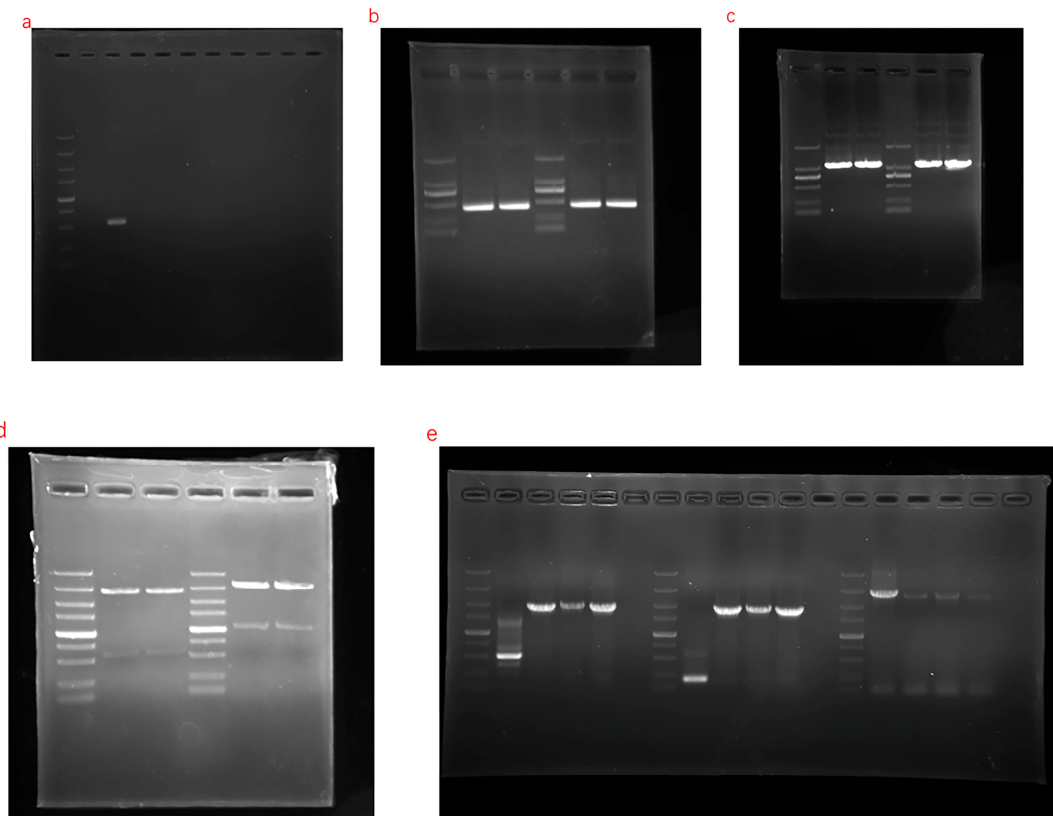
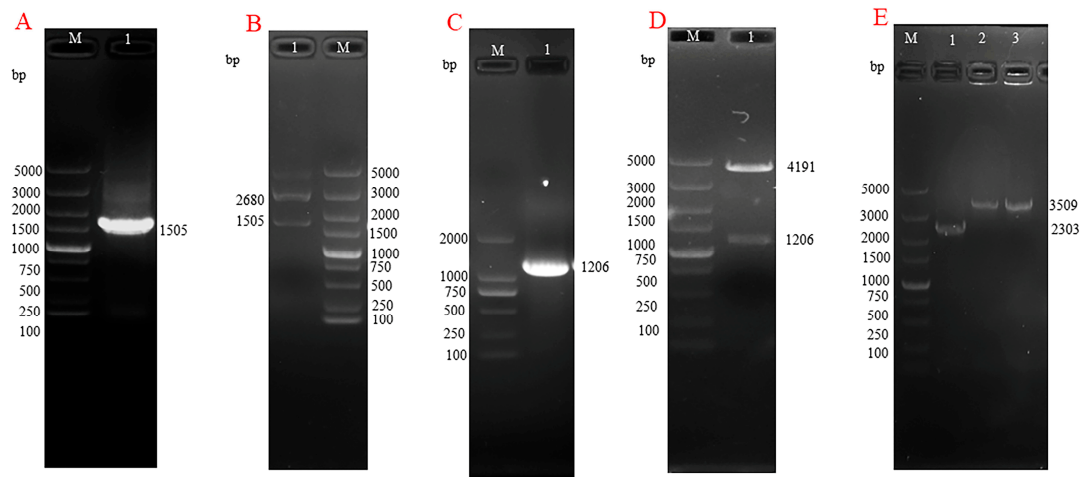


