

**Table S1. Strains and Plasmids**

Strain #	Genotype	Ref.
RP2318	PAO1F $\Delta$ exsE $\Delta$ exoT $\Delta$ exoY	Cisz 2008
RP3624	PAO1F $\Delta$ exsE $\Delta$ exoT $\Delta$ exoY $\Delta$ prcHpopBD pcrV+	Armentrout 2016
RP6425	PAO1F $\Delta$ exsE $\Delta$ exoT $\Delta$ exoY $\Delta$ prcHpopBD $\Delta$ prcV:: <i>prcV</i> (acrVtip)	This study
RP6166	PAO1F $\Delta$ exsE $\Delta$ exoT $\Delta$ exoY $\Delta$ prcHpopBD $\Delta$ prcV:: <i>prcV</i> (N)- <i>prcV</i> (C)	This study
RP7595	PAO1F $\Delta$ exsE $\Delta$ exoT $\Delta$ exoY $\Delta$ prcHpopBD $\Delta$ prcGV:: <i>prcGV</i>	This study
RP3223	PAO1F $\Delta$ exsE $\Delta$ exoT $\Delta$ exoY $\Delta$ prcV2	This study
RP2349	PAO1F $\Delta$ exsE $\Delta$ exoT $\Delta$ exoY <i>exoS</i> (R146K/E379D/E381D)	Cisz 2008
RP3670	PAO1F $\Delta$ exsE $\Delta$ exoT $\Delta$ exoY <i>exoS</i> (R146K/E379D/E381D) $\Delta$ prcHpopBD pcrV+	Armentrout 2016
RP11222	PAO1F $\Delta$ exsE $\Delta$ exoT $\Delta$ exoY <i>exoS</i> (R146K/E379D/E381D) $\Delta$ prcHpopBD $\Delta$ prcV:: <i>prcV</i> (acrVtip)	This study
RP6370	PAO1F $\Delta$ exsE $\Delta$ exoT $\Delta$ exoY <i>exoS</i> (GAP-/ADPR-) $\Delta$ prcHpopBD pcrV+	Armentrout 2016
RP11226	PAO1F $\Delta$ exsE $\Delta$ exoT $\Delta$ exoY <i>exoS</i> (GAP-/ADPR-) $\Delta$ prcHpopBD $\Delta$ prcV:: <i>prcV</i> (acrVtip)	This study
RP2317	PAO1F $\Delta$ exsE $\Delta$ exoS $\Delta$ exoT $\Delta$ exoY	Cisz 2008
RP11946	PAO1F $\Delta$ exsE $\Delta$ exoS $\Delta$ exoT $\Delta$ exoY $\Delta$ prcHpopBD pcrV+	This study
RP11948	PAO1F $\Delta$ exsE $\Delta$ exoS $\Delta$ exoT $\Delta$ exoY $\Delta$ prcHpopBD $\Delta$ prcV:: <i>prcV</i> (acrVtip)	This study
RP12517	PAO1F $\Delta$ exsE $\Delta$ exoT $\Delta$ exoY S+ $\Delta$ prcHpopBD $\Delta$ prcV:: <i>prcV</i> (acrVtip-trim)	This study
RP12661	PAO1F $\Delta$ exsE $\Delta$ exoT $\Delta$ exoY <i>exoS</i> (GAP-/ADPR-) $\Delta$ prcHpopBD pcrV(Q87C)	This study
RP12598	PAO1F $\Delta$ exsE $\Delta$ exoT $\Delta$ exoY <i>exoS</i> (GAP-/ADPR-) $\Delta$ prcHpopBD pcrV(S202C)	This study

Plasmid name	Description	Hybrid	Reference
pPSV37	<i>colE1</i> origin, <i>gentR</i> , PA origin, <i>oriT</i> , <i>lacUV5</i> promoter, <i>lacIq</i>		Lee 2010
pEXG2	allelic exchange vector, <i>colE1</i> origin, <i>oriT</i> , <i>gentR</i> , <i>sacB</i>		Rietsch 2005
pPGEH	derived from pPSV37, <i>prcG</i> promoter, <i>gentR</i> , BbvCI site, polylinker, <i>colE1</i> origin, PA origin		This study
pEXG2- $\Delta$ prcHpopBDpopD	allelic exchange plasmid deleting <i>prcH</i> codon 5 to <i>popD</i> codon 268		Tomalka 2012
pEXG2- <i>prcV</i> (acrVtip)	allelic exchange plasmid for <i>prcV</i> ::Atip		This study
pEXG2- <i>prcV</i> (N)- <i>prcV</i> (C)	allelic exchange plasmid for <i>prcV</i> ::Acollar		This study
pEXG2- $\Delta$ prcV:: <i>prcV</i>	allelic exchange plasmid for <i>prcV</i> ::AcrV		This study
pEXG2- $\Delta$ prc1	allelic exchange plasmid deleting codons 10–81 of <i>prc1</i>		Tomalka 2012
pEXG2-Atip-trim	allelic exchange plasmid for <i>prcV</i> ::Atip-trim		This study
