**Table S6 The strains and plasmids used in this study**

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| **Strains or plasmids** | **Description** | **References** | |
| ***Edwardsiella piscicida*** |  |  | |
| YKY001 (EIB202 WT) | Wild-type strain, CCTCC M208068, Colr, Strr, Cmr | [14] | |
| YKY002 (Δ*esrB*) | EIB202, in-frame deletion of *esrB*, Colr, Strr, Cmr | [14] | |
| YKY003 (Δ*rpoS*) | EIB202, in-frame deletion of *rpoS*, Colr, Strr, Cmr | This study | |
| YKY004 (EIB202 ΔP) | EIB202, pEIB202 cured, Colr | [13] | |
| YKY005 (WT::P*esrB-kan*) | EIB202, P*esrB-kan* in the neutral position, containing pUTat, Colr, Strr, Cmr, Ampr | This study | |
| YKY006 (WT/pUTat) | Wild-type containing pUTat, Colr, Strr, Cmr, Ampr | This study | |
| YKY007 (Δ*rpoS*/pUTat) | Δ*rpoS* containing pUTat, Colr, Strr, Cmr, Ampr | This study | |
| YKY008 (Δ*esrB*/pUTat) | Δ*esrB* containing pUTat, Colr, Strr, Cmr, Ampr | This study | |
| YKY009 (*rpoS*+) | Δ*rpoS* containing pUTat-*rpoS*, Colr, Strr, Cmr, Ampr | This study | |
| YKY010 (*rpoSOE*) | Δ*rpoS* containing pUTat-P*rpsU*-*rpoS*, Colr, Strr, Cmr, Ampr | This study | |
| YKY011 (Δ*esrB*Δ*rpoS*) | EIB202, in-frame deletion of *esrB* and *rpoS*, Colr, Strr, Cmr | This study | |
| YKY012 (Δ*esrB rpoS*OE) | Δ*esrB*Δ*rpoS* containing pUTat-P*rpsU*-*rpoS*, Colr, Strr, Cmr, Ampr | This study | |
| YKY013 (*purA*-) | Transposon insertion mutant at 1117 site in the *purA orf*, Colr, Gmr | Lab collection | |
| YKY014 (*cdsA*-) | Transposon insertion mutant at 856 site in the *cdsA orf*, Colr, Gmr | Lab collection | |
| YKY015 (*guaB*-) | Transposon insertion mutant at 129 site in the *guaB orf*, Colr, Gmr | Lab collection | |
| YKY016 (1412-) | Transposon insertion mutant at 57 site in the ETAE\_1412 *orf*, Colr, Gmr | Lab collection | |
| YKY017 (*slt*-) | Transposon insertion mutant at 810 site in the *slt orf*, Colr, Gmr | Lab collection | |
| YKY018 (*mltC*-) | Transposon insertion mutant at 466 site in the *mltC orf*, Colr, Gmr | Lab collection | |
| YKY019 (*acrB*-) | Transposon insertion mutant at 1965 site in the *acrB orf*, Colr, Gmr | Lab collection | |
| YKY020 (Δ*esrB*::P*esrB-kan*) | Δ*esrB*, P*esrB-kan* in the neutral position, containing pUTat, Colr, Strr, Cmr, Ampr | This study | |
| YKY021 (Δ*rpoS*::P*esrB-kan*) | Δ*rpoS*, P*esrB-kan* in the neutral position, containing pUTat, Colr, Strr, Cmr, Ampr | This study | |
| YKY022 (*rpoS*+::P*esrB-kan*) | *rpoS+*, P*esrB-kan* in the neutral position, containing pUTat-*rpoS*, Colr, Strr, Cmr, Ampr | This study | |
| YKY023 (WT::P*esrB*-*luxAB*) | EIB202, P*esrB-kan* in the neutral position, containing pUTat, Colr, Strr, Cmr, Ampr | This study | |
| YKY024 (Δ*rpoS*::P*esrB-luxAB*) | Δ*rpoS*, P*esrB-kan* in the neutral position, containing pUTat, Colr, Strr, Cmr, Ampr | This study | |
| YKY025 (*rpoS*+::P*esrB-luxAB*) | *rpoS+*, P*esrB-kan* in the neutral position, Colr, Strr, Cmr, Ampr | This study | |
| YKY026 (*rpoS*OE::P*esrB-luxAB*) | *rpoS*OE, P*esrB-kan* in the neutral position, Colr, Strr, Cmr, Ampr | This study | |
| YKY027 (*lonOE*) | Wild-type containing pUTat-*lon*, Colr, Strr, Cmr, Ampr | This study | |
