

SUPPLEMENTARY MATERIAL

Table S1. Regulation of the *cepR2* and *cepS* promoters.

Fusion ^a	Fragment ^b	Chromosomal genotype ^c	OHL (uM)	β-Galactosidase	Induction Ratio
<i>PcepR2-lacZ</i>	-195 - +170	WT	0	237 ± 8	(1)
		WT	1	480 ± 30	2.0
		GR141 (<i>cepR2</i>)	0	247 ± 23	1.0
		GR141 (<i>cepR2</i>)	1	446 ± 26	1.9
		GR145 (<i>cepS</i>)	0	116 ± 13	0.5
		GR145 (<i>cepS</i>)	1	126 ± 12	0.5
<i>PcepS-lacZ</i>	-198 - +127	WT	0	264 ± 23	(1)
		WT	1	468 ± 35	1.8
		GR141 (<i>cepR2</i>)	0	237 ± 17	0.9
		GR141 (<i>cepR2</i>)	1	482 ± 32	1.8
		GR145 (<i>cepS</i>)	0	172 ± 14	0.7
		GR145 (<i>cepS</i>)	1	155 ± 21	0.6

a: The *cepR2-lacZ* fusion was carried by plasmid pGR141, while the *cepS-lacZ* fusion was carried by pGR146.

b: Coordinates of the two fusions are calculated relative to the *cepR2* and *cepS* translation start sites, respectively.

c: All strains are derivatives of K56-I2, and therefore have mutations in *cepl*.

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Table S2. Bacterial strains used in this study.

Strain	Description	Source and/or reference
<i>B. cenocepacia</i>		
K56-I2	<i>B. cenocepacia</i> K56-2 <i>cepI::TpR</i>	(Lewenza <i>et al.</i> , 1999)
GR141	K56-I2, Δ <i>cepR2</i> , <i>cepI::TpR</i>	This study
GR145	K56-I2, Δ <i>cepS</i> , <i>cepI::TpR</i>	This study
<i>E. coli</i>		
DH5 α	F- ϕ 80 <i>lacZ</i> Δ M15 Δ (<i>lacZYA-argF</i>) U169 <i>recA1 endA1 hsdR17</i> (<i>rk-</i> , <i>mk+</i>) <i>phoA supE44 λ-thi-1 gyrA96 relA1</i>	Stratagene
BL21(DE3)	<i>Plac</i> -gene 1 of bacteriophage T7; pTet-TVMV protease, Km ^R	(Studier <i>et al.</i> , 1990)
MC4100	F- <i>araD139</i> Δ (<i>argF-lac</i>)U169 <i>rpsL150 relA1 deoC1 rbsR fthD5301 fruA25 λ-</i>	(Ferenci <i>et al.</i> , 2009)
SM10(λ <i>pir</i>)	λ <i>pir</i> , RP4 <i>tra</i> regulon, host for <i>pir</i> -dependent plasmids; Kan ^R	(Donnenberg & Kaper, 1991)
EPM _{ax} 10B	F- <i>mcrA</i> Δ (<i>mrr-hsdRMS-mcrBC</i>) 80 <i>dlacZ</i> Δ M15 Δ <i>lacX74 deoR recA1 endA1 araD139</i> Δ (<i>ara, leu</i>)7697 <i>galU galK rpsL nupG λ-</i>	(Barrett <i>et al.</i> , 2008)
<i>Agrobacterium tumefaciens</i>		
WCF47(pCF218) (pCF372)	R10 Δ <i>tral</i> ; <i>PtetR-traR</i> , <i>Ptral-lacZ</i> fusion; Tet ^R , Sp ^R	(Fuqua & Winans 1994)

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Table S3. Plasmids used in this study.

