

Supplementary Tables

Table S1. Bacterial strains used in this study.

Strains	Description	Reference
<i>E. coli</i>	-	Lab stock
<i>P. fulva</i> ZJU1	wild type	Lab stock
ZJU1- pCasPA	ZJU1 harboring pCasPA	This study
ZJU1- pACRISPR	ZJU1 harboring pACRISPR	This study
ZJU1 Δ <i>ilvB</i>	ZJU1 <i>ilvB</i> gene deleted with 1000 + 1000 bp homologous repair arms	This study
ZJU1 Δ <i>gene0486</i>	ZJU1 <i>gene0486</i> gene deleted	This study
ZJU1 Δ <i>gene4464</i>	ZJU1 <i>gene4464</i> gene deleted	This study
ZJU1 Δ <i>thiC</i>	ZJU1 <i>thiC</i> gene deleted	This study
ZJU1 Δ <i>gabP</i>	ZJU1 <i>gabP</i> gene deleted	This study
ZJU1 Δ <i>oqxB</i>	ZJU1 <i>oqxB</i> gene deleted	This study
ZJU1:: <i>gfp</i>	ZJU1 <i>gfp</i> gene inserted	This study

Table S2. Primers used in this study.

Primer	Sequence 5'-3'	Description
CRISPR-F	gcgatttacttttcgacctca	verify the insertion of sgRNA and repair template
CRISPR-R	tacgccaagctatttaggtg	
CAS-F	cgtatctaaatgccgtcgtg	specific primers of pCasPA
CAS-R	ctgaataagctaccgttgac	
<i>ilvB</i> -sgRNA-F	agcaaacgcatatttggcgtcgg	sgRNA sequence for deletion of <i>ilvB</i>
<i>ilvB</i> - sgRNA -R	ccgacgccaaatatgcgtttgct	
<i>gene0486</i> -sgRNA-F	agccgatatccagaacaaaccgg	sgRNA sequence for deletion of <i>gene0486</i>
<i>gene0486</i> -sgRNA-R	ccggtttgttctggatateggct	
<i>Gene4464</i> -sgRNA-F	tctcggccttgccaccggtgcgg	sgRNA sequence for deletion of <i>gene4464</i>
<i>Gene4464</i> -sgRNA-R	ccgcaccggtggcaaggccgaga	
<i>gabP</i> -sgRNA-F	gtaaacgggccatcgctgaaggg	sgRNA sequence for deletion of <i>gabP</i>
<i>gabP</i> -sgRNA-R	cccttcagcgtggcccgtttac	
<i>thiC</i> -sgRNA-F	aagttgcggccgatgatcatcgg	sgRNA sequence for deletion of <i>thiC</i>
<i>thiC</i> -sgRNA-R	ccgatgatcatcgccgcaactt	
<i>oqxB</i> -sgRNA-F	gctccagctctcgtattgagcgg	sgRNA sequence for deletion of <i>oqxB</i>
<i>oqxB</i> -sgRNA-R	ccgctcaatacagagctggagc	
<i>gfp</i> -sgRNA-F	ccatacgaccacggtgaacgagg	sgRNA sequence for insertion of <i>gfp</i>
<i>gfp</i> -sgRNA-R	cctcggtcaccgtggtcgatgg	
<i>ilvB</i> -up-F	tgccataccatggtctagaCAGGCCAAGGGTACGGTTG	amplification for 1kb upstream repair template
<i>ilvB</i> -up-R	tgtggcaatgATGGCGACTTCCTGATGAACC	
<i>ilvB</i> -down-F	aagtcgcatCATTGCCACACAGAGTTCCAGTC	amplification for 1kb downstream repair template
<i>ilvB</i> -down-R	cactatagaatactcaagcttTATCACTCGATCGGCCACGA	

<i>ilvB</i> -up-F-250	tgtccatacccatggtctagaGGTTCCAACCTCTTCGTTGCTGT	amplification for 250bp upstream repair template
<i>ilvB</i> -up-R-250	tgtggcaatgATGGCGACTTCCTGATGAACC	
<i>ilvB</i> -down-F-250	aagtcgccatCATTGCCACACAGAGTTCCAGTC	amplification for 250bp downstream repair template
<i>ilvB</i> -down-R-250	cactatagaataactcaagcttCCGGTCGGCAAAGTCTACC	
<i>ilvB</i> -up-F-500	tgtccatacccatggtctagaGCTCCTTCCAAACGGGCTT	amplification for 500bp upstream repair template
<i>ilvB</i> -up-R-500	tgtggcaatgATGGCGACTTCCTGATGAACC	
<i>ilvB</i> -down-F-500	aagtcgccatCATTGCCACACAGAGTTCCAGTC	amplification for 500bp downstream repair template
<i>ilvB</i> -down-R-500	cactatagaataactcaagcttCACCCACATGCGTGGCCA	
<i>gene0486</i> -up-F	tgtccatacccatggtctagaCGCCCTGGCGCTGGGCCT	amplification for upstream repair template
<i>gene0486</i> -up-R	catgcgccgaGAAAATTGATATCTGTTAGCTAGCTAACTAGT	
<i>gene0486</i> -down-F	tcaatttcTCGGGCGCATGCTGCACG	amplification for downstream repair template
<i>gene0486</i> -down-R	cactatagaataactcaagcttCGGTGCACAAGGGCAGCC	
<i>Gene4464</i> -up-F	tgtccatacccatggtctagaGCATGCGCCGGATGGATG	amplification for upstream repair template
<i>Gene4464</i> -up-R	tttgtttcagggtgaccgaGATGAGCTCCTTGGAAGAAGTAA	
<i>Gene4464</i> -down-F	TCGGTCAGCCCTGAAACAAA	amplification for downstream repair template
<i>Gene4464</i> -down-R	cactatagaataactcaagcttTGCAGACTGATTCCACGGCC	
<i>gabP</i> -up-F	tgtccatacccatggtctagaATTCGCTATTTACAGGAATGCTTC	amplification for upstream repair template
<i>gabP</i> -up-R	gtggctatgcaggttagctTAGAAAATCAGCATCCGCCATA	
<i>gabP</i> -down-F	AGCTAAACCTGCATAGCCACAAA	amplification for downstream repair template
<i>gabP</i> -down-R	cactatagaataactcaagcttAAGTAGCAGGACTCCAAGCTCACC	
<i>thiC</i> -up-F	tgtccatacccatggtctagaGGAACCTGTCCACGATCTTTATG	amplification for upstream repair template
<i>thiC</i> -up-R	cgacaCCTCTACACCCACTTCGACGA	
<i>thiC</i> -down-F	aagtgggtgtagaggTGTCGCCACGGTCCTCGA	amplification for downstream repair template
<i>thiC</i> -down-R	cactatagaataactcaagcttGGCGGCCAGGTCGGCATT	

