Table S1. Bacterial strains used in this study.

|  |  |  |
| --- | --- | --- |
| **Bacterial strains** | **Genotype/phenotypea** | **Reference or source** |
| *E.coli* |  |  |
| S17.1 | *recA pro hsdR RP4-2-Tc::Mu-Km::Tn7* | Simon et al., 1983 |
| DH5α | F– *endA1* *glnV44* *thi-1* *recA1* *relA1* *gyrA96* *deoR* *nupG* *purB20* φ80d*lacZ*ΔM15 Δ(*lacZYA-argF*)U169, hsdR17(*rK*–*mK*+), λ– | Bethesda Research Lab |
|  |  |  |
| *M. xanthus* |  |  |
| DK1622 | Wild type | Kaiser, 1979 |
| JM51AZYDK | *cuoA-lacZ* Kmr | This study |
| JMCAlacDK | *copA-lacZ*, Kmr | This study |
| JMCus2lacDK | *cus2-lacZ*, Kmr | This study |
| JMCzc3lacDK | *czc3-lacZ*, Kmr | This study |
|  |  |  |
| *S. meliloti* |  |  |
| Rm1021 | SU47 derivative (reference strain) | Meade et al., 1982 |
| GR4 | Wild type; Chlr | Casadesús and Olivares, 1979 |
| GRM8SR | pRmeGR4a- and pRmeGR4b-cured derivative of GR4; Chlr | Mercado-Blanco et al., 1993 |
| GRM10 | pRmeGR4a-cured derivative of GR4; Chlr | Mercado-Blanco et al., 1993 |
| Δ*mepA* | Δ*mepA*; Kms, Chlr | This study |
| Δ*mcoA* | Δ*mcoA*; Kms, Chlr | This study |
| Δ*mepA*Δ*mcoA* | Δ*mepA-*Δ*mcoA*; Kms, Chlr | This study |

aKmr and Kms indicate resistance and sensitivity to kanamycin, respectively. Chlr indicates chloramphenicol resistance.

Table S2. Plasmids used in this study.

|  |  |  |
| --- | --- | --- |
| **Plasmid** | **Genotype** | **Reference or source** |
| pKY481-CuoA | *cuoA-lacZ,* Kmr | Sánchez-Sutil et al., 2007 |
| pAELCopAlac | *copA-laZ*, Kmr | Moraleda-Muñoz et al., 2010b |
| pAELCus2lac | *cus2-lacZ*, Kmr | Moraleda-Muñoz et al., 2010a |
| pAELCzc3lac | *czc3-lacZ*, Kmr | Moraleda-Muñoz et al., 2010a |
| pK18*mobsacB* | Suicide plasmid in *S. meliloti*; *sacB*, *oriV*, Kmr | Schäfer et al., 1994 |
| pK18Δ*mepA* | Suicide plasmid for GR4pB025 deletion; Kmr | This study |
| pK18Δ*mcoA* | Suicide plasmid for GR4pB023 deletion; Kmr | This study |
| pK18Δ*mcoA*.2 | Suicide plasmid for GR4pB023 deletion in *S. meliloti* GR4 Δ*mepA* ; Kmr | This study |

Table S3. Oligonucleotides used in this study.

|  |  |  |
| --- | --- | --- |
| **Oligonucleotide** | **For amplification of** | **Sequence (5’→3’)a** |
| mepA\_Efor | Upstream of *mepA* | CATCGAATTCTGGTGCCAATGATGACGG |
| mepA\_Brev | Upstream of *mepA* | CGATGGATCCGTTCTTGCGCCTATGCTTGG |
| mepA\_Bfor | Downstream of *mepA* | GAATGGATCCACCGCGCGAGGCACAGAAAT |
| mepA\_Xrev | Downstream of *mepA* | CGGATCTAGAGACCCGGTACACTATGTCACC |
| SmMCOEfor | Upstream of *mco* | GTGGAATTCTACTTCGGCGACCTCATACA |
| SmMCOBrev | Upstream of *mco* | AGAGGATCCCAATCAAACCTCCCAAACGT |
| SmMCOBfor | Downstream of *mco* | GGCGGATCCTAGATAGCTGATCGCCTTTT |
| SmMCOXrev | Downstream of *mco* | GTTTCTAGAAAGTCTCTTCGAAATAGCCA |
| SmMCOXmarev | Upstream of *mco* in GR4 Δ*mepA* | AGACCCGGGCAATCAAACCTCCCAAACGT |
| SmMCOXmafor | Downstream of *mco* in GR4 Δ*mepA* | GGCCCCGGGTAGATAGCTGATCGCCTTTT |
| XSmMCOrev2 | Downstream of *mco* in GR4 Δ*mepA* | CCATCTAGAAACGGACCGGTCACGATATT |

aUnderlined are the restriction sites used in cloning.

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