Plasmid	Description	Source and/or reference
pRSETa	T7 promoter cloning vector, ColE1 ori, Ap ^R	Invitrogen
pT7- <i>groESL</i>	PT7- <i>groESL</i> , ColE1; Cm ^R	(Yasukawa <i>et al.</i> , 1995)
pYWN302	Broad host range, promoterless transcriptional <i>lacZYA</i> reporter, Tet ^R	(Wei <i>et al.</i> , 2011)
pSRKGm	pBBR1MCS-2-derived broad-host range expression vector containing <i>lac</i> promoter; Gm	(Khan <i>et al.</i> , 2008)
pSRKKm	pBBR1MCS-2-derived broad-host range expression vector containing <i>lac</i> promoter; Kan ^R	(Khan <i>et al.</i> , 2008)
pEX18Tet- <i>pheS</i>	Suicide plasmid for gene replacement based on <i>pheS</i> and Tet ^R	(Barrett <i>et al.</i> , 2008)
pSW208	pACYC184-derived plasmid containing <i>lac</i> promoter; Cm ^R	Lab collection
pGR107	<i>cepR2</i> cloned into <i>NdeI</i> and <i>XhoI</i> sites of pRSETa using oligonucleotides GR295 and GR288.	This study
pGR132	PCR fragment using oligonucleotides GR280 and GR284 cloned into pYWN302 at KpnI and XbaI sites; <i>bcam0191-lacZ</i> fusion.	This study
pGR133	PCR fragment using oligonucleotides GR281 and GR284 cloned into pYWN302 at KpnI and XbaI sites; <i>bcam0191-lacZ</i> fusion.	This study
pGR134	PCR fragment using oligonucleotides GR279 and GR284 cloned into pYWN302 KpnI and XbaI sites; <i>bcam0191-lacZ</i> fusion	This study
pGR136	PCR fragment using oligonucleotides GR196 and GR191 cloned into pYWN302 at KpnI and XbaI sites; <i>bcam0192-lacZ</i> fusion.	This study
pGR137	PCR fragment using oligonucleotides GR195 and GR191 cloned into pYWN302 at KpnI and XbaI sites; <i>bcam0192-lacZ</i> fusion	This study
pGR138	PCR fragment using oligonucleotides GR194 and GR191 cloned into pYWN302 at KpnI and XbaI sites; <i>bcam0192-lacZ</i> fusion	This study
pGR139	PCR fragment using oligonucleotides GR193 and GR191 cloned into pYWN302 at KpnI and XbaI sites; <i>bcam0192-lacZ</i> fusion	This study
pGR140	PCR fragment using oligonucleotides GR192 and GR191 cloned into pYWN302 at KpnI and XbaI sites; <i>bcam0192-lacZ</i> fusion.	This study
pGR141	PCR fragment using oligonucleotides GR197 and GR202 cloned into pYWN302 at KpnI and XbaI sites; <i>cepR2-lacZ</i> fusion.	This study
pGR146	PCR fragment using oligonucleotides GR203 and GR208 cloned into pYWN302 at KpnI and XbaI sites; <i>cepS-lacZ</i> fusion.	This study
pGR178	PCR fragment made using GR329, GR330, GR331, and GR332, cloned into pEX18Tet- <i>pheS</i> ; <i>cepR2</i> deletion with flanking DNA	This study
pGR182	PCR fragment made using GR345, GR346, GR347, and GR348 cloned into pEX18Tet- <i>pheS</i> ; <i>cepS</i> deletion with flanking DNA.	This study
pGR192	pSRKKm derivative containing <i>cepR2</i> using GR288 and GR295.	This study
pGR193	pSRKGm derivative containing <i>cepS</i> using GR322 and GR323	This study

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pGR195	PCR fragment using oligonucleotides GR292 and GR284 cloned into pYWN302 at KpnI and XbaI sites; <i>bcam0191-lacZ</i> fusion	This study
pGR197	PCR fragment using oligonucleotides GR293 and GR284 cloned into pYWN302 at KpnI and XbaI sites; <i>bcam0191-lacZ</i> fusion	This study
pGR198	PCR fragment using oligonucleotides GR294 and GR284 cloned into pYWN302 at KpnI and XbaI sites; <i>bcam0191-lacZ</i> fusion	This study
pGR236	PCR fragment using oligonucleotides GR275 and GR283 cloned into pYWN302 at KpnI and XbaI sites; <i>bcam0191-lacZ</i> fusion	This study
pGR243	PCR fragment using oligonucleotides GR196 and GR380 cloned into pYWN302 at KpnI and XbaI sites; <i>bcam0192-lacZ</i> fusion	This study
pGR259	PCR fragment using oligonucleotides GR392 and GR284 cloned into pYWN302 at KpnI and XbaI sites; <i>bcam0191-lacZ</i> fusion with altered CepR2 binding site	This study
pGR260	PCR fragment using oligonucleotides GR393 and GR284 cloned into pYWN302 at KpnI and XbaI sites; <i>bcam0191-lacZ</i> fusion with altered CepR2 binding site	This study
pGR261	PCR fragment using oligonucleotides GR394 and GR284 cloned into pYWN302 at KpnI and XbaI sites; <i>bcam0191-lacZ</i> fusion with altered CepR2 binding site	This study
pGR276	pSW208 derivative containing <i>cepS</i> using GR323 and GR417	This study

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Table S4. Oligonucleotides used in this study.

