

Table 3. *Y. pestis* differential gene expression during pneumonic plague, by category

Chromosome*	Systematic	Common	Function	Code†
	<b>Small molecule metabolism</b>			
	<b>Degradation</b>			
	YPO0589 <sup>‡</sup>	fadH, fadH1	2,4-dienoyl-CoA reductase	1.A
	YPO2074	fadD	long-chain-fatty-acid-CoA ligase	1.A
	YPO2746	-----	putative 3-ketoacyl-CoA thiolase	1.A
	YPO3649	-----	putative gamma carboxymuconolactone decarboxylase	1.A
	YPO3766	fadB, oldB	fatty acid oxidation complex alpha subunit	1.A
	YPO3767	fadA, oldA	3-ketoacyl-CoA thiolase	1.A
	<b>Degradation - carbon compounds</b>			
	YPO0008	rbsK	ribokinase	1.A.1
	YPO0253	acs	acetyl-coenzyme A synthetase	1.A.1
	YPO0579	uxaC	uronate isomerase	1.A.1
	YPO1290	-----	putative aldehyde dehydrogenase	1.A.1
	YPO2539	idnO	gluconate 5-dehydrogenase	1.A.1
	YPO3326	araD	L-ribulose-5-phosphate 4-epimerase	1.A.1
	YPO3648	-----	putative 2-hydroxy-3-oxopropionate reductase	1.A.1
	<b>Degradation - amino acids</b>			
	YPO1201	-----	putative amino acid decarboxylase	1.A.2
	YPO1386	ansB	putative L-asparaginase II precursor	1.A.2
	YPO1771	sdaA	L-serine dehydratase	1.A.2
	YPO2147	dadA, dadR	D-amino acid dehydrogenase small subunit	1.A.2
	<b>Energy metabolism - glycolysis</b>			
	YPO2157	gapA	glyceraldehyde 3-phosphate dehydrogenase A	1.B.1
	<b>Energy metabolism - TCA</b>			
	YPO1108	gltA, gluT, icdB	citrate synthase GltA	1.B.3
	YPO1109	sdhC, cybA	succinate dehydrogenase cytochrome b-556 subunit	1.B.3
	YPO1110	sdhD	succinate dehydrogenase hydrophobic membrane anchor protein	1.B.3
	YPO1112	sdhB	succinate dehydrogenase iron-sulfur protein	1.B.3
	YPO1113	sucA	2-oxoglutarate dehydrogenase E1 component	1.B.3
	YPO1116	sucD	succinyl-CoA synthetase alpha chain	1.B.3
	<b>Energy metabolism - aerobic respiration</b>			
	YPO2908	hmp, hmpA, hmpX	flavo-hemoprotein	1.B.7.a
	<b>Energy metabolism - anaerobic respiration</b>			
	YPO0160	nirD	nitrite reductase [NAD]	1.B.7.b
	YPO0343	hydN	4Fe-4S ferredoxin	1.B.7.b
	YPO0357	frdD, b4151	fumarate reductase hydrophobic protein	1.B.7.b
	YPO0358	frdC, b4152	fumarate reductase hydrophobic protein	1.B.7.b
	YPO0359	frdB, b4153	fumarate reductase iron-sulfur protein	1.B.7.b
	YPO4056	fdol	formate dehydrogenase, cytochrome b556 protein	1.B.7.b
	<b>Energy metabolism - electron transport</b>			
	YPO1617	ndh	NADH dehydrogenase	1.B.7.c
	YPO2974	-----	putative B-type cytochrome	1.B.7.c
	YPO3001	-----	putative pyridine nucleotide-disulphide oxidoreductase	1.B.7.c
	YPO3040	napF	ferredoxin-type protein NapF	1.B.7.c
	YPO3320	cybC	putative cytochrome B562	1.B.7.c
	YPO3321	cybB	probable cytochrome B561	1.B.7.c
	<b>Energy metabolism - ATP-proton motive force</b>			
	YPO4125	atpF, uncF, papF	ATP synthase subunit B protein	1.B.9
	YPO4126	atpE, uncE, papH	ATP synthase subunit C protein	1.B.9
	YPO4127	atpB, uncB, papD	ATP synthase subunit B protein	1.B.9
	<b>Central intermediary metabolism</b>			
	YPO0931	metK	S-adenosylmethionine synthetase	1.C
	YPO2765	asd, usg-1	putative aspartate-semialdehyde dehydrogenase	1.C
	YPO2907	glyA	serine hydroxymethyltransferase	1.C
	<b>Central intermediary metabolism - sugar nucleotides</b>			
	YPO2174	-----	putative nucleotide sugar dehydrogenase	1.C.3
	<b>Central intermediary metabolism - sulphur metabolism</b>			
	YPO3372	cysJ	sulfite reductase [NADPH] flavoprotein alpha-component	1.C.5
	<b>Amino acid biosynthesis - glutamate family</b>			
	YPO0024	glnA	glutamine synthetase	1.D.1
	YPO3557	gltB, aspB	glutamate synthase [NADPH] large chain precursor	1.D.1
	YPO3558	gltD, aspB	glutamate synthase [NADPH] small chain	1.D.1
	YPO3927	argC	N-acetyl-gamma-glutamyl-phosphate reductase	1.D.1
	<b>Amino acid biosynthesis - aspartate family</b>			
	YPO0115	metB	cystathionine gamma-synthase (pseudogene)	1.D.2
	YPO0116	metL, metM	bifunctional aspartokinase/homoserine dehydrogenase II	1.D.2
	YPO0117	metF	5,10-methylenetetrahydrofolate reductase	1.D.2
	YPO0278	metC	cystathionine beta-lyase	1.D.2
	YPO0348	aspA	aspartate ammonia-lyase	1.D.2
	YPO1041	dapD	2,3,4,5-tetrahydropyridine-2-carboxylate N-succinyltransferase	1.D.2

