATATGGTCCAG
CCGTGTACATGGTTCAAACACGCCAGGCATTTCGAGCGAACACGCAGTGATGCCTA

***dfrA17* (474pb)**

NG_047710.1 Escherichia coli GH326 *dfrA17* gene for trimethoprim-resistant dihydrofolate reductase *DfrA17*, complete CDS

>TTGAAATATCATTGATTTCTGCAGTGTGAGAAATGGCGTAATCGGTAGTGGTCCTGATATCCCGTGGTCAGT
AAAAGGTGAGCAACTACTCTTTAAAGCGCTCACATATAATCAATGGCTCCTTGTGCGAAGAAAAACATTTGACTC
TATGGGTGTTCTTCCAAATCGCAAATATGCAGTAGTGTCAAAGAACGGAATTTCAAGCTCAAATGAAAACGTCCT
AGTTTTTCTTCAATAGAAAATGCTTTGAAAGAGCTATCAAAGTTACAGATCATGTATATGTCTCTGACGGGGG
TCAAATCTATAATAGCCTTATTGAAAAGCAGATATAATTCATTTGTCTACTGTTACGTTGAAGTGAAGGTGA
TATCAAATCCCTATAATGCCTGAGAATTTCAATTTGGTTTTTGAACAGTTTTTTATGTCTAATATAAATTATAC
ATACCAGATTTGAAAAAAGGCTAA

Gene cassette of integron class1: *dfrA1+aadA1* (1112pb)

CP054237.1 Escherichia coli strain EcPF5 plasmid p1, complete sequence

>GAGTTATCGGAATGGCCCTGATATTCATGGAGTGCCAAAGGTGAACAGCTCCTGTTTAAAGCTATTACCTAT
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CAGCCACGATCGACATTGATCTGGCTATCTTGCTGACAAAAGCAAGAGAACATAGCGTTGCTTGGTAGGTCCAG
CGGCGGAGGAACTCTTTGATCCGGTTCCTGAACAGGATCTATTTGAGGCGCTAAATGAAACCTTAACGCTATGGA
ACTCGCCGCCCCGACTGGGCTGGCGATGAGCGAAATGTAGTGCTTACGTTGTCCCGCATTTGG

Gene cassette of integron class1 *dfrA17+aadA1* (1120pb)

AM937244.2 Escherichia coli class I integron containing *dhfr17* and *aadA5* genes

>CGCGTTACGCCGTGGGTGATGTTTGGATGTTATGGAGCAGCAACGATGTTACGCAGCAGGGCAGTCGCCCTAAA
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GCTAATGCTCGATTTGCTGAAAGTCTCATACCGCCAGGCGATGGCGGAACATGGCGACCGCTGGAGCTAACTGT
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***dfrA12+aadA2* (980pb)**

DQ995286.1 Acinetobacter baumannii class I integron dihydrofolate reductase (*dhfrXII*) and streptomycin/spectinomycin 3' adenylyltransferase (*aadA2*) genes, complete cds

>CGTACGCCGTGGGTGATGTTTGGATGTTATGGAGCAGCAACGATGTTACGCAGCAGGGCAGTCGCCCTAAAAACA
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AACCCAGCTTTATTTAGCTCATGTTTATTCAAACGGCATTTAGCTTTTTCAGGCGTTATTTCAGTGCTGCTTTTGGC
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CAAGCAGCTATCGTTTTTGCAGTGCTGTGCCGCTCGGTGGCGCAGCGTTTTTTCACGGTTAGCGCCCGTCGCCA
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TCGCCC

Sequences of 7 seven housekeeping genes of *E. coli*

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