

Supplementary material

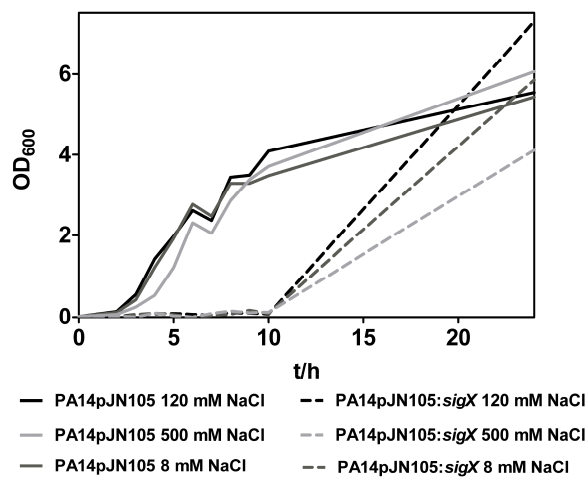


FIG S1 Growth curves of PA14 wild-type (PA14:pJN105) and PA14 overexpressing *sigX* (PA14:pJN105-RBS-*sigX*). Strains were cultivated at 37°C in LB with different concentrations of NaCl. We assume that in the wild-type expression of *sigX* is a highly fine-tuned process and that both, deletion and overexpression of *sigX*, creates stress conditions that significantly impact on bacterial fitness.

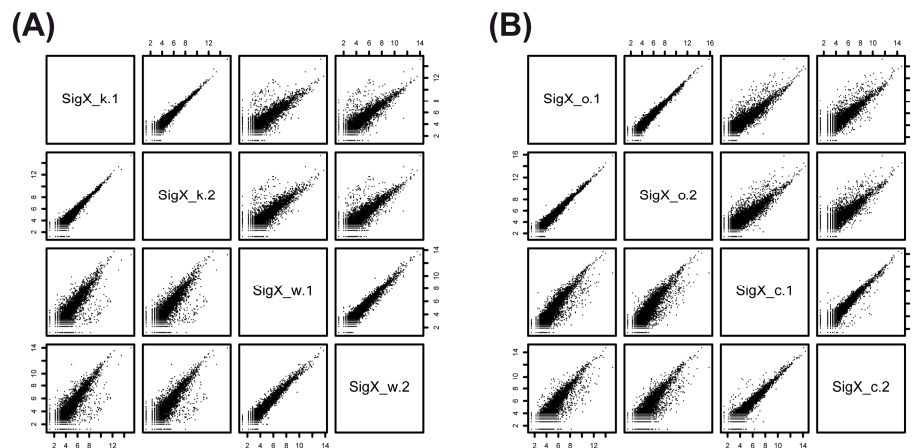


FIG S2 Scatter plots of the variance-stabilized expression data compared against each other. Illustrations of both replicates of (A) the *sigX* mutant strain (SigX_k) and the wild-type strain (SigX_w) and (B) for the *sigX* overexpressing strain (SigX_o) and the empty vector control strain (SigX_c). These plots clearly demonstrate that the corresponding replicates are significantly more similar in comparison to other samples.

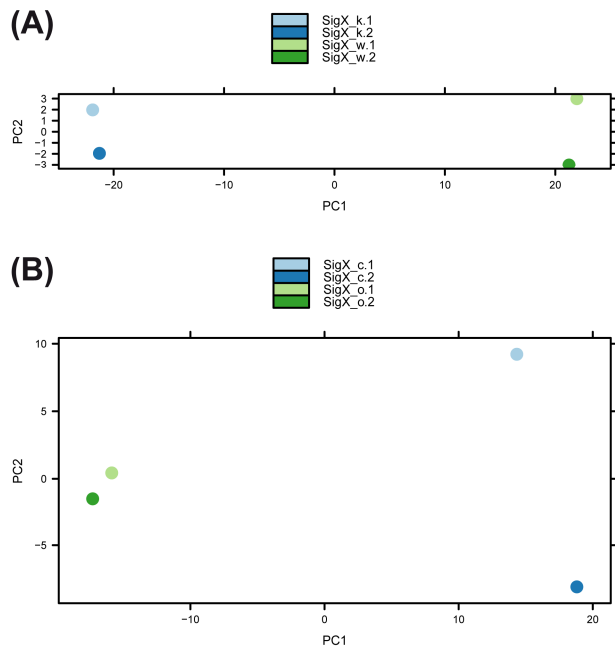


FIG S3 2D principal component analysis plot based on the top 100 variable genes of both replicates of (A) the *sigX* mutant strain (SigX_k) and the wild-type strain (SigX_w) and (B) for the *sigX* overexpressing strain (SigX_o) and the empty vector control strain (SigX_c). In both cases, the replicates from the same strain cluster together, while different strains form distinct clusters. The separation between the condition clusters is clearly larger comparing to those between the replicates.

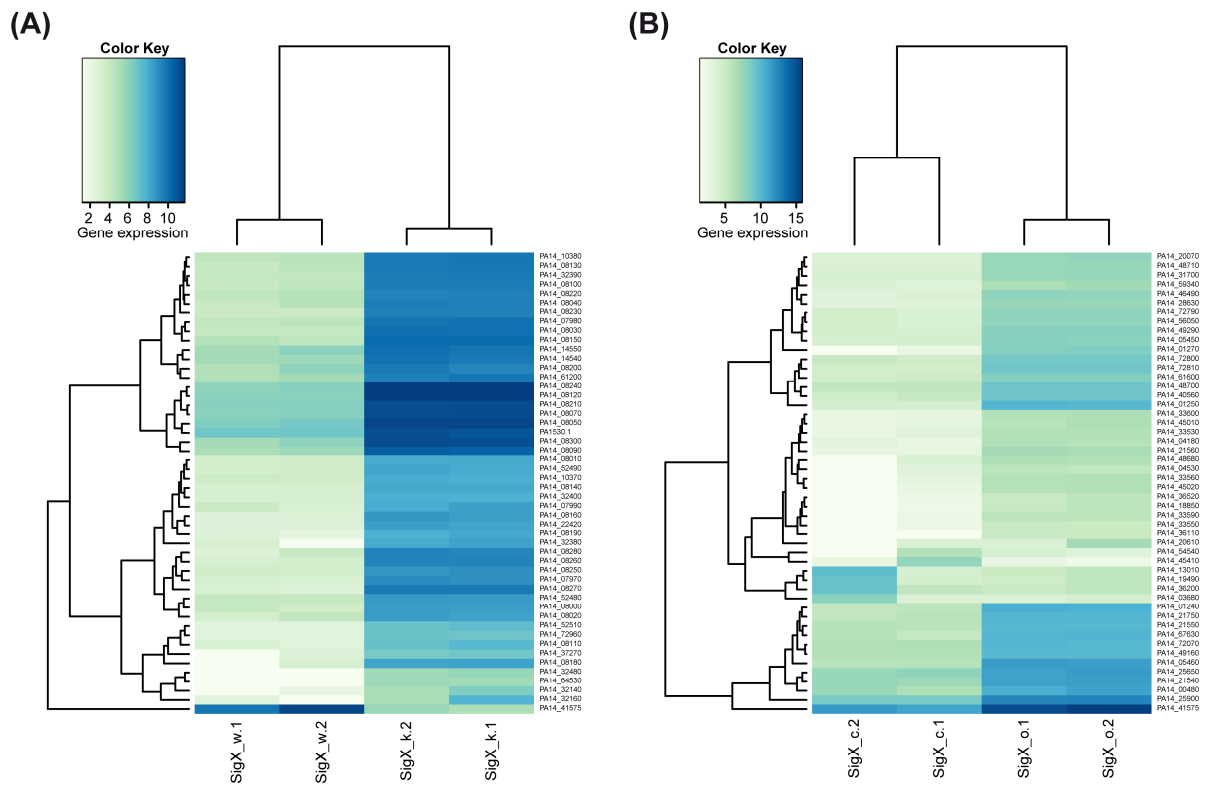


FIG S4 Heatmaps of the top 50 genes with the highest variance of gene expression. Illustrations of both replicates of (A) the *sigX* mutant strain (SigX_k) and the wild-type strain (SigX_w) and (B) for the *sigX* overexpressing strain (SigX_o) and the empty vector control strain (SigX_c). A proper separation between case and control samples is confirmed.

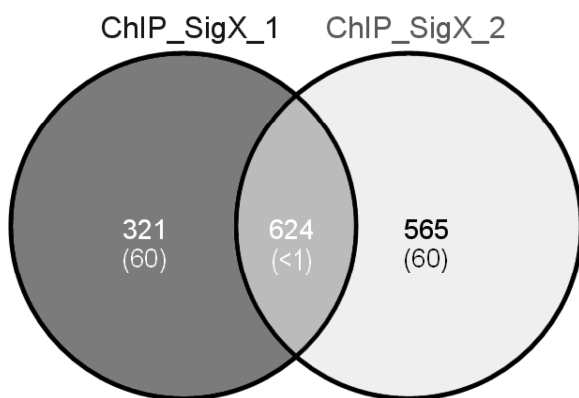


FIG S5 Venn diagram showing the number of genes bound in each ChIP-seq replicate. The number of false-positives is indicated in parenthesis. 624 of maximal 6014 genes were hit in both replicates, 1510 genes were hit at least in one replicate and 5390 genes were not hit at all according to the cut-off values $p\text{-value} \leq 0.01$ and enrichment factor ≥ 3 .

TABLE S1 Primers used in this study. Engineered restriction sites are underlined.

Primer (engineered restriction site)	Sequence (5'→3')	Function
sigX-FW (<i>EcoRI</i>)	ACTGGAATTCTTAACTTTAAGGA GGAGATATAATGAATAAGCCTCA CCCCCTGTC	RNA-and ChIP-seq experiments
sigX-RV (<i>XbaI</i>)	ACTGTCTAGATCATGTTTCGGTC GCATCTGAAAAC	RNA-seq experiments
sigX-His8-RV (<i>XbaI</i>)	ACTGTCTAGATCAGTGGTGGTGG TGGTGGTGGTGGTGGTCCAGTG TTTCGGTCGCATCTGAAAAC	octahistidine-tagging and ChIP
PsigX-FW (<i>BamHI</i>)	AGATCAGGATCCTCCTGGCGCA ACTGGTGA	bioluminescence assay
PsigX-RV (<i>XmaI</i>)	AGATCACCCGGGGTGAGATCAG GCCAGTCATATCGTAA	bioluminescence assay
PaccB-FW (<i>BamHI</i>)	AGTCGGATCCCATCATCAAT CCGGCG	bioluminescence assay
PaccB-RV (<i>EcoRI</i>)	AGTCGAATTCGTTTGTGCACGTT CGACAGG	bioluminescence assay
PcheY2-FW (<i>SpeI</i>)	ACTGACTAGTGGAAATTGTTCTGA GGGGTATCGA	bioluminescence assay
PcheY2-RV (<i>HindIII</i>)	ACTGAAGCTTGGTCTTGCGTCCT CACGGT	bioluminescence assay
iPCRpEX18AP-CW (<i>EcoRV</i>)	ATCGGATATCGCTAGCGCGGCC GCACGCGTGGTACCGGATCCGA ATTCGCCAGCTGCATTAATGAAT CGG	inverse PCR to construct pEX18TAp2
iPCRpEX18AP-ACW (<i>EcoRV</i>)	ATCGGATATCCTCGAGCTGCAGC CCGGGTCTAGAGAGCTCAAGCT TTCAAATATGCGCCTGATGCG	inverse PCR to construct pEX18TAp2
Mut-sigX-up-FW (<i>BamHI</i>)	ATCGGGATCCCAACTGGTGAACA GCGTCGTG	mutagenesis
Mut-sigX-up-RV (<i>KpnI</i>)	CAGTCAGTCAGGTACCGTGAGAT CAGGCCAGTCATATCGT	mutagenesis
Mut-sigX-down-FW (<i>KpnI</i>)	GGTACCTGACTGACTGATTGGGT AAATATTGTCTCTATGCGG	mutagenesis
Mut-sigX-down-RV (<i>NotI</i>)	ATCGGCGGCCGCGTGGCCGTGG ACCTTCTTGT	mutagenesis
FRT-Gm-FRT-FW (<i>KpnI</i>)	GTCAGGGTACCACGATCGAATTG GGGATCTTG	mutagenesis
FRT-Gm-FRT-RV (<i>KpnI</i>)	GTCAGGGTACCTGCATGATCGAA TTAGCTTCAAAG	mutagenesis
T7-promoter-Bpml-(dA) ₁₅ (<i>Bpml</i>)	CGAAATTAATACGACTCACTATA GGGCTGGAGAAAAAAAAAAAAA A	ChIP-seq experiments
T7-promoter-Bpml-(dA) ₁₈ (<i>Bpml</i>)	CGAAATTAATACGACTCACTATA GGGCTGGAGAAAAAAAAAAAAA AAAA	ChIP-seq experiments

