

Table S2. Strains, plasmids and oligonucleotide primers used in this study.

SMC#/Names	Genotype/Description/Sequences*	Reference
<i>P. aeruginosa</i> strains		
232	<i>P. aeruginosa</i> PA14 (WT strain)	Lab stock
3718	$\Delta pilY1$	(8)
3782	$\Delta pilA$	(8)
6640	<i>attTn7::P_{pilY1}-lacZ Gm^r</i>	This work
6610	<i>attTn7::P_{pilY1}-lacZ</i>	This work
6813	Δvfr <i>attTn7::P_{pilY1}-lacZ Gm^r</i>	This work
6746	$\Delta algR$ <i>attTn7::P_{pilY1}-lacZ Gm^r</i>	This work
6657	$\Delta pilGHI$ <i>attTn7::P_{pilY1}-lacZ Gm^r</i>	This work
6658	$\Delta pilJ$ <i>attTn7::P_{pilY1}-lacZ Gm^r</i>	This work
6661	$\Delta chpB$ <i>attTn7::P_{pilY1}-lacZ Gm^r</i>	This work
6627	$\Delta fimT-pilE$ <i>attTn7::P_{pilY1}-lacZ Gm^r</i>	This work
6628	$\Delta fimT$ <i>attTn7::P_{pilY1}-lacZ Gm^r</i>	This work
6629	$\Delta fimU$ <i>attTn7::P_{pilY1}-lacZ Gm^r</i>	This work
6630	$\Delta pilV$ <i>attTn7::P_{pilY1}-lacZ Gm^r</i>	This work
6631	$\Delta pilW$ <i>attTn7::P_{pilY1}-lacZ Gm^r</i>	This work
6662	$\Delta pilX$ <i>attTn7::P_{pilY1}-lacZ Gm^r</i>	This work
6633	$\Delta pilY1$ <i>attTn7::P_{pilY1}-lacZ Gm^r</i>	This work
6634	$\Delta pilY2$ <i>attTn7::P_{pilY1}-lacZ Gm^r</i>	This work
6635	$\Delta pilE$ <i>attTn7::P_{pilY1}-lacZ Gm^r</i>	This work

6626	<i>ΔpilA attTn7::P_{pilY1}-lacZ Gm^r</i>	This work
6653	<i>ΔpilC::Tn5 attTn7::P_{pilY1}-lacZ Gm^r</i>	This work
6747	<i>ΔfimV attTn7::P_{pilY1}-lacZ Gm^r</i>	This work
6860	<i>ΔpilJ Δvfr attTn7::P_{pilY1}-lacZ Gm^r</i>	This work
6822	<i>ΔchpB ΔpilJ attTn7::P_{pilY1}-lacZ Gm^r</i>	This work
6815	<i>ΔchpB Δvfr attTn7::P_{pilY1}-lacZ Gm^r</i>	This work
6861	<i>ΔchpB ΔpilJ Δvfr attTn7::P_{pilY1}-lacZ Gm^r</i>	This work
6823	<i>ΔpilX ΔpilJ attTn7::P_{pilY1}-lacZ Gm^r</i>	This work
6817	<i>ΔpilX Δvfr attTn7::P_{pilY1}-lacZ Gm^r</i>	This work
6862	<i>ΔpilX ΔpilJ Δvfr attTn7::P_{pilY1}-lacZ Gm^r</i>	This work
6824	<i>ΔpilY1 ΔpilJ attTn7::P_{pilY1}-lacZ Gm^r</i>	This work
6858	<i>ΔpilY1 Δvfr attTn7::P_{pilY1}-lacZ Gm^r</i>	This work
6863	<i>ΔpilY1 ΔpilJ Δvfr attTn7::P_{pilY1}-lacZ Gm^r</i>	This work
3538	pR-lacZ	(20)
3537	pR-P1-lacZ	(20)
3546	<i>ΔpilJ</i> pR-lacZ	Lab stock
3545	<i>ΔpilJ</i> pR-P1-lacZ	Lab stock
6875	<i>ΔcyaA</i> pR-lacZ	This work
6876	<i>ΔcyaA</i> pR-P1-lacZ	This work
6877	<i>ΔcyaB</i> pR-lacZ	This work
6878	<i>ΔcyaB</i> pR-P1-lacZ	This work
6879	<i>ΔcyaAB</i> pR-lacZ	This work

