

APPENDIX

Engineering a customizable antibacterial T6SS-based platform in *Vibrio natriegens*

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Appendix Table S1. Bacterial strains used in this study.

Strain name	Genotype	Comments	Source
<i>Vibrio parahaemolyticus</i> RIMD 2210633	Wild type	Used as a template for PCR amplifications	(Makino <i>et al</i> , 2003)
<i>Vibrio parahaemolyticus</i> RIMD 2210633 $\Delta hcp1$	$\Delta vp1393$	RIMD 2210633 derivative. Used as prey in bacterial competition assays	(Jana <i>et al</i> , 2019)
<i>Vibrio parahaemolyticus</i> POR1	$\Delta tdhAS$	RIMD 2210633 derivative. Used as an attacker in competition assays, in secretion assays, and as a template for PCR amplifications	(Park <i>et al</i> , 2004)
<i>Vibrio parahaemolyticus</i> POR1 $\Delta hcp1$	$\Delta tdhAS/\Delta vp1393$	RIMD 2210633 derivative. Used as an attacker in competition assays, in secretion assays, and as a template for PCR amplifications	(Salomon <i>et al</i> , 2013)
<i>Vibrio parahaemolyticus</i> POR1 $\Delta vp1391$	$\Delta tdhAS/\Delta vp1391$	RIMD 2210633 derivative. Used as an attacker in competition assays, in secretion assays, and for quantitative RT- PCR	(Salomon <i>et al</i> , 2013)
<i>Vibrio parahaemolyticus</i> POR1 $\Delta vp1407$	$\Delta tdhAS/\Delta vp1407$	RIMD 2210633 derivative. Used as an attacker in competition assays, in secretion assays, as a template for PCR amplifications, and for quantitative RT- PCR	(Salomon <i>et al</i> , 2013)
<i>Vibrio parahaemolyticus</i> POR1 $\Delta tfoY$	$\Delta tdhAS/\Delta vp1028$	RIMD 2210633 derivative. Used as an attacker in competition assays, in secretion assays, and for quantitative RT- PCR	(Ben-Yaakov & Salomon, 2019)
<i>Vibrio parahaemolyticus</i> POR1 $\Delta 3xRegulators$	$\Delta tdhAS/\Delta vp1391/\Delta vp1407/\Delta vp1028$	RIMD 2210633 derivative. Used as an attacker in competition assays, in secretion assays, and for quantitative RT- PCR	This study
<i>Vibrio parahaemolyticus</i> POR1 $vp1415^{AAA}$	$\Delta tdhAS/vp1415^{AAA}$	RIMD 2210633 derivative. Used as a template for PCR amplifications. Codons for histidines 563-4 in VP1415 were replaced by codons for alanines	This study

<i>Vibrio parahaemolyticus</i> 12-297/B $\Delta hcp1$	$\Delta b5c30_rs15290$	12-297/B derivative. Used as prey in competition assays	(Jana <i>et al</i> , 2019)
<i>Vibrio parahaemolyticus</i> 04.2548	Wild type	Used to prepare derivative strains	Obtained from Swapan Banerjee, (Banerjee <i>et al</i> , 2015)
<i>Vibrio parahaemolyticus</i> 04.2548 $\Delta hcp1$	$\Delta ba740_rs16850$	04.2548 derivative. Used as prey in competition assays	This study
<i>Vibrio natriegens</i> ATCC 14048	Wild type	Used as an attacker and prey in competition assays, as a template for PCR amplifications, and to prepare derivative strains	ATCC collection
<i>Vibrio natriegens</i> ATCC 14048 $\Delta tfoY$	$\Delta m272_rs24650$	ATCC 14048 derivative. Used as an attacker in competition assays	This study
<i>Vnat</i> ^{<i>dns::araC+vp1409-7</i>}	The endogenous <i>dns</i> gene (<i>pn96_00865</i>) replaced by a cassette containing <i>araC</i> and <i>Pbad</i> -controlled <i>V. parahaemolyticus</i> <i>vp1409-7</i>	ATCC 14048 derivative. Used to prepare derivative strains	This study
<i>Vnat</i> ^{Reg}	The endogenous <i>dns</i> gene (<i>pn96_00865</i>) replaced by a cassette containing <i>araC</i> and <i>Pbad</i> -controlled <i>V. parahaemolyticus</i> <i>vp1407</i>	ATCC 14048 derivative. Used as an attacker in bacterial competition	This study
<i>Vibrio alginolyticus</i> 12G01 $\Delta hcp1/\Delta hcp2$	$\Delta v12g01_01540/\Delta v12g01_07583$	12G01 derivative. Used as prey in competition assays	(Salomon <i>et al</i> , 2015)
<i>Vibrio vulnificus</i> CMCP6	Rifampicin-resistant parental strain	Used as prey in competition assays	Obtained from Karla Satchell
<i>Aeromonas jandaei</i> DSM 7311	Wild type (natural resistance to ampicillin)	Used to prepare derivative strains	DSMZ collection
<i>Aeromonas jandaei</i> DSM 7311 $\Delta tssB$	$\Delta bn1126_rs13720$	DSM 7311 derivative. Used as prey in competition assays	This study
<i>Salmonella enterica</i> serovar choleraesuis strain SC-B67	Ampicillin, kanamycin, streptomycin and	Used as prey in competition assays	Obtained from Ohad Gal-Mor