YPO3727	metA	homoserine O-succinyltransferase	1.D.2
YPO3788	metE	5-methyltetrahydropteroyltryglutamate--homocyst eine methyltransferase	1.D.2
<b>Amino acid biosynthesis - serine family</b>			
YPO0914	serA	D-3-phosphoglycerate dehydrogenase	1.D.3
YPO2992	cysK, cysZ	cysteine synthase A	1.D.3
<b>Amino acid biosynthesis - aromatic amino acid family</b>			
YPO2205	trpC	tryptophan biosynthesis protein TrpCF	1.D.4
YPO2206	trpD	anthranilate phosphoribosyltransferase	1.D.4
<b>Amino acid biosynthesis - histidine</b>			
YPO1542	hisI, hisIE	histidine biosynthesis bifunctional protein [includes: phosphoribosyl-amp cyclohydrolase	1.D.5
YPO1543	hisF	histidine biosynthesis protein (cyclase)	1.D.5
YPO1544	hisA	phosphoribosylformimino-5-aminoimidazole carboxamide ribotide isomerase	1.D.5
YPO1546	hisB	histidinol-phosphatase and imidazoleglycerol-phosphate dehydratase	1.D.5
YPO1547	hisC	histidinol-phosphate aminotransferase	1.D.5
YPO1549	hisG	ATP phosphoribosyltransferase	1.D.5
<b>Amino acid biosynthesis - pyruvate family</b>			
YPO0531	leuC	3-isopropylmalate dehydratase large subunit	1.D.6
YPO0539	ilvI	acetolactate synthase isozyme III large subunit	1.D.6
YPO0540	ilvH	acetolactate synthase isozyme III small subunit	1.D.6
YPO3888	ilvC	ketol-acid reductoisomerase	1.D.6
YPO3896	ilvA	threonine dehydratase	1.D.6
YPO3897	ilvD	dihydroxy-acid dehydratase	1.D.6
YPO3899	ilvE	branched-chain amino acid aminotransferase	1.D.6
YPO3900	ilvM	acetolactate synthase isozyme II small subunit	1.D.6
YPO3901	ilvG	acetolactate synthase isozyme II large subunit	1.D.6
<b>Polyamine biosynthesis</b>			
YPO0929	speA	biosynthetic arginine decarboxylase	1.E
<b>Purines, pyrimidines, nucleosides and nucleotides</b>			
YPO0378	purA, adeK	adenylosuccinate synthetase	1.F.1
YPO2772	purF	amidophosphoribosyltransferase	1.F.1
YPO1512	cdd	cytidine deaminase	1.F.4
YPO2288	amn	putative AMP nucleosidase	1.F.4
YPO2883	ndk	nucleoside diphosphate kinase	1.F.4
<b>Biosynthesis of cofactors, prosthetic groups and carriers</b>			
YPO0286	----	putative coproporphyrinogen III oxidase	1.G.12
YPO1907	ybtE, irp5	yersiniabactin siderophore biosynthetic protein	1.G.14
YPO1908	ybtT, irp4	yersiniabactin biosynthetic protein YbtT	1.G.14
YPO1910	irp1	yersiniabactin biosynthetic protein	1.G.14
YPO1911	irp2	yersiniabactin biosynthetic protein	1.G.14
YPO1916	ybtS, irp9	putative salicylate synthetase	1.G.14
YPO1951	hmsH	haemin storage system, HmsH protein	1.G.14
YPO1952	hmsF	haemin storage system, HmsF protein	1.G.14
YPO1953	hmsR	haemin storage system, HmsR protein	1.G.14
YPO1954	hmsS	haemin storage system, HmsS protein	1.G.14
YPO3340	----	putative exogenous ferric siderophore receptor (pseudogene)	1.G.14
YPO2599	lipB	lipoate-protein ligase B	1.G.3
YPO0013	mobA, mob, chlB	molybdopterin-guanine dinucleotide biosynthesis protein A	1.G.4
YPO2930	pdxJ	pyridoxal phosphate biosynthetic protein PdxJ	1.G.6
YPO1413	pncB	putative nicotinate phosphoribosyltransferase	1.G.7
YPO3172	thiJ	4-methyl-5-(B-hydroxyethyl)-thiazol monophosphate biosynthesis enzyme	1.G.8
YPO2222	ribA	GTP cyclohydrolase II	1.G.9
<b>Fatty acid biosynthesis</b>			
YPO1430	fabA	3-hydroxydecanoyl-[acyl-carrier-protein] dehydratase	1.H
YPO2390	cfa, cdfA	cyclopropane-fatty-acyl-phospholipid synthase	1.H
YPO2757	fabB, fabC	3-oxoacyl-[acyl-carrier-protein] synthase I	1.H
YPO2929	acpS, dpj	holo-[acyl-carrier protein] synthase	1.H
YPO3986	cdh	CDP-diacylglycerol pyrophosphatase	1.H
<b>Broad regulatory functions</b>			
YPO0038	spoT	guanosine-3',5'-bisbis(diphosphate) 3'-pyrophosphhydrolase	2
YPO0108	cytR	transcriptional repressor	2
YPO0114	metJ	transcriptional repressor protein	2
YPO0458	arcA, dye, fexA	aerobic respiration control protein	2
YPO1301	psaE	putative regulatory protein	2
YPO1308	----	putative LysR-family transcriptional regulatory protein	2
YPO1576	----	putative GerR-family transcriptional regulatory protein	2
YPO1728	----	putative transcriptional regulator of sugar transport (pseudogene)	2
YPO1915	ybtX, irp8	putative signal transducer	2
YPO2144	fadR, oleR, thdB	fatty acid metabolism regulatory protein	2
YPO2374	slyA	MarR-family transcriptional regulatory protein	2
YPO2449	----	putative LuxR-family regulatory protein	2
YPO2497	----	putativeLlysR-family transcriptional regulatory protein	2
YPO3041	narP	nitrate/nitrite response regulator protein NarP	2
YPO3420	pdhR, aceC, genA	pyruvate dehydrogenase complex repressor	2

