**Primers involved in this study**

|  |  |
| --- | --- |
| Targets | Primer Sequences (5′-3′) |
| Primers used for the construction and identification of mutant strains |
| Δ*cycA* | construction | F: GTATCATAGACCAAAGGCCGTAGAGCCCGCACAACACAGACAGGTACAGGAAGAAAAACGTGTAGGCTGGAGCTGCTTCR: CCTCCAAATCAACGTTACGCTGTAAGCCCGGTAAGCGCCAGCGCCACCGGGCAAAACAACATATGAATATCCTCCTTAG |
| identification | F: TGTGAGCTAATTCGCATTATCAAAGR: ACGGCATTAATGAGATGATTGATGA |
| Δ*panD* | construction | F: CGGATTCGCTGGAAACCATGTCGCGGCTGATCAGCAACCAGCCGCAGGGATAAGGACTAGTGTAGGCTGGAGCTGCTTR: TTTCCAAAGCAGGCCACAAGCGCCTGCTTAGCCAAGGTAAACGACAGGGTAAAGAAGTTCATATGAATATCCTCCTTAG |
| identification | F: CGGTTATAACGCGACCGCGATCAAAR:GCTGCTGGAGCTGACGGAAACCAGC |
| Δ*fadAB* | construction | F: GGATTCGCTCAGTTGCCGCTGCGCTGCAATGCGAGTTATTTAGGGGATATTATCTTTGAGTGTAGGCTGGAGCTGCTTCR: AATACACACTTCGCTTCATCTGGTACGACCAGATCACTTTGTGGATTCAGGAGACTGACCATATGAATATCCTCCTTAG |
| identification | F: AAACGGCAACTAAACTGTTTCCCGTR: AGTGATTCCATTTTTTACCCTTCTG |
| Δ*metR* | construction | F: TAAAGCTTGGCCAGTGGGGCTGCTGATGCCAGATGGCAAGATTAACCAGCAGTCCTGCGGTGTAGGCTGGAGCTGCTTCR: GAAAGTCCTTCACTTCGCCATGAACAAATTGCGCTTGAGGAATATACAGTACCTTTACACATATGAATATCCTCCTTAG |
| identification | F: CCATTGCAGCGTGGTTTCCGGCAGCR: TGCAAGCCGAACTATTTAGAGTTTT |
| Δ*leuABCD* | construction | F: GAATATAATGGCAACCGGGTGATATTGCATAACCTGTAGGCCCGGTAAGGCGTCAAGGGGTGTAGGCTGGAGCTGCTTCR: CCGTTGCGCGGGTTTTTTTATGCCTGACGCAAGGCGCCCCTGGAGACAAGGACCACATCCATATGAATATCCTCCTTAG |
| identification | F: TTTTTTATTTCGGCTGTTTCTGGATR: GTTGACATTAAACGGCATATCCAGT |
| Δ*leuO* | construction | F: CCAGAAAAAGGGAGTTAAGCGTGACAGTGGAGTTAAATGTGTAGGCTGGAGCTGCTTCR: ATAAACCAGAATTTGTTTCTGATTTATTCTGCCCGGTTCATATGAATATCCTCCTTAG |
| identification | F: CATTATGAATCGCAATGGTGTGACR: CTCCGTCTGAATCACACCTGGT |

**Primers involved in this study (continue)**

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| Targets | Primer Sequences (5′-3′) |
| Primers used for the construction and identification of mutant strains |
| Δ*hisABCDFGHL* | construction | F: GGCGTAAAAGTGGTTTAGGTTAAAAGGTATCAAATGAATAAGCATTCATCGGAATTTTTGTGTAGGCTGGAGCTGCTTCR: GATGGCTGGCATCAGGCCATCGGTTTTTTCCCAGTCCAGCTCGCGGCGTTGTTGCTCTGCATATGAATATCCTCCTTAG |
| identification | F: CCTAACCAACCTAAACCGACAATTGR: AAACGCTGTTTCGTGCGTGAGAAGA |
| Δ*kdpABC* | construction | F: GTGGGGCGGGGGCGTTTGTTCCAACAAGCGATCCGGATCAGGACGCAAGGGTTCGTCGTGTGTAGGCTGGAGCTGCTTCR:CTGGTTTTCTTACTTTTAGGTTATCTGGTCTATGCCCTGATTAATGCGGAGGCGTTCTGCATATGAATATCCTCCTTAG |
| identification | F: CAGAATGGTCAGCCCGTCAAGR: ATACTTTTTTTACACTCCGCCC |
| Δ*mglABC* | construction | F: CCGGCGCGCAGTTTCGCTGCGCCGGGTTATCTGATAAGCAAGGCAATAGGTCTGGATAAGTGTAGGCTGGAGCTGCTTCR: GTGCTGAACAGCCGGGCATTTTTTTACGCTATACCCTACATAATAAAACCGGAGCTACCCATATGAATATCCTCCTTAG |
| identification | F: AAAAAGAGCACGCGTTAACACTGTAR: AGGCTCTAAATACGCTTCGGC |
| Δ*potFGHI* | construction | F: ATGTTTTAAACCACGCCTAATGGGTTCATTTGTTAACGGATTTCAGAAGGAAAGCGATGGTGTAGGCTGGAGCTGCTTCR: GAAAATGATGCCGCGACCCGCGCGGCAACGCATTGCCATAGTGGAAGATTTTAGTGGCTCATATGAATATCCTCCTTAG |
| identification | F: AAAGGCGTTTTTTAATCTGGGCTATR: TATTCATAATCATCAGCACATCGAG |
| Δ*znuA* | construction | F: AGATTATTAAATGCCAGGGCGACAGAGCGGGCTATCTGTTGCACGTATTCACTTCCTCGGTGTAGGCTGGAGCTGCTTCR: AAGTGATAGAATGTTATAATATCACATTTCACACATTCATTACGATGATTAGTCGCATTCATATGAATATCCTCCTTAG |
| identification | F: AGGGAACGAATCTCGCTTTTCTCR: ATTCAAGCGACACGTCAGAGAGGAC |
| Δ*argT* | construction | F: CGTGATAGTTCCCCAGCGCGGCGCGTTATCCCCTTCCCGTGTAGGCTGGAGCTGCTTCR: GTAAAACATAAGAAAATGACGCCACTTGAGGGGTATGTCATATGAATATCCTCCTTAG |
| identification | F: CAAAGCATTCTACCTTGTCAGCCGGR: CATACCTGCTATCTTCAACATCAGG |