Name	Sequence	Comments
GR191	ATTTCTAGACGAATACGTGCCATTCCATG	For PCR amplifying <i>bcam0192</i> promoters in pGR136, pGR137, pGR138, pGR139, and pGR140 and Fragment 3.
GR192	ATTGGTACCCGTGAAATTGCTGC	For PCR amplifying of <i>bcam0192</i> promoter in pGR140.
GR193	ATTGGTACCTGGATGGATGAGGAGTCTG	For PCR amplifying Fragment 3 and pGR139
GR194	ATTGGTACCTTGCGGATGTCAATTCC	For PCR amplifying of <i>bcam0192</i> promoter in pGR138.
GR195	ATTGGTACCTCGCATCGTGCATTTTC	For PCR amplifying of <i>bcam0192</i> promoter in pGR137.
GR196	ATTGGTACCTCACGTCGTTTCTCCTG	For PCR amplifying <i>bcam0192</i> promoter in pGR136 and pGR243
GR197	ATTTCTAGACGACGATCTGCATGTCG	For PCR amplifying <i>cepR2</i> promoter in pGR141
GR202	ATTGGTACCGTCGATCAGTCCTGATAC	For PCR amplifying <i>cepR2</i> promoter in pGR141
GR203	ATTGGTACCCATACTCGTGAGCAAGC	For PCR amplifying <i>cepS</i> promoter in pGR146
GR208	ATTTCTAGAATCGGTGATCCTCG	For PCR amplifying <i>cepS</i> promoter in pGR146
GR275	GCTTCTAGAGGTGGATGAATTAAATGC	For PCR amplifying <i>bcam0191</i> promoter in pGR236
GR279	ATTGGTACCATGAAATGCACGATGCG	For PCR amplifying <i>bcam0191</i> promoter in pGR134
GR280	ATTGGTACCCCTCATCCATCCATCAA	For PCR amplifying <i>bcam0191</i> promoter in pGR132
GR281	ATTGGTACCATCGGGCTGTCTAGGATAAG	For PCR amplifying <i>bcam0191</i> promoter in pGR133
GR283	ATTGGTACCGACTCTCCTAGTAATGTCC	For PCR amplifying <i>bcam0191</i> promoter in pGR130, pGR236.
GR284	ATTTCTAGAGCGTAGATATGCGTCGAC	For PCR amplifying <i>bcam0191</i> promoters in pGR130, pGR132, pGR133, pGR134, pGR195, pGR197, pGR198, pGR259, pG260, pGR261 and Fragment 1.
GR288	ATTCTCGAGTTTTTTCACGTCACGG	For amplifying <i>cepR2</i> for cloning into pGR107 and pGR192
GR292	ATTGGTACCTACTGGAAAGGCTTTGACGCA	For PCR amplifying <i>bcam0191</i> promoter in pGR195
GR293	ATTGGTACCCGCACGGAATTGACATC	For PCR amplifying <i>bcam0191</i> promoter in pGR197
GR294	ATTGGTACCCCGCAAATCGGGCTGTC	For PCR amplifying <i>bcam0191</i> promoter in pGR198
GR295	GGAATTCCATATGGACCTGACAATACTG	For amplifying of <i>cepR2</i> for cloning into pGR192 and pGR107
GR301	CCTCTTCGCTATTACGCCAGC	For PCR amplifying of <i>lacZ</i> fragment for negative control for EMSA experiments
GR302	CGTTACCCAACTTAATCG	For PCR amplifying of <i>lacZ</i> fragment for negative control for EMSA experiments
GR322	GGAATTCCATATGACCAGCGTTCAAGACG	For PCR amplifying <i>cepS</i> for cloning into pGR193
GR323	CCCAAGCTTGATCGTGCATGCGATC	For PCR amplifying <i>cepS</i> for cloning into pGR193 and pGR276.
GR324	GATCGTGCATGCGATC	For sequence verification of <i>cepR2</i> deletion
GR328	GCATGCGTCTTGTTCATCGC	For sequence verification of <i>cepS</i> deletion

