**SUPPLEMENTAL MATERIAL (Table S1-S3; Supplemental References)**

**Table S1: Synthetic interactions between *waaL15* and mutations affecting the elongasome due to limited lipid II availability.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Relevant genes\*** | |  | | | **Cotransduction** | |
| **Donor** | **Recipient** | | | **Selected Allele** | **Gene** | **Frequency** |
| *yhfT3084*::Tn*10* *mrcA*::*kan* | *waaL⁺* | | | *yhfT-3084*::Tn*10* | *mrcA*::*kan* | 85% |
| *yhfT3084*::Tn*10*  *mrcA*::*kan* | *waaL15* | | | *yhfT-3084*::Tn*10* | *mrcA*::*kan* | 89% |
| *sfsB203*::Tn*10* *lpoA*::*kan* | *waaL⁺* | | | *sfsB203*::Tn*10* | *lpoA*::*kan* | 29% |
| *sfsB203*::Tn*10* *lpoA*::*kan* | *waaL15* | | | *sfsB203*::Tn*10* | *lpoA*::*kan* | 28% |
| *zad*-*220*::Tn*10*  *mrcB*::*kan* | *waaL⁺* | | | *zad*-*220*::Tn*10* | *mrcB*::*kan* | 72% |
| *zad*-*220*::Tn*10 mrcB*::*kan* | *waaL15* | | | *zad*-*220*::Tn*10* | *mrcB*::*kan* | 13% |
| *zce-726*::Tn*10* *lpoB*::*kan* | *waaL⁺* | | | *zce-726*::Tn*10* | *lpoB*::*kan* | 77% |
| *zce-726*::Tn*10* *lpoB*::*kan* | *waaL15* | | | *zce-726*::Tn*10* | *lpoB*::*kan* | 5% |
|  |  | | |  |  |  |
| **pMurA**† |  | |  | |  |  |
| *zad*-*220*::Tn*10 mrcB*::*kan* | *waaL⁺* | | | *zad*-*220*::Tn*10* | *mrcB*::*kan* | 79% |
| *zad*-*220*::Tn*10 mrcB*::*kan* | *waaL15* | | | *zad*-*220*::Tn*10* | *mrcB*::*kan* | 77% |
| *zce-726*::Tn*10* *lpoB*::*kan* | *waaL⁺* | | | *zce-726*::Tn*10* | *lpoB*::*kan* | 75% |
| *zce-726*::Tn*10* *lpoB*::*kan* | *waaL15* | | | *zce-726*::Tn*10* | *lpoB*::*kan* | 70% |

**\*** *mrcA* encodes PBP1A which functions with LpoA in the divisome; *mrcB* encodes PBP1B which functions with LpoB in the elongasome. † Expression of *murA* was induced by supplementing growth media with 100 M IPTG.

**Table S2: Strains used in this study**

|  |  |  |
| --- | --- | --- |
| **Strain** | **Relevant Genotype** | **Reference** |
| MC4100 | F− *araD139* − (*arg*-*lac*)*U169* *rpsL150* *relA1* *flbB5301 deoC1 ptsF25 thi* | (Casadaban, 1976) |
| NR754 | MC4100 Ara+ | (Button *et al.*, 2007) |
| CAG12025 | F− *araD139* − *rph-1 zad-220*::Tn*10* | (Singer *et al.*, 1989) |
| CAG12072 | F− *araD139* − *rph-1* *sfsB203*::Tn*10* | (Singer *et al.*, 1989) |
| CAG12078 | F− *araD139* − *rph-1 zce-726*::Tn*10* | (Singer *et al.*, 1989) |
| CAG18456 | F− *araD139* − *rph-1* *yhfT3084*::Tn*10* | (Singer *et al.*, 1989) |
| MG617 | NR754 Δ*lptE2*::*kan* / p*lptE*+ | (Malojčić *et al.*, 2014) |
| MG1029 | NR754 Δ*lptE2*::*kan* / p*lptE613* | (Malojčić *et al.*, 2014) |
| MG1088 | NR754 Δ*lptE2*::*kan* *waaL15*/ p*lptE613* | This study |
| MG1167 | NR754 Δ*lptE2* *waaL15*/ p*lptE613* | This study |
| MG1180 | MG1167 Δ*cpsG*::*kan* | This study |
| MG1181 | MG1210 Δ*bamE*::*kan* | This study |
| MG1182 | MG1211 Δ*bamE*::*kan* | This study |
| MG1196 | MG1210 *bamB*::*kan* | This study |
| MG1197 | MG1211 *bamB*::*kan* | This study |
| MG1210 | NR754 *waaL*+ *tdh*::Tn*10* | This study |
| MG1211 | NR754 *waaL15* *tdh*::Tn*10* | This study |
| MG1214 | MG1167 Δ*cpsG*::*kan rff*::Tn*10* | This study |
| MG1234 | MG1167 *rff*::Tn*10*-66 | This study |
| MG1378 | MG1210 *ompC::*Tn*5*::*kan rcsC137* | This study |
| MG1379 | MG1211 *ompC*::Tn*5 rcsC137* | This study |
| MG1642 | NR754 *waaL+* | This study |
| MG1643 | NR754 *waaL15* | This study |
| MG1635 | CAG12025 Δ*mrcB*::*kan* | This study |
| MG1636 | CAG18456 Δ*mrcA*::*kan* | This study |
| MG1671 | CAG12072 Δ*lpoA*::*kan* | This study |
| MG1672 | CAG12078 Δ*lpoB*::*kan* | This study |

**Table S3. Plasmids used in this study**

|  |  |  |
| --- | --- | --- |
| **Plasmid** | **Description** | **Reference** |
| p*lptE* | *lptE* cloned into pBAD18, AmpR | (Wu *et al.*, 2006) |
| pMurA | ASKA plasmid with cloned *murA*, CamR | (Kitagawa *et al.*, 2006) |

**SUPPLEMENTAL REFERENCES:**

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