YPO3651	----	putative GntR-family transcriptional regulatory protein	2
YPO3682	----	putative lysR-family transcriptional regulatory protein	2
YPO3698	treR	trehalose operon repressor	2
YPO3789	metR	lysR-family transcriptional regulatory protein	2
<b>Macromolecule metabolism</b>			
<b>Synthesis and modification of macromolecules</b>			
YPO0231	rpsM	30S ribosomal protein S13	3.A.2
YPO1392	rpsA, ssyF	30S ribosomal protein S1	3.A.2
YPO3134	ykgM	putative ribosomal protein	3.A.2
YPO3135	----	putative ribosomal protein L36	3.A.2
YPO1423a	rnf	putative ribosome modulation factor	3.A.3
YPO2608	holA	DNA polymerase III, delta subunit	3.A.7
YPO3120	recR	recombination protein RecR	3.A.7
YPO3337	map	methionine aminopeptidase	3.A.8
YPO3754	tufA, tufB	elongation factor Tu	3.A.8
YPO3582	rpoN, glnF, ntrA	RNA polymerase sigma-54 factor	3.A.9
YPO3583	yhbH	probable sigma (54) modulation protein (pseudogene)	3.A.9
YPO3867	rho, nitA, psuA	transcription termination factor	3.A.9
<b>Degradation of macromolecules</b>			
YPO1058	rnhB, b0183	ribonuclease HII	3.B.1
YPO4101	mpa	ribonuclease P protein	3.B.1
YPO1683	----	probable N-acetylmuramoyl-L-alanine amidase	3.B.3
YPO3382	gsrA, degP, htrA	global stress requirement protein GsrA	3.B.3
<b>Cell envelope</b>			
YPO1011	----	putative TonB-dependent outer membrane receptor	3.C
YPO1411	----	putative outer membrane porin C protein	3.C
YPO3910	----	putative vitamin B12 receptor protein	3.C
YPO0042	----	putative membrane protein	3.C.1
YPO0063	----	putative membrane protein	3.C.1
YPO0132	feoB	ferrous iron transport protein B	3.C.1
YPO0163	----	conserved integral membrane protein	3.C.1
YPO0251	----	putative transmembrane transport protein	3.C.1
YPO0252	----	putative membrane protein	3.C.1
YPO0301	----	putative exported protein	3.C.1
YPO0417	----	putative O-antigen biosynthesis protein	3.C.1
YPO0424	----	putative pectinesterase	3.C.1
YPO0426	----	putative membrane protein	3.C.1
YPO0448	----	putative lipoprotein	3.C.1
YPO0449	----	putative exported protein	3.C.1
YPO0544	----	putative membrane protein	3.C.1
YPO0570	yqjD	putative membrane protein	3.C.1
YPO0590	hdeD	putative membrane protein	3.C.1
YPO0862	----	putative exported protein	3.C.1
YPO0988	----	putative membrane protein	3.C.1
YPO1071	----	putative lipoprotein	3.C.1
YPO1221	----	putative membrane protein	3.C.1
YPO1275	spr	putative lipoprotein	3.C.1
YPO1302	psaF	putative membrane protein	3.C.1
YPO1698	----	putative exported protein	3.C.1
YPO1699	----	putative exported protein	3.C.1
YPO1700	----	putative exported protein	3.C.1
YPO1718	----	putative exported protein	3.C.1
YPO1941	----	putative membrane protein	3.C.1
YPO1943	----	putative membrane protein	3.C.1
YPO2012	----	putative membrane protein	3.C.1
YPO2040	----	putative membrane protein	3.C.1
YPO2262	----	putative exported protein	3.C.1
YPO2315	----	putative exported protein	3.C.1
YPO2347	----	putative membrane protein	3.C.1
YPO2443	----	putative membrane protein	3.C.1
YPO2511	----	putative exported protein	3.C.1
YPO2592	----	putative membrane protein	3.C.1
YPO2616	cutE, Int	putative apolipoprotein N-acyltransferase	3.C.1
YPO2617	ybeX	putative membrane protein	3.C.1
YPO2674	----	putative exported protein	3.C.1
YPO2732	lemA, 3	putative exported protein	3.C.1
YPO2782	----	putative membrane protein	3.C.1
YPO2857	----	putative exported protein	3.C.1
YPO3050	----	putative exported protein	3.C.1
YPO3410	yacC	putative exported protein	3.C.1
YPO3632	ddg	putative membrane protein	3.C.1
YPO3661	----	putative membrane protein	3.C.1
YPO3798	----	putative exported protein	3.C.1