pEXG2- $\Delta$ prcV2	allelic exchange plasmid deleting <i>prcV</i> codons 4-180		Cisz 2008
pP37- <i>acrHprcH-popBD</i>	Plasmid encoding <i>acrH</i> , <i>prcH</i> , <i>popB</i> and <i>popD</i> under the control of the <i>lacUV5</i> promoter in pPSV37		Armentrout 2016
pP37- <i>acrHprcH-aopBD</i>	Plasmid encoding <i>acrH</i> , <i>prcH</i> , <i>aopB</i> and <i>aopD</i> under control of the <i>lacUV5</i> promoter in pPSV37		This study
pP37- <i>acrHprcH-popB-aopD</i>	Plasmid encoding <i>acrH</i> , <i>prcH</i> , <i>popB</i> and <i>aopD</i> under control of the <i>lacUV5</i> promoter in pPSV37		This study
pP37- <i>acrHprcH-aopBpopD</i>	Plasmid encoding <i>acrH</i> , <i>prcH</i> , <i>aopB</i> and <i>popD</i> under control of the <i>lacUV5</i> promoter in pPSV37		This study
pP37- <i>acrHprcHpopD</i>	Plasmid encoding <i>acrH</i> , <i>prcH</i> , and <i>popD</i> under control of the <i>lacUV5</i> promoter in pPSV37		This study
pP37- <i>acrHprcHpopB</i>	Plasmid encoding <i>acrH</i> , <i>prcH</i> and <i>popB</i> under control of the <i>lacUV5</i> promoter in pPSV37		This study

pP37- <i>acrHpcrH</i> -APB 169- <i>popD</i>	Plasmid encoding <i>acrH</i> , <i>pcrH</i> , a <i>aopB</i> (1-161G)- <i>popB</i> (169K-390) hybrid and <i>popD</i> under the control of the lacUV5 promoter in pPSV37, hybrid "B1"	B1	This study
pP37- <i>acrHpcrH</i> -PAB 250- <i>popD</i>	Plasmid encoding <i>acrH</i> , <i>pcrH</i> , <i>popD</i> and a <i>popB</i> (1-250G)- <i>aopB</i> (244S-390) hybrid under the control of the lacUV5 promoter in pPSV37, hybrid "B2"	B2	This study
pP37- <i>acrHpcrH</i> -PAPB 168-251- <i>popD</i>	Plasmid encoding <i>acrH</i> , <i>pcrH</i> , <i>popD</i> and a <i>popB</i> (1-168A)- <i>aopB</i> (162K-243G)- <i>popB</i> (251G-390) hybrid under the control of the lacUV5 promoter in pPSV37, hybrid "B3"	B3	This study
pP37- <i>acrHpcrH</i> -APAB 183-250- <i>popD</i>	Plasmid encoding <i>acrH</i> , <i>pcrH</i> , <i>popD</i> and a <i>aopB</i> (1-175I)- <i>popB</i> (183G-250G)- <i>aopB</i> (244S-390) hybrid under the control of the lacUV5 promoter in pPSV37, hybrid "B4"	B4	This study
pP37- <i>acrHpcrH</i> -APAPB 115-250-298- <i>popD</i>	Plasmid encoding <i>acrH</i> , <i>pcrH</i> , <i>popD</i> and a <i>aopB</i> (1-107L)- <i>popB</i> (115A-250G)- <i>aopB</i> (244S-297V)- <i>popB</i> (298-390) hybrid under the control of the lacUV5 promoter in pPSV37, hybrid "B5"	B5	This study
pP37- <i>acrHpcrH</i> -PAPAB 114-169-297- <i>popD</i>	Plasmid encoding <i>acrH</i> , <i>pcrH</i> , <i>popD</i> and a <i>popB</i> (1-114L)- <i>aopB</i> (108G-161G)- <i>popB</i> (169K-296H)- <i>aopB</i> (270A-390) hybrid under the control of the lacUV5 promoter in pPSV37, hybrid "B6"	B6	This study
pP37- <i>acrHpcrH</i> -PAPAPB 114-169-297-333- <i>popD</i>	Plasmid encoding <i>acrH</i> , <i>pcrH</i> , <i>popD</i> and a <i>popB</i> (1-114L)- <i>aopB</i> (108G-161G)- <i>popB</i> (169K-296H)- <i>aopB</i> (270A-332A)- <i>popB</i> (333D-390) hybrid under the control of the lacUV5 promoter in pPSV37, hybrid "B7"	B7	This study
