

Supplementary Information

Table S1. Cytokine concentrations in culture supernatants of RAW264.7 cells and THP1 cells stimulated by different concentrations of lipopolysaccharide (LPS) sample from *E. coli* BL21 (DE3) and mutant strains.

Cells	LPS Concentration (pM)	BL21 (DE3)	S001 ($\Delta msbB28 \Delta pagP38$)	S002 (S001 + <i>pagL</i>)	S003 (S001 + <i>lpxE</i>)	S004 (S001 + <i>pagL</i> and <i>lpxE</i>)	PBS
TNF- α from RAW264.7 cells (pg/mL)	10	2300 \pm 613	1075 \pm 267	296 \pm 97	1319 \pm 219	274 \pm 142	53 \pm 10
	10 ²	8226 \pm 923	4492 \pm 1219	568 \pm 147	3266 \pm 763	627 \pm 118	21 \pm 7
	10 ³	16,293 \pm 2280	7648 \pm 1684	2051 \pm 297	5236 \pm 953	2080 \pm 335	44 \pm 14
	10 ⁴	20,904 \pm 2480	16,972 \pm 1514	6825 \pm 767 †	11,677 \pm 1470 †	4427 \pm 821 *†	65 \pm 15
IL-12 from THP 1 cells (pg/mL)	10	19.4 \pm 6.9	13.5 \pm 5.2	12.9 \pm 2.4	10.6 \pm 0.9	15.4 \pm 2.7	5.3 \pm 2.1
	10 ²	59.6 \pm 16.7	16.1 \pm 2.1	15.5 \pm 2.1	9.6 \pm 2.0	17.0 \pm 2.6	4.6 \pm 1.0
	10 ³	156.6 \pm 28.7	26.7 \pm 8.2	14.7 \pm 1.3	21.3 \pm 2.5	21.9 \pm 1.0	4.0 \pm 1.5
	10 ⁴	266.0 \pm 34.4	24.2 \pm 10.6 **	26.0 \pm 4.1 **	24.4 \pm 3.4 **	23.6 \pm 4.2 **	3.2 \pm 2.6

One-way analysis of variance was used to evaluate differences in cytokine concentrations. Significant differences between the parental strain groups and other mutant strain groups stimulated by LPS were shown. † $p < 0.01$ compared with S001; * $p < 0.05$ compared with S002; ** $p < 0.01$ compared with parental strain BL21 (DE3). The experiment were performed in triplicate, and data were shown as means \pm standard deviation, PBS group was negative control.