YPO4102	yidC	probable membrane protein	3.C.1
YPO1303	psaA	pH 6 antigen precursor (antigen 4) (adhesin)	3.C.2
YPO3243	lpcA, gmhA, tfrA	phosphoheptose isomerase	3.C.2
YPO0781	----	putative surface structure protein (pseudo)	3.C.3
YPO1906	fyuA, psn	pesticin/yersiniabactin receptor protein	3.C.3
<b>Cell processes</b>			
<b>Transport/binding proteins</b>			
YPO0409	----	putative periplasmic solute-binding protein	4.A
YPO0411	----	putative ABC transporter permease protein	4.A
YPO0412	----	putative ABC transporter ATP-binding protein	4.A
YPO0465	----	putative transport protein	4.A
YPO0584	----	putative symporter protein	4.A
YPO1072	----	ABC transporter permease protein	4.A
YPO1073	abc	ABC transporter ATP-binding protein	4.A
YPO1187	----	putative substrate-binding periplasmic transport protein	4.A
YPO1343	----	putative periplasmic binding protein	4.A
YPO1344	----	FecCD transport family protein	4.A
YPO1345	----	putative transport ATP-binding protein	4.A
YPO1563	----	putative transmembrane transporter	4.A
YPO1913	ybtP, irp6	lipoprotein inner membrane ABC-transporter	4.A
YPO1914	ybtQ, irp7	inner membrane ABC-transporter YbtQ	4.A
YPO2182	oppA	periplasmic oligopeptide-binding protein precursor	4.A
YPO2185	oppD	oligopeptide transport ATP-binding protein	4.A
YPO2237	----	putative integral membrane protein	4.A
YPO2835	pstC	putative phosphate transport system permease	4.A
YPO2846	----	putative ABC-transporter ATP-binding protein	4.A
YPO3048	----	probable ABC-transporter, ATP-binding protein	4.A
YPO3049	----	putative binding protein-dependent transport system, inner-membrane component	4.A
YPO3633	----	putative periplasmic binding protein	4.A
YPO3650	----	putative metabolite transport protein	4.A
YPO4111	----	putative periplasmic solute-binding protein	4.A
<b>Transport/binding proteins - amino acids and amines</b>			
YPO1321	sdaC, dcrA, b2796	serine transporter	4.A.1
YPO1331	potF	putrescine-binding periplasmic protein precursor	4.A.1
YPO1332	potG	putrescine transport ATP-binding protein	4.A.1
YPO1847	yecS	putative amino-acid ABC transporter (permease)	4.A.1
YPO1848	yecC	putative amino-acid ABC transporter (ATP-binding protein)	4.A.1
YPO2615	glnH	putative amino acid-binding protein precursor	4.A.1
YPO2774	hisJ	histidine-binding periplasmic protein	4.A.1
YPO3804	livF	high-affinity branched-chain amino acid transport, ATP-binding protein	4.A.1
YPO3805	livG	high-affinity branched-chain amino acid transport, ATP-binding protein	4.A.1
YPO3806	livM	high-affinity branched-chain amino acid transport system, permease protein	4.A.1
YPO3807	livH	high-affinity branched-chain amino acid transport system, permease protein	4.A.1
YPO3808	livK, livJ	branched-chain amino acid-binding protein	4.A.1
YPO4109	----	putative amino acid transport system permease	4.A.1
<b>Transport/binding proteins - cations</b>			
YPO2061	znuA	exported high-affinity zinc uptake system protein	4.A.2
YPO2439	yfeA	periplasmic-binding protein	4.A.2
YPO2675	----	putative potassium channel protein	4.A.2
YPO3820	----	putative P-type cation-translocating membrane ATPase	4.A.2
<b>Transport/binding proteins - carbohydrates, organics and alcohols</b>			
YPO0854	----	putative maltodextrin permease protein	4.A.3
YPO0858	----	sugar transport ATP-binding protein	4.A.3
YPO0959	----	putative sugar ABC transporter periplasmic binding protein	4.A.3
YPO1384	focA	putative formate transporter 1	4.A.3
YPO1507	mgIB	galactose-binding protein	4.A.3
YPO1508	mgIA	galactoside transport ATP-binding protein	4.A.3
YPO1517	----	putative sugar ABC transporter	4.A.3
YPO1572	----	putative sugar transporter	4.A.3
YPO1758	manX, ptsL, gptB	PTS system, mannose-specific IIB component	4.A.3
YPO2501	rbsB	sugar binding protein precursor	4.A.3
YPO2744	fadL, ttr	putative long-chain fatty acid transport protein	4.A.3
YPO2994	ptsI	PTS system, enzyme I component	4.A.3
YPO3711	lamB, malB	maltoporin	4.A.3
YPO3963	----	sugar transport system permease protein	4.A.3
YPO3992	dctA	C4-dicarboxylate transport protein	4.A.3
YPO4037	----	sugar-binding periplasmic protein	4.A.3
<b>Transport/binding proteins - anions</b>			
YPO0159	nirC	putative nitrite transporter	4.A.5
YPO3014	cysT	sulfate transport system permease protein CysT	4.A.5
YPO3015	cysP	thiosulfate-binding protein	4.A.5
<b>Transport/binding proteins - other</b>			
YPO0261	----	putative type III secretion apparatus	4.A.6