Table S2: Down-regulated genes comparing PA14Δs/gX:Gm^r vs. PA14 WT

PA14 ID	gene name*	expression log2FC	p-value** (FDR)	Product name	PseudoCAP category***
PA14_21020	0	-3.540	0.000	putative non-ribosomal peptide synthetase	Biosynthesis of cofactors, prosthetic groups and carriers; Adaptation / Protection
PA14_36310	hcnC	-3.451	0.000	hydrogen cyanide synthase HcnC	Central intermediary metabolism
PA14_36320	hcnB	-3.424	0.000	hydrogen cyanide synthase HcnB	Central intermediary metabolism
PA14_09470	phzB1	-4.520	0.000	probable phenazine biosynthesis protein	Secreted factors (toxins, enzymes, alginate)
PA14_68340	arcB	-2.592	0.000	ornithine carbamoyltransferase, catabolic	Amino acid biosynthesis and metabolism
PA1555.1	ccoQ1	-2.769	0.000	0	Non-coding RNA gene (sRNA)
PA14_20970	cyp23	-3.562	0.000	cytochrome P450	Adaptation / Protection; Carbon compound catabolism
PA14_68360	0	-2.842	0.000	putative beta-ketoacyl synthase	Fatty acid and phospholipid metabolism
PA14_22910	edd	-2.473	0.000	6-phosphogluconate dehydratase	Energy metabolism; Carbon compound catabolism
PA14_51410	pqsC	-2.149	0.000	PqsC	Biosynthesis of cofactors, prosthetic groups and carriers
PA14_25650	fabD	-2.595	0.000	matonyl-CoA-[acyl-carrier-protein] transacylase	Fatty acid and phospholipid metabolism
PA14_10540	fixG*	-1.974	0.000	putative iron-sulfur cluster-binding protein	Energy metabolism; Putative enzymes
PA14_21000	0	-3.079	0.000	hypothetical protein	Hypothetical, unclassified or unknown
PA14_60700	ccpR	-2.445	0.000	cytochrome c551 peroxidase	Energy metabolism
PA14_51420	pqsB	-1.874	0.000	PqsB	Biosynthesis of cofactors, prosthetic groups and carriers
PA14_05360	0	-2.187	0.000	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_21030	0	-1.961	0.000	putative ATP-dependent Clp protease proteolytic subunit	Translation, post-translational modification and degradation; Cell wall / LPS / capsule
PA14_50280	flaG*	-2.703	0.000	hypothetical protein	Hypothetical, unclassified or unknown
PA14_51390	pqsD	-1.844	0.000	3-oxoacyl-[acyl-carrier-protein] synthase III	Biosynthesis of cofactors, prosthetic groups and carriers
PA14_23070	zwf	-1.988	0.000	glucose-6-phosphate 1-dehydrogenase	Energy metabolism; Carbon compound catabolism
PA14_43030	0	-3.109	0.000	conserved hypothetical protein	Protein secretion / Export apparatus
PA14_51430	pqsA	-1.826	0.000	probable coenzyme A ligase	Biosynthesis of cofactors, prosthetic groups and carriers
PA14_71820	yegQ*	-2.372	0.000	putative peptidase	Translational, post-translational modification and degradation; Putative enzymes
PA14_44300	aer	-2.146	0.000	aerolaxis receptor Aer	Adaptation / Protection; Chemotaxis
PA14_02020	0	-3.147	0.000	putative outer membrane porin	Membrane proteins; Transport of small molecules
PA14_42450	popB	-3.194	0.000	translocator protein PopB	Protein secretion / Export apparatus
PA14_64940	0	-2.684	0.000	putative icotinic acid mononucleotide adenylyltransferase	Biosynthesis of cofactors, prosthetic groups and carriers
PA14_17960	glpK	-2.052	0.000	glycerol kinase	Central intermediary metabolism
PA14_39960	phz2E	-3.764	0.000	probable phenazine biosynthesis protein	Secreted factors (toxins, enzymes, alginate)
PA14_51360	phzA	-1.771	0.000	anthranilate synthase component I	Adaptation / Protection
PA14_17250	yaaJ*	-2.157	0.000	putative Na ⁺ /alanine symporter	Transport of small molecules
PA14_21010	0	-3.272	0.000	putative FAD-dependent monooxygenase	Energy metabolism; Putative enzymes
PA14_69130	glpT	-2.261	0.000	glycerol-3-phosphate transporter	Membrane proteins; Transport of small molecules
PA14_61780	rplY*	-1.602	0.000	putative ribosomal protein L25	Adaptation / Protection; Translation, post-translational modification and degradation
PA14_41590	cmpX*	-2.075	0.000	putative cytoplasmic membrane protein	Membrane proteins
PA14_32790	0	-1.702	0.000	hypothetical protein	Hypothetical, unclassified or unknown
PA14_50290	flc	-1.684	0.000	flagellin type B	Motility / Attachment
PA14_20950	fabH2	-2.542	0.000	3-oxoacyl-[acyl-carrier-protein] synthase III	Fatty acid and phospholipid metabolism
PA14_00570	0	-4.135	0.000	putative lipoprotein	Cell wall / LPS / capsule
PA14_25900	0	-1.783	0.000	putative short-chain alcohol dehydrogenase	Putative enzymes; Protein secretion / Export apparatus; Motility / Attachment
PA14_44340	ccoN*	-2.318	0.000	putative cytochrome oxidase subunit (ccb3-type)	Energy metabolism
PA14_20960	0	-3.343	0.000	putativ isomerase	Putative enzymes
PA14_08720	rplK	-1.539	0.000	50S ribosomal protein L11	Translation, post-translational modification and degradation
PA14_57020	groES	-1.502	0.000	Hsp10 protein	Chaperones / Heat shock proteins
PA14_25660	fabG	-1.625	0.000	3-oxoacyl-[acyl-carrier-protein] reductase	Fatty acid and phospholipid metabolism
PA14_43690	fabB	-1.623	0.000	beta-ketoacyl-ACP synthase I	Fatty acid and phospholipid metabolism
PA14_55960	pctC	-2.173	0.000	chemotactic transducer PctC	Adaptation / Protection; Chemotaxis
PA14_23330	rpsA	-1.470	0.000	30S ribosomal protein S1	Translation, post-translational modification and degradation
PA14_22890	ggsA	-2.532	0.000	glyceroldehyde-3-phosphate dehydrogenase	Energy metabolism; Carbon compound catabolism
PA14_68350	arcC	-2.958	0.000	carbamate kinase	Amino acid biosynthesis and metabolism
PA14_10500	ccoN*	-1.565	0.000	cytochrome c oxidase subunit (ccb3-type)	Energy metabolism
PA14_72690	0	-2.504	0.000	putative glutamine synthetase	Amino acid biosynthesis and metabolism; Putative enzymes; Carbon compound catabolism
PA14_67560	typA	-1.672	0.000	GTP-binding protein TypA/BtpA	Adaptation / Protection
PA14_15070	oprC	-1.961	0.000	outer membrane copper receptor OprC	Transport of small molecules
PA14_44350	ccoQ*	-2.469	0.000	putative cytochrome c oxidase subunit	Energy metabolism
PA14_54170	puaA	-1.838	0.000	proline dehydrogenase PuaA	Amino acid biosynthesis and metabolism
PA14_17060	rpsB	-1.446	0.000	30S ribosomal subunit protein S2	Translation, post-translational modification and degradation
PA14_62970	dnaK	-1.469	0.000	putative heat shock protein	DNA replication, recombination, modification and repair; Adaptation / Protection; Chaperones / Heat shock proteins
PA14_66660	pilM	-1.557	0.000	type 4 fimbrial biogenesis protein PilM	Motility / Attachment
PA14_25030	0	-2.401	0.000	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_54040	0	-1.818	0.000	probable amino acid permease	Membrane proteins; Transport of small molecules
PA14_11270	accA	-1.543	0.000	acetyl-CoA carboxylase, carboxyl transferase, alpha subunit	Fatty acid and phospholipid metabolism
PA14_09460	phzC1	-5.141	0.000	phenazine biosynthesis protein PhzC	Secreted factors (toxins, enzymes, alginate)
PA14_64110	accC	-1.596	0.000	biotin carboxylase	Fatty acid and phospholipid metabolism
PA14_56010	pctB	-1.976	0.000	chemotactic transducer PctB	Adaptation / Protection; Chemotaxis
PA14_08860	rplD	-1.376	0.000	50S ribosomal protein L4	Transcription, RNA processing and degradation; Translation, post-translational modification and degradation
PA14_42980	0	-3.404	0.000	putative ClpA/B-type protease	Chaperones / Heat shock proteins; Putative enzymes; Protein secretion / Export apparatus
PA14_62770	nusA	-1.360	0.000	N utilization substance protein A	Transcription, RNA processing and degradation
PA14_72710	0	-2.382	0.000	putative amino acid transporter	Membrane proteins; Transport of small molecules
PA14_72660	0	-2.314	0.000	putative amidase	Biosynthesis of cofactors, prosthetic groups and carriers
PA14_08960	rplX	-1.305	0.000	50S ribosomal protein L24	Translation, post-translational modification and degradation
PA14_24290	glt	-1.974	0.000	glycine betaine transmethylase	Amino acid biosynthesis and metabolism
PA14_43850	htpG	-1.704	0.000	heat shock protein HtpG	Chaperones / Heat shock proteins
PA14_20940	0	-3.180	0.000	putative acyl carrier protein	Fatty acid and phospholipid metabolism
PA14_20980	0	-2.881	0.000	putative short chain dehydrogenase	Putative enzymes
PA14_00090	glyS	-1.568	0.000	glycyl-tRNA synthetase beta chain	Amino acid biosynthesis and metabolism; Translation, post-translational modification and degradation
PA14_18250	fruI	-2.159	0.000	putative phosphotransferase system, fructose-specific component	Central intermediary metabolism; Transport of small molecules
PA14_66790	hslU	-1.789	0.000	heat shock protein HslU	Chaperones / Heat shock proteins
PA14_73300	atpE	-1.315	0.000	atp synthase C chain	Energy metabolism
PA14_49470	nrdB	-1.486	0.000	ribonucleoside reductase, small chain	Nucleotide biosynthesis and metabolism
PA14_59970	0	-1.723	0.000	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_57010	groEL	-1.224	0.000	GroEL protein	Chaperones / Heat shock proteins
PA14_08780	rpoC	-1.211	0.000	DNA-directed RNA polymerase beta' chain	Transcription, RNA processing and degradation
PA14_16530	lysS	-1.518	0.000	lysyl-tRNA synthetase	Amino acid biosynthesis and metabolism; Translation, post-translational modification and degradation
PA14_08740	rplJ	-1.360	0.001	50S ribosomal protein L10	Translation, post-translational modification and degradation
PA14_15350	0	-1.439	0.001	putative integrase	Related to phage, transposon or plasmid
PA14_51380	pqsE	-1.387	0.001	Quinolone signal response protein	Biosynthesis of cofactors, prosthetic groups and carriers
PA14_73240	atpD	-1.196	0.001	ATP synthase beta chain	Energy metabolism
PA14_64050	0	-1.520	0.001	putative two-component response regulator	Transcriptional regulators; Two-component regulatory systems
PA14_08680	tufB	-1.188	0.001	elongation factor Tu	Translation, post-translational modification and degradation
PA14_62840	glmM	-1.312	0.001	phosphoglucosamine mutase	Cell wall / LPS / capsule
PA14_08830	tufA	-1.185	0.001	elongation factor Tu	Translation, post-translational modification and degradation