**Primers involved in this study (continue)**

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| Targets | Primer Sequences (5′-3′) |
| Primers used for the construction and identification of mutant strains |
| Δ*gabP* | construction | F: CCGGTAAACGAGCGCAATAACAATAAAGAGGTTTTAGGGTGTAGGCTGGAGCTGCTTCR: TTACTCCTGAGAAGCTTCCCGGCTGACGCCGGGAATAACATATGAATATCCTCCTTAG |
|  | identification | F: CTTTGATGAGGCGAAACAAGCR: AATGTCATTTTTAAGCCAGCGAT |
| Primers used for the construction of complementary strains |
| pBR322-*panD* | F: CCCTTTCGTCTTCAAGAATTCGCTGCTGGAGCTGACGGAAACR: TGCGTCCGGCGTAGAGGATCCTCAGGCAACCTGTACCGGAAT |
| pBR322 | F: GACACGGAAATGTTGAATACTCATAR: CAAGGAATGGTGCATGCAAG |
| Primers used for luciferase reporter system |
| pMS402-*panD* | F: CGAGGCCCTTTCGTCTTCACCTCGAGTCAAGGAAATCCTGGTCAATGR: ATTTTGCGGCCGCAACTAGAGGATCCCGGGTAATCGTGAGCTGC |
| pMS402 | F: CTGTCTCTTGATCAGATCTTR: TTATTTCCATTACAATCAAT |
| Primers used for RT-qPCR analysis |
| *16s* | F:GAAAGCGTGGGAGCAAACR:ACATGCTCCACCGCTTGTG |
| *panD* | F:AAGGTTCCTGTGCCATTGACR:ACCGTTCACCGAGATGATTC |
| *fadH* | F:GAAACCCACATGCCGATAACR:AAACTGACCGCCAATTTCAC |
| *fadB* | F:GTTCGCTGTCTGGAAGAAGGR: TACTGCTGCGCCATATCAAG |
| *fadI* | F:TCTGACGCTTTTTGACATGCR:TTCATGCAACGTTTGGGTTA |
| *fadD* | F:AAGATCTGGCTTTCCTGCAAR:CCCAGCTCGATAAAAAGCAG |
| *fadE* | F:AATTGGTCGTCGTCACTTCCR: GCGTCCTACCGACAAACATT |
| *metR* | F:TTTGGTGATGACGTCGGATAR:CGGGTAAATCAACAGCGTTT |
| *hisG* | F:GTGCGTGATGATGACATTCCR:GGAGGTGCGGATATGAGGTA |
| *hisF* | F:TGTATTGTCGTCGGGATTGAR:TTTTCAACTGCGTCAGATCG |
| *leuD* | F:CCGGAATTCGTGTTGAACTTR:GTAGAAGATGTCGGCGAAGC |
| *leuO* | F:AGATATGGGCAAACCACAGCR: CCTGACGGACTGAACCAAAT |

**Primers involved in this study (continue)**

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| Targets | Primer Sequences (5′-3′) |
| Primers used for RT-qPCR analysis |
| *mglA* | F:AGCGATTAACCACGGTTTTGR:ATTGGGTGTCGCTTTTCATC |
| *mglB* | F:AGAATCCGGTGTGATTCAGGR:CAGCCAGGCATCCATCTTAT |
| *kdpA* | F:ACTAATCTGGCGCAGATGCTR:ACCCTCCATGTTGACGCTAC |
| *kdpB* | F:TCGGTAAGCAGATGCTGATGR:CCAGCGGGATCAGAAAAATA |
| *potG* | F:ATTTACGAGCATCCGACGACR:AGAGGCATCTGCATCGACTT |
| *potF* | F:TCTGATGGTCGTCTCTGTCGR:GCCTTCCAGCACTTCGTTAG |
| *znuA* | F:TTAAACCGCTTGGGTTCATCR:AACGGTTTTACATCGGCAAG |