	chloramphenicol-resistant strain		
<i>Escherichia coli</i> DH5 α	K-12 derivative laboratory strain	Used as prey in competition assays	Lab stocks
<i>Escherichia coli</i> DH5 α (λ pir)	K-12 derivative laboratory strain containing λ pir	Used for plasmid maintenance and cloning, and as prey in competition assays	Obtained from Eric V. Stabb

Appendix Table S2. Plasmids used in this study.

Plasmid name	Description	Purpose	Source
pYES1L	<i>E. coli</i> -yeast shuttle vector	Used to construct pCLTR	Novagen
pBAD33	A pBAD series expression plasmid encoding the <i>Cm^R</i> gene and the <i>p15A</i> origin of replication	<i>Cm^R</i> and <i>p15A ori</i> were amplified to construct pCLTR	Addgene
pUC18T-mini-Tn7T-Tp-dsRedExpress	TpR mini-Tn7 vector, mobilizable, for RFP tagging bacteria	<i>oriT</i> was amplified to construct pCLTR	Addgene
sfGFP-N1	Eukaryotic expression plasmid encoding superfolder GFP (sfGFP)	Used as a template to amplify <i>sfgfp</i>	Addgene
pEVS170	A mini-Tn5 delivery vector; <i>Erm^R</i> , <i>Kan^R</i>	Used to construct pTnp1222	(Lyell <i>et al</i> , 2008)
pTnp1222	<i>Erm^R</i> -containing plasmid; constructed by first integrating pEVS170 into the genome of <i>V. parahaemolyticus</i> POR1 at a random location, followed by digestion of the genomic DNA with HhaI and self-ligation of the products	Used to selectively grow <i>E. coli</i> prey on erythromycin-containing media when 5 different prey strains were mixed together during bacterial competition	This study
pBAD18	Bacterial expression vector with Gentamycin selection	Used to selectively grow <i>E. coli</i> , <i>V. natriegens</i> , <i>V. parahaemolyticus</i> , <i>V. alginolyticus</i> , and <i>A. jandaei</i> prey on media containing gentamicin during bacterial competition	Addgene
pBAD/Myc-His	Arabinose-inducible pBAD/Myc-His plasmid harboring a <i>Kan^R</i> cassette	Used for cloning and arabinose-inducible expression of various genes in <i>Vibrio</i>	(Salomon <i>et al</i> , 2013)
pVP1391	pBAD/Myc-His containing the CDS of <i>vp1391</i> in the MCS, in-frame with the C-terminal Myc-His tag	Used for arabinose-inducible expression of VP1391	This study

pVP1407	pBAD/Myc-His containing the CDS of <i>vp1407</i> in the MCS, out-of-frame with the C-terminal Myc-His tag	Used for arabinose-inducible expression of VP1407	This study
pTfoY	pBAD/Myc-His containing the CDS of <i>vp1028</i> in the MCS, in-frame with the C-terminal Myc-His tag	Used for arabinose-inducible expression of TfoY	(Ben-Yaakov & Salomon, 2019)
pVP1409-7	pBAD/Myc-His containing the CDS of <i>vp1409-7</i> in the MCS, out-of-frame with the C-terminal Myc-His tag	Used to place <i>vp1409-7</i> under a <i>Pbad</i> promoter	This study
pBAD/Myc-His:PoNe/i ^{Vp 12-297/B}	pBAD/Myc-His containing the V. <i>parahaemolyticus</i> 12-297/B effector and immunity module PoNe/i ^{Vp 12-297/B} , consisting of <i>b5c30_rs14470-60</i> , in its MCS; the 3' gene is cloned in-frame with the C-terminal Myc-His tag of the plasmid	Used to place PoNe/i ^{Vp 12-297/B} under <i>Pbad</i> control	(Fridman et al, 2020)
pBAD/Myc-His:Tme/i1 ^{Vp BB22OP}	pBAD/Myc-His containing the V. <i>parahaemolyticus</i> BB22OP effector and immunity module Tme/i1 ^{Vp BB22OP} , consisting of <i>vpbb_rs15030-35</i> , in its MCS; the 3' gene is cloned in-frame with the C-terminal Myc-His tag of the plasmid	Used to place Tme/i1 ^{Vp BB22OP} under <i>Pbad</i> control	(Fridman et al, 2020)
pBAD/Myc-His:VPA1263-Vti2 ^{Vp RIMD}	pBAD/Myc-His containing the V. <i>parahaemolyticus</i> RIMD 2210633 effector and immunity module VPA1263-Vti2 ^{Vp RIMD} in its MCS; the 3' gene is cloned in-frame with the C-	Used to place VPA1263-Vti2 ^{Vp RIMD} under <i>Pbad</i> control	This study