PA14_08940	rpsQ	-1.269	0.001	30S ribosomal protein S17	Translation, post-translational modification and degradation
PA14_16180	0	-1.469	0.001	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_42440	popD	-2.856	0.001	translocator outer membrane protein PopD precursor	Protein secretion / Export apparatus
PA14_08850	rlpC	-1.207	0.001	50S ribosomal protein L3	Translation, post-translational modification and degradation
PA14_08820	fusaA1	-1.153	0.001	elongation factor G	Translation, post-translational modification and degradation
PA14_66710	rpmE	-1.322	0.001	50S ribosomal protein L31	Translation, post-translational modification and degradation
PA14_51570	0	-1.694	0.001	hypothetical protein	Hypothetical, unclassified or unknown
PA14_43020	0	-3.962	0.001	conserved hypothetical protein	Protein secretion / Export apparatus
PA14_73280	atpH	-1.267	0.001	ATP synthase delta chain	Energy metabolism
PA14_01490	0	-1.737	0.001	putative hemolysin	Putative enzymes; Adaptation / Protection
PA14_49160	yegE*	-1.985	0.001	conserved hypothetical protein	Membrane proteins
PA14_20920	0	-2.469	0.001	hypothetical protein	Hypothetical, unclassified or unknown
PA14_71650	aspA	-1.208	0.001	aspartate ammonia-lyase	Amino acid biosynthesis and metabolism
PA14_23080	pgj	-2.122	0.002	6-phosphogluconolactonase	Central intermediary metabolism
PA14_09400	phzS	-3.734	0.002	flavin-containing monooxygenase	Putative enzymes
PA14_68200	rmlA	-1.500	0.002	glucose-1-phosphate thymidyltransferase	Cell wall / LPS / capsule
PA14_09440	phzE1	-3.633	0.002	phenazine biosynthesis protein PhzE	Secreted factors (toxins, enzymes, alginate)
PA14_42570	pscN	-2.891	0.002	ATP synthase in type III secretion system	Protein secretion / Export apparatus
PA14_17070	tsf	-1.669	0.002	translation elongation factor Ts	Translation, post-translational modification and degradation
PA14_27210	efp	-1.182	0.002	translation elongation factor P	Translation, post-translational modification and degradation
PA14_07090	metK	-1.453	0.002	methionine adenosyltransferase	Antibiotic resistance and susceptibility; Amino acid biosynthesis and metabolism; Central intermediary metabolism
PA14_58730	piA	-1.070	0.002	type IV pilin structural subunit	Motility / Attachment
PA14_43000	0	-2.348	0.002	conserved hypothetical protein	Protein secretion / Export apparatus
PA14_39890	phzF2	-999.000	0.002	probable phenazine biosynthesis protein	Secreted factors (toxins, enzymes, alginate)
PA14_19110	rhlB	-2.240	0.002	rhamnopyranose transferase chain B	Secreted factors (toxins, enzymes, alginate)
PA14_20900	0	-3.875	0.003	putative MFS transporter	Membrane proteins; Transport of small molecules
PA14_50250	flhS	-1.416	0.003	hypothetical protein	Hypothetical, unclassified or unknown
PA14_43040	0	-2.113	0.003	conserved hypothetical protein	Protein secretion / Export apparatus
PA14_25670	acpP	-1.088	0.003	acyl carrier protein	Fatty acid and phospholipid metabolism
PA14_36330	hcnA	-3.244	0.003	hydrogen cyanide synthase HcnA	Central intermediary metabolism
PA14_09450	phzD1	-999.000	0.003	phenazine biosynthesis protein PhzD	Secreted factors (toxins, enzymes, alginate)
PA14_58320	0	-1.260	0.003	putative two-component sensor	Two-component regulatory systems
PA14_20750	0	-1.145	0.003	putative chemotaxis signal transduction protein	Adaptation / Protection; Chemotaxis
PA14_07520	rpoD	-1.054	0.003	sigma factor RpoD	Transcription, RNA processing and degradation; Transcriptional regulators
PA14_42400	exxB	-3.577	0.003	exoenzyme S synthesis protein B	Translation, post-translational modification and degradation; Protein secretion / Export apparatus
PA14_60130	0	-1.656	0.004	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_08560	tyrZ	-1.195	0.004	tyrosyl-tRNA synthetase 2	Amino acid biosynthesis and metabolism; Translation, post-translational modification and degradation
PA14_09280	pchF	-2.658	0.004	pyochelin synthetase PchF	Secreted factors (toxins, enzymes, alginate); Transport of small molecules
PA14_16820	0	-1.881	0.004	putative efflux transmembrane protein	Antibiotic resistance and susceptibility; Membrane proteins; Transport of small molecules
PA14_07530	dnaC	-1.233	0.004	putative DNA primase	DNA replication, recombination, modification and repair
PA14_39910	phzE2	-4.907	0.004	phenazine biosynthesis protein PhzE	Secreted factors (toxins, enzymes, alginate)
PA14_50240	0	-1.872	0.004	hypothetical protein	Hypothetical, unclassified or unknown
PA14_62490	dksA	-1.080	0.004	suppressor protein DksA	Transcriptional regulators; Adaptation / Protection; DNA replication, recombination, modification and repair
PA14_09130	rlpQ	-1.065	0.004	50S ribosomal protein L17	Translation, post-translational modification and degradation
PA14_08810	rpsG	-1.155	0.004	30S ribosomal protein S7	Translation, post-translational modification and degradation
PA14_09010	rlpR	-1.084	0.004	50S ribosomal protein L18	Translation, post-translational modification and degradation
PA14_40560	0	-3.041	0.004	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_23090	edaA*	-1.751	0.004	2-keto-3-deoxy-6-phosphogluconate aldolase	Central intermediary metabolism; Carbon compound catabolism
PA14_60460	rlpU	-1.083	0.005	ribosomal protein L21	Translation, post-translational modification and degradation
PA14_04710	0	-2.195	0.005	hypothetical protein	Hypothetical, unclassified or unknown
PA14_19100	rhlA	-1.887	0.005	rhamnopyranose transferase chain A	Secreted factors (toxins, enzymes, alginate)
PA14_57580	rpsI	-1.077	0.005	ribosomal protein S9	Translation, post-translational modification and degradation
PA14_58300	0	-1.386	0.005	putative DNA-binding response regulator	Transcriptional regulators; Two-component regulatory systems
PA14_73260	atpA	-1.036	0.005	ATP synthase alpha chain	Energy metabolism
PA14_10530	0	-1.772	0.006	putative transcriptional regulator, GntR family	Transcriptional regulators
PA14_08730	rlpA	-1.644	0.006	50S ribosomal protein L1	Translation, post-translational modification and degradation
PA14_61790	pth	-1.409	0.006	peptidyl-tRNA hydrolase	Translation, post-translational modification and degradation
PA14_62960	dnaJ	-1.129	0.006	chaperone protein DnaJ	DNA replication, recombination, modification and repair; Chaperones / Heat shock proteins; Adaptation / Protection
PA14_05620	sahH	-1.158	0.006	S-adenosyl-L-homocysteine hydrolase	Central intermediary metabolism; Amino acid biosynthesis and metabolism
PA14_16000	rlpS	-1.840	0.006	50S ribosomal protein L19	Translation, post-translational modification and degradation
PA14_68210	rmlC	-1.546	0.006	dTDP-4-dehydroharnose 3,5-epimerase	Cell wall / LPS / capsule
PA14_09000	rlpF	-1.028	0.006	50S ribosomal protein L6	Translation, post-translational modification and degradation
PA14_09530	mexH	-2.614	0.006	RND efflux membrane fusion protein precursor	Transport of small molecules
PA14_24300	0	-2.278	0.007	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_13290	0	-2.159	0.007	putative protease	Translation, post-translational modification and degradation; Putative enzymes
PA14_72650	0	-2.142	0.007	putative transcriptional regulator	Transcriptional regulators
PA14_43050	0	-1.650	0.007	conserved hypothetical protein	Protein secretion / Export apparatus
PA14_05080	metX	-1.768	0.007	homoserine O-acetyltransferase	Amino acid biosynthesis and metabolism
PA14_39945	phzC2	-3.141	0.007	phenazine biosynthesis protein PhzC	Hypothetical, unclassified or unknown
PA14_45940	lasI	-1.049	0.007	autoinducer synthesis protein LasI	Adaptation / Protection
PA14_56060	purU	-1.251	0.008	formyltetrahydrofolate deformylase	Nucleotide biosynthesis and metabolism
PA14_73310	atpB	-1.006	0.008	ATP synthase A chain	Energy metabolism
PA14_42860	0	-1.068	0.008	putative hemerythrin	Transport of small molecules
PA14_00580	0	-3.792	0.008	putative lipoprotein	Fatty acid and phospholipid metabolism
PA14_54150	putP	-1.181	0.008	sodium/proline symporter PutP	Membrane proteins; Transport of small molecules
PA14_08990	rpsH	-1.047	0.008	30S ribosomal protein S8	Translation, post-translational modification and degradation
PA14_60800	0	-1.066	0.008	putative ABC transporter, ATP-binding protein	Transport of small molecules
PA14_50270	flhD	-1.284	0.008	flagellar capping protein FlhD	Cell wall / LPS / capsule; Motility / Attachment
PA14_03370	0	-1.603	0.008	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_61820	yhcF*	-1.326	0.009	putative GTP-binding protein	Translation, post-translational modification and degradation
PA14_17930	glpD	-1.816	0.009	glycerol-3-phosphate dehydrogenase	Central intermediary metabolism; Energy metabolism
PA14_15980	rhlM	-1.024	0.009	16S rRNA processing protein RhlM	Transcription, RNA processing and degradation
PA14_57590	rlpM	-1.015	0.010	ribosomal protein L13	Translation, post-translational modification and degradation
PA14_51240	purC	-1.070	0.010	phosphoribosylaminoimidazole-succinocarboxamide synthase	Nucleotide biosynthesis and metabolism
PA14_17100	frt	-1.624	0.010	ribosome recycling factor	Translation, post-translational modification and degradation
PA14_13750	narK1	-2.428	0.010	putative nitrite extrusion protein	Membrane proteins; Transport of small molecules
PA14_18010	glpK*	-1.599	0.010	putative glycerol kinase	Central intermediary metabolism; Putative enzymes
PA14_66650	pihN	-1.328	0.010	type 4 fimbrial biogenesis protein PIhN	Motility / Attachment
PA14_61250	lysP	-1.610	0.011	APC family lysine-specific permease	Membrane proteins; Transport of small molecules
PA14_13300	0	-2.133	0.011	putative peptidase	Translation, post-translational modification and degradation
PA14_09420	phzF1	-3.466	0.011	probable phenazine biosynthesis protein	Secreted factors (toxins, enzymes, alginate)
PA14_62130	livC	-1.034	0.012	ketol-acid reductoisomerase	Biosynthesis of cofactors, prosthetic groups and carriers; Amino acid biosynthesis and metabolism
PA14_23170	glnS	-1.288	0.012	glucosamine-fructose-6-phosphate aminotransferase	Central intermediary metabolism
PA14_41575	sigX	-5.663	0.013	ECF sigma factor SigX	Transcriptional regulators
PA14_42380	exsD*	-1.915	0.013	conserved hypothetical protein	Hypothetical, unclassified or unknown

PA14_07130	tkfA	-1.060	0.014	transketolase	Carbon compound catabolism; Energy metabolism
PA14_17630	potB	-4.659	0.014	polyamine transport protein PotB	Membrane proteins; Transport of small molecules
PA14_14630	secD	-1.001	0.015	protein-export membrane protein SecD	Membrane proteins; Protein secretion / Export apparatus
PA14_03350	0	-1.315	0.015	Hypothetical protein	Hypothetical, unclassified or unknown
PA14_23560	gltx	-1.078	0.015	glutamyl-IRNA synthetase	Translation, post-translational modification and degradation
PA14_03330	0	-1.835	0.015	hypothetical protein	Hypothetical, unclassified or unknown
PA14_06650	nirM	-2.439	0.015	putative c-type cytochrome	Biosynthesis of cofactors, prosthetic groups and carriers; Energy metabolism
PA14_69630	paIP	-1.477	0.015	type 4 fimbrial biogenesis protein PIP	Motility / Attachment
PA14_36300	0	-1.968	0.016	putative transcriptional regulator, TetR family	Transcriptional regulators
PA14_42430	exsC	-2.013	0.017	Oxenzymase S synthesis protein C precursor	Secreted factors (toxins, enzymes, alginate); Translation, post-translational modification and degradation; Protein secretion / Export apparatus
PA14_51880	oprD	-1.619	0.017	Basic amino acid, basic peptide and imipenem outer membrane porin OprD precursor	Transport of small molecules
PA14_08750	rplL	-1.663	0.017	S05 ribosomal protein L7 / L12	Translation, post-translational modification and degradation
PA14_14650	secF	-1.058	0.019	protein-export membrane protein SecF	Protein secretion / Export apparatus
PA14_60070	0	-1.048	0.019	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_58190	galB	-1.057	0.019	Glu-IRNA(Gln) amidotransferase subunit B	Translation, post-translational modification and degradation
PA14_68170	rmlB	-1.197	0.019	dTDP-D-glucose 4,6-dehydratase	Cell wall / LPS / capsule
PA14_61080	dctP*	-2.080	0.019	putative C4-dicarboxylate-binding protein	Transport of small molecules
PA14_03610	ycal*	-1.745	0.020	putative putative Zn-dependent protease with chaperone function	Chaperones / Heat shock proteins
PA14_15340	guaA	-1.005	0.020	GMP synthase	Amino acid biosynthesis and metabolism; Nucleotide biosynthesis and metabolism
PA14_00060	0	-1.350	0.022	putative acyltransferase	Fatty acid and phospholipid metabolism
PA14_72700	0	-1.660	0.022	putative N-formylglutamate amidohydrolase	Biosynthesis of cofactors, prosthetic groups and carriers
PA14_68330	arcA	-2.408	0.023	arginine deiminase	Amino acid biosynthesis and metabolism
PA14_62760	infB	-1.035	0.024	translation initiation factor IF-2	Translation, post-translational modification and degradation
PA14_60490	0	-1.019	0.025	putative cytochrome c precursor	Energy metabolism
PA14_06740	nirM	-3.037	0.025	cytochrome c-551 precursor	Biosynthesis of cofactors, prosthetic groups and carriers; Energy metabolism
PA14_04110	serA	-1.003	0.025	D-3-phosphoglycerate dehydrogenase	Amino acid biosynthesis and metabolism
PA14_09520	mead	-2.731	0.026	probable RND efflux transporter	Membrane proteins; Transport of small molecules
PA14_08370	vfr	-1.070	0.026	cyclic AMP receptor-like protein	Transcriptional regulators
PA14_05530	mexA	-1.064	0.026	RND multidrug efflux membrane fusion protein MexA precursor	Transport of small molecules; Antibiotic resistance and susceptibility
PA14_16330	0	-1.139	0.026	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_43110	0	-1.167	0.027	putative glutathione S-transferase	Central intermediary metabolism; Putative enzymes
PA14_52040	purM	-1.156	0.027	phosphoribosylaminoimidazole synthetase	Nucleotide biosynthesis and metabolism
PA14_42350	pscC	-2.401	0.027	Type III secretion outer membrane protein PscC precursor	Protein secretion / Export apparatus
PA14_44360	ccpA*	-2.726	0.028	putative cytochrome c oxidase, cbb3-type, subunit III	Energy metabolism
PA14_65660	parE	-1.014	0.030	topoisomerase IV subunit B	DNA replication, recombination, modification and repair
PA14_03320	0	-1.333	0.030	Hypothetical protein	Hypothetical, unclassified or unknown
PA14_06670	nirJ	-2.115	0.030	heme d1 biosynthesis protein NirJ	Biosynthesis of cofactors, prosthetic groups and carriers; Energy metabolism
PA14_16430	wspA	-1.200	0.030	putative methyl-accepting chemotaxis transducer	Chemotaxis; Adaptation / Protection; Motility / Attachment
PA14_39925	phzD2	-4.043	0.033	phenazine biosynthesis protein PhzD	Hypothetical, unclassified or unknown
PA14_72630	yejE*	-1.365	0.033	putative permease of ABC transporter	Membrane proteins; Transport of small molecules
PA14_27000	0	-1.111	0.034	putative methyl-accepting chemotaxis protein	Adaptation / Protection; Chemotaxis
PA14_05550	oprM	-1.091	0.035	major intrinsic multiple antibiotic resistance efflux outer membrane protein OprM precursor	Antibiotic resistance and susceptibility; Membrane proteins; Transport of small molecules
PA14_00480	0	-1.190	0.035	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_64950	pncA	-1.726	0.035	nicotinamidase	Central intermediary metabolism
PA14_69070	yjhH*	-1.148	0.036	putative ATP-binding/permease fusion ABC transporter	Membrane proteins; Transport of small molecules
PA14_09150	0	-1.823	0.036	hypothetical protein	Hypothetical, unclassified or unknown
PA14_17820	potC	-4.108	0.036	polyamine transport protein PotC	Membrane proteins; Transport of small molecules
PA14_16790	0	-1.445	0.036	putative transcriptional regulator, tetR family	Transcriptional regulators
PA14_42470	pcrV	-2.108	0.038	type III secretion protein PcrV	Protein secretion / Export apparatus
PA14_09480	phzA1	-4.238	0.038	probable phenazine biosynthesis protein	Secreted factors (toxins, enzymes, alginate)
PA14_70010	0	-1.116	0.038	putative endoribonuclease L-PSP family protein	Translation, post-translational modification and degradation
PA14_16800	0	-1.553	0.038	putative efflux transmembrane protein	Transport of small molecules
PA14_69630	rmlK	-1.210	0.040	nucleoside diphosphate kinase regulator	Transcriptional regulators
PA14_13740	narX	-1.425	0.041	putative nitrate/nitrite sensor protein, NarX	Energy metabolism; Two-component regulatory systems
PA14_00820	0	-1.192	0.042	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_17220	lpxB	-1.145	0.043	lipid A-disaccharide synthase	Cell wall / LPS / capsule
PA14_09490	phzM	-1.755	0.043	probable phenazine-specific methyltransferase	Putative enzymes
PA14_17980	glpF	-1.326	0.043	glycerol uptake facilitator protein	Transport of small molecules
PA14_11690	ppa	-1.280	0.045	PPase	Energy metabolism; Central intermediary metabolism
PA14_29770	0	-2.408	0.045	putative permease	Membrane proteins; Transport of small molecules
PA14_71890	psecA*	-1.273	0.046	putative coenzyme A transferase	Fatty acid and phospholipid metabolism; Putative enzymes
PA14_43130	0	-1.066	0.047	putative aminotransferase	Transport of small molecules; Putative enzymes
PA14_60350	fkpB*	-1.194	0.047	probable peptidyl-prolyl cis-trans isomerase, FkpB-type	Translation, post-translational modification and degradation; Chaperones / Heat shock proteins
PA14_68940	0	-1.926	0.047	hypothetical protein	Hypothetical, unclassified or unknown
PA14_39690	nrdD*	-2.102	0.048	putative ribonucleotide reductase	Nucleotide biosynthesis and metabolism
PA14_00210	0	-1.034	0.049	putative lysin domain	Putative enzymes
PA14_42310	pscF	-2.407	0.049	type III export protein PscF	Protein secretion / Export apparatus
PA14_36270	0	-1.559	0.049	putative 3-hydroxyisobutyrate dehydrogenase	Fatty acid and phospholipid metabolism; Putative enzymes

