

Table S1. Bacterial strains used in this study

Strain	Properties / characteristics	Reference / source
<i>Xcc</i> Strains		
XC1	<i>Xcc</i> wild-type strain, Rif ^R	Lab stock
$\Delta hcaL$	The <i>hcaL</i> in-frame deletion mutant, Rif ^R	This study
$\Delta hcaH$	The <i>hcaH</i> in-frame deletion mutant, Rif ^R	This study
$\Delta hcaD$	The <i>hcaD</i> in-frame deletion mutant, Rif ^R	This study
$\Delