



<i>ΔgadA</i>	8.2±0.72	7.89±1.22	0.96±0.06
<i>ΔgadA+pgadA</i>	8.3±1.05	25.83±2.1	3.15±0.5
<i>ΔhdeA</i>	10.93±0.5	16.57±1.8	1.52±0.17
<i>ΔhdeA+phdeA</i>	9.03±1.46	28.97±7.5	3.17±0.34
<i>ΔhdeB</i>	9.6±1.06	13.86±2.64	1.44±0.14
<i>ΔhdeB+phdeB</i>	10±1.04	31.2±1.65	3.13±0.16
Acid neutralization	T1	T24	T24/T1
WT-NH <sub>4</sub> Cl	6.2±0.2	6.29±0.43	1.01±0.04
<i>Δasr</i> -NH <sub>4</sub> Cl	6.73±0.23	6.74±0.47	1±0.04
<i>ΔgadA</i> -NH <sub>4</sub> Cl	8.6±0.92	7.15±1.15	0.84±0.15
<i>ΔhdeA</i> -NH <sub>4</sub> Cl	9.8±0.4	10.3±0.35	1.05±0.04
<i>ΔhdeB</i> -NH <sub>4</sub> Cl	9.27±0.42	9.72±0.91	1.05±0.06
WT-CQ	4.53±0.95	3.67±0.69	0.81±0.02
<i>Δasr</i> -CQ	3.8±0.69	2.85±0.3	0.76±0.09
<i>ΔgadA</i> -CQ	7±0.69	5.96±0.66	0.86±0.15
<i>ΔhdeA</i> -CQ	8±1.4	6.41±1.06	0.8±0.01
<i>ΔhdeB</i> -CQ	8.4±1.4	7.02±1.27	0.84±0.02

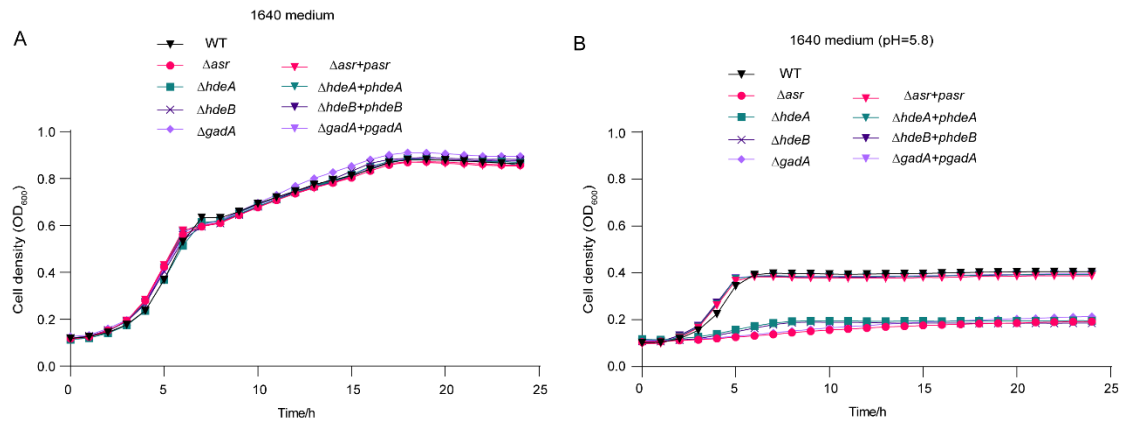


Figure S3 (A) Growth curve of *Δasr*, *Δasr+pasr*, *ΔgadA*, *ΔgadA+pgadA*, *ΔhdeA*, *ΔhdeA+phdeA*, *ΔhdeB*, *ΔhdeB+phdeB* and WT in 1640 medium. (B) Growth curve of *Δasr*, *Δasr+pasr*, *ΔgadA*, *ΔgadA+pgadA*, *ΔhdeA*, *ΔhdeA+phdeA*, *ΔhdeB*, *ΔhdeB+phdeB* and WT in 1640 medium (pH=5.8).

Table S4 Viable bacteria of WT and mutants of LF82 treated with or without nitrate at 1 h p.i. and 24 h p.i. within Raw 264.7 macrophages.

Strains	10 <sup>5</sup> CFU/Well		
	T1	T24	T24/T1
WT	6.87±0.58	21.37±1.05	3.12±0.15
<i>ΔnarXL</i>	7.93±0.83	8.23±1.07	1.04±0.04
<i>ΔnarXL+pnarXL</i>	7.3±1.11	22.93±2.88	3.15±0.12
<i>Δnark</i>	6.8±0.87	8.57±0.72	1.26±0.05
<i>ΔnarK+pnarK</i>	6.37±0.91	20.13±2.92	3.16±0.07
<i>Δhmp</i>	6.47±1.17	5.57±1.42	0.85±0.06
<i>Δhmp+phmp</i>	6.47±1.22	19.77±5.15	3.03±0.22
<i>ΔnarP</i>	6.63±1.83	7.55±2.44	1.13±0.06
<i>ΔnarP+pnarP</i>	7.13±1.8	21.5±4.33	3.04±0.15
Nitrate	T1	T24	T24/T1
WT	5.33±0.81	54±7.55	10.14±0.12
<i>ΔnarXL</i>	6.73±0.99	6.97±1.25	1.03±0.07
<i>ΔnarXL+pnarXL</i>	6.2±1.25	63.67±4.25	10.47±1.64
<i>Δnark</i>	6.33±1.21	8.17±0.86	1.3±0.11
<i>ΔnarK+pnarK</i>	6.73±1.34	69.33±2.08	10.57±2.03
<i>Δhmp</i>	7.6±2.62	6.7±2.19	0.89±0.03
<i>Δhmp+phmp</i>	6.63±0.57	69.67±1.53	10.54±0.7
<i>Δnarp</i>	5.67±0.61	6.73±0.42	1.19±0.08
<i>ΔnarP+pnarP</i>	7.2±2.55	71.17±5.84	10.47±2.49