6880	<i>ΔcyaAB</i> pR-P1-lacZ	This work
6881	<i>ΔcpdA</i> pR-lacZ	This work
6882	<i>ΔcpdA</i> pR-P1-lacZ	This work
6833	<i>ΔpilA</i> pR-lacZ	This work
6834	<i>ΔpilA</i> pR-P1-lacZ	This work
6839	<i>ΔpilU::Tn5</i> pR-lacZ	This work
6840	<i>ΔpilU::Tn5</i> pR-P1-lacZ	This work
4465	<i>ΔsadC</i>	<u>(21)</u>
2992	<i>ΔpilJ</i>	<u>(22)</u>
2990	<i>ΔchpB</i>	<u>(22)</u>
6706	<i>ΔcyaA</i>	This work
6869	<i>ΔcyaB</i>	This work
6870	<i>ΔcyaA cyaB</i>	This work
6851	<i>ΔcpdA</i>	This work
6873	<i>Δ cpdA cyaA cyaB</i>	This work
3018	pMQ80	(8)
3733	pPilY1	(8)
4466	<i>ΔsadC</i> pMQ80	(8)
4467	<i>ΔsadC</i> pPilY1	(8)
4033	<i>ΔpilJ</i> pMQ80	This work
4034	<i>ΔpilJ</i> pPilY1	This work
6864	<i>ΔchpB</i> pMQ80	This work

6865	<i>ΔchpB</i> pPilY1	This work
6853	<i>ΔcpdA</i> pMQ80	This work
6854	<i>ΔcpdA</i> pPilY1	This work
6855	<i>ΔcyaB</i> pMQ80	This work
6856	<i>ΔcyaB</i> pPilY1	This work
6883	<i>ΔcyaA</i> pMQ80	This work
6884	<i>ΔcyaA</i> pPilY1	This work
6887	<i>ΔcyaA cyaB</i> pMQ80	This work
6888	<i>ΔcyaA cyaB</i> pPilY1	This work
6893	<i>ΔcyaA cyaB cpdA</i> pMQ80	This work
6894	<i>ΔcyaA cyaB cpdA</i> pPilY1	This work
4021	<i>ΔpilX</i>	(14)
6765	<i>ΔpilC</i>	This work
6763	<i>ΔpilO</i>	This work
6726	<i>ΔfimV</i>	This work
6724	<i>ΔpilMNOP</i>	This work
6723	<i>ΔpilQ</i>	This work
6740	<i>ΔpilMNOP</i> pMQ80	This work
6741	<i>ΔpilMNOP</i> pPilY1	This work
6744	<i>ΔfimV</i> pMQ80	This work
6745	<i>ΔfimV</i> pPilY1	This work

6776	$\Delta pilC$ pMQ80	This work
6777	$\Delta pilC$ pPilY1	This work
6738	$\Delta pilQ$ pMQ80	This work
6739	$\Delta pilQ$ pPilY1	This work
6800	$\Delta pilQ \Delta xcpQ \Delta hxcQ$	This work
6805	$\Delta pilQ \Delta xcpQ \Delta hxcQ$ pMQ80	This work
6806	$\Delta pilQ \Delta xcpQ \Delta hxcQ$ pPilY1	This work
<i>E. coli</i> strains		
S17-1 λ <i>pir</i>	<i>thi pro hsdR hsdM⁺ ΔrecA RP4-2::TcMu-Km::Tn7</i>	
BTH101	<i>F⁻, cya⁻⁹⁹, araD139, galE15, galK16, rpsL1 (Str^r), hsdR2, mcrA1, mcrB1</i>	Euromedex
Plasmids		
pBT20	Vector carrying <i>mariner</i> transposon, Gm ^r	(23)
pUC18-mini-	Suicide vector for shuttling single copies of genes	(2)
Tn7T-Gm-lacZ	directly to the chromosome via a mini-Tn7 element; contain promoterless- <i>lacZ</i> transcriptional fusion; Gm ^r	
pUC18-mini-	<i>pilY1</i> operon promoter cloned into pUC18-mini-Tn7T-	This work
Tn7T-Gm-	Gm-lacZ, Gm ^r	
P _{pilY1} -lacZ		
pTns3	Helper plasmid encoding the Tn7 site-specific transposition pathway, Amp ^r	(24)
pMQ30	Shutter vector for cloning in yeast and Gram-negative	(1)