YPO1184	----	putative ABC transport membrane permease	4.A.6
YPO2358	sapD	peptide transport system ATP-binding protein	4.A.6
YPO2359	sapF	peptide transport system ATP-binding protein	4.A.6
YPO2734	ccmA	putative heme exporter protein A	4.A.6
YPO2736	ccmC	putative heme exporter protein C	4.A.6
YPO2737	ccmD	putative heme exporter protein D	4.A.6
YPO2983	nupC, cru	nucleoside permease	4.A.6
YPO3922	----	hemophore HasA	4.A.6
YPO4003	dppA	periplasmic dipeptide transport protein	4.A.6
<b>Chaperones, chaperonins, heat shock</b>			
YPO1304	psaB	chaperone protein PsaB precursor	4.B
YPO3881	----	putative chaperone protein	4.B
<b>Chemotaxis and mobility</b>			
YPO0711	fliM	putative flagellar motor switch protein	4.D
YPO0727	flgF	putative flagellar basal-body rod protein (pseudogene)	4.D
YPO0728	flgG	putative flagellar basal-body rod protein	4.D
YPO1799	flgB, flbA, fla FII	flagellar basal-body rod protein FlgB	4.D
YPO2760	flk	putative flagellar assembly regulatory protein, Flk	4.D
<b>Detoxification</b>			
YPO1207	katA	catalase	4.G
YPO2386	sodB	superoxide dismutase [Fe]	4.G
YPO3319	katY	catalase-peroxidase	4.G
<b>Pathogenicity</b>			
YPO0026	bipA, typA	putative GTPase	4.I
YPO3681	----	putative insecticidal toxin	4.I
<b>Other</b>			
<b>IS elements, Phage-related functions and prophage</b>			
YPO2640	trp1400A	IS1400 transposase A	5.A
<b>Colicin-related functions</b>			
YPO3886	----	colicin (partial)	5.B
<b>Drug/analogue sensitivity</b>			
YPO1949	tehB	putative tellurite resistance protein	5.D
YPO3070	yfgD	putative arsenate reductase	5.D
YPO3267	emrA	multidrug resistance protein A	5.D
YPO4048	mdfA, cmr	multidrug translocase	5.D
<b>Adaptions and atypical conditions</b>			
YPO1366	cspD, cspH	cold shock-like protein	5.F
YPO1398	cspB	cold shock-like protein	5.F
YPO2229	osmB	osmotically inducible lipoprotein B precursor	5.F
YPO2234	cstA	putative carbon starvation protein A	5.F
YPO2659	cspB	cold shock protein	5.F
YPO3643	cspa2	major cold shock protein Cspa2	5.F
YPO3644	cspa1	major cold shock protein Cspa1	5.F
YPO3970	uspA	universal stress protein A	5.F
<b>Unknown</b>			
YPO0131	----	conserved hypothetical protein	5.I
YPO0133	feoA	hypothetical ferrous iron transport protein A	5.I
YPO0190	----	conserved hypothetical protein	5.I
YPO0250	----	putative hydrolase (pseudogene)	5.I
YPO0284	----	conserved hypothetical protein	5.I
YPO0407	----	conserved hypothetical protein	5.I
YPO0408	----	putative aldolase	5.I
YPO0434	----	putative metalloenzyme	5.I
YPO0473	----	hypothetical protein	5.I
YPO0498	----	hypothetical protein	5.I
YPO0569a	----	conserved hypothetical protein	5.I
YPO0588	----	putative methyltransferase	5.I
YPO0628	----	putative translational inhibitor protein	5.I
YPO0819	----	putative carbonic anhydrase	5.I
YPO0932	----	conserved hypothetical protein	5.I
YPO1069	----	conserved hypothetical protein	5.I
YPO1084	----	conserved hypothetical protein (pseudogene)	5.I
YPO1244	----	hypothetical protein	5.I
YPO1255	----	hypothetical protein	5.I
YPO1277	----	putative cobalamin synthesis protein	5.I
YPO1316	----	putative iron/ascorbate oxidoreductase family protein	5.I
YPO1501	----	putative esterase	5.I
YPO1516	----	hypothetical protein	5.I
YPO1565	----	putative oxidoreductase	5.I
YPO1566	----	putative hydrolase	5.I
YPO1573	----	putative polysaccharide deacetylase	5.I
YPO1649	----	conserved hypothetical protein	5.I
YPO1996	----	hypothetical protein	5.I