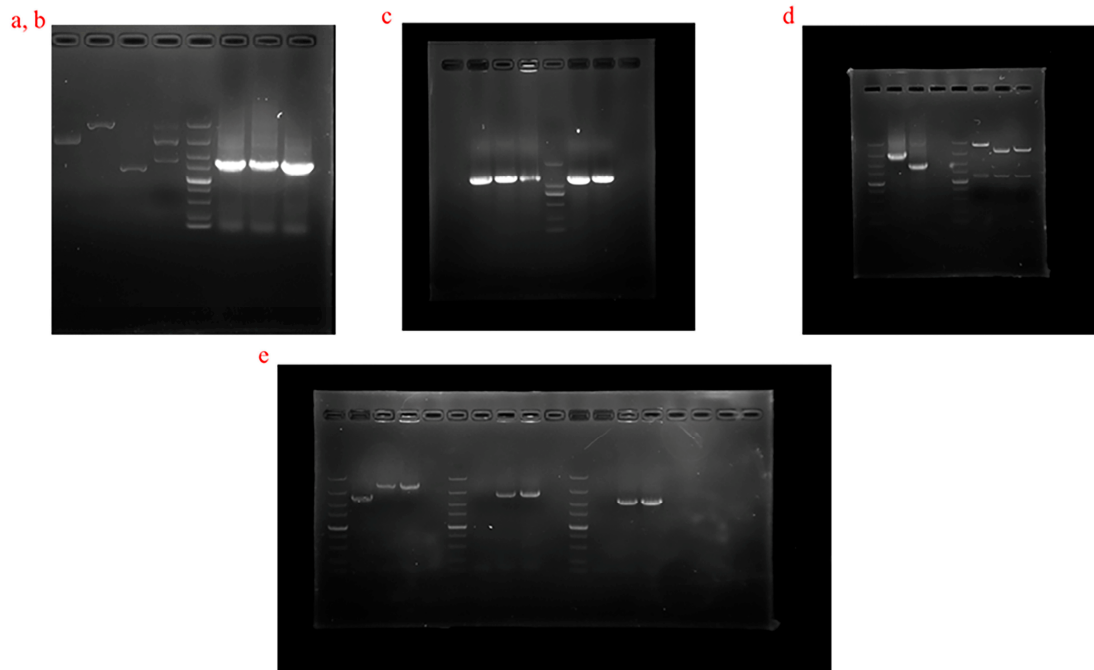
**Figure S1. *ilvA* homologous recombination knockout vector construction and transformation of the vector.** **A** Amplification of HLarm (M: DL5000marker, line 1: blank, line 2: HLarm). **B** Amplification of HRarm (M: DL5000marker, line 1: blank, line 2: HRarm). **C** Amplification of *cat* (M: DL2000marker, line 1: *cm*). **D** Double digestion of the knockout vector by *Kpn* I and *sal* I (M: DL5000marker, line 1-2: double digestion). **E** Double-exchange PCR validation of *ilvA* DEDP F and *cm* R (M: DL5000marker, line 1: BJ3-2, line 2: transformants). **F** Double-exchange PCR validation of *ilvA* *cm* F and DEDP R (M: DL5000marker, line 1: BJ3-2, line 2: transformants).