| YKY028 (*lonOE*::P*esrB-luxAB*) | *lonOE*, P*esrB-luxAB* in a neutral position, Colr, Strr, Cmr, Ampr | This study | |
| YKY029 (Δ*rpoS/flag*) | Δ*rpoS* containing pUTat-P*rpsU*-*flag*, Colr, Strr, Cmr, Ampr | This study | |
| YKY030 (Δ*rpoS*/*flag-rpoS*) | Δ*rpoS* containing pUTat-P*rpsU*-*flag-rpoS*, Colr, Strr, Cmr, Ampr | This study | |
| YKY031 (WT::P*esrB mut 1-luxAB*) | Wild-type, P*esrB mut 1-luxAB* in a neutral position, containing pUTat, Colr, Strr, Cmr, Ampr | This study | |
| YKY032 (Δ*rpoS::*P*esrB mut 1-luxAB*) | Δ*rpoS*, P*esrB mut 1-luxAB* in a neutral position, containing pUTat, Colr, Strr, Cmr, Ampr | This study | |
| YKY033 (WT:: P*esrB mut 2-luxAB*) | Wild-type, P*esrB mut 2-luxAB* in a neutral position, containing pUTat, Colr, Strr, Cmr, Ampr | This study | |
| YKY034 (Δ*rpoS::*P*esrB mut 2-luxAB*) | Δ*rpoS*, P*esrB mut 2-luxAB* in a neutral position, containing pUTat, Colr, Strr, Cmr, Ampr | This study | |
| YKY037 (WT/P*esrB1-luxAB*) | Wild-type containing pUTat-P*esrB1-luxAB*, Colr, Strr, Cmr, Ampr | This study | |
| YKY038 (WT/P*esrB2-luxAB*) | Wild-type containing pUTat-P*esrB2-luxAB*, Colr, Strr, Cmr, Ampr | This study | |
| YKY039 (WT/P*esrB3-luxAB*) | Wild-type containing pUTat-P*esrB3-luxAB*, Colr, Strr, Cmr, Ampr | This study | |
| YKY040 (WT/P*esrB4-luxAB*) | Wild-type containing pUTat-P*esrB4-luxAB*, Colr, Strr, Cmr, Ampr | This study | |
| YKY041 (WT/P*esrB5*-*luxAB*) | Wild-type containing pUTat-P*esrB5*-*luxAB*, Colr, Strr, Cmr, Ampr | This study | |
| YKY042 (WT/PesrB6-*luxAB*) | Wild-type containing pUTat-P*esrB6*-*luxAB*, Colr, Strr, Cmr, Ampr | This study | |
| YKY043 (WT/PesrB7-*luxAB*) | Wild-type containing pUTat-P*esrB7*-*luxAB*, Colr, Strr, Cmr, Ampr | This study | |
| YKY044 (WT/PesrB8-*luxAB*) | Wild-type containing pUTat-P*esrB8*-*luxAB*, Colr, Strr, Cmr, Ampr | This study | |
| YKY045 (WT/PesrB9-*luxAB*) | Wild-type containing pUTat-P*esrB9*-*luxAB*, Colr, Strr, Cmr, Ampr | This study | |
| YKY046 (*rpoSL61A*) | Δ*rpoS* containing pUTat-P*rpsU*-*rpoSL61A*, Colr, Strr, Cmr, Ampr | This study | |
| YKY047 (*rpoSR99A*) | Δ*rpoS* containing pUTat-P*rpsU*-*rpoS*R99A, Colr, Strr, Cmr, Ampr | This study | |
| YKY048 (*rpoSL61AR99A*) | Δ*rpoS* containing pUTat-P*rpsU*-*rpoS*L61AR99A, Colr, Strr, Cmr, Ampr | This study | |
| YKY049 (WT*/*P*sdh-luxAB*) | Wild-type containing pUTat-P*sdh*-*luxAB*, Colr, Strr, Cmr, Ampr | This study | |
| YKY050 (Δ*rpoS/Psdh-luxAB*) | Δ*rpoS* containing pUTat-P*sdh*-*luxAB*, Colr, Strr, Cmr, Ampr | This study | |
| YKY051 (WT*/*P*sdh mut-luxAB*) | Wild-type containing pUTat-P*sdh mut*-*luxAB*, Colr, Strr, Cmr, Ampr | This study | |
| YKY052 (WT*/P1580-luxAB*) | Wild-type containing pUTat-P*1580*-*luxAB*, Colr, Strr, Cmr, Ampr | This study | |
| YKY053 (Δ*rpoS/*P*1580-luxAB*) | Δ*rpoS* containing pUTat-P*1580*-*luxAB*, Colr, Strr, Cmr, Ampr | This study | |
| YKY054 (WT*/*P*1580 mut-luxAB*) | Wild-type containing pUTat-P*1580 mut*-*luxAB*, Colr, Strr, Cmr, Ampr | This study | |
| YKY055 (WT::P*eseB*-*luc*) | Wild-type, P*eseB-luc* in the neutral position, containing pUTat, Colr, Strr, Cmr, Ampr | This study | |
| YKY056 (Δ*rpoS*::P*eseB*-*luc*) | Δ*rpoS*, P*eseB-luc* in the neutral position, containing pUTat, Colr, Strr, Cmr, Ampr | This study | |