* alternative gene name was provided when no gene name was annotated

** p-value calculated equals False-Discovery-Rate (FDR)

*** PseudoCAP annotation was updated as previously described (see Material & Methods)

**** values of 999.000 or -999.000 occur when DESeq returned 'inf' or '-inf' as a fold change due to no reads in one of the two corresponding samples

Table S2: Up-regulated genes comparing PA14:pJN105-RBS-sigX vs. PA14:pJN105

PA14 ID	gene name*	expression	log2FC	p-value**	Product name	PseudoCAP category***
PA14_01250	yehM*	6.33	6.33	0.000	putative sulfate transporter	Membrane proteins; Transport of small molecules
PA14_05460	bioA	5.43	5.43	0.000	adenosylmethionine-8-amino-7-oxononanoate aminotransferase	Biosynthesis of cofactors, prosthetic groups and carriers
PA14_01240	0	5.06	5.06	0.000	probable carbonic anhydrase	Adaptation / Protection; Central intermediary metabolism
PA14_01270	0	8.41	8.41	0.000	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_67630	0	4.55	4.55	0.000	putative small-conductance mechanosensitive channel	Membrane proteins
PA14_21750	0	4.45	4.45	0.000	putative acetyltransferase	Fatty acid and phospholipid metabolism; Membrane proteins
PA14_72810	0	4.74	4.74	0.000	putative acid-CoA thioester hydrolase	Fatty acid and phospholipid metabolism
PA14_25900	0	3.85	3.85	0.000	putative short-chain alcohol dehydrogenase	Putative enzymes; Protein secretion / Export apparatus; Motility / Attachment
PA14_21550	0	4.09	4.09	0.000	putative sigma-70 factor, ECF subfamily	Transcriptional regulators
PA14_21540	fabH-2*	3.85	3.85	0.000	putative 3-oxoacyl-(acyl-carrier-protein) synthase III	Fatty acid and phospholipid metabolism
PA14_72800	rosB*	4.08	4.08	0.000	putative potassium efflux protein	Membrane proteins; Transport of small molecules
PA14_40560	0	4.26	4.26	0.000	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_49160	yegE*	3.68	3.68	0.000	conserved hypothetical protein	Membrane proteins
PA14_72070	0	3.68	3.68	0.000	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_49290	0	4.29	4.29	0.000	conserved hypothetical protein	Membrane proteins
PA14_25660	fabG	3.13	3.13	0.000	3-oxoacyl-(acyl-carrier-protein) reductase	Fatty acid and phospholipid metabolism
PA14_46490	fabF2	4.88	4.88	0.000	3-oxoacyl-acyl carrier protein synthase II	Fatty acid and phospholipid metabolism
PA14_48700	kefB	3.67	3.67	0.000	glutathione-regulated potassium-efflux system protein KefB	Transport of small molecules

PA14_23880	folC	3.27	0.000	folypolyglutamate synthetase	Biosynthesis of cofactors, prosthetic groups and carriers
PA14_05450	0	4.23	0.000	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_28630	0	5.09	0.000	putative hydrolase	Putative enzymes
PA14_51300	perM*	3.24	0.000	conserved hypothetical protein	Membrane proteins
PA14_72790	0	4.08	0.000	putative membrane protein	Membrane proteins
PA14_20070	0	4.57	0.000	putative membrane protein	Membrane proteins
PA14_43690	fabB	3.10	0.000	beta-ketoacyl-ACP synthase I	Fatty acid and phospholipid metabolism
PA14_21560	0	5.72	0.000	hypothetical protein	Hypothetical, unclassified or unknown
PA14_56050	0	3.90	0.000	putative membrane protein	Membrane proteins
PA14_23860	accD	2.90	0.000	acetyl-CoA carboxylase beta subunit	Fatty acid and phospholipid metabolism
PA14_64110	accC	2.88	0.000	biotin carboxylase	Fatty acid and phospholipid metabolism
PA14_31720	0	3.41	0.000	putative lysophospholipase	Fatty acid and phospholipid metabolism
PA14_61600	0	3.70	0.000	putative oxidoreductase	Putative enzymes
PA14_25650	fabD	3.70	0.000	malonyl-CoA:acyl-carrier-protein] transacylase	Fatty acid and phospholipid metabolism
PA14_48710	0	4.31	0.000	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_00060	0	3.14	0.000	putative acyltransferase	Fatty acid and phospholipid metabolism
PA14_23890	0	3.24	0.000	putative DedD protein	Cell division
PA14_50740	0	3.05	0.000	conserved hypothetical protein	Membrane proteins
PA14_43910	0	3.42	0.000	conserved hypothetical protein	Membrane proteins
PA14_05920	0	3.34	0.000	putative membrane protein	Membrane proteins
PA14_31700	pgsA*	3.77	0.000	CDP-alcohol phosphatidyltransferase	Fatty acid and phospholipid metabolism; Putative enzymes
PA14_57690	0	3.09	0.000	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_17270	accA	2.53	0.000	acetyl-CoA carboxylase, carboxyl transferase, alpha subunit	Fatty acid and phospholipid metabolism
PA14_42350	pscC	3.35	0.000	Type III secretion outer membrane protein PscC precursor	Protein secretion / Export apparatus
PA14_42430	exsC	4.79	0.000	exoenzyme S synthesis protein C precursor	Secreted factors (toxins, enzymes, alginate); Translation, post-translational modification and degradation; Protein secretion / Export apparatus
PA14_59340	pilT2	2.01	0.000	type IV B pilus protein	Motility / Attachment
PA14_45020	glgR*	6.32	0.000	putative oxidoreductase	Putative enzymes
PA14_68360	0	2.58	0.000	putative beta-ketoacyl synthase	Fatty acid and phospholipid metabolism
PA14_33600	0	5.19	0.000	putative iron-regulated membrane protein	Membrane proteins
PA14_15460	merA	3.01	0.000	Mercuric reductase MerA	Adaptation / Protection
PA14_61200	0	2.82	0.000	conserved hypothetical protein	Secreted factors (toxins, enzymes, alginate); Cell wall / LPS / capsule
PA14_20080	0	3.48	0.000	putative membrane protein	Antibiotic resistance and susceptibility
PA14_31760	cdsA*	3.53	0.000	putative phosphatidate cytidylyltransferase	Fatty acid and phospholipid metabolism
PA14_06500	bioB	2.48	0.000	biotin synthase	Biosynthesis of cofactors, prosthetic groups and carriers
PA14_51730	tolA	2.49	0.000	TolA protein	Membrane proteins; Transport of small molecules
PA14_12130	lis	2.40	0.000	Lipoate synthase	Biosynthesis of cofactors, prosthetic groups and carriers
PA14_17280	mesJ*	2.90	0.000	putative cell cycle protein	Cell division
PA14_54890	0	2.92	0.000	hypothetical protein	Hypothetical, unclassified or unknown
PA14_04680	0	3.01	0.000	putative phosphate acyltransferase	Fatty acid and phospholipid metabolism
PA14_41590	cmgX*	2.39	0.000	putative cytoplasmic membrane protein	Membrane proteins
PA14_04180	0	4.59	0.000	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_51770	ybgC*	2.55	0.000	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_31750	0	4.02	0.000	putative acyltransferase	Fatty acid and phospholipid metabolism
PA14_33560	0	5.47	0.000	putative adhesion protein	Motility / Attachment
PA14_42380	exsD*	2.51	0.000	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_23500	tyrB	2.28	0.000	putative amino acid aminotransferase	Amino acid biosynthesis and metabolism; Putative enzymes
PA14_43680	fabA	2.86	0.000	beta-hydroxyacyl-ACP dehydrase	Fatty acid and phospholipid metabolism
PA14_06510	bioF	2.69	0.000	8-amino-7-oxononanoate synthase	Biosynthesis of cofactors, prosthetic groups and carriers
PA14_31350	0	3.80	0.000	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_51750	tolQ	2.34	0.000	TolQ protein	Membrane proteins; Transport of small molecules
PA14_03265	0	2.70	0.000	hypothetical protein	Hypothetical, unclassified or unknown
PA14_29740	0	2.93	0.000	putative two-component sensor	Two-component regulatory systems
PA14_43670	0	2.50	0.000	putative sensor/response regulator hybrid	Transcriptional regulators; Two-component regulatory systems; Cell wall / LPS / capsule; Motility / Attachment; Chemotaxis
PA14_06530	bioH*	2.56	0.000	putative biotin biosynthesis protein bioH	Biosynthesis of cofactors, prosthetic groups and carriers
PA14_33590	0	6.37	0.000	conserved hypothetical protein	Membrane proteins
PA14_29720	0	2.84	0.000	putative lipoprotein	Fatty acid and phospholipid metabolism
PA14_56040	0	3.53	0.000	putative deacetylase	Putative enzymes
PA14_31730	0	3.54	0.000	putative dual specificity phosphatase	Putative enzymes; Membrane proteins
PA14_42340	pscD	3.25	0.000	type III export protein PscD	Protein secretion / Export apparatus
PA14_08560	tyrZ	2.17	0.000	tyrosyl-tRNA synthetase 2	Amino acid biosynthesis and metabolism; Translation, post-translational modification and degradation
PA14_64100	accB	2.56	0.000	biotin carboxyl carrier protein	Fatty acid and phospholipid metabolism
PA14_33530	0	4.30	0.000	putative ABC transporter, periplasmic substrate-binding protein	Motility / Attachment
PA14_64590	0	2.90	0.000	putative MFS transporter	Membrane proteins; Transport of small molecules
PA14_43710	0	2.71	0.000	putative methyl-accepting chemotaxis transducer	Adaptation / Protection; Chemotaxis
PA14_06540	bioC*	3.06	0.000	putative biotin synthesis protein BioC	Biosynthesis of cofactors, prosthetic groups and carriers
PA14_57890	0	2.21	0.000	putative toluene tolerance ABC efflux transporter	Membrane proteins; Transport of small molecules
PA14_51310	ykfI*	2.86	0.000	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_12550	0	3.00	0.000	hypothetical protein	Hypothetical, unclassified or unknown
PA14_41610	crfX*	2.15	0.000	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_05530	mexA	2.02	0.000	RND multidrug efflux membrane fusion protein MexA precursor	Transport of small molecules; Antibiotic resistance and susceptibility
PA14_48680	0	4.04	0.000	putative flavoprotein involved in K+ transport	Transport of small molecules
PA14_59710	cupD1	3.25	0.000	putative fibrillar protein precursor	Motility / Attachment
PA14_42270	pscJ	2.60	0.000	pscJ type III export protein	Secreted factors (toxins, enzymes, alginate); Protein secretion / Export apparatus
PA14_62650	0	2.11	0.000	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_29730	0	2.92	0.000	putative two-component response regulator	Transcriptional regulators; Two-component regulatory systems
PA14_42300	pscG	4.07	0.000	type III export protein PscG	Protein secretion / Export apparatus; Chaperones / Heat shock proteins
PA14_18850	0	7.00	0.000	putative lyase	Carbon compound catabolism; Putative enzymes
PA14_48890	0	3.22	0.000	conserved hypothetical protein	Related to phage, transposon or plasmid
PA14_41575	sigK	4.25	0.000	ECF-sigma factor SigX	Transcriptional regulators
PA14_15435	0	3.05	0.000	hypothetical protein	Hypothetical, unclassified or unknown
PA14_36110	0	999.00	0.000	putative hydrolase	Putative enzymes
PA14_45010	hyl*	4.84	0.000	putative hydroxypyruvate isomerase	Central intermediary metabolism
PA14_00480	0	3.91	0.000	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_33650	pvdD	2.20	0.000	pyoverdine synthetase D	Secreted factors (toxins, enzymes, alginate); Adaptation / Protection
PA14_59070	0	2.55	0.000	conserved Hypothetical Protein	Hypothetical, unclassified or unknown
PA14_37660	0	3.00	0.000	conserved hypothetical protein	Transcriptional regulators
PA14_42360	pscB	4.47	0.000	type III export apparatus protein	Protein secretion / Export apparatus
PA14_05550	oprM	1.76	0.000	major intrinsic multiple antibiotic resistance efflux outer membrane protein OprM precursor	Antibiotic resistance and susceptibility; Membrane proteins; Transport of small molecules
PA14_05540	mexB	1.71	0.000	RND multidrug efflux transporter MexB	Transport of small molecules; Membrane proteins; Antibiotic resistance and susceptibility
PA14_11100	cupB5	3.88	0.000	adhesive protein CupB5	Motility / Attachment
PA14_03285	0	2.08	0.000	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_42390	pscH	2.51	0.000	Protein III export protein PscH	Protein secretion / Export apparatus
PA14_66350	0	2.73	0.000	putative acyl-CoA dehydrogenase	Fatty acid and phospholipid metabolism; Putative enzymes
PA14_36520	0	6.11	0.000	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_42280	pscI	2.20	0.000	type III export protein PscI	Protein secretion / Export apparatus