YPO2080	----	conserved hypothetical protein	5.1
YPO2191	----	hypothetical protein	5.1
YPO2233	----	conserved hypothetical protein	5.1
YPO2290	----	putative virulence factor	5.1
YPO2348	----	conserved hypothetical protein	5.1
YPO2360	----	conserved hypothetical protein	5.1
YPO2410	----	Conserved hypothetical protein	5.1
YPO2436	----	hypothetical protein	5.1
YPO2460	----	conserved hypothetical protein	5.1
YPO2577	----	putative aldehyde dehydrogenase	5.1
YPO2590	----	hypothetical protein	5.1
YPO2795	----	hypothetical protein	5.1
YPO2894	----	conserved hypothetical protein	5.1
YPO2895	nifU	NifU family protein	5.1
YPO2962	----	conserved hypothetical protein	5.1
YPO2976	----	conserved hypothetical protein	5.1
YPO3071	----	conserved hypothetical protein	5.1
YPO3128	----	conserved hypothetical protein	5.1
YPO3139	----	putative 6-O-methylguanine DNA methyltransferase family protein	5.1
YPO3151	----	conserved hypothetical protein	5.1
YPO3336	----	conserved hypothetical protein	5.1
YPO3484	----	conserved hypothetical protein	5.1
YPO3488	deaD, csdA, mssB	cold-shock dead-box protein A	5.1
YPO3498	----	conserved hypothetical protein	5.1
YPO3527	----	conserved hypothetical protein	5.1
YPO3607	----	conserved hypothetical protein	5.1
YPO3647	----	conserved hypothetical protein	5.1
YPO3662	----	conserved hypothetical protein	5.1
YPO3708	----	conserved hypothetical protein	5.1
YPO3803	----	hypothetical protein	5.1
YPO3887	----	hypothetical protein	5.1
YPO3966	----	conserved hypothetical protein	5.1
YPO4064	----	hypothetical protein	5.1