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GR329	ACTAAGCTTCTGCAGTCGCTCGCACAGCTT	With GR330, GR331, and GR332, for construction of <i>cepR2</i> deletion fragment cloned into pGR178.
GR330	ATTGAATTCTTGCAGTATTGTCAGGTCCATC	With GR329, GR331, and GR332, for construction of <i>cepR2</i> deletion fragment cloned into pGR178.
GR331	ATTGAATTCTCGACGCGATGAACAAGAC	With GR329, GR330, and GR332, for construction of <i>cepR2</i> deletion fragment cloned into pGR178.
GR332	ACTTCTAGAGCACGTACGATTCGATCATTCGC	With GR329, GR330, and GR331, for construction of <i>cepR2</i> deletion fragment cloned into pGR178.
GR345	ATGGATCCGAACGCATTCCATACGACC	With GR346, GR347, and GR348, for construction of <i>cepS</i> deletion fragment cloned into pGR182.
GR346	GCACTAGTGATCAGTCCTGATACGAAACCG	With GR345, GR347, and GR348, for construction of <i>cepS</i> deletion fragment cloned into pGR182..
GR347	GCACTAGTGATCGCATGCACGATCCG	With GR345, GR346, and GR348, for construction of <i>cepS</i> deletion fragment cloned into pGR182..
GR348	CGGAATTCGACATCATGTGCTTGCC	With GR345, GR346, and GR347, for construction of <i>cepS</i> deletion fragment cloned into pGR182..
GR351	ATTTCTAGACATATTCGCATCGTGCATTTTC	For PCR amplifying Fragments 2, 4, and 5
GR365	ATTTCTAGAGGATAAGAATTGCGATTCATC	For PCR amplifying Fragment 1
GR380	ATTTCTAGATTCCGGCGCCGGAAACCGTTT	For PCR amplification of <i>bcam0192</i> promoter in pGR243
GR391	ATGGTACCCGCACGGAATTGACATCCGCAA ATCGGGCTGTC	For PCR amplifying Fragment 2
GR392	ATGGTACCCGCACGGAATTCTGATCCGCAA ATCGGGCTGTC	For PCR amplification of <i>bcam0191</i> promoter in pGR259 and Fragment 4
GR393	ATGGTACCCGCACGGAATTGACTAGGGCAAA TCGGGCTGTC	For PCR amplification of <i>bcam0191</i> promoter in pGR260 and Fragment 5
GR394	ATGGTACCCGCACGGAATTGACATCCCGTT ATCGGGCTGTC	For PCR amplification of <i>bcam0191</i> promoter in pGR261
GR417	ATGAATTCAGGAGGCGATAGATGACCAGCG TTCAAGA	For PCR amplifying <i>cepS</i> and cloning into pGR276
GR458	6-FAM-ATCGGTCACGTCGTTTCTCC	For mapping <i>bcam0191</i> promoter and DNA footprinting analysis
GR459	6-FAM-AATTGCCTGCATGCCGT	For mapping <i>bcam0192</i> promoter

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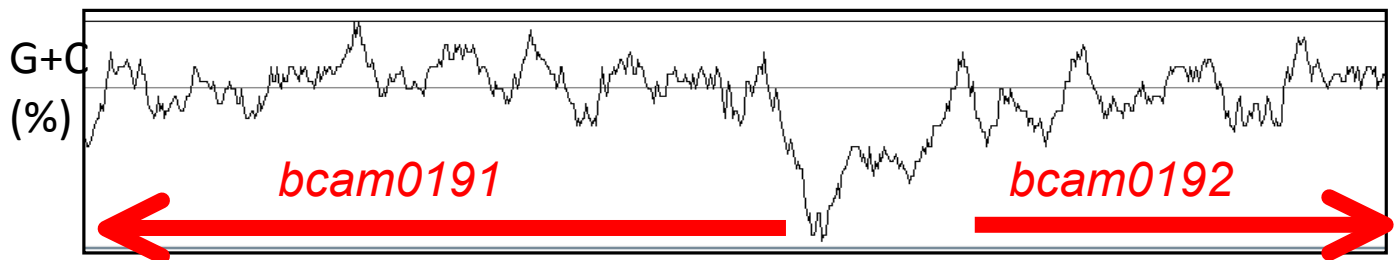


Fig. S1. G/C content of *bcam0191*, *bcam0192*, and the intergenic region between them, using a sliding window of 15 nucleotides. The intergenic region contains a significantly A/T-rich sequence.

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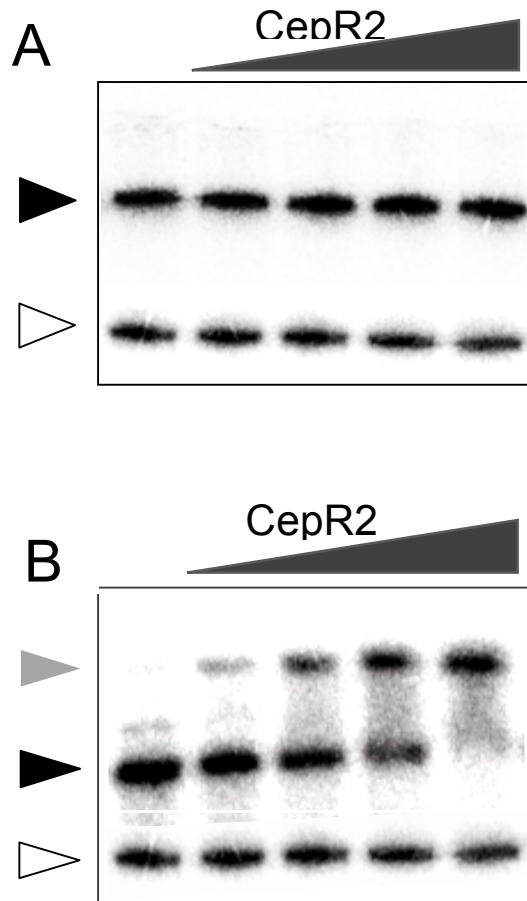