PA14_43660	0	2.59	0.000	putative ABC transporter substrate-binding protein	Transport of small molecules
PA14_45100	muuA*	3.52	0.000	putative mucoidy inhibitor A	Transport of small molecules
PA14_42410	0	2.89	0.000	hypothetical protein	Transcriptional regulators; Protein secretion / Export apparatus
PA14_54880	0	2.63	0.000	putative serine acetyltransferase	Putative enzymes
PA14_33550	0	5.66	0.000	putative ATP-binding component of ABC transporter	Transport of small molecules
PA14_33280	pvtL	3.38	0.000	PvtL	Adaptation / Protection
PA14_04530	0	4.10	0.000	hypothetical protein	Hypothetical, unclassified or unknown
PA14_08570	bioD	2.47	0.000	dethiobiotin synthase	Biosynthesis of cofactors, prosthetic groups and carriers
PA14_42390	exsA	2.90	0.000	transcriptional regulator ExsA	Protein secretion / Export apparatus; Transcriptional regulators
PA14_55000	0	4.23	0.000	possible ABC-type transporter, periplasmic component	Transport of small molecules
PA14_57870	0	1.73	0.000	putative toluene tolerance ABC efflux transporter	Membrane proteins; Transport of small molecules
PA14_42250	pscL	3.18	0.000	type III export protein PscL	Protein secretion / Export apparatus
PA14_51720	toIB	1.61	0.000	ToIB protein	Transport of small molecules
PA14_03270	0	2.15	0.000	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_51930	helX*	2.05	0.000	probable thiorodoxin	Putative enzymes
PA14_51740	toIR	2.36	0.000	ToIR protein	Transport of small molecules
PA14_28520	0	4.51	0.000	hypothetical protein	Hypothetical, unclassified or unknown
PA14_14660	yclJ*	1.80	0.000	putative outer membrane protein	Protein secretion / Export apparatus; Membrane proteins
PA14_02470	pntB	2.71	0.000	pyridine nucleotide transhydrogenase, beta subunit	Transport of small molecules; Energy metabolism
PA14_17220	lpxB	1.62	0.000	lipid A-disaccharide synthase	Cell wall / LPS / capsule
PA14_05810	amaB	3.98	0.000	N-carbamoyl-beta-alanine amidohydrolase	Nucleotide biosynthesis and metabolism
PA14_57850	0	1.77	0.000	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_25100	0	2.64	0.000	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_18380	algA	3.71	0.000	mannose-1-phosphate guanylyltransferase/mannose-6-phosphate isomerase	Cell wall / LPS / capsule; Adaptation / Protection; Secreted factors (toxins, enzymes, alginate)
PA14_59350	pilV2	2.64	0.000	Type IV B pilus protein	Motility / Attachment
PA14_43380	kqbB	6.26	0.000	potassium-transporting ATPase, B chain	Transport of small molecules
PA14_30970	bprR*	2.00	0.000	putative transcriptional regulator	Transcriptional regulators
PA14_42670	0	1.63	0.000	putative membrane protein	Membrane proteins
PA14_33540	0	3.81	0.000	putative permease of ABC transporter	Membrane proteins; Transport of small molecules
PA14_28620	0	999.00	0.000	conserved hypothetical protein	Membrane proteins
PA14_67780	0	4.08	0.000	putative membrane protein	Membrane proteins
PA14_33630	pvdJ	1.83	0.000	PvdJ	Adaptation / Protection
PA14_51780	ruvB	1.53	0.000	Holliday junction DNA helicase RuvB	DNA replication, recombination, modification and repair
PA14_20110	0	2.38	0.000	putative ABC-type multidrug transport system, permease component	Antibiotic resistance and susceptibility; Membrane proteins
PA14_45050	pykF	3.18	0.000	pyruvate kinase I	Energy metabolism; Carbon compound catabolism
PA14_58610	0	2.02	0.000	putative membrane-associated, metal-dependent hydrolase	Putative enzymes
PA14_42260	pscK	2.70	0.000	PscK type III export protein	Secreted factors (toxins, enzymes, alginate); Protein secretion / Export apparatus
PA14_27200	0	2.53	0.000	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_17230	rnhB	1.79	0.000	ribonuclease HII	DNA replication, recombination, modification and repair
PA14_43970	lpxG	1.33	0.000	lipamide dehydrogenase-glc	Amino acid biosynthesis and metabolism; Energy metabolism
PA14_54920	0	2.09	0.000	putative non-ribosomal peptide synthetase	Putative enzymes
PA14_44010	sucA	1.41	0.000	2-oxoglutarate dehydrogenase (E1 subunit)	Amino acid biosynthesis and metabolism; Energy metabolism
PA14_53910	pmtA	2.99	0.000	phospholipid methyltransferase	Fatty acid and phospholipid metabolism
PA14_63230	yedA*	2.08	0.000	putative transmembrane protein	Transport of small molecules; Membrane proteins
PA14_23900	cypA	1.93	0.000	putative colicin V production protein	Membrane proteins; Adaptation / Protection
PA14_36500	0	3.29	0.000	putative cellulase	Carbon compound catabolism
PA14_31740	0	3.99	0.000	hypothetical protein	Membrane proteins
PA14_57830	0	2.81	0.000	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_01200	0	2.58	0.000	Hypothetical protein	Hypothetical, unclassified or unknown
PA14_64120	0	2.04	0.000	conserved hypothetical protein	Membrane proteins
PA14_59940	0	2.08	0.000	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_55400	0	1.85	0.000	hypothetical protein	Hypothetical, unclassified or unknown
PA14_64530	0	4.56	0.000	hypothetical protein	Hypothetical, unclassified or unknown
PA14_58900	0	2.56	0.000	Large exoprotein	Protein secretion / Export apparatus; Membrane proteins; Secreted factors (toxins, enzymes, alginate)
PA14_39780	hvn*	4.26	0.001	putative halovibrin	Transport of small molecules; Putative enzymes
PA14_51960	rhn*	1.70	0.001	probable ribonuclease	Transcription, RNA processing and degradation
PA14_54420	mucA	1.32	0.001	anti-sigma factor MucA	Secreted factors (toxins, enzymes, alginate); Transcriptional regulators; Cell wall / LPS / capsule
PA14_33680	fpvA	2.54	0.001	ferritinoverdine receptor	Transport of small molecules
PA14_29710	0	2.70	0.001	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_33610	0	2.00	0.001	probable non-ribosomal peptide synthetase	Putative enzymes
PA14_30990	0	1.88	0.001	hypothetical	Hypothetical, unclassified or unknown
PA14_57840	ttg2D*	1.75	0.001	putative toluene tolerance protein	Adaptation / Protection
PA14_33570	0	5.88	0.001	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_41560	nasa*	4.58	0.001	assimilatory nitrate reductase	Central intermediary metabolism
PA14_56620	0	2.86	0.001	putative transcriptional regulator	Transcriptional regulators
PA14_25690	fabF1	1.17	0.001	beta-ketoacyl-acyl carrier protein synthase II	Fatty acid and phospholipid metabolism
PA14_51050	pcd*	2.95	0.001	probable aldehyde dehydrogenase	Putative enzymes
PA14_29300	0	2.89	0.001	putative transcriptional regulator	Transcriptional regulators
PA14_31360	0	3.08	0.001	hypothetical protein	Hypothetical, unclassified or unknown
PA14_62660	0	1.56	0.001	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_41300	0	3.25	0.002	hypothetical protein	Hypothetical, unclassified or unknown
PA14_42320	pscE	2.28	0.002	type III export protein PscE	Protein secretion / Export apparatus; Chaperones / Heat shock proteins
PA14_17210	lpxA	1.79	0.002	UDP-N-acetylglucosamine acetyltransferase	Cell wall / LPS / capsule
PA14_19370	asnB*	1.91	0.002	putative asparagine synthetase, glutamine-hydrolyzing	Amino acid biosynthesis and metabolism
PA14_52070	0	1.85	0.002	probable transcriptional regulator	Transcriptional regulators
PA14_25730	0	1.66	0.002	putative aminodeoxychorismate lyase	Putative enzymes
PA14_03170	0	1.90	0.002	conserved hypothetical protein	Related to phage, transposon or plasmid
PA14_30980	0	2.02	0.003	hypothetical	Hypothetical, unclassified or unknown
PA14_00070	0	1.77	0.003	putative histidinol-phosphatase	Transport of small molecules
PA14_37220	0	2.51	0.003	putative LysR-family transcriptional regulator	Transcriptional regulators
PA14_37690	0	2.67	0.003	putative sensory box protein	Two-component regulatory systems; Membrane proteins
PA14_50730	phaA	1.53	0.003	probable NADH dehydrogenase	Membrane proteins; Putative enzymes
PA14_20750	0	1.08	0.003	putative chemotaxis signal transduction protein	Adaptation / Protection; Chemotaxis
PA14_59320	pilS2	2.75	0.003	type IV B pilus protein	Motility / Attachment
PA14_31370	lam*	2.01	0.003	putative trans-acetylase methyltransferase	Putative enzymes
PA14_44520	ygdR*	3.79	0.003	putative drug efflux transporter	Membrane proteins; Transport of small molecules
PA14_61190	0	2.22	0.003	putative hemolysin activation/secretion protein	Protein secretion / Export apparatus; Cell wall / LPS / capsule
PA14_20760	cheR*	1.18	0.003	putative chemotaxis protein methyltransferase	Adaptation / Protection; Chemotaxis
PA14_68840	0	2.78	0.003	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_71260	0	2.86	0.003	putative oxidoreductase, FMN-binding	Energy metabolism; Amino acid biosynthesis and metabolism
PA14_01290	coxB	2.00	0.003	cytochrome c oxidase, subunit II	Energy metabolism
PA14_04270	0	2.53	0.003	putative transcriptional regulator	Transcriptional regulators
PA14_72060	0	1.79	0.003	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_03160	0	1.76	0.003	hypothetical protein	Hypothetical, unclassified or unknown
PA14_42680	0	1.24	0.003	conserved hypothetical protein	Hypothetical, unclassified or unknown

PA14_03310	0	1.71	0.003	hypothetical protein	Hypothetical, unclassified or unknown
PA14_10230	adh	3.19	0.004	2,3-butanediol dehydrogenase	Carbon compound catabolism
PA14_46620	0	1.52	0.004	putative pyridine nucleotide-disulphide oxidoreductase	Putative enzymes
PA14_11110	cupB6	2.62	0.004	fimbrial protein cupB6	Motility / Attachment
PA14_01220	0	1.97	0.004	Hypothetical protein	Hypothetical, unclassified or unknown
PA14_18430	algJ	999.00	0.004	alginate O-acetyltransferase AlgJ	Cell wall / LPS / capsule; Adaptation / Protection; Secreted factors (toxins, enzymes, alginate)
PA14_30860	trbG*	5.02	0.004	TrbG-like protein	Related to phage, transposon or plasmid
PA14_63220	0	2.73	0.004	Hypothetical protein	Hypothetical, unclassified or unknown
PA14_72210	0	1.67	0.004	conserved hypothetical protein	Antibiotic resistance and susceptibility
PA14_52300	0	2.31	0.004	hypothetical protein	Hypothetical, unclassified or unknown; Membrane proteins
PA14_68440	0	2.30	0.004	putative oxidoreductase, molybdopterin-binding	Energy metabolism; Putative enzymes
PA14_32740	optS*	4.36	0.004	probable TonB-dependent receptor	Transport of small molecules
PA14_20000	0	4.35	0.004	putative Fe2+-dicitrate sensor, membrane component	Membrane proteins; Transcriptional regulators
PA14_63330	0	3.41	0.005	putative glycerophosphodiesterase	Fatty acid and phospholipid metabolism
PA14_64090	aroQ1	2.21	0.005	3-dehydroquinate dehydratase	Amino acid biosynthesis and metabolism
PA14_24370	0	2.02	0.005	hypothetical protein	Hypothetical, unclassified or unknown
PA14_12450	0	1.79	0.005	possible acyl-CoA dehydrogenase	Fatty acid and phospholipid metabolism; Putative enzymes
PA14_51690	0	1.16	0.005	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_36100	ptxA	5.20	0.005	putative pyridoxal phosphate biosynthesis protein	Biosynthesis of cofactors, prosthetic groups and carriers
PA14_62330	phuS	2.86	0.006	putative haem degrading factor	Putative enzymes
PA14_59060	0	3.38	0.006	hypothetical protein	Hypothetical, unclassified or unknown
PA14_18410	algF	4.73	0.006	alginate O-acetyltransferase	Cell wall / LPS / capsule; Adaptation / Protection; Secreted factors (toxins, enzymes, alginate)
PA14_19360	0	2.43	0.006	putative acetyltransferase, GNAT family	Putative enzymes
PA14_14100	yhdW*	2.12	0.006	Putative amino-acid ABC transporter binding protei	Transport of small molecules
PA14_20100	0	1.83	0.006	putative ABC-type multidrug transport system, permease component	Antibiotic resistance and susceptibility; Membrane proteins
PA14_49130	dcaA	3.25	0.006	O4-dicarbonylate transport protein	Transport of small molecules
PA14_44000	suaB	1.52	0.007	dihydroisamide succinyltransferase (E2 subunit)	Energy metabolism
PA14_50700	phaE	1.95	0.007	conserved hypothetical protein	Membrane proteins
PA14_55920	0	2.21	0.007	putative type II secretion system protein	Protein secretion / Export apparatus; Motility / Attachment
PA14_25710	pabC	1.17	0.008	4-amino-4-deoxychorismate lyase	Biosynthesis of cofactors, prosthetic groups and carriers
PA14_42200	0	2.07	0.008	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_26090	cif	2.43	0.008	putative hydrolase	Putative enzymes
PA14_54910	0	2.88	0.008	putative thioesterase	Putative enzymes
PA14_32390	mexF	1.85	0.009	RND multidrug efflux transporter MexF	Transport of small molecules; Membrane proteins; Antibiotic resistance and susceptibility
PA14_18830	0	3.21	0.009	putative lyase	Carbon compound catabolism
PA14_67450	bic	1.41	0.009	outer membrane lipoprotein Bic	Cell wall / LPS / capsule; Membrane proteins
PA14_13850	moaA	5.43	0.009	molybdenum cofactor biosynthesis protein A	Biosynthesis of cofactors, prosthetic groups and carriers
PA14_15430	tnpR*	2.19	0.009	putative resolvase, essential for transposition	Related to phage, transposon or plasmid; DNA replication, recombination, modification and repair
PA14_42400	oxeB	3.34	0.009	exoenzyme S synthesis protein B	Translation, post-translational modification and degradation; Protein secretion / Export apparatus
PA14_54860	0	3.41	0.009	hypothetical protein	Hypothetical, unclassified or unknown
PA14_36480	0	3.58	0.009	hypothetical protein	Hypothetical, unclassified or unknown
PA14_15445	merE	3.22	0.009	Hypothetical mercuric resistance protein merE	Hypothetical, unclassified or unknown
PA14_72870	0	1.70	0.009	putative glutamate-1-semialdehyde aminotransferase	Biosynthesis of cofactors, prosthetic groups and carriers; Putative enzymes
PA14_03070	potR*	1.84	0.009	putative transcriptional regulator	Transcriptional regulators
PA14_28170	yfjC*	3.39	0.009	putative transporter, formate/nitrite transporter family	Transport of small molecules; Membrane proteins
PA14_26760	0	1.59	0.009	putative transcriptional regulator	Transcriptional regulators
PA14_59090	0	1.66	0.010	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_15450	merD	3.53	0.010	Mercuric resistance transcriptional repressor protein MerD	Transcriptional regulators
PA14_05440	0	1.57	0.011	hypothetical protein	Hypothetical, unclassified or unknown
PA14_45030	ttuD*	3.38	0.011	putative hydroxypyruvate reductase	Carbon compound catabolism; Putative enzymes
PA14_58990	0	2.16	0.011	Putative DNA helicase	Putative enzymes
PA14_04690	0	1.06	0.011	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_15770	0	1.50	0.011	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_42310	pscF	2.74	0.011	type III export protein PscF	Protein secretion / Export apparatus
PA14_56030	0	2.96	0.011	putative glycosyl transferase	Transport of small molecules
PA14_51040	0	2.70	0.012	probable oxidoreductase	Putative enzymes
PA14_55390	0	999.00	0.012	hypothetical protein	Hypothetical, unclassified or unknown
PA14_54970	0	2.66	0.012	possible ABC transporter protein	Transport of small molecules
PA14_21570	0	2.94	0.013	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_24860	snr1	2.72	0.013	cytochrome c Snr1	Energy metabolism
PA14_62350	phuR	3.32	0.013	putative haem/haemoglobin uptake outer membrane receptor PhuR precursor	Transport of small molecules
PA14_72110	0	1.48	0.013	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_59000	0	3.64	0.014	Conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_33830	0	4.53	0.014	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_25670	acpP	2.27	0.014	acyl carrier protein	Fatty acid and phospholipid metabolism
PA14_47130	0	2.53	0.015	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_24020	xspT	1.34	0.015	general secretion pathway protein G	Protein secretion / Export apparatus
PA14_62420	0	1.32	0.015	putative zinc metallopeptidase	Putative enzymes
PA14_42480	pcrG	2.35	0.015	regulator in type III secretion	Protein secretion / Export apparatus
PA14_50710	phaD	1.37	0.015	probable NADH dehydrogenase	Membrane proteins; Putative enzymes
PA14_54410	mucB	1.06	0.015	negative regulator for alginate biosynthesis MucB	Secreted factors (toxins, enzymes, alginate); Transcriptional regulators; Cell wall / LPS / capsule
PA14_43350	kdpD	1.83	0.016	two-component sensor KdpD	Two-component regulatory systems
PA14_54900	spa2*	1.67	0.016	hypothetical protein	Hypothetical, unclassified or unknown
PA14_36120	0	4.48	0.017	putative MFS transporter	Membrane proteins; Transport of small molecules
PA14_55820	0	2.34	0.017	putative membrane protein	Membrane proteins; Motility / Attachment
PA14_34680	0	2.28	0.017	putative amino acid oxidase	Amino acid biosynthesis and metabolism; Putative enzymes
PA14_31420	0	1.82	0.017	hypothetical protein	Hypothetical, unclassified or unknown
PA14_25760	hoB	1.05	0.017	DNA polymerase III, delta prime subunit	DNA replication, recombination, modification and repair
PA14_41070	0	1.72	0.018	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_47640	0	1.92	0.018	putative major facilitator superfamily (MFS) transporter	Membrane proteins; Transport of small molecules
PA14_61040	katB	1.52	0.018	catalase	Adaptation / Protection
PA4704.1	prfF1	2.76	0.019		0 Non-coding RNA gene (sRNA)
PA14_32130	benD	3.36	0.019	cis-1,2-dihydroxycyclohexa-3,4-diene carboxylate dehydrogenase	Carbon compound catabolism
PA14_48950	0	2.26	0.019	hypothetical protein of bacteriophage PF1	Related to phage, transposon or plasmid
PA14_11070	cupB2	2.63	0.020	chaperone CupB2	Motility / Attachment; Chaperones / Heat shock proteins
PA14_22530	spa2*	1.54	0.021	putative glutathione S-transferase	Translation, post-translational modification and degradation
PA14_45960	lasR	1.14	0.021	transcriptional regulator LasR	Adaptation / Protection; Transcriptional regulators
PA14_24390	0	1.53	0.021	putative TPR domain protein	Putative enzymes
PA14_67460	0	1.46	0.021	putative lipoprotein	Fatty acid and phospholipid metabolism
PA14_26810	0	999.00	0.022	putative two-component sensor histidine kinase	Two-component regulatory systems
PA14_33580	0	3.53	0.023	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_10240	acoC*	3.99	0.023	putative hydrolase	Carbon compound catabolism
PA14_10200	0	3.99	0.023	putative TonB-dependent receptor protein	Membrane proteins; Transport of small molecules
PA14_13030	cioA	1.61	0.023	CioA, cyanide insensitive terminal oxidase	Energy metabolism
PA14_16660	cadA*	1.31	0.023	putative metal-transporting P-type ATPase	Membrane proteins; Transport of small molecules