	terminal Myc-His tag of the plasmid		
pBAD/Myc-His:Va2265-0 ^{Va} _{12G01}	pBAD/Myc-His containing the <i>V. alginolyticus</i> 12G01 effector and immunity module Va02265-0 ^{Va} _{12G01} , consisting of <i>v12g01_02265-0</i> , in its MCS; the 3' gene is cloned out-of-frame with the C-terminal Myc-His tag of the plasmid	Used to place Va02265-0 ^{Va} _{12G01} under <i>Pbad</i> control	(Salomon <i>et al</i> , 2015)
pBAD/Myc-His:TssB1-sfGFP	pBAD/Myc-His containing the <i>V. parahaemolyticus</i> RIMD 2210633 <i>tssB1</i> (<i>vp1402</i>) fused to a linker (AAAGGG) and <i>sfGFP</i> ; 3' is cloned in-frame with the C-terminal Myc-His tag of the plasmid	Used to fuse TssB1 with sfGFP under <i>Pbad</i> control	This study
pDM4	a <i>Cm^R</i> and <i>oriV_{R6K}</i> -containing suicide vector	To generate deletions, insertions, and replacements in <i>Vibrio</i> genomes	(O'Toole <i>et al</i> , 1996)
pDM4: <i>vp1391</i>	pDM4 containing 1 kb upstream and 1 kb downstream of <i>vp1391</i> in its MCS	Used to generate <i>V. parahaemolyticus</i> POR1 Δ3x Regulators	(Salomon <i>et al</i> , 2013)
pDM4: <i>vp1407</i>	pDM4 containing 1 kb upstream and 1 kb downstream of <i>vp1407</i> in its MCS	Used to generate <i>V. parahaemolyticus</i> POR1 Δ3x Regulators	(Salomon <i>et al</i> , 2013)
pDM4: <i>tfoY</i>	pDM4 containing 1 kb upstream and 1 kb downstream of the <i>V. parahaemolyticus</i> <i>vp1028</i> in its MCS	Used to generate <i>V. parahaemolyticus</i> POR1 Δ3x Regulators	(Ben-Yaakov & Salomon, 2019)
pDM4: <i>dns</i> ^{Vnat}	pDM4 containing 1 kb upstream and 1 kb downstream of <i>V. natriegens</i> <i>dns</i> in its MCS	Used as platform to introduce cassettes that will replace <i>dns</i> in the <i>V. natriegens</i> genome	This study
pDM4: <i>dns</i> ^{Vnat} _{-vp1409-7}	pDM4: <i>dns</i> ^{Vnat} into which the region spanning <i>araC</i> to the <i>rrnT1</i> terminator from	Used to replace the <i>V. natriegens</i> <i>dns</i> gene with a cassette including a constitutively expressed	This study

	pVP1409-7 was inserted between the upstream and the downstream regions of <i>dns</i>	<i>araC</i> and <i>vp1409-7</i> under <i>Pbad</i> control	
pDM4: <i>dns</i> ^{Vnat} _{-vp1407}	pDM4: <i>dns</i> ^{Vnat} into which the region spanning <i>araC</i> to the <i>rrnT1</i> terminator from pVP1407 was inserted between the upstream and downstream regions of <i>dns</i>	Used to replace the <i>V. natriegens dns</i> gene with a cassette including a constitutively expressed <i>araC</i> and <i>vp1407</i> under <i>Pbad</i> control	This study
pDM4: <i>tfoY</i> ^{Vnat}	pDM4 containing 1 kb upstream and 1 kb downstream of the <i>V. natriegens m272_rs24650</i> in its MCS	Used to delete <i>tfoY</i> in <i>V. natriegens</i>	This study
pDM4: <i>vp1415</i>	pDM4 containing a ~2.2 kb region encompassing 1.1 kb upstream and 1.1 kb downstream of the codons encoding histidines 563-4 in <i>V. parahaemolyticus vp1415</i>	Used as a template to replace the codons encoding histidines 563-4 in <i>V. parahaemolyticus vp1415</i> with alanines	This study
pDM4: <i>vp1415</i> ^{AAA}	pDM4 containing a ~2.2 kb region encompassing 1.1 kb upstream and 1.1 kb downstream of the codons encoding histidines 563-4 in <i>V. parahaemolyticus vp1415</i> in which these two codons were mutated to encode alanines	Used to replace VP1415 histidines 563-4 with alanine in the <i>V. parahaemolyticus</i> genome	This study
pDM4: <i>tssB</i> ^{Aj DSM7311}	pDM4 containing 1 kb upstream and 1 kb downstream of <i>A. jandaei bn1126_rs13720</i>	Used to delete <i>tssB</i> in <i>A. jandaei</i>	This study
pDM4: <i>hcp1</i> ^{Vp 04.2548}	pDM4 containing 1 kb upstream and 1 kb downstream of <i>V. parahaemolyticus</i>	Used to delete <i>hcp1</i> in <i>V. parahaemolyticus</i> 04.2548	This study