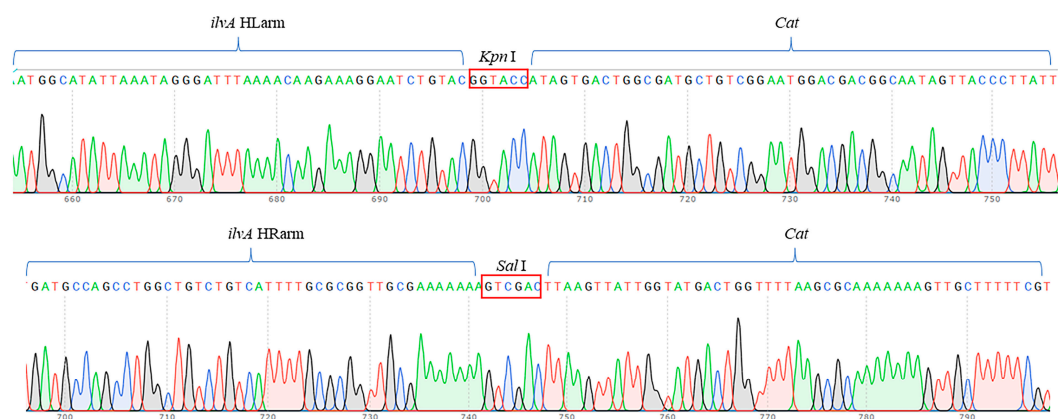
**a** is the original diagram of Figure S1A. **b** is the original diagram of Figure S1B. **c** is the original diagram of Figure S1C. **d** is the original diagram of Figure S1D. **e** is the original diagrams of Figure S1E and F.



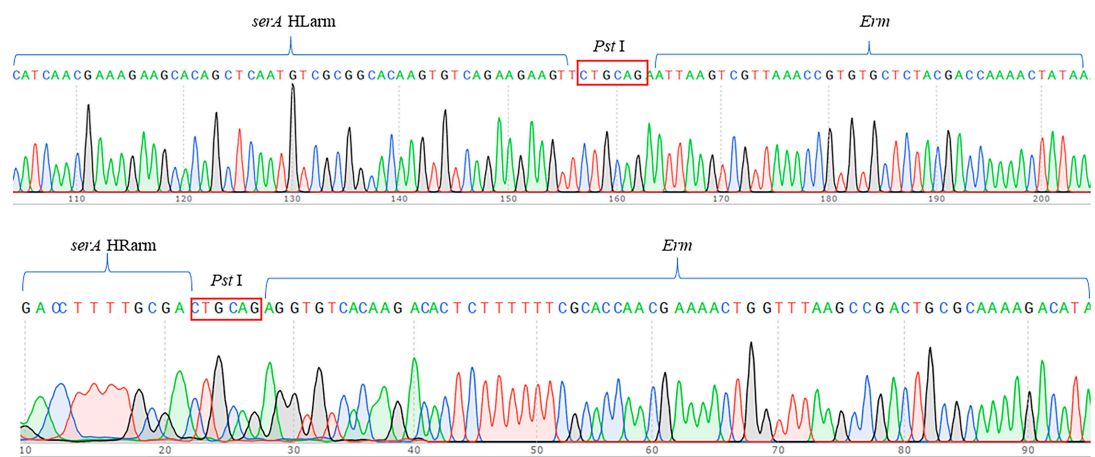
**Figure S2. *serA* homologous recombination knockout vector construction and transformation of the vector.** **A** Amplification of *serA* (M: DL5000marker, line 1: *serA*). **B** Double digestion of the knockout vector by *Sal I* and *Sph I* (M: DL5000marker, line 1: double digestion). **C** Amplification of *erm* (M: DL2000marker, line 1: *erm*). **D** Digestion of the knockout vector by *Pst I* (M: DL5000marker, line 1: digestion). **E** Double-exchange PCR validation of *serA* DEDP F and DEDP R (M: DL5000marker, line 1: BJ3-2, line 2 : transformants).