<i>oqx</i> B-up-F	tgtccatacccatggtctaga	GTAAGCCGAGGAAGCCGG	amplification for upstream repair template
<i>oqx</i> B-up-R	ctgacacctcta	CAGGCTCGTCTGCAGGAGG	
<i>oqx</i> B-down-F	acgagcctg	TAGAGGATCAGCGCGATGCC	amplification for downstream repair template
<i>oqx</i> B-down-R	cactatagaataactcaagctt	ACAACAGCTTCCAGCTGTCTGA	
<i>gfp</i> -up-F	tgtccatacccatggtctaga	GGTGTGACGAGAGGACACTTGG	amplification for upstream repair template
<i>gfp</i> -up-R	catgg	TCACCGTGGTCGTATGGAGTT	
<i>gfp</i> -F	atacgaccacggtgaCCATGGCGGCCGCTGTCATGGGCCCTTGACAATTAATCA TCCGGCTCGTATAATGTGTGGAATTGTGAGCGGATAACAATTTACACA AAAAGAGGAGAAAAGTAGATGAGTAAAGGAG		amplification for <i>gfp</i> gene
<i>gfp</i> -R	gtcagcctcgtATACTCAAGCTTCTGAATGGCGG		
<i>gfp</i> -down-F	cttgagtat	ACGAGGCTGACCTGAATGTCTG	amplification for downstream repair template
<i>gfp</i> -down-R	gggagtatgaaaagtaagctt	TAACTGAGGAGTTAGGCTACGGG	

The underline indicates the restriction sites.

Table S3. Plasmids used in this study.

Plasmids	Description	Reference
pCasPA	<i>Tet^r</i> , for expression of Cas9 protein and λ -Red recombination system	[1]
pACRISPR	<i>Car^r</i> , for expression of sgRNA and assembling homologous repair arms	[1]
pTRKH3-ermGFP	for amplification <i>gfp</i>	[2]
pACRISPR- <i>ilvB</i> -1000 bp	pACRISPR derivative for <i>ilvB</i> deletion with 1000 + 1000 homologous repair arms	This study
pACRISPR- <i>ilvB</i> -250 bp	pACRISPR derivative for <i>ilvB</i> deletion with 250 + 250 homologous repair arms	This study
pACRISPR- <i>ilvB</i> -500 bp	pACRISPR derivative for <i>ilvB</i> deletion with 500 + 500 homologous repair arms	This study
pACRISPR- <i>gene0486</i>	pACRISPR derivative for <i>gene0486</i> deletion	This study
pACRISPR- <i>gene4464</i>	pACRISPR derivative for <i>gene4464</i> deletion	This study
pACRISPR- <i>gabP</i>	pACRISPR derivative for <i>gabP</i> deletion	This study
pACRISPR- <i>thiC</i>	pACRISPR derivative for <i>thiC</i> deletion	This study
pACRISPR- <i>oqxB</i>	pACRISPR derivative for <i>oqxB</i> deletion	This study
pACRISPR- <i>gfp</i>	pACRISPR derivative for <i>gfp</i> insertion	This study

Tet^r, tetracycline resistant; *Car^r*, carbenicillin resistant;

References:

1. Chen, W.; Zhang, Y.; Zhang, Y.; Pi, Y.; Gu, T.; Song, L.; Wang, Y.; Ji, Q. CRISPR/Cas9-based Genome Editing in *Pseudomonas aeruginosa* and Cytidine Deaminase-Mediated Base Editing in *Pseudomonas* Species. *iScience* **2018**, *6*, 222-231, doi:10.1016/j.isci.2018.07.024.
2. Teh, B.S.; Apel, J.; Shao, Y.; Boland, W. Colonization of the Intestinal Tract of the Polyphagous Pest *Spodoptera littoralis* with the GFP-Tagged Indigenous Gut Bacterium *Enterococcus mundtii*. *Front. Microbiol.* **2016**, *7*, 928, doi:10.3389/fmicb.2016.00928.