	04.2548 <i>ba740_rs16850</i>		
pVSV209	Mobilizable plasmid contains <i>OriV_{pES213}</i> , <i>OriV_{R6K}</i> , <i>Kan^R</i> , constitutive <i>rfp</i> , and a promoterless <i>Cm^R-gfp</i> reporter	Used to carry TssB1-sfGFP and effector and immunity modules in <i>V. natriegens</i>	(Dunn <i>et al</i> , 2006)
pBJ209-araC	pVSV209 derivative in which the <i>rfp-gfp</i> cassette was replaced by the region spanning <i>araC</i> CDS to the <i>rnnT1</i> terminator from pBAD/Myc-His	Used as pEmpty for pVSV209-derived plasmids (pEI-x)	This study
pPoNe/i ^{Vp 12-297/B}	pVSV209 derivative in which the <i>rfp-gfp</i> cassette was replaced by the region spanning the <i>Pbad</i> promoter to the <i>rnnT1</i> terminator from pBAD/Myc-His:PoNe/i ^{Vp 12-297/B}	Used to express PoNe/i ^{Vp 12-297/B} in <i>V. natriegens</i>	This study
pTme/i1 ^{Vp BB22OP}	pVSV209 derivative in which the <i>rfp-gfp</i> cassette was replaced by the region spanning the <i>Pbad</i> promoter to the <i>rnnT1</i> terminator from pBAD/Myc-His: Tme/i1 ^{Vp BB22OP}	Used to express Tme/i1 ^{Vp BB22OP} in <i>V. natriegens</i>	This study
pVPA1263-Vti2 ^{Vp RIMD}	pVSV209 derivative in which the <i>rfp-gfp</i> cassette was replaced by the region spanning the <i>Pbad</i> promoter to the <i>rnnT1</i> terminator from pBAD/Myc-His: VPA1263-Vti2 ^{Vp RIMD}	Used to express VPA1263-Vti2 ^{Vp RIMD} in <i>V. natriegens</i>	This study
pVa2265-0 ^{Va 12G01}	pVSV209 derivative in which the <i>rfp-gfp</i> cassette was replaced by the region spanning the <i>Pbad</i> promoter to the <i>rnnT1</i> terminator from	Used to express Va2265-0 ^{Va 12G01} in <i>V. natriegens</i>	This study

	pBAD/Myc-His: Va2265-0 ^{Va 12G01}		
pVPA1263-Vti2+Va02265-0	pVSV209 derivative in which the <i>rfp-gfp</i> cassette was replaced by the region spanning the <i>Pbad</i> promoter to the <i>rnnT1</i> terminator from pBAD/Myc-His: VPA1263-Vti2 ^{Vp RIMD} followed by the same region from pBAD/Myc-His: Va2265-0 ^{Va 12G01}	Used to express VPA1263-Vti2 ^{Vp RIMD} and Va2265-0 ^{Va 12G01} in <i>V. natriegens</i> together	This study
pTssB1-sfGFP	pVSV209 derivative in which the <i>rfp-gfp</i> cassette was replaced by the region spanning the <i>Pbad</i> promoter to the <i>rnnT1</i> terminator from pBAD/Myc-His:TssB1-sfGFP	Used to express TssB1-sfGFP in <i>V. natriegens</i> together	This study
pCLTR	<i>E. coli</i> -yeast- <i>Vibrio</i> shuttle vector; mobilizable; it contains <i>Spec^R</i> and <i>Cm^R</i>	Used to capture VpT6SS1 and its derivatives	This study
pT6SS1	<i>vp1386-vp1420</i> (VpT6SS1) from <i>V. parahaemolyticus</i> in pCLTR	Used to transfer VpT6SS1 into <i>V. natriegens</i>	This study
pT6SS1 ^{Ind}	pT6SS1 lacking <i>vp1407</i>	Used as an inducible derivative of pT6SS1	This study
pT6SS1 ^{Ind/Δhcp1}	pT6SS1 ^{Ind} lacking <i>hcp1</i>	Used as a T6SS-inactive version of pT6SS1 ^{Ind}	This study
pT6SS1 ^{Effectorless}	pT6SS1 ^{Ind} lacking <i>vp1388-90</i> and carrying a mutated form of <i>vp1415</i> (<i>vp1415^{AAA}</i>)	Used as an inducible derivative of pT6SS1 lacking endogenous active effector and immunity modules	This study
pT6SS1 ^{Effectorless/Δhcp1}	pT6SS1 ^{Effectorless} lacking <i>hcp1</i>	Used as a T6SS-inactive version of pT6SS1 ^{Effectorless}	This study