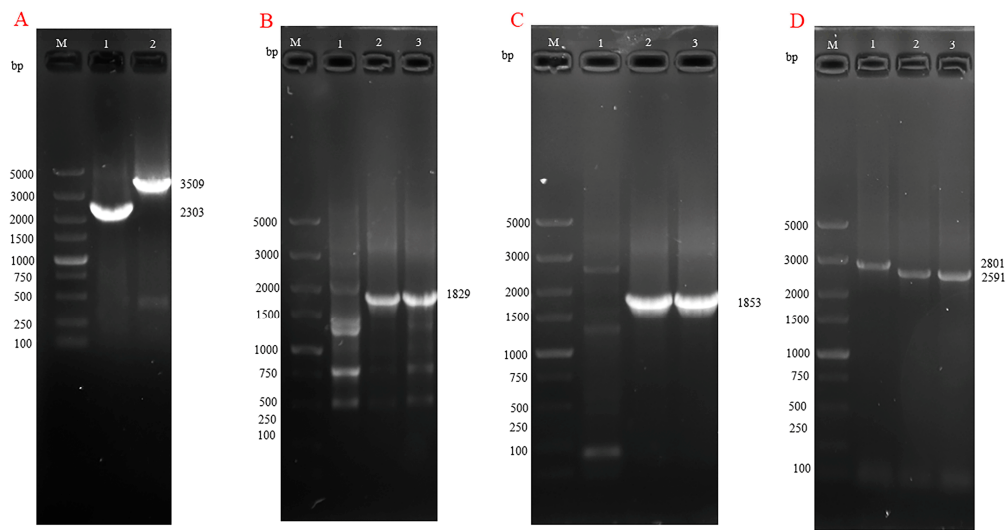
**a,b** is the original diagram of Figure S1A and B. **c** is the original diagram of Figure S1C. **d** is the original diagram of Figure S1D. **e** is the original diagram of Figure S1E.



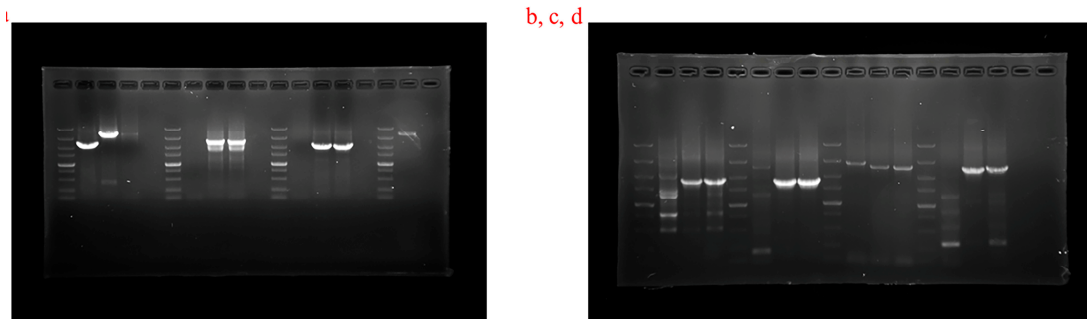
**Figure S3. Sequencing of BJ3-2Δ*ilvA*.**



**Figure S4. Sequencing of BJ3-2ΔserA.**



**Figure S5. PCR validation of BJ3-2 $\Delta$ *serA* $\Delta$ *ilvA*.** **A** Double-exchange PCR validation by *serA* DEDP2 F and *serA* DEDP2 R (M: DL5000 Marker, lane 1: BJ3-2, lane 2: transformant). **B** Double-exchange PCR validation of *ilvA* DEDP F and *cat* R (M: DL5000 Marker, lane 1: BJ3-2 $\Delta$ *serA*, lane 2-3: transformants). **C** Double-exchange PCR validation of *cat* F and *ilvA* DEDP R (M: DL5000 Marker, lane 1: BJ3-2 $\Delta$ *serA*, lane 2-3: transformants). **D** Double-exchange PCR validation of *ilvA* DEDP F and *ilvA* DEDP R (M: DL5000 Marker, lane 1: BJ3-2 $\Delta$ *serA*, lane 2-3: transformants).