PA14_30850	trbl*	5.16	0.023	Trbl-like protein	Related to phage, transposon or plasmid
PA14_10120	0	2.15	0.024	possible LysR family transcription regulator	Transcriptional regulators
PA14_61610	0	1.73	0.026	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_73140	0	1.63	0.026	putative cyclopropan-fatty-acyl-phospholipid synthase	Fatty acid and phospholipid metabolism; Putative enzymes
PA14_56480	0	2.60	0.026	Metal-dependent amidase/aminoacylase/carboxypeptid	Translation, post-translational modification and degradation; Putative enzymes
PA14_51080	0	999.00	0.027	Putative dioxygenase	Putative enzymes
PA14_18960	0	2.35	0.027	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_48990	0	999.00	0.027	hypothetical protein of bacteriophage P11	Related to phage, transposon or plasmid
PA14_70950	betB	1.38	0.027	betaine aldehyde dehydrogenase	Amino acid biosynthesis and metabolism; Adaptation / Protection
PA14_22080	0	1.11	0.027	possible resolvase	Hypothetical, unclassified or unknown
PA14_69470	algR	1.06	0.028	alginate biosynthesis regulatory protein AlgR	Secreted factors (toxins, enzymes, alginate); Transcriptional regulators; Two-component regulatory systems
PA14_46510	0	1.39	0.028	hypothetical protein	Hypothetical, unclassified or unknown
PA14_24010	xcpS	1.53	0.029	general secretion pathway protein F	Protein secretion / Export apparatus
PA14_33500	pvhH	5.11	0.029	L-2,4-diaminobutyrate:2-ketoglutarate 4-aminotransferase, PvhH	Adaptation / Protection
PA14_42460	pchH	1.54	0.029	regulatory protein PchH	Secreted factors (toxins, enzymes, alginate); Protein secretion / Export apparatus
PA14_43400	kdpA	2.59	0.029	potassium-transporting ATPase, A chain	Transport of small molecules
PA14_02460	pntAB*	3.07	0.029	putative NAD(P) transhydrogenase, subunit alpha part 2	Energy metabolism
PA14_22520	0	3.17	0.029	hypothetical protein	Hypothetical, unclassified or unknown
PA14_68900	fbpA*	2.01	0.031	putative iron ABC transporter, periplasmic iron-binding protein	Transport of small molecules
PA14_04560	0	2.42	0.031	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_69170	0	1.55	0.031	putative acyltransferase	Putative enzymes; Membrane proteins; Cell wall / LPS / capsule
PA14_72370	0	2.63	0.031	conserved hypothetical protein	Membrane proteins
PA14_29570	0	2.48	0.032	hypothetical protein	Hypothetical, unclassified or unknown
PA14_42440	popD	1.15	0.032	translocator outer membrane protein PopD precursor	Protein secretion / Export apparatus
PA14_32490	0	2.34	0.033	hypothetical protein	Hypothetical, unclassified or unknown
PA14_09270	pchE	3.89	0.033	pyochelin synthetase	Secreted factors (toxins, enzymes, alginate); Transport of small molecules
PA14_40620	0	3.74	0.033	putative MFS transporter	Membrane proteins; Transport of small molecules
PA14_39020	0	999.00	0.033	putative membrane protein	Membrane proteins
PA14_45910	0	5.05	0.035	putative RND efflux membrane fusion protein precursor	Protein secretion / Export apparatus; Transport of small molecules
PA14_09400	phzS	1.58	0.035	flavin-containing monooxygenase	Putative enzymes
PA14_58950	0	4.28	0.035	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_13840	0	4.26	0.036	putative peptidyl-prolyl cis-trans isomerase	Translation, post-translational modification and degradation; Chaperones / Heat shock proteins
PA14_17780	0	3.07	0.036	putative major facilitator family transporter	Membrane proteins; Transport of small molecules
PA14_60020	0	1.64	0.036	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_63210	0	1.92	0.037	putative two-component response regulator	Two-component regulatory systems; Transcriptional regulators; Motility / Attachment; Cell wall / LPS / capsule
PA14_34320	0	3.16	0.039	putative monooxygenase, DszC family	Putative enzymes
PA14_08150	gpD*	1.34	0.040	putative phage late control gene D protein	Related to phage, transposon or plasmid
PA14_71310	etfB-1*	999.00	0.040	putative electron transfer flavoprotein, beta subunit	Energy metabolism
PA14_64080	digZ	1.09	0.040	thiol:disulfide interchange protein	Translation, post-translational modification and degradation; Chaperones / Heat shock proteins
PA14_67300	proX*	2.13	0.040	putative binding protein component of ABC transporter	Transport of small molecules
PA14_11190	styD*	2.35	0.040	putative aldehyde dehydrogenase	Putative enzymes
PA14_36070	0	4.25	0.041	putative enzyme	Putative enzymes
PA14_08300	JF1*	1.18	0.041	putative phage-related protein, tail component	Related to phage, transposon or plasmid
PA14_21600	0	2.90	0.041	putative membrane protein	Membrane proteins
PA14_40260	0	1.53	0.041	conserved hypothetical protein	Antibiotic resistance and susceptibility
PA14_59470	0	1.75	0.041	hypothetical protein	Hypothetical, unclassified or unknown
PA14_49000	0	4.24	0.041	hypothetical protein of bacteriophage P11	Related to phage, transposon or plasmid
PA14_48930	0	4.38	0.041	conserved hypothetical protein	Related to phage, transposon or plasmid
PA14_39420	0	4.99	0.042	hypothetical protein	Hypothetical, unclassified or unknown
PA14_38860	exaA	999.00	0.042	PQQ-linked alcohol dehydrogenase	Carbon compound catabolism
PA14_64740	pchA*	2.52	0.042	putative aldehyde dehydrogenase	Putative enzymes
PA14_31000	0	1.42	0.043	hypothetical	Related to phage, transposon or plasmid
PA14_48880	intT*	1.31	0.043	putative bacteriophage integrase	Putative enzymes; Related to phage, transposon or plasmid
PA14_47040	yegH*	1.40	0.043	putative membrane protein, TarC family	Membrane proteins
PA14_60100	did	1.10	0.043	deoxycytidine triphosphate deaminase	Translation, post-translational modification and degradation
PA14_58330	0	1.39	0.044	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_59735	cupD3	1.99	0.044	putative fimbrial biogenesis usher protein	Motility / Attachment
PA14_58970	0	2.34	0.047	putative phage protein	Related to phage, transposon or plasmid
PA14_55540	0	2.46	0.047	probable transmembrane sensor	Membrane proteins; Transcriptional regulators
PA14_26700	0	2.27	0.047	putative acyl-CoA dehydrogenase	Fatty acid and phospholipid metabolism; Putative enzymes
PA14_51550	0	1.37	0.048	putative transposase	Related to phage, transposon or plasmid
PA14_31440	0	1.11	0.048	hypothetical protein	Hypothetical, unclassified or unknown
PA14_72980	0	1.38	0.048	Putative GTPases (G3E family)	Putative enzymes
PA14_16370	0	2.68	0.048	putative membrane protein	Membrane proteins
PA14_33450	treA	4.20	0.048	periplasmic trehalase precursor	Carbon compound catabolism
PA14_55300	0	2.99	0.048	hypothetical protein	Hypothetical, unclassified or unknown
PA14_25740	tmk	1.64	0.048	thymidylate kinase	Nucleotide biosynthesis and metabolism
PA14_46820	0	2.72	0.049	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_63250	yfcY*	2.25	0.049	putative acyl-CoA thiolase	Fatty acid and phospholipid metabolism; Putative enzymes
PA14_10560	0	1.15	0.049	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_46520	0	1.28	0.049	hypothetical protein	Hypothetical, unclassified or unknown

* alternative gene name was provided when no gene name was annotated

** p-value calculated equals False-Discovery-Rate (FDR)

*** PseudoCAP annotation was updated as previously described (see Material & Methods)

**** values of 999.000 or -999.000 occur when DESeq returned 'inf' or '-inf' as a fold change due to no reads in one of the two corresponding samples

Table S3: The primary SigX regulon. Genes which were fulfilling at least two of the following criteria are considered to be members of the primary SigX regulon:
i) down-regulated in the $\Delta sigX$ mutant compared to the wild-type and/or up-regulated in the *sigX* overexpressing strain compared to the empty vector wild-type control,
ii) enriched promoter in both ChIP-seq experiments and iii) promoter harbors SigX binding motif.