**pCD1**

Systematic	Common	Function	Code
<b>Type III secretion</b>			
yscA		type III secretion component	
yscB		type III secretion component	
yscC		type III secretion component	
yscD		type III secretion component	
yscE		type III secretion component	
yscF		type III secretion component	
yscH		type III secretion component	
yscI		type III secretion component	
yscJ		type III secretion component	
yscK		type III secretion component	
yscN		type III secretion component	
yscO		type III secretion component	
yscQ		type III secretion component	
yscR		type III secretion component	
yscS		type III secretion component	
yscT		type III secretion component	
yscU		type III secretion component	
yscX		type III secretion component	
yscY		type III secretion component	
lcrD		type III secretion component	
lcrF		type III secretion component	
lcrG		type III secretion component	
lcrH		type III secretion component	
lcrR		type III secretion component	
lcrV		type III secretion component	
sycN		type III secretion component	
sycT		type III secretion component	
tyeA		type III secretion component	
virG		type III secretion component	
yopB		type III secretion component	
yopD		type III secretion component	
yopE		type III secretion component	
yopH		type III secretion component	
yopK		type III secretion component	
yopP		type III secretion component	
yopT		type III secretion component	

ypkA	type III secretion component	
<b>Unknown</b>		
YPCD1.03c		
YPCD1.15c		
YPCD1.16c		
YPCD1.18c		
YPCD1.70c		
YPCD1.73c		
YPCD1.75c		
YPCD1.81		
YPCD1.82c		
YPCD1.83c		
YPCD1.85		

<b>pMT1</b>			
<b>Systematic</b>	<b>Common</b>	<b>Function</b>	<b>Code</b>
YPMT1.34			
YPMT1.42			
YPMT1.86A			
YPMT1.86c			

<b>pPCP1</b>			
<b>Systematic</b>	<b>Common</b>	<b>Function</b>	<b>Code</b>
pim		pesticin immunity protein	
pla		fibrinolysin/coagulase precursor	
rop		plasmid replication regulatory protein	
YPPCP1.06			

\*Gene list is sorted by functional classification (chromosome) and the three plasmids.

†Functional classification based on CO92 chromosomal annotation ([www.sanger.ac.uk/Projects/Y\\_pestis/Yp\\_gene\\_list\\_hierarchical.shtml](http://www.sanger.ac.uk/Projects/Y_pestis/Yp_gene_list_hierarchical.shtml)).

‡ORFs highlighted in yellow are up-regulated in the mouse lung compared with BHI broth at 37°C, and ORFs in gray are down-regulated.