| YKY057 (WT::P*evpA*-*luc*) | Wild-type, P*evpA-fluc* in the neutral position, containing pUTat, Colr, Strr, Cmr, Ampr | This study | |
| YKY058 (Δ*rpoS*::P*evpA*-*luc*) | Δ*rpoS*, P*evpA-luc* in the neutral position, containing pUTat, Colr, Strr, Cmr, Ampr | This study | |
| YKY059 (WT::P*rpoS*-*luc*) | Wild-type, P*rpoS-luc* in the neutral position, containing pUTat, Colr, Strr, Cmr, Ampr | This study | |
| YKY060 (Δ*rpoS*::P*rpoS*-*luc*) | Δ*rpoS*, P*rpoS-luc* in the neutral position, containing pUTat, Colr, Strr, Cmr, Ampr | This study | |
| YKY061 (*rpoSR99A*::P*eseB*-*luc*) | *rpoSR99A*, P*eseB-luc* in the neutral position, containing pUTat, Colr, Strr, Cmr, Ampr | This study | |
| YKY062 (*rpoSR99A*::P*evpA*-*luc*) | *rpoSR99A*, P*evpA-luc* in the neutral position, containing pUTat, Colr, Strr, Cmr, Ampr | This study | |
| YKY063 (*rpoSR99A*::P*rpoS*-*luc*) | *rpoSR99A*, P*rpoS-luc* in the neutral position, containing pUTat, Colr, Strr, Cmr, Ampr | This study | |
| YKY064 (*rpoSOE::*P*lac-esrB*) | *rpoSOE* , replacing the original *esrB* promoter with P*lac*from pAKgfp1, Colr, Strr, Cmr | This study | |
| YKY065 (Δ*esrB*/P*esrB mut1-esrB*) | Δ*esrB* containing pUTat-P*esrB mut1-esrB*, Colr, Strr, Cmr, Ampr | This study | |
| YKY066 (Δ*esrB*/P*esrB mut2*-*esrB*) | Δ*esrB* containing pUTat-P*esrB mut2-esrB*, Colr, Strr, Cmr, Ampr | This study | |
| YKY067 (Δ*esrB*/P*esrB mut3*-*esrB*) | Δ*esrB* containing pUTat-P*esrB mut3-esrB*, Colr, Strr, Cmr, Ampr | This study | |
| ***Escherichia coli*** |  |  | |
| YKY101 (DH5α λ*pir*) | Host for π requiring plasmids | [61] | |
| YKY102 (SM10 λ*pir*) | Host for π requiring plasmids, conjugal donor | [14] | |
| YKY103 (BL21(DE3)) | Host strain for protein expression | [13] | |
| **Plasmids** |  |  | |
| pUTat | Medium copy number cloning vector, pAT153 replicon, Ampr | [16] | |
| pUTat-P*rpsU* | pUTat derivative containing the promoter of ETAE\_0456 *(rpsU)*, Ampr | Lab collection | |
| pUTat-*rpoS* | pUTat derivative containing the promoter of *rpoS* and *rpoS orf*, Ampr | This study | |
| pUTat-P*rpsU*-*rpoS* | pUTat-P*rpsU* derivative containing *rpoS orf*, Ampr | This study | |
| pUTat-*lon* | pUTat derivative containing the promoter of *lon* and *lon orf*, Ampr |  | |
| pUTat-*flag-rpoS* | pUTat-P*rpsU* derivative containing the fusion of *flag*-tagged and *rpoS orf*, Ampr | This study | |
| pUTat-*flag* | pUTat derivative containing the *flag*-tagged, Ampr | This study | |
| pUTat-P*esrB1-luxAB* | pUTat derivative containing the fusion of *esrB1* promoter and *luxAB*, Ampr | This study | |
| pUTat-P*esrB2-luxAB* | pUTat derivative containing the fusion of *esrB2* promoter and *luxAB*, Ampr | This study | |
| pUTat-P*esrB3-luxAB* | pUTat derivative containing the fusion of *esrB3* promoter and *luxAB*, Ampr | This study | |
| pUTat-P*esrB4-luxAB* | pUTat derivative containing the fusion of *esrB4* promoter and *luxAB*, Ampr | This study | |
| pUTat-P*esrB5-luxAB* | pUTat derivative containing the fusion of *esrB5* promoter and *luxAB*, Ampr | This study | |
| pUTat-P*esrB6-luxAB* | pUTat derivative containing the fusion of *esrB6* promoter and *luxAB*, Ampr | This study | |