	allelic replacement. Gm ^r	
pMQ80	Shutter vector for cloning in yeast and for arabinose-induced gene expression. Gm ^r	(1)
pPilY1	His-tagged <i>pilY1</i> cloned into pMQ80. Gm ^r	(8)
pKNT25	BACTH vector allowing fusions to N-terminal of the T25 fragment of <i>cyaA</i> , Kan ^r	Euromedex
pUT18	BACTH vector allowing fusions to N-terminal of the T18 fragment of <i>cyaA</i> , Amp ^r	Euromedex
pKT25-zip	Leucine zipper of GCN4 fused to T25 in pKT25, Kan ^r	Euromedex
pUT18C-zip	Leucine zipper of GCN4 fused to T18 in pUT18C, Amp ^r	Euromedex
pKNT25- <i>fimS</i>	Full length of <i>fimS</i> cloned into pKNT25. Kan ^r	This work
pUT18- <i>fimS</i>	Full length of <i>fimS</i> cloned into pUT18, Amp ^r	This work
pKNT25- <i>pilJ</i>	Full length of <i>pilJ</i> cloned into pKNT25. Kan ^r	This work
pUT18- <i>pilJ</i>	Full length of <i>pilJ</i> cloned into pUT18. Amp ^r	This work
Oligo Nucleotides		YP#
PpilY1-F	GCCGCTGCAGAGTGGCAATTGGTGCTCAAT C	
PpilY1-R	GCGGGGTACCGCAGTACTCCACAAGGAAA AG	
Vfr-KO-1	tgtaaacgacggccagtccaagcttgcctgCCTCTTCG CGATGGCGATTGT	YP9
Vfr-KO-2	TCAGCACGCGTCCGACCATTCTGCGAGCA	YP10

	GCTTGTCTAGGTGT	
Vfr-KO-3	ACACCTAGACAAGCTGCTCGCAGAAATGGT	YP11
	CGGACGCGTGCTGA	
vfr-KO-4	ggaaacagctatgaccatgattacgaattcgagctcTGTGCCGA	YP12
	CGGTTCTGCAGA	
vfr-KO-check-1	TGCCCGTCAGATGCGAACGA	YP14
vfr-KO-check-2	CGCCGTTTACAGAGAGGAGA	YP15
algR-KO-1	tgtaaacgacggccagtccaagcttgcctgGCCGTCCA	YP16
	AGACGACTTCTTCA	
algR-KO-2	GTCGAGGCCTTTCAGGTAGAGCGCCAGAGG	YP17
	TTCGTCATCGAC	
algR-KO-3	GTCGATGACGAACCTCTGGCGCTCTACCTG	YP18
	AAAGGCCTCGAC	
algR-KO-4	ccatgattacgaattcgagctcggtagccgggatccGCCGTTG	YP19
	AGTCGCTTGTTCA	
algR-KO-check-1	CGGGCAAAGTGCGACGATGA	YP20
algR-KO-check-2	GCAGCAACTGGGTGCCATCA	YP21
cyaB-KO-1	tgtaaacgacggccagtccaagcttgcctgCGATGATC	YP170
	CGCTGGTAGCGT	
cyaB-KO-2	CTGGATGACCCGTTCCCTTGTCGTAGTATTCA	YP171
	CGCATGGACGCGAC	
cyaB-KO-3	GTCGCGTCCATGCGTGAATACTACGACAAG	YP172
	GAACGGGTCATCCAG	

cyaB-KO-4	ggaaacagctatgaccatgattacgaattcgagctcGAATACCT	YP173
	GCGTGACCGCTGTC	
cyaB-KO-check-1	GCGATCACCATGCACCGTGA	YP174
cyaB-KO-check-2	GACGGCAGCATCCAGCTCTA	YP175
cpdA-KO-1	tgtaaaacgacggccagtccaagcttgcctgCGATTGCG	YP164
	TGGTGCTCATCGA	
cpdA-KO-2	GTATCCGGCGGTGTCGTAGTCAGTGTTCGA	YP165
	ATGGCGTGACAAG	
cpdA-KO-3	CTTGTCACGCCATTTCGAACACTGACTACGA	YP166
	CACCGCCGGATAC	
cpdA-KO-4	ggaaacagctatgaccatgattacgaattcgagctcCGTCGATG	YP167
	ACTTCCAGCGAGT	
cpdA-KO-check-1	CGCGGCTTCTATCGTCTCGAT	YP168
cpdA-KO-check-2	GGCATGCAGCTTGGTAAGGAT	YP169
pilC-KO-1	tgtaaaacgacggccagtccaagcttgcctgGACTCCTC	YP97
	TAGCGCGCAGAT	
pilC-KO-2	TGATCATCGGCTCCATCAACGTGCGGACCT	YP98
	TTAGTGGGTTGA	
pilC-KO-3	TCAACCCACTAAAGGTCCGCACGTTGATGG	YP99
	AGCCGATGATCA	
pilC-KO-4	ggaaacagctatgaccatgattacgaattcgagctcGTGGACGC	YP100
	CGAGGGAAATGA	
pilC-KO-check-1	TGTCGAAGACCAAGTCCATCGA	YP101