Appendix Table S3. Primers used in this study.

Primer name	Sequence (5' to 3')	Description
pCLTR_F1	GCGCAGCGGCGGCCGCGCTG ATACCGCCGCTTGCTTTTGAAT TTCTGCCATTC	Amplify <i>p15A ori</i> and <i>Cm^R</i> from pBAD33 to construct pCLTR
pCLTR_R1	GCCGCAGCCGAACGACCGAG ATAAGCTGTCAAACATGAGCA G	Amplify <i>p15A ori</i> and <i>Cm^R</i> from pBAD33 to construct pCLTR
pCLTR_F2	TGCTCATGTTTGACAGCTTATC TCGGTCGTTTCGGCTGCGGCG	Amplify <i>oriT</i> from pUC18-mini-Tn7T-Tp-dsRedExpress to construct pCLTR
pCLTR_R2	TCGCTCACTGACTTTAATTAAC TGCGGCGAGGTATAGCGATTT TTTCGGTATATCC	Amplify <i>oriT</i> from pUC18-mini-Tn7T-Tp-dsRedExpress to construct pCLTR
T6SS_F	CCCTGTTTGCATTATGAATTAG TTACGCTAGGGGCGGCCGCA GTGAGCAGATAATGACTAAAA GATAC	Amplify a fragment of VpT6SS1 to construct pT6SS1
F1_R	GCCTTTACGGTAGCGCTTGTT GATTC	Amplify a fragment of VpT6SS1 to construct pT6SS1 and its derivatives
F2_F	TGTAACAGCGTATGTTACAGAT AAAAAC	Amplify a fragment of VpT6SS1 to construct pT6SS1 and its derivatives
F2_R	TTTATTTATCTGGCTTCGTAAC ATTGC	Amplify a fragment of VpT6SS1 to construct pT6SS1 and its derivatives
F3_F	GAAGTATATTTGGCTTATAACA GTAAAC	Amplify a fragment of VpT6SS1 to construct pT6SS1 and its derivatives
F3_R	ATACGACATTTCTGCGGCAGG TTG	Amplify a fragment of VpT6SS1 to construct pT6SS1 and its derivatives
F4_F	CTTGGAAGCAGTATAACGAAT CTCAAC	Amplify a fragment of VpT6SS1 to construct pT6SS1 and its derivatives
F4_R	GTTGTTAGCGCGCGATAGC	Amplify a fragment of VpT6SS1 to construct pT6SS1 and its derivatives
F5_F	CAGTGTTAACTAATTACATCGT G	Amplify a fragment of VpT6SS1 to construct pT6SS1 and its derivatives
F5_R	GACATAATTAGTTCCTTATCTA AC	Amplify a fragment of VpT6SS1 to construct pT6SS1 and its derivatives