PA14 ID	gene name*	Intersection	Product name	PseudoCAP category**
PA14_00060	-	ChIP, expression and motif	putative acyltransferase	Fatty acid and phospholipid metabolism
PA14_02470	pntB	ChIP, expression and motif	pyridine nucleotide transhydrogenase, beta subunit	Transport of small molecules; Energy metabolism
PA14_04690	-	ChIP, expression and motif	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_09470	phzB1	ChIP, expression and motif	probable phenazine biosynthesis protein	Secreted factors (toxins, enzymes, alginate)
PA14_12130	lis	ChIP, expression and motif	Lipoate synthase	Biosynthesis of cofactors, prosthetic groups and carriers
PA14_17210	lpxA	ChIP, expression and motif	UDP-N-acetylglucosamine acetyltransferase	Cell wall / LPS / capsule
PA14_17270	accA	ChIP, expression and motif	acetyl-CoA carboxylase, carboxyl transferase, alpha subunit	Fatty acid and phospholipid metabolism
PA14_25650	fabD	ChIP, expression and motif	malonyl-CoA-[acyl-carrier-protein] transacylase	Fatty acid and phospholipid metabolism
PA14_25900	-	ChIP, expression and motif	putative short-chain alcohol dehydrogenase	Putative enzymes; Protein secretion / Export apparatus; Motility / Attachment
PA14_30990	-	ChIP, expression and motif	hypothetical	Hypothetical, unclassified or unknown
PA14_31360	-	ChIP, expression and motif	hypothetical protein	Hypothetical, unclassified or unknown
PA14_33680	fpvA	ChIP, expression and motif	ferripyoverdine receptor	Transport of small molecules
PA14_39960	phzB2	ChIP, expression and motif	probable phenazine biosynthesis protein	Secreted factors (toxins, enzymes, alginate)
PA14_40560	-	ChIP, expression and motif	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_41575	sigX	ChIP, expression and motif	ECF sigma factor SigX	Transcriptional regulators
PA14_41590	cmpX*	ChIP, expression and motif	putative cytoplasmic membrane protein	Membrane proteins
PA14_41610	crfX*	ChIP, expression and motif	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_42380	exsD*	ChIP, expression and motif	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_43690	fabB	ChIP, expression and motif	beta-ketoacyl-ACP synthase I	Fatty acid and phospholipid metabolism
PA14_46520	-	ChIP, expression and motif	hypothetical protein	Hypothetical, unclassified or unknown
PA14_58990	-	ChIP, expression and motif	Putative DNA helicase	Putative enzymes
PA14_59320	pilS2	ChIP, expression and motif	type IV B pilus protein	Motility / Attachment
PA14_59340	pilT2	ChIP, expression and motif	type IV B pilus protein	Motility / Attachment
PA14_62130	ilvC	ChIP, expression and motif	ketol-acid reductoisomerase	Biosynthesis of cofactors, prosthetic groups and carriers; Amino acid biosynthesis and metabolism
PA14_64090	aroQ1	ChIP, expression and motif	3-dehydroquinate dehydratase	Amino acid biosynthesis and metabolism
PA14_64110	accC	ChIP, expression and motif	biotin carboxylase	Fatty acid and phospholipid metabolism
PA14_64530	-	ChIP, expression and motif	hypothetical protein	Hypothetical, unclassified or unknown
PA14_68360	-	ChIP, expression and motif	putative beta-ketoacyl synthase	Fatty acid and phospholipid metabolism
PA14_72110	-	ChIP, expression and motif	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_00070	-	ChIP, expression	putative histidinol-phosphatase	Transport of small molecules
PA14_01240	-	ChIP, expression	probable carbonic anhydrase	Adaptation / Protection; Central intermediary metabolism
PA14_01290	coxB	ChIP, expression	cytochrome c oxidase, subunit II	Energy metabolism
PA14_02020	-	ChIP, expression	putative outer membrane porin	Membrane proteins; Transport of small molecules
PA14_02460	pntAB*	ChIP, expression	putative NAD(P) transhydrogenase, subunit alpha part 2	Energy metabolism
PA14_03070	pobR*	ChIP, expression	putative transcriptional regulator	Transcriptional regulators
PA14_03160	-	ChIP, expression	hypothetical protein	Hypothetical, unclassified or unknown
PA14_03170	-	ChIP, expression	conserved hypothetical protein	Related to phage, transposon or plasmid
PA14_03265	-	ChIP, expression	hypothetical protein	Hypothetical, unclassified or unknown
PA14_03270	-	ChIP, expression	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_04680	-	ChIP, expression	putative phosphate acyltransferase	Fatty acid and phospholipid metabolism
PA14_05460	bioA	ChIP, expression	adenosylmethionine-8-amino-7-oxononanoate aminotransferase	Biosynthesis of cofactors, prosthetic groups and carriers
PA14_05530	mexA	ChIP, expression	RND multidrug efflux membrane fusion protein MexA precursor	Transport of small molecules; Antibiotic resistance and susceptibility
PA14_06500	bioB	ChIP, expression	biotin synthase	Biosynthesis of cofactors, prosthetic groups and carriers
PA14_08560	tyrZ	ChIP, expression	tyrosyl-tRNA synthetase 2	Amino acid biosynthesis and metabolism; Translation, post-translational modification and degradation
PA14_09460	phzC1	ChIP, expression	phenazine biosynthesis protein PhzC	Secreted factors (toxins, enzymes, alginate)
PA14_14630	secD	ChIP, expression	protein-export membrane protein SecD	Membrane proteins; Protein secretion / Export apparatus
PA14_15350	-	ChIP, expression	putative integrase	Related to phage, transposon or plasmid
PA14_15430	tnpR*	ChIP, expression	putative resolvase, essential for transposition	Related to phage, transposon or plasmid; DNA replication, recombination, modification and repair
PA14_15770	-	ChIP, expression	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_19370	asnB*	ChIP, expression	putative asparagine synthetase, glutamine-hydrolyzing	Amino acid biosynthesis and metabolism
PA14_20750	-	ChIP, expression	putative chemotaxis signal transduction protein	Adaptation / Protection; Chemotaxis
PA14_21020	-	ChIP, expression	putative non-ribosomal peptide synthetase	Biosynthesis of cofactors, prosthetic groups and carriers; Adaptation / Protection
PA14_21030	-	ChIP, expression	putative ATP-dependent Clp protease proteolytic subunit	Translation, post-translational modification and degradation; Cell wall / LPS / capsule
PA14_21540	fabH-2*	ChIP, expression	putative 3-oxoacyl-(acyl-carrier-protein) synthase III	Fatty acid and phospholipid metabolism
PA14_21750	-	ChIP, expression	putative acetyltransferase	Fatty acid and phospholipid metabolism; Membrane proteins
PA14_23330	rpsA	ChIP, expression	30S ribosomal protein S1	Translation, post-translational modification and degradation
PA14_23500	tyrB	ChIP, expression	putative amino acid aminotransferase	Amino acid biosynthesis and metabolism; Putative enzymes
PA14_29300	-	ChIP, expression	putative transcriptional regulator	Transcriptional regulators
PA14_30970	bphR*	ChIP, expression	putative transcriptional regulator	Transcriptional regulators
PA14_30980	-	ChIP, expression	hypothetical	Hypothetical, unclassified or unknown
PA14_31000	-	ChIP, expression	hypothetical	Related to phage, transposon or plasmid
PA14_31350	-	ChIP, expression	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_31420	-	ChIP, expression	hypothetical protein	Hypothetical, unclassified or unknown
PA14_31700	pgsA*	ChIP, expression	CDP-alcohol phosphatidyltransferase	Fatty acid and phospholipid metabolism; Putative enzymes
PA14_33600	-	ChIP, expression	putative iron-regulated membrane protein	Membrane proteins

PA14_33610	-	ChIP, expression	probable non-ribosomal peptide synthetase	Putative enzymes
PA14_37690	-	ChIP, expression	putative sensory box protein	Two-component regulatory systems; Membrane proteins
PA14_39945	phzC2	ChIP, expression	phenazine biosynthesis protein PhzC	Hypothetical, unclassified or unknown
PA14_41300	-	ChIP, expression	hypothetical protein	Hypothetical, unclassified or unknown
PA14_42390	exsA	ChIP, expression	transcriptional regulator ExsA	Protein secretion / Export apparatus; Transcriptional regulators
PA14_42860	-	ChIP, expression	putative hemerythrin	Transport of small molecules
PA14_43680	fabA	ChIP, expression	beta-hydroxydecanoyl-ACP dehydrase	Fatty acid and phospholipid metabolism
PA14_44300	aer	ChIP, expression	aerotaxis receptor Aer	Adaptation / Protection; Chemotaxis
PA14_45940	lasI	ChIP, expression	autoinducer synthesis protein LasI	Adaptation / Protection
PA14_45960	lasR	ChIP, expression	transcriptional regulator LasR	Adaptation / Protection; Transcriptional regulators
PA14_46510	-	ChIP, expression	hypothetical protein	Hypothetical, unclassified or unknown
PA14_48880	intT*	ChIP, expression	putative bacteriophage integrase	Putative enzymes; Related to phage, transposon or plasmid
PA14_50290	fliC	ChIP, expression	flagellin type B	Motility / Attachment
PA14_50740	-	ChIP, expression	conserved hypothetical protein	Membrane proteins
PA14_51300	perM*	ChIP, expression	conserved hypothetical protein	Membrane proteins
PA14_51310	yrkI*	ChIP, expression	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_51430	pqsA	ChIP, expression	probable coenzyme A ligase	Biosynthesis of cofactors, prosthetic groups and carriers
PA14_51750	tolQ	ChIP, expression	TolQ protein	Membrane proteins; Transport of small molecules
PA14_51770	ybgC*	ChIP, expression	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_51880	oprD	ChIP, expression	Basic amino acid, basic peptide and imipenem outer membrane porin OprD precursor	Transport of small molecules
PA14_51930	helX*	ChIP, expression	probable thioredoxin	Putative enzymes
PA14_51960	rbn*	ChIP, expression	probable ribonuclease	Transcription, RNA processing and degradation
PA14_52070	-	ChIP, expression	probable transcriptional regulator	Transcriptional regulators
PA14_53910	pmtA	ChIP, expression	phospholipid methyltransferase	Fatty acid and phospholipid metabolism
PA14_54860	-	ChIP, expression	hypothetical protein	Hypothetical, unclassified or unknown
PA14_54880	-	ChIP, expression	putative serine acetyltransferase	Putative enzymes
PA14_54910	-	ChIP, expression	putative thioesterase	Putative enzymes
PA14_54920	-	ChIP, expression	putative non-ribosomal peptide synthetase	Putative enzymes
PA14_54970	-	ChIP, expression	possible ABC transporter protein	Transport of small molecules
PA14_55000	-	ChIP, expression	possible ABC-type transporter, periplasmic component	Transport of small molecules
PA14_55390	-	ChIP, expression	hypothetical protein	Hypothetical, unclassified or unknown
PA14_55400	-	ChIP, expression	hypothetical protein	Hypothetical, unclassified or unknown
PA14_55960	pctC	ChIP, expression	chemotactic transducer PctC	Adaptation / Protection; Chemotaxis
PA14_56060	purU	ChIP, expression	formyltetrahydrofolate deformylase	Nucleotide biosynthesis and metabolism
PA14_57690	-	ChIP, expression	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_57880	-	ChIP, expression	putative toluene tolerance ABC efflux transporter	Membrane proteins; Transport of small molecules
PA14_58730	pilA	ChIP, expression	type IV pilin structural subunit	Motility / Attachment
PA14_58950	-	ChIP, expression	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_59090	-	ChIP, expression	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_59710	cupD1	ChIP, expression	putative fimbrial protein precursor	Motility / Attachment
PA14_59970	-	ChIP, expression	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_61040	katB	ChIP, expression	catalase	Adaptation / Protection
PA14_61200	-	ChIP, expression	conserved hypothetical protein	Secreted factors (toxins, enzymes, alginate); Cell wall / LPS / capsule
PA14_61600	-	ChIP, expression	putative oxidoreductase	Putative enzymes
PA14_64100	accB	ChIP, expression	biotin carboxyl carrier protein	Fatty acid and phospholipid metabolism
PA14_66660	pilM	ChIP, expression	type 4 fimbrial biogenesis protein PilM	Motility / Attachment
PA14_69170	-	ChIP, expression	putative acyltransferase	Putative enzymes; Membrane proteins; Cell wall / LPS / capsule
PA14_71650	aspA	ChIP, expression	aspartate ammonia-lyase	Amino acid biosynthesis and metabolism
PA14_72070	-	ChIP, expression	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_72080	-	ChIP, expression	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_72800	rosB*	ChIP, expression	putative potassium efflux protein	Membrane proteins; Transport of small molecules
PA14_72810	-	ChIP, expression	putative acyl-CoA thioester hydrolase	Fatty acid and phospholipid metabolism
PA14_73140	-	ChIP, expression	putative cyclopropan-fatty-acyl-phospholipid synthase	Fatty acid and phospholipid metabolism; Putative enzymes
PA14_00480	-	expression, motif	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_01200	-	expression, motif	Hypothetical protein	Hypothetical, unclassified or unknown
PA14_01250	ychM*	expression, motif	putative sulfate transporter	Membrane proteins; Transport of small molecules
PA14_04710	-	expression, motif	hypothetical protein	Hypothetical, unclassified or unknown
PA14_05450	-	expression, motif	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_05540	mexB	expression, motif	RND multidrug efflux transporter MexB	Transport of small molecules; Membrane proteins; Antibiotic resistance and susceptibility
PA14_05550	oprM	expression, motif	major intrinsic multiple antibiotic resistance efflux outer membrane protein OprM precursor	Antibiotic resistance and susceptibility; Membrane proteins; Transport of small molecules
PA14_05810	amaB	expression, motif	N-carbamoyl-beta-alanine amidohydrolase	Nucleotide biosynthesis and metabolism
PA14_05920	-	expression, motif	putative membrane protein	Membrane proteins
PA14_06510	bioF	expression, motif	8-amino-7-oxononanoate synthase	Biosynthesis of cofactors, prosthetic groups and carriers
PA14_06570	bioD	expression, motif	dethiobiotin synthase	Biosynthesis of cofactors, prosthetic groups and carriers
PA14_06670	nirJ	expression, motif	heme d1 biosynthesis protein NirJ	Biosynthesis of cofactors, prosthetic groups and carriers; Energy metabolism
PA14_06740	nirM	expression, motif	cytochrome c-551 precursor	Biosynthesis of cofactors, prosthetic groups and carriers; Energy metabolism
PA14_07530	dnaG	expression, motif	putative DNA primase	DNA replication, recombination, modification and repair
PA14_08150	gpD*	expression, motif	putative phage late control gene D protein	Related to phage, transposon or plasmid
PA14_08300	JF1*	expression, motif	putative phage-related protein, tail component	Related to phage, transposon or plasmid
PA14_08750	rpL	expression, motif	50S ribosomal protein L7 / L12	Translation, post-translational modification and degradation