pilC-KO-check-2	GCGTTCGACGATCTTCGCCA	YP102
pilO-KO-1	tgtaaacgacggccagtccaagcttgcctgCAGCTCAC CGAGGAGATCCA	YP85
pilO-KO-2	TGTCGTTGTAGCGGTAGGTCTTTACGTCGAT CTTGCGCAGACT	YP86
pilO-KO-3	AGTCTGCGCAAGATCGACGTAAAGACCTAC CGCTACAACGACA	YP87
pilO-KO-4	ggaaacagctatgaccatgattacgaattcgagctcATTGCCGA CCACCACGAAGA	YP88
pilO-KO-check-1	ATGACCACCCTGAGCGTCCT	YP89
pilO-KO-check-2	TTGATCGGCTGGGCATAGCT	YP90
pilM-KO-1	tgtaaacgacggccagtccaagcttgcctgGGTAGCG TTGCTGGTCGATGA	YP36
PilMNOP-KO-2	TGATGCCGACGACCTTGCCCTCAAGGAGCT TTACCGAGGTCGA	YP37
pilMNOP-KO-3	TCGACCTCGGTAAAGCTCCTTGAGGGCAAG GTCGTCGGCATCA	YP38
pilP-KO-4	ggaaacagctatgaccatgattacgaattcgagctcCAGCTGCA GTACCGAACGCA	YP39
pilM-KO-check-1	GGCGCTGGTCATAGTCGATGA	YP40
pilP-KO-check-2	GCCCTTGGTCTTCAGCACCA	YP41
pilQ-KO-1	tgtaaacgacggccagtccaagcttgcctgGCCCAGC GACACCGAGGTA	YP30

pilQ-KO-2	TCATGATCCGCGGTGTCAGGAACTCGTCGA	YP31
	ACTGCAGCTTTAGCT	
pilQ-KO-3	AGCTAAAGCTGCAGTTCGACGAGTTCCTGA	YP32
	CACCGCGGATCATGA	
pilQ-KO-4	ggaaacagctatgaccatgattacgaattcgagctcGAGGAGTC	YP33
	GACCTGGGACAACA	
pilQ-KO-check-1	CTGGAAGCCTACAAGGCACAGA	YP34
pilQ-KO-check-2	GCTGGTAGAACGCACCGATCA	YP35
fimV-KO-1	tgtaaacgacggccagtgccaagcttgcattgctgCGGCGAT	YP22
	GTCGATAGCTTCGA	
fimV-KO-2	TCGTTACCTTCGGCCAGGACTTCGATTGCCC	YP23
	GAACCAGTGTACGA	
fimV-KO-3	TCGTACACTGGTTCGGGCAATCGAAGTCCT	YP24
	GGCCGAAGGTAACGA	
fimV-KO-4	ccatgattacgaattcgagctcggtagccgggatccCCTCGAC	YP25
	GAGTGAGCGACGA	
fimV-KO-check-1	CTGGTCGGTCTCCTCGACGA	YP26
fimV-KO-check-2	CRACTCGGGTGATACCGCAGA	YP27
xcpQ-KO-1	tgtaaacgacggccagtgccaagcttgcattgctg	YP103
	TGGCGAAGCTGAACGGCAGA	
xcpQ-KO-2	TGTCCATCGAACAACTGGTTGGCGGCGGGA	YP104
	ACGTACGAACGAC	
xcpQ-KO-3	GTCGTTTCGTACGTTCCCGCCGCCAACCAGTT	YP105

	GTTCGATGGACA	
xcpQ-KO-4	ggaaacagctatgaccatgattacgaattcgagctc	YP106
	TGGAAGACCTCGACGACCTCA	
xcpQ-KO-check-1	GCCTGGTTGAAGGCGTCCT	YP107
xcpQ-KO-check-2	GGTCTCGATCACCAACCAACCT	YP108
hxcQ-KO-1	tgtaaacgacggccagtccaagcttgcctgGAGCGAC	YP109
	GCGACGCCTATCT	
hxcQ-KO-2	ATGTCGCCGACGCTCCAGTCGACCTTCGGC	YP110
	GTCTCGCTACA	
hxcQ-KO-3	TGTAGCGAGACGCCGAAGGTCGACTGGAGC	YP111
	GTCGGCGACAT	
hxcQ-KO-4	ggaaacagctatgaccatgattacgaattcgagctcGGTCCTCG	YP112
	ACGGTGAGGATGT	
hxcQ-KO-check-1	TTGCAACGGCAGAGCAGTCA	YP113
hxcQ-KO-check-2	GGCTACGGCGAAGGTCATGT	YP114

* For primer sequences, lower case letters indicate sequences that are complementary to the cloning vector pMQ30, and boldface indicates restriction sites.