**a** is the original diagram of Figure S5A. **b, c, d** is the original diagram of Figure S5B, C and D.

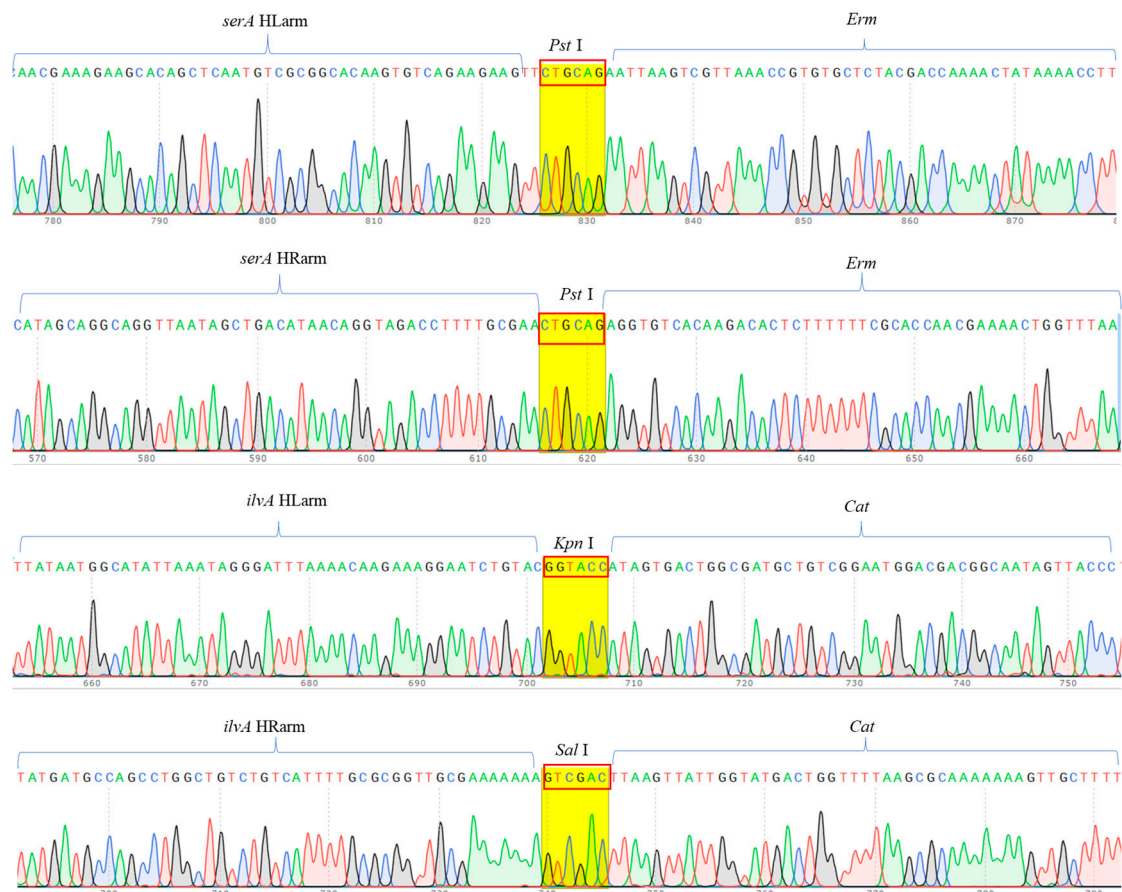


Figure S6. Sequencing of BJ3-2 $\Delta$ *serA* $\Delta$ *ilvA*.