PA14_08820	fusA1	expression, motif	elongation factor G	Translation, post-translational modification and degradation
PA14_08990	rpsH	expression, motif	30S ribosomal protein S8	Translation, post-translational modification and degradation
PA14_09130	rplQ	expression, motif	50S ribosomal protein L17	Translation, post-translational modification and degradation
PA14_09400	phzS	expression, motif	flavin-containing monooxygenase	Putative enzymes
PA14_09440	phzE1	expression, motif	phenazine biosynthesis protein PhzE	Secreted factors (toxins, enzymes, alginate)
PA14_09450	phzD1	expression, motif	phenazine biosynthesis protein PhzD	Secreted factors (toxins, enzymes, alginate)
PA14_09520	mexI	expression, motif	probable RND efflux transporter	Membrane proteins; Transport of small molecules
PA14_09530	mexH	expression, motif	RND efflux membrane fusion protein precursor	Transport of small molecules
PA14_10240	acoC*	expression, motif	putative hydrolase	Carbon compound catabolism
PA14_10500	ccoN*	expression, motif	cytochrome c oxidase subunit (ccb3-type)	Energy metabolism
PA14_10530	-	expression, motif	putative transcriptional regulator, GntR family	Transcriptional regulators
PA14_11070	cupB2	expression, motif	chaperone CupB2	Motility / Attachment; Chaperones / Heat shock proteins
PA14_11110	cupB6	expression, motif	fimbrial protein cupB6	Motility / Attachment
PA14_12550	-	expression, motif	hypothetical protein	Hypothetical, unclassified or unknown
PA14_13840	-	expression, motif	putative peptidyl-prolyl cis-trans isomerase	Translation, post-translational modification and degradation; Chaperones / Heat shock proteins
PA14_14650	secF	expression, motif	protein-export membrane protein SecF	Protein secretion / Export apparatus
PA14_15340	guaA	expression, motif	GMP synthase	Amino acid biosynthesis and metabolism; Nucleotide biosynthesis and metabolism
PA14_15445	merE	expression, motif	Hypothetical mercuric resistance protein merE	Hypothetical, unclassified or unknown
PA14_15450	merD	expression, motif	Mercuric resistance transcriptional repressor protein MerD	Transcriptional regulators
PA14_16180	-	expression, motif	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_16820	-	expression, motif	putative efflux transmembrane protein	Antibiotic resistance and susceptibility; Membrane proteins; Transport of small molecules
PA14_17070	tsf	expression, motif	translation elongation factor Ts	Translation, post-translational modification and degradation
PA14_17100	frr	expression, motif	ribosome recycling factor	Translation, post-translational modification and degradation
PA14_17630	potB	expression, motif	polyamine transport protein PotB	Membrane proteins; Transport of small molecules
PA14_17960	glpK	expression, motif	glycerol kinase	Central intermediary metabolism
PA14_18010	glpK*	expression, motif	putative glycerol kinase	Central intermediary metabolism; Putative enzymes
PA14_18430	algJ	expression, motif	alginate o-acetyltransferase AlgJ	Cell wall / LPS / capsule; Adaptation / Protection; Secreted factors (toxins, enzymes, alginate)
PA14_18830	-	expression, motif	putative lyase	Carbon compound catabolism
PA14_18860	-	expression, motif	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_19360	-	expression, motif	putative acetyltransferase, GNAT family	Putative enzymes
PA14_20760	cheR*	expression, motif	putative chemotaxis protein methyltransferase	Adaptation / Protection; Chemotaxis
PA14_20940	-	expression, motif	putative acyl carrier protein	Fatty acid and phospholipid metabolism
PA14_20970	cyp23	expression, motif	cytochrome P450	Adaptation / Protection; Carbon compound catabolism
PA14_21000	-	expression, motif	hypothetical protein	Hypothetical, unclassified or unknown
PA14_21010	-	expression, motif	putative FAD-dependent monooxygenase	Energy metabolism; Putative enzymes
PA14_21600	-	expression, motif	putative membrane protein	Membrane proteins
PA14_22520	-	expression, motif	hypothetical protein	Hypothetical, unclassified or unknown
PA14_22530	gst2*	expression, motif	putative glutathione S-transferase	Translation, post-translational modification and degradation
PA14_22910	edd	expression, motif	6-phosphogluconate dehydratase	Energy metabolism; Carbon compound catabolism
PA14_23090	edaA*	expression, motif	2-keto-3-deoxy-6-phosphogluconate aldolase	Central intermediary metabolism; Carbon compound catabolism
PA14_24010	xcpS	expression, motif	general secretion pathway protein F	Protein secretion / Export apparatus
PA14_24020	xcpT	expression, motif	general secretion pathway protein G	Protein secretion / Export apparatus
PA14_24300	-	expression, motif	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_24390	-	expression, motif	putative TPR domain protein	Putative enzymes
PA14_25660	fabG	expression, motif	3-oxoacyl-[acyl-carrier-protein] reductase	Fatty acid and phospholipid metabolism
PA14_25670	acpP	expression, motif	acyl carrier protein	Fatty acid and phospholipid metabolism
PA14_25730	-	expression, motif	putative aminodeoxychormistate lyase	Putative enzymes
PA14_25740	tmk	expression, motif	thymidylate kinase	Nucleotide biosynthesis and metabolism
PA14_26700	-	expression, motif	putative acyl-CoA dehydrogenase	Fatty acid and phospholipid metabolism; Putative enzymes
PA14_26810	-	expression, motif	putative two-component sensor histidine kinase	Two-component regulatory systems
PA14_30850	trbI*	expression, motif	TrbI-like protein	Related to phage, transposon or plasmid
PA14_30860	trbG*	expression, motif	TrbG-like protein	Related to phage, transposon or plasmid
PA14_31720	-	expression, motif	putative lysophospholipase	Fatty acid and phospholipid metabolism
PA14_31730	-	expression, motif	putative dual specificity phosphatase	Putative enzymes; Membrane proteins
PA14_31740	-	expression, motif	hypothetical protein	Membrane proteins
PA14_31760	cdsA*	expression, motif	putative phosphatidate cytidyltransferase	Fatty acid and phospholipid metabolism
PA14_32130	benD	expression, motif	cis-1,2-dihydroxycyclohexa-3,4-diene carboxylate dehydrogenase	Carbon compound catabolism
PA14_32390	mexF	expression, motif	RND multidrug efflux transporter MexF	Transport of small molecules; Membrane proteins; Antibiotic resistance and susceptibility
PA14_33500	pvdH	expression, motif	L-2,4-diaminobutyrate:2-ketoglutarate 4-aminotransferase, PvdH	Adaptation / Protection
PA14_33530	-	expression, motif	putative ABC transporter, periplasmic substrate-binding protein	Motility / Attachment
PA14_33550	-	expression, motif	putative ATP-binding component of ABC transporter	Transport of small molecules
PA14_33570	-	expression, motif	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_33650	pvdD	expression, motif	pyoverdine synthetase D	Secreted factors (toxins, enzymes, alginate); Adaptation / Protection
PA14_36070	-	expression, motif	putative enzyme	Putative enzymes
PA14_39690	nrdD*	expression, motif	putative ribonucleotide reductase	Nucleotide biosynthesis and metabolism
PA14_39910	phzE2	expression, motif	phenazine biosynthesis protein PhzE	Secreted factors (toxins, enzymes, alginate)
PA14_39925	phzD2	expression, motif	phenazine biosynthesis protein PhzD	Hypothetical, unclassified or unknown
PA14_42260	pscK	expression, motif	PscK type III export protein	Secreted factors (toxins, enzymes, alginate); Protein secretion / Export apparatus
PA14_42290	pscH	expression, motif	type III export protein PscH	Protein secretion / Export apparatus
PA14_42300	pscG	expression, motif	type III export protein PscG	Protein secretion / Export apparatus; Chaperones / Heat shock proteins

PA14_42350	pscC	expression, motif	Type III secretion outer membrane protein PscC precursor	Protein secretion / Export apparatus
PA14_42430	exsC	expression, motif	exoenzyme S synthesis protein C precursor	Secreted factors (toxins, enzymes, alginate); Translation, post-translational modification and degradation; Protein secretion / Export apparatus
PA14_42460	pcrH	expression, motif	regulatory protein PcrH	Secreted factors (toxins, enzymes, alginate); Protein secretion / Export apparatus
PA14_43020	-	expression, motif	conserved hypothetical protein	Protein secretion / Export apparatus
PA14_43030	-	expression, motif	conserved hypothetical protein	Protein secretion / Export apparatus
PA14_43350	kdpD	expression, motif	two-component sensor KdpD	Two-component regulatory systems
PA14_43380	kdpB	expression, motif	potassium-transporting ATPase, B chain	Transport of small molecules
PA14_43670	-	expression, motif	putative sensor/response regulator hybrid	Transcriptional regulators; Two-component regulatory systems; Cell wall / LPS / capsule; Motility / Attachment; Chemotaxis
PA14_43710	-	expression, motif	putative methyl-accepting chemotaxis transducer	Adaptation / Protection; Chemotaxis
PA14_43970	lpdG	expression, motif	lipoamide dehydrogenase-glc	Amino acid biosynthesis and metabolism; Energy metabolism
PA14_44350	ccoO*	expression, motif	putative cytochrome c oxidase subunit	Energy metabolism
PA14_44360	ccoP*	expression, motif	putative cytochrome c oxidase, cbb3-type, subunit III	Energy metabolism
PA14_45010	hyi*	expression, motif	putative hydroxypyruvate isomerase	Central intermediary metabolism
PA14_45020	glxR*	expression, motif	putative oxidoreductase	Putative enzymes
PA14_45050	pykF	expression, motif	pyruvate kinase I	Energy metabolism; Carbon compound catabolism
PA14_48710	-	expression, motif	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_48950	-	expression, motif	hypothetical protein of bacteriophage Pf1	Related to phage, transposon or plasmid
PA14_49160	yegE*	expression, motif	conserved hypothetical protein	Membrane proteins
PA14_49470	nrdB	expression, motif	ribonucleoside reductase, small chain	Nucleotide biosynthesis and metabolism
PA14_50250	fljS	expression, motif	hypothetical protein	Hypothetical, unclassified or unknown
PA14_50270	fljD	expression, motif	flagellar capping protein FljD	Cell wall / LPS / capsule; Motility / Attachment
PA14_50710	phaD	expression, motif	probable NADH dehydrogenase	Membrane proteins; Putative enzymes
PA14_51040	-	expression, motif	probable oxidoreductase	Putative enzymes
PA14_51390	pqsD	expression, motif	3-oxoacyl-[acyl-carrier-protein] synthase III	Biosynthesis of cofactors, prosthetic groups and carriers
PA14_51720	tolB	expression, motif	TolB protein	Transport of small molecules
PA14_51730	tolA	expression, motif	TolA protein	Membrane proteins; Transport of small molecules
PA14_55300	-	expression, motif	hypothetical protein	Hypothetical, unclassified or unknown
PA14_55540	-	expression, motif	probable transmembrane sensor	Membrane proteins; Transcriptional regulators
PA14_56050	-	expression, motif	putative membrane protein	Membrane proteins
PA14_57830	-	expression, motif	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_57840	ttg2D*	expression, motif	putative toluene tolerance protein	Adaptation / Protection
PA14_58190	gatB	expression, motif	Glu-tRNA(Gln) amidotransferase subunit B	Translation, post-translational modification and degradation
PA14_59000	-	expression, motif	Conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_59940	-	expression, motif	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_60700	ccpR	expression, motif	cytochrome c551 peroxidase	Energy metabolism
PA14_61610	-	expression, motif	conserved hypothetical protein	Hypothetical, unclassified or unknown
PA14_61780	rpIY*	expression, motif	putative ribosomal protein L25	Adaptation / Protection; Translation, post-translational modification and degradation
PA14_61790	pth	expression, motif	peptidyl-tRNA hydrolase	Translation, post-translational modification and degradation
PA14_62760	infB	expression, motif	translation initiation factor IF-2	Translation, post-translational modification and degradation
PA14_62770	nusA	expression, motif	N utilization substance protein A	Transcription, RNA processing and degradation
PA14_62960	dnaJ	expression, motif	chaperone protein DnaJ	DNA replication, recombination, modification and repair; Chaperones / Heat shock proteins; Adaptation / Protection
PA14_63210	-	expression, motif	putative two-component response regulator	Two-component regulatory systems; Transcriptional regulators; Motility / Attachment; Cell wall / LPS / capsule
PA14_63220	-	expression, motif	hypothetical protein	Hypothetical, unclassified or unknown
PA14_64050	-	expression, motif	putative two-component response regulator	Transcriptional regulators; Two-component regulatory systems
PA14_66630	pilP	expression, motif	type 4 fimbrial biogenesis protein PilP	Motility / Attachment
PA14_66650	pilN	expression, motif	type 4 fimbrial biogenesis protein PilN	Motility / Attachment
PA14_66790	hslU	expression, motif	heat shock protein HslU	Chaperones / Heat shock proteins
PA14_67300	proX*	expression, motif	putative binding protein component of ABC transporter	Transport of small molecules
PA14_67450	blc	expression, motif	outer membrane lipoprotein Blc	Cell wall / LPS / capsule; Membrane proteins
PA14_68210	rmIC	expression, motif	dTDP-4-dehydrorhamnose 3,5-epimerase	Cell wall / LPS / capsule
PA14_68440	-	expression, motif	putative oxidoreductase, molybdopterin-binding	Energy metabolism; Putative enzymes
PA14_70010	-	expression, motif	putative endoribonuclease L-PSP family protein	Translation, post-translational modification and degradation
PA14_71260	-	expression, motif	putative oxidoreductase, FMN-binding	Energy metabolism; Amino acid biosynthesis and metabolism
PA14_71820	yegQ*	expression, motif	putative peptidase	Translation, post-translational modification and degradation; Putative enzymes
PA14_71890	psecoA*	expression, motif	putative coenzyme A transferase	Fatty acid and phospholipid metabolism; Putative enzymes
PA14_72650	-	expression, motif	putative transcriptional regulator	Transcriptional regulators
PA14_72690	-	expression, motif	putative glutamine synthetase	Amino acid biosynthesis and metabolism; Putative enzymes; Carbon compound catabolism
PA14_72790	-	expression, motif	putative membrane protein	Membrane proteins
PA14_73170	glmS	expression, motif	glucosamine-fructose-6-phosphate aminotransferase	Central intermediary metabolism
PA14_73240	atpD	expression, motif	ATP synthase beta chain	Energy metabolism
PA1555.1	ccoQ1	expression, motif	-	Non-coding RNA gene (sRNA)
PA4704.1	prfF1	expression, motif	-	Non-coding RNA gene (sRNA)

* alternative gene name was provided when no gene name was annotated

** PseudoCAP annotation was updated as previously described (see Material & Methods)