pP37- <i>acrHpcrH</i> -PAPAPB 114-169-312-330- <i>popD</i>	Plasmid encoding <i>acrH</i> , <i>pcrH</i> , <i>popD</i> and a <i>popB</i> (1-114L)- <i>aopB</i> (108G-161G)- <i>popB</i> (169K-311V)- <i>aopB</i> (312S-332A)- <i>popB</i> (333D-390) hybrid under the control of the lacUV5 promoter in pPSV37, hybrid "B8"	B8	This study
pP37- <i>acrHpcrH</i> -PAPB 114-150- <i>popD</i>	Plasmid encoding <i>acrH</i> , <i>pcrH</i> , <i>popD</i> and a <i>popB</i> (1-114L)- <i>aopB</i> (108G-143K)- <i>popB</i> (150K-390) hybrid under the control of the lacUV5 promoter in pPSV37, hybrid "B9"	B9	This study
pP37- <i>acrHpcrH</i> -PAPB 312-330- <i>popD</i>	Plasmid encoding <i>acrH</i> , <i>pcrH</i> , <i>popD</i> and a <i>popB</i> (1-311V)- <i>aopB</i> (312S-330A)- <i>popB</i> (331Q-390) hybrid under the control of the lacUV5 promoter in pPSV37, hybrid "B10"	B10	This study
pP37- <i>acrHpcrH</i> -PAPAPB 114-150-312-330- <i>popD</i>	Plasmid encoding <i>acrH</i> , <i>pcrH</i> , <i>popD</i> and a <i>popB</i> (1-114L)- <i>aopB</i> (108G-143K)- <i>popB</i> (150K-311V)- <i>aopB</i> (312S-330A)- <i>popB</i> (331Q-390) hybrid under the control of the lacUV5 promoter in pPSV37, hybrid "Bmix"	Bmix	This study
pP37- <i>acrHpcrH</i> -PAB 40- <i>popD</i>	Plasmid encoding <i>acrH</i> , <i>pcrH</i> , <i>popD</i> and a <i>popB</i> (1-40L)- <i>aopB</i> (38T-390) hybrid under the control of the lacUV5 promoter in pPSV37, hybrid "B11"	B11	This study
pP37- <i>acrHpcrH</i> -PAPAPB 114-183-312-330- <i>popD</i>	Plasmid encoding <i>acrH</i> , <i>pcrH</i> , <i>popD</i> and a <i>popB</i> (1-114L)- <i>aopB</i> (108G-175I)- <i>popB</i> (183G-311V)- <i>aopB</i> (312S-330A)- <i>popB</i> (331Q-390) hybrid under the control of the lacUV5 promoter in pPSV37, hybrid "B12"	B12	This study
pP37- <i>acrHpcrH</i> -PAPAPB 131-183-312-330- <i>popD</i>	Plasmid encoding <i>acrH</i> , <i>pcrH</i> , <i>popD</i> and a <i>popB</i> (1-131T)- <i>aopB</i> (126I-175I)- <i>popB</i> (183G-311V)- <i>aopB</i> (312S-330A)- <i>popB</i> (331Q-390) hybrid under the control of the lacUV5 promoter in pPSV37, hybrid "B13"	B13	This study
pP37- <i>acrHpcrH</i> -PAPAPB 131-169-312-330- <i>popD</i>	Plasmid encoding <i>acrH</i> , <i>pcrH</i> , <i>popD</i> and a <i>popB</i> (1-131T)- <i>aopB</i> (125D-175I)- <i>popB</i> (183G-311V)- <i>aopB</i> (312S-330A)- <i>popB</i> (331Q-390) hybrid under the control of the lacUV5 promoter in pPSV37, hybrid "B14"	B14	This study
pP37- <i>acrHpcrH</i> -PAPAPB 151-183-312-330- <i>popD</i>	Plasmid encoding <i>acrH</i> , <i>pcrH</i> , <i>popD</i> and a <i>popB</i> (1-151I)- <i>aopB</i> (145K-175I)- <i>popB</i> (183G-311V)- <i>aopB</i> (312S-330A)- <i>popB</i> (331Q-390) hybrid under the control of the lacUV5 promoter in pPSV37, hybrid "B15"	B15	This study
pP37- <i>acrHpcrH</i> -PAB 114- <i>popD</i>	Plasmid encoding <i>acrH</i> , <i>pcrH</i> , <i>popD</i> and a <i>popB</i> (1-114L)- <i>aopB</i> (108G-390) hybrid under the control of the lacUV5 promoter in pPSV37, hybrid "B16"	B16	This study