F6_F	GAAAAGTGGAAAGCAATTTATG AC	Amplify a fragment of VpT6SS1 to construct pT6SS1 and its derivatives
F6_R	CTACTTCCGCACTCAATTCTCA CC	Amplify a fragment of VpT6SS1 to construct pT6SS1 and its derivatives
F7_F	AGTTGCTCGAACGACATCCAT GTTG	Amplify a fragment of VpT6SS1 to construct pT6SS1 and its derivatives
F7_R	CCACTCTTCGCCAGTCTTATCC AG	Amplify a fragment of VpT6SS1 to construct pT6SS1 and its derivatives
F8_F	GCATTGCCTTACCACGCAGGT TAC	Amplify a fragment of VpT6SS1 to construct pT6SS1 and its derivatives
T6SS_R	GCGCTCGGTCGTTTCGGGTTCT ATATTACCCTGGCGGCCGCAA GTGGTACTTCACTTGTTTCAGCC G	Amplify a fragment of VpT6SS1 to construct pT6SS1
T6SS_2_R	AAGTGGTACTTCACTTGTTTCAG CC	Amplify a fragment of VpT6SS1 to construct pT6SS1 derivatives
T6SS_2_F	AGTGAGCAGATAATGACTAAAA GATAC	Amplify a fragment of VpT6SS1 to construct pT6SS1 derivatives
d88-90_R	GTTGAGATTTCGTTATACTGCTT CCAAGCCAACATCGTAAACAT GGTTGCGG	Amplify a fragment of VpT6SS1 to construct pT6SS1 derivatives
d88-90_F	CCGCAACCATGTTTACGATGTT GGCTTGGAAGCAGTATAACGA ATCTCAAC	Amplify a fragment of VpT6SS1 to construct pT6SS1 derivatives
pT6SS1_Last_R	ATATCTATCATTATTTAGTTAGT AAAAACAAAGGAATTGTC	Amplify the pT6SS1 backbone to construct pT6SS1 derivatives
pT6SS1_Last_F	AAAGTGCCGAAAGGCGCTTTT TCTTTTAATTACAATCC	Amplify the pT6SS1 backbone to construct pT6SS1 derivatives
pBADfix_GIB_F	AAGCTTGGGCCCCGAACAAAAA C	Amplify the pBAD/Myc-His backbone for cloning using the Gibson assembly method
pBADfix_GIB_R	CATGGTTAATTCCTCCTGTTAG	Amplify the pBAD/Myc-His backbone for cloning using the Gibson assembly method
pBAD_vp1391_F	GCTAACAGGAGGAATTAACCA TGCGTTTCAGCTAACCATAGCG	Amplify vp1391 to construct pVP1391
pBAD_vp1391_R	TTTTGTTTCGGGCCCAAGCTTAC CTGCCGCAGAAATGTCGTATTT C	Amplify vp1391 to construct pVP1391

pBAD_vp1407_F	GCTAACAGGAGGAATTAACCA TGATTTCTAATATGACTTTACA AG	Amplify <i>vp1407</i> to construct pVP1407
pBAD_vp1407_R_STOP	TTTTGTTCTGGGCCCAAGCTTCT ATCGACTGATCGGCTGATGAA G	Amplify <i>vp1407</i> to construct pVP1407 and pVP1409-7
pBAD_VP1409_F	GCTAACAGGAGGAATTAACCA TGGAACCTTAACATTATGTTTT CAG	Amplify <i>vp1409</i> to construct pVP1409-7
VN_Dns_Up_F	CGCGAGCTCTTGCCCTTCTTA GTGATTGGGTC	Amplify the 1 kb upstream of <i>V. natriegens dns</i> (PN96_00865) to construct pDM4: <i>dns</i> ^{Vnat}
VN_Dns_Up_R	ATAAGAATGCGGCCGCAGTTA AAGTCTTTAAAAAGTATGAC	Amplify the 1 kb upstream of <i>V. natriegens dns</i> (PN96_00865) to construct pDM4: <i>dns</i> ^{Vnat}
VN_Dns_Dn_F	ATAAGAATGCGGCCGCCAGC CGATAAATGGGAATGC	Amplify the 1 kb downstream of <i>V.</i> <i>natriegens dns</i> (PN96_00865) to construct pDM4: <i>dns</i> ^{Vnat}
VN_Dns_Dn_R	ACGCGTCGACGGCAAAGCTAG AGTCTTTCTTG	Amplify the 1 kb downstream of <i>V.</i> <i>natriegens dns</i> (PN96_00865) to construct pDM4: <i>dns</i> ^{Vnat}
Not1_Fix_F	ATAAGAATGCGGCCGCATGCA TAATGTGCCTGTCAAATGG	Amplify the region spanning <i>araC</i> and <i>rnnT1</i> from pBAD/Myc-His derivatives to construct pDM4: <i>dns</i> ^{Vnat} _{vp1407} or pDM4: <i>dns</i> ^{Vnat} _{vp1409-7}
Not1_Fix_R	ATAAGAATGCGGCCGCTAGAA ACGCAAAAAGGCCATCCG	Amplify the region spanning <i>araC</i> and <i>rnnT1</i> from pBAD/Myc-His derivatives to construct pDM4: <i>dns</i> ^{Vnat} _{vp1407} or pDM4: <i>dns</i> ^{Vnat} _{vp1409-7}
VN_TfoY_Up_F	CGCGAGCTCTATCGAATTGGC AGAGTACTTC	Amplify 1 kb upstream of <i>V. natriegens tfoY</i> (m272_rs24650) to construct pDM4: <i>tfoY</i> ^{Vnat}
VN_TfoY_Up_R	CGCGGATCCGATGTGTTATCT CGGTGTAATTATTATTACG	Amplify 1 kb upstream of <i>V. natriegens tfoY</i> (m272_rs24650) to construct pDM4: <i>tfoY</i> ^{Vnat}
VN_TfoY_Dn_F	CGCGGATCCTCTGTAGGTATA AACCTATCGTAC	Amplify 1 kb downstream of <i>V. natriegens tfoY</i>

