

Table S5. Role of metal acquisition systems in plague

METAL ACQUISITION SYSTEMS		MUTANT LACKING		DIFFERENTIAL EXPRESSION IN VIVO *	VIRULENCE DATA OBTAINED USING				ROLE IN VIRULENCE*	
					PER POOL MUTANTS [†]		INDIVIDUAL MUTANT [‡]			
		ORF(s)	GENE(s)		ARCI ± SE IN		SURVIVAL (mutant vs WT)			
					LYMPH NODE	SPLEEN	PERCENT	MEDIAN (in days)		
Iron	Siderophores	YPO0989-YPO0994 ^Φ	<i>iucABCD iutA</i>	+	20.2 ± 13	10.1 ± 10	0 vs 0	4 vs 4	No	
		YPO1753	<i>fcuA</i>	+	31.2 ± 13	26.9 ± 13	Not determined		No	
		YPO1528-YPO1538	<i>ysuFJIHGDCBARED</i>	+	50.4 ± 15	47.4 ± 14	Not determined		No	
		YPO0955-YPO0956	-	+	63.2 ± 14	53.7 ± 16	Not determined		No	
		YPO1008-YPO1012 ^a	<i>-ynp1 ynp2</i>	+	Not determined		12.5 vs 12.5	5 vs 4	No	
		YPO3340 ^a	-	+	Not determined		0 vs 0	4 vs 4	No	
		YPO1906-YPO1916	<i>fyuA ybtETU irp1 irp2 ybtAPQXS</i>	+	Not determined		Previously studied [10]		Yes	
		YPO0770-YPO0777	<i>ynp3 to ynp11</i>	↔	Not determined		Not determined		To be tested	
	ABC transporters	YPO2958-YPO2960	<i>yfuABC</i>	+	23.0 ± 13	17.9 ± 10	Previously studied [11]		No	
		YPO4022-YPO4025	<i>fitABCD</i>	+	34.4 ± 14	39.2 ± 14	Not determined		No	
		YPO1343-YPO1345	<i>fiuABC</i>	+	35.6 ± 15	27.3 ± 14	Not determined		No	
		YPO1310-YPO1313	<i>yiuvABCR</i>	+	Not determined		0 vs 12.5	4 vs 4	No	
		YPO2439-YPO2442	<i>yfeABCD</i>	+	Not determined		Previously studied [12]		Yes	
		YPO3390-YPO3392	<i>fhuCDB</i>	↔	Not determined		Not determined		To be tested	
	Permeases	YPO1854-YPO1856	<i>efeUOB</i>	+	Not determined		12.5 vs 12.5	4 vs 4.5	No	
		YPO1941-YPO1948	-	+	Not determined		0 vs 0	4 vs 4	No	
		Heme uptake	YPO0286-YPO0279	<i>-hmuRSTUV</i>	+	Not determined		0 vs 0	4.5 vs 5.5	No
			YPO1951-YPO1954	<i>hmsHFRS</i>	+	57.4 ± 15	37.8 ± 14	Previously studied [13]		No
			YPO3918-YPO3923	<i>hasRADEB</i>	—	Not determined		Previously studied [14]		No
		Ferrous	YPO0131-YPO133	<i>feoABC</i>	↔	Not determined		Previously studied [15]		No
Manganese	ABC transporter	YPO2439-YPO2442	<i>yfeABCD</i>	+	Not determined		Previously studied [12]		Yes	
	Permease	YPO2982	<i>mntH</i>	+	Not determined		0 vs 0	4 vs 4	No [‡]	
Zinc	ABC transporter	YPO2439-YPO2442	<i>yfeABCD</i>	+	Not determined		Previously studied [12]		Yes	
		YPO2059-YPO2061	<i>znuBC znuA</i>	+	Not determined		25 vs 0	6.5 vs 6.5	No [‡]	

^{*}, according to our previous data [16]

[†], ARCI were determined in groups of 10 rats inoculated with a pool of 5 mutants (with 20 CFU of each mutant)

[‡], virulence was determined after intradermal inoculation of ~10 CFU. Groups of 8 animals were used

[‡], confirms recently published work

^Φ, pseudogene

^{*}, a gene was considered to be necessary ("Yes") or not necessary ("No") for virulence if the survival curve for animals infected with the mutant and the wild-type strain were significantly different (p<0.05) or not significantly different (p>0.05) in a Gehan-Breslow-Wilcoxon test, or because the mutant was outcompeted (ARCI<20) or not outcompeted (ARCI≥20) in the per-pool screening, or because it has been previously studied elsewhere. In the latter case, a reference (Text S1) is provided.