pP37- <i>acrHpcrH</i> -PAB 168- <i>popD</i>	Plasmid encoding <i>acrH</i> , <i>pcrH</i> , <i>popD</i> and a <i>popB</i> (1-168A)- <i>aopB</i> (162K-390) hybrid under the control of the lacUV5 promoter in pPSV37, hybrid "B17"	B17	This study
pP37- <i>acrHpcrH</i> -PAB 297- <i>popD</i>	Plasmid encoding <i>acrH</i> , <i>pcrH</i> , <i>popD</i> and a <i>popB</i> (1-296H)- <i>aopB</i> (270A-390) hybrid under the control of the lacUV5 promoter in pPSV37, hybrid "B18"	B18	This study

pP37- <i>acrHpcrH</i> -PAB 330- <i>popD</i>	Plasmid encoding <i>acrH</i> , <i>pcrH</i> , <i>popD</i> and a <i>popB</i> (1-330R)- <i>aopB</i> (331Q-390) hybrid under the control of the lacUV5 promoter in pPSV37, hybrid "B19"	B19	This study
pP37- <i>acrHpcrH</i> -APB 115- <i>popD</i>	Plasmid encoding <i>acrH</i> , <i>pcrH</i> , <i>popD</i> and a <i>aopB</i> (1-107L)- <i>popB</i> (115A-390) hybrid under the control of the lacUV5 promoter in pPSV37, hybrid "B20"	B20	This study
pP37- <i>acrHpcrH</i> -APB 251- <i>popD</i>	Plasmid encoding <i>acrH</i> , <i>pcrH</i> , <i>popD</i> and a <i>aopB</i> (1-243G)- <i>popB</i> (251G-390) hybrid under the control of the lacUV5 promoter in pPSV37, hybrid "B21"	B21	This study
pP37- <i>acrHpcrH</i> -APB 298- <i>popD</i>	Plasmid encoding <i>acrH</i> , <i>pcrH</i> , <i>popD</i> and a <i>aopB</i> (1-297V)- <i>popB</i> (298L-390) hybrid under the control of the lacUV5 promoter in pPSV37, hybrid "B22"	B22	This study
pP37- <i>acrHpcrH</i> -APB 323- <i>popD</i>	Plasmid encoding <i>acrH</i> , <i>pcrH</i> , <i>popD</i> and a <i>aopB</i> (1-322V)- <i>popB</i> (323F-390) hybrid under the control of the lacUV5 promoter in pPSV37, hybrid "B23"	B23	This study
pP37- <i>acrHpcrH</i> -APB 369- <i>popD</i>	Plasmid encoding <i>acrH</i> , <i>pcrH</i> , <i>popD</i> and a <i>aopB</i> (1-368M)- <i>popB</i> (369I-390) hybrid under the control of the lacUV5 promoter in pPSV37, hybrid "B24"	B24	This study
pPGEH- <i>acrHpcrH</i> - <i>popBD</i>	Plasmid encoding <i>acrH</i> , <i>pcrH</i> , <i>popB</i> and <i>popD</i> under control of the <i>pcrG</i> promoter		This study
pPGEH- <i>acrHpcrH</i> -Bmix- <i>popD</i>	Plasmid encoding <i>acrH</i> , <i>pcrH</i> , <i>popD</i> and a <i>popB</i> (1-114L)- <i>aopB</i> (108G-143K)- <i>popB</i> (150K-311V)- <i>aopB</i> (312S-330A)- <i>popB</i> (331Q-390) hybrid under control of the <i>pcrG</i> promoter		This study
pP37- <i>acrHpcrH</i> - <i>popB</i> (Q135C)- <i>popD</i>	Plasmid encoding <i>acrH</i> , <i>pcrH</i> , <i>popB</i> (Q135C) and <i>popD</i> under the control of the lacUV5 promoter in pPSV37		This study
pP37- <i>acrHpcrH</i> - <i>popB</i> (S321C)- <i>popD</i>	Plasmid encoding <i>acrH</i> , <i>pcrH</i> , <i>popB</i> (S321C) and <i>popD</i> under the control of the lacUV5 promoter in pPSV37		This study
pP37- <i>acrHpcrH</i> - <i>popB</i> (S321C, 225VSVG)- <i>popD</i>	Plasmid encoding <i>acrH</i> , <i>pcrH</i> , <i>popB</i> (S321C, 225-VSVG) and <i>popD</i> under the control of the lacUV5 promoter in pPSV37. PopB has 4x VSV-G tag inserted after codon 225.		This study
pEXG2- <i>pcrV</i> (Q87C)	Allelic exchange vector designed to introduce Q87C mutation in <i>pcrV</i> .		Armentrout 2016