		(<i>m272_rs24650</i>) to construct pDM4: <i>tfoY</i> ^{Vnat}
VN_TfoY_Dn_R	ACGCGTCGACAATGGTAGTTC CCCCTTCAATCCG	Amplify 1 kb downstream of <i>V. natriegens tfoY</i> (<i>m272_rs24650</i>) to construct pDM4: <i>tfoY</i> ^{Vnat}
VPA1263_F	TAACAGGAGGAATTAACCATGT CCTATAAAGTTCTTCCACTG	Amplify the <i>vpa1263-vti2</i> effector and immunity module from <i>V. parahaemolyticus</i> RIMD 2210633 to construct pBAD/Myc-His:VPA1263-Vti2 ^{Vp RIMD}
Vit2_R	TTTTGTTCTGGGCCCAAGCTTCT CTTTGAAGCAAGGTTCTC	Amplify the <i>vpa1263-vti2</i> effector and immunity module from <i>V. parahaemolyticus</i> RIMD 2210633 to construct pBAD/Myc-His:VPA1263-Vti2 ^{Vp RIMD}
pVSV_F	AAACTCTTTTGTTTATTTTCCCC GGGAATTCCCATGTCAGCCG	Amplify the pVSV209 backbone for cloning using the Gibson assembly method
pVSV_R	GGCGGGAGTATGAAAAGGAGT GAGCTAACTCACATTAATTG	Amplify the pVSV209 backbone for cloning using the Gibson assembly method
pBADfix_R_MCS	AAAATAAACAAAAGAGTTTGTA GAAAC	Amplify the region between the <i>Pbad</i> promoter and the <i>rnnT1</i> terminator from pBAD/Myc-His derivatives to clone into pVSV209 using the Gibson assembly method
pBADfix_F_MCS	CTTTTCATACTCCCGCCATTCA GAG	Amplify the region between the <i>Pbad</i> promoter and the <i>rnnT1</i> terminator from pBAD/Myc-His derivatives to clone into pVSV209 using the Gibson assembly method
pDM4_Gib_VP1415_F	GTGGAATCCCGGGAGAGCTCA GAGATATAGAGCCAATCCAAA AG	Amplify the ~2.2 kb region flanking the <i>vp1415</i> codons encoding histidines 563-4 from <i>V. parahaemolyticus</i> POR1 to construct pDM4: <i>vp1415</i>

pDM4_Gib_VP1415_R	TAGCGGAGTGTATATCAAGCTT TTAAATTTTCATTCCAAAACCA ATG	Amplify the ~2.2 kb region flanking the <i>vp1415</i> codons encoding histidines 563-4 from <i>V. parahaemolyticus</i> POR1 to construct pDM4: <i>vp1415</i>
VP1415_HH_AA_F	GGAGCAGTGCAGGCTGCAGCT CTTATTCCTAAAAATGCATTC	Site-directed mutagenesis to replace histidines 563-4 of VP1415 with alanines
VP1415_HH_AA_R	CACTGCTCCCGCCCCGTGCCA CCAAGGGTGC	Site-directed mutagenesis to replace histidines 563-4 of VP1415 with alanines
VP1386_F_RTPCR	AAGGCGTGGTGAAC TTCAGT	Determine the expression of <i>vp1386</i> in quantitative RT-PCR
VP1386_R_RTPCR	CAAAGCTACTCTGCCACCT	Determine the expression of <i>vp1386</i> in quantitative RT-PCR
VP1388_F_RTPCR	ACTGGGTTGCGTTGTCTTCT	Determine the expression of <i>vp1388</i> in quantitative RT-PCR
VP1388_R_RTPCR	CTGGACTTGGCTCAGAAGGG	Determine the expression of <i>vp1388</i> in quantitative RT-PCR
VP1392_F_RTPCR	ACCCTATTGCCGTTGGTGAG	Determine the expression of <i>vp1392</i> in quantitative RT-PCR
VP1392_R_RTPCR	ATGATCGGTGTTGGCGAGTT	Determine the expression of <i>vp1392</i> in quantitative RT-PCR
VP1393_F_RTPCR	AGCTGATTGATGCGCTATTGG	Determine the expression of <i>vp1393</i> in quantitative RT-PCR
VP1393_R_RTPCR	TCGTCGTTACCAGCTGTACC	Determine the expression of <i>vp1393</i> in quantitative RT-PCR
VP1406_F_RTPCR	CGGGCAGCAGACGATTCTAT	Determine the expression of <i>vp1406</i> in quantitative RT-PCR
VP1406_R_RTPCR	ACTCAATTCGCTCCTGGTGG	Determine the expression of <i>vp1406</i> in quantitative RT-PCR
VP1409_F_RTPCR	CCAGTCAAAGTGAGCCAGGT	Determine the expression of <i>vp1409</i> in quantitative RT-PCR
VP1409_R_RTPCR	GCAATGTTGGCAAAGACCGT	Determine the expression of <i>vp1409</i> in quantitative RT-PCR