| pUTat-P*esrB7-luxAB* | pUTat derivative containing the fusion of *esrB7* promoter and *luxAB*, Ampr | This study | |
| pUTat-P*esrB8-luxAB* | pUTat derivative containing the fusion of *esrB8* promoter and *luxAB*, Ampr | This study | |
| pUTat-P*esrB9-luxAB* | pUTat derivative containing the fusion of *esrB9* promoter and *luxAB*, Ampr | This study | |
| pUTat-*rpoS*L66A | pUTat-P*rpsU* derivative containing *rpoS*L61A, Ampr | This study | |
| pUTat-*rpoS*R99A | pUTat-P*rpsU* derivative containing *rpoS*R99A, Ampr | This study | |
| pUTat-*rpoS*L61AR99A | pUTat-P*rpsU* derivative containing *rpoS*L61AR99A, Ampr | This study | |
| pUTat-P*sdh*-*luxAB* | pUTat derivative containing the fusion of *sdh* promoter and *luxAB*, Ampr | This study | |
| pUTat-P*sdh mut*-*luxAB* | pUTat derivative containing the fusion of *sdh mut* promoter and *luxAB*, Ampr | This study | |
| pUTat-P*1580*-*luxAB* | pUTat derivative containing the fusion of thepromoter of ETAE\_1580 and *luxAB*, Ampr | This study | |
| pUTat-P*1580 mut*-*luxAB* | pUTat derivative containing the fusion of themutationpromoter of ETAE\_1580 and *luxAB*, Ampr | This study | |
| pUTat-P*eseB*-*luc* | pUTat derivative containing the fusion of *eseB* promoter and *luc*, Ampr | Lab collection | |
| pUTat-P*evpA*-*luc* | pUTat derivative containing the fusion of *evpA* promoter and *luc*, Ampr | Lab collection | |
| pUTat-P*rpoS*-*luc* | pUTat derivative containing the fusion of *rpoS* promoter and *luc*, Ampr | This study | |
| pUTat-P*esrB mut1-esrB* | pUTat derivative containing the fusion of *esrB mut1* promoter and *esrB orf*, Ampr | This study | |
| pUTat-P*esrB mut2-esrB* | pUTat derivative containing the fusion of *esrB mut1* promoter and *esrB orf*, Ampr | This study | |
| pUTat-P*esrB mut3-esrB* | pUTat derivative containing the fusion of *esrB3* promoter and *esrB orf*, Ampr | This study | |
| pDMK | Suicide vector, *pir* dependent, R6K, SacBR, Kmr,Cmr | [14] | |
| pDMK-Δ*rpoS* | pDMK with ETAE\_2873 fragment deleted 4 to 984 nucleotides, Kmr,Cmr | This study | |
| pDMK-P*esrB-kan* | pDMK with P*esrB-kan* fragment which will be inserted into neutral site, Kmr,Cmr | This study | |
| pDMK-P*esrB-luxAB* | pDMK with P*esrB-luxAB* fragment which will be inserted into neutral site, Kmr,Cmr | This study | |
| pDMK-Plac-*esrB* | pDMK with *lac* promoter fragment insert into the head of *esrB orf* on genome | This study |
| pDMK-P*esrB-luxAB* | pDMK with P*esrB-luxAB* fragment which will be inserted into neutral site, Kanr,Cmr | This study |
| pDMK-P*esrB mut1-luxAB* | pDMK with P*esrB mut1-luxAB* fragment which will be inserted into neutral site, Kanr,Cmr | This study |
| pDMK-P*esrB mut2-luxAB* | pDMK with P*esrB mut2-luxAB* fragment which will be inserted into neutral site, Kanr,Cmr | This study |
| pSC189 | Suicide vector, *pir* dependent,containing mariner transposon | Lab collection |
| pET28a | Vector for proteins expression, Kanr | Novagen |
| pET28a-RpoS | pET28a derivative containing *rpoS* orf, Kanr | This study |
| pET28a-RpoSR99A | pET28a derivative expressing RpoSR99A variant, Kanr | This study |
| pET28a-RpoD | pET28a derivative containing *rpoD* orf, Kanr | This study |