Fig. S2. CepR2 does not detectably shift a DNA fragment containing the *cepR2-cepS* intergenic region. A: A 197 nucleotide DNA fragment containing the entire *cepR2-cepS* intergenic region. B: DNA fragment containing the *bcam0191-bcam0192* intergenic region (see Fig. 6, fragment 2). Filled arrowheads show free DNA. Grey arrowhead shows CepR2-DNA complex. Open arrowheads show a negative control fragment containing *lacZ* DNA.

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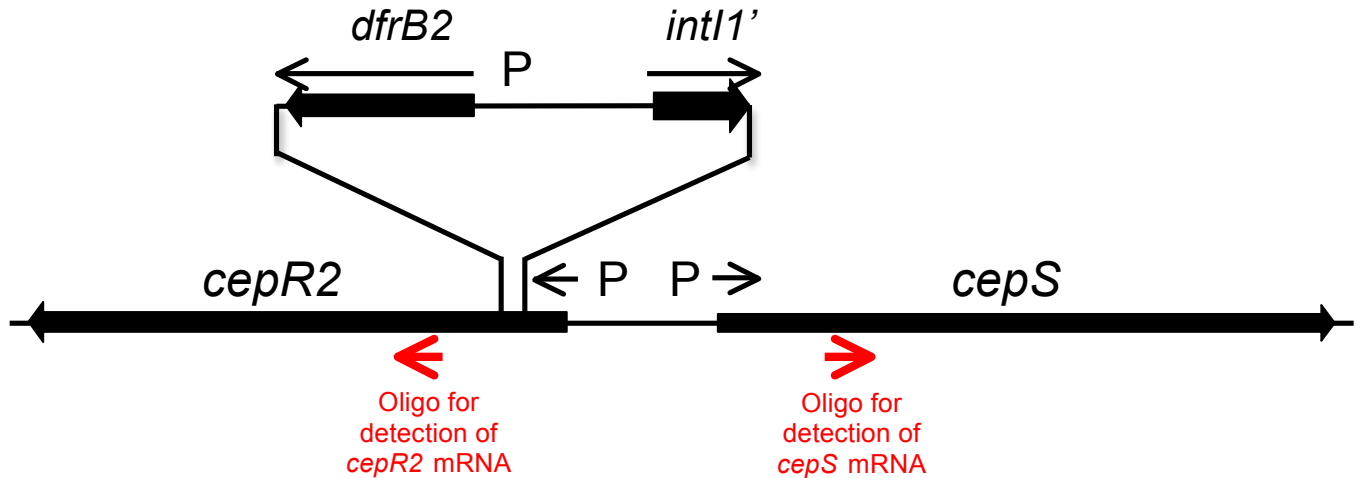


Fig. S3. In the study of Malott and colleagues, an approximately 620-nucleotide fragment containing *dfrB2* (trimethoprim resistance) and *int11'* (5' end of the *int11* integrase gene of plasmid R388) was inserted into a gap in *cepR2* created by digestion with *SacII* (which digests sites at two sites 54 and 87 nucleotides downstream from the *cepR2* start codon (Malott *et al.*, 2009). The orientation of the insertion was not described. Divergent promoters in this cassette (DeShazer & Woods, 1996) could have caused elevated expression of *cepS* gene and of that portion of *cepR2* downstream of the insertion.

CepR2 mRNA was detected using oligonucleotide

5'-CGGCAATCATCCACGCGAATGGGAACACCGTTATGTGAAATTCGGCTACGTCACCATCGA-3', which is located 167-227 downstream of the *cepR2* translation start site.

CepS mRNA was detected using oligonucleotide

5'-GGCCGGGCAACTATTGTTTACGACGCGCGGCGTATTAGTACTCGACGTCGAAGGCCAGCG-3', which is located 142-203 nucleotides downstream of the *cepS* translation start site.

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References

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