VP1414_F_RT-pcr	TTGGAGCCAGAACAGTTTGC	Determine the expression of <i>vp1414</i> in quantitative RT-PCR
VP1414_R_RT-pcr	TGCTAGCTTTTCGTTACCGC	Determine the expression of <i>vp1414</i> in quantitative RT-PCR
16s rRNA_F RT-PCR	GACACGGTCCAGACTCCTAC	Determine the expression of 16s rRNA in quantitative RT-PCR
16s rRNA_R RT-PCR	GGTGCTTCTTCTGTCGCTAAC	Determine the expression of 16s rRNA in quantitative RT-PCR
Aero_tssB_Sall_UP_F	CAAAGTCGACATGGTCTCGCCCTGAAAC	Amplify the 1 kb upstream of <i>A. jandaei</i> DSM 7311 <i>tssB</i> (<i>bn1126_rs13720</i>) to construct pDM4: <i>tssB</i> ^{Aj} DSM7311
Aero_tssB_KpnI_UP_R_	CAATGGTACCGCTCTAAATACC AAGTTAAGGG	Amplify the 1 kb upstream of <i>A. jandaei</i> DSM 7311 <i>tssB</i> (<i>bn1126_rs13720</i>) to construct pDM4: <i>tssB</i> ^{Aj} DSM7311
Aero_tssB_KpnI_DN_F	CAATGGTACCTCGCCGGGTTG GATTGACTGAAC	Amplify the 1 kb downstream of <i>A. jandaei</i> DSM 7311 <i>tssB</i> (<i>bn1126_rs13720</i>) to construct pDM4: <i>tssB</i> ^{Aj} DSM7311
Aero_tssB_XbaI_DN_R	CAAATCTAGAAGATCGTGGAT GGCACCAC	Amplify the 1 kb downstream of <i>A. jandaei</i> DSM 7311 <i>tssB</i> (<i>bn1126_rs13720</i>) to construct pDM4: <i>tssB</i> ^{Aj} DSM7311
TssB-link-GFP_F1	GCTAACAGGAGGAATTAACCA TGTCACGTGACGGCTCGGTG	Amplify <i>tssB1</i> (<i>vp1402</i>) from <i>V. parahaemolyticus</i> POR1 to construct pBAD/Myc-His:TssB1-sfGFP
TssB-link-sfGFP_R1	ACCACCACCAGCAGCAGCCTC TTCTTTCGCGTCTTGGTC	Amplify <i>tssB1</i> (<i>vp1402</i>) from <i>V. parahaemolyticus</i> POR1 to construct pBAD/Myc-His:TssB1-sfGFP
TssB-link-sfGFP_F2	GCTGCTGCTGGTGGTGGTATG GTGAGCAAGGGCGAGGAG	Amplify <i>sfGFP</i> from sfGFP-N1 plasmid to construct pBAD/Myc-His:TssB1-sfGFP
TssB-link-sfGFP_R2	TTTTGTTCGGGGCCCAAGCTTCT TGTACAGCTCGTCCATGCC	Amplify <i>sfGFP</i> from sfGFP-N1 plasmid to construct

		pBAD/Myc-His:TssB1-sfGFP
Hcp1_UP_F_SacI	CAAAGAGCTCCTGTCGTGAAC TTGCTCAG	Amplify 1 kb upstream of <i>V. parahaemolyticus</i> 04.2548 <i>hcp1</i> (ba740_rs16850) to construct pDM4: <i>hcp1</i> ^{vp} 04.2548
Hcp1_UP_R_BamHI	CAACGGATCCCGCTATTTCTT TTCTAAAATCTG	Amplify 1 kb upstream of <i>V. parahaemolyticus</i> 04.2548 <i>hcp1</i> (ba740_rs16850) to construct pDM4: <i>hcp1</i> ^{vp} 04.2548
Hcp1_DN_F_BamHI	CACCGGATCCTTGCTTTTTGC GTAAAGATTCAGG	Amplify 1 kb downstream of <i>V. parahaemolyticus</i> 04.2548 <i>hcp1</i> (ba740_rs16850) to construct pDM4: <i>hcp1</i> ^{vp} 04.2548
Hcp1_DN_R_Sall	CAAAGTCGACCTGTAACCAGA CGCCAAACG	Amplify 1 kb downstream of <i>V. parahaemolyticus</i> 04.2548 <i>hcp1</i> (ba740_rs16850) to construct pDM4: <i>hcp1</i> ^{vp} 04.2548

Appendix References

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