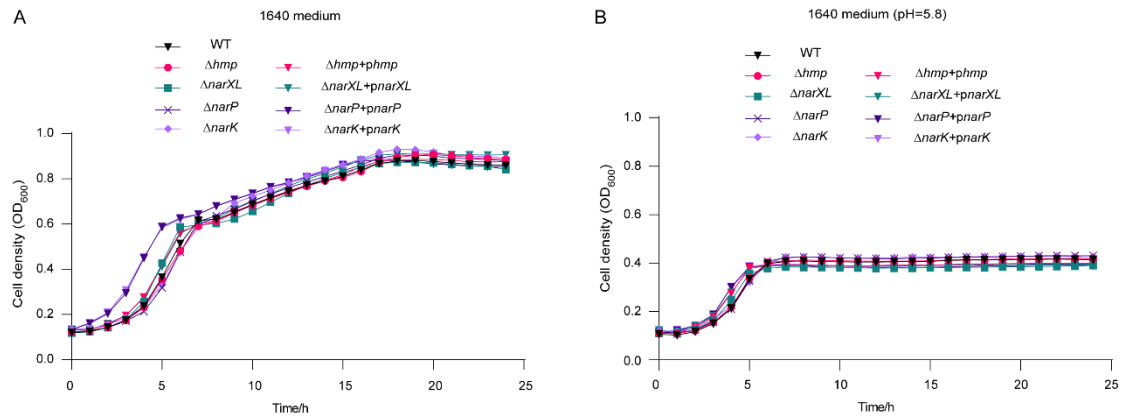


Figure S4 (A) Growth curve of *narK*,  $\Delta narK+pnarK$ , *narXL*,  $\Delta narXL+pnarXL$ , *narP*,  $\Delta narP+pnarP$ , *hmp*,  $\Delta hmp+phmp$  and WT in 1640 medium. (B) Growth curve of *narK*,  $\Delta narK+pnarK$ , *narXL*,  $\Delta narXL+pnarXL$ , *narP*,  $\Delta narP+pnarP$ , *hmp*,  $\Delta hmp+phmp$  and WT in 1640 medium (pH=5.8).

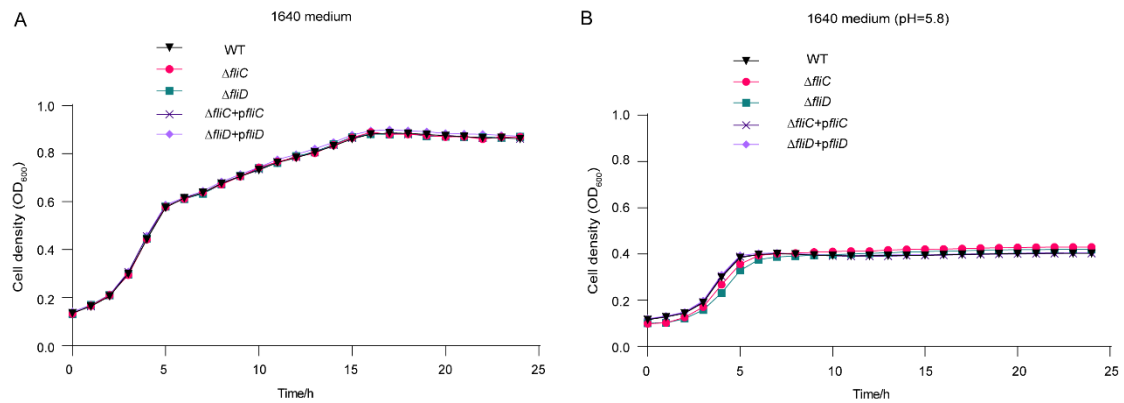


Figure S5 (A) Growth curve of  $\Delta fliC$ ,  $\Delta fliD$  and WT in 1640 medium. (B) Growth curve of *fliC*, *fliD* and WT in 1640 medium (pH=5.8).

Table S5 Viable bacteria of WT and  $\Delta fliC$ ,  $\Delta fliD$  mutants of LF82 at 1 h p.i. and 24 h p.i. within Raw 264.7 macrophages.

Strains	10 <sup>5</sup> CFU/Well		
	T1	T24	T24/T1
WT	8.47±1.32	26.67±3.55	3.16±0.1
$\Delta fliC$	8.3±1.06	22.81±0.23	2.78±0.35
$\Delta fliD$	7.93±1.31	23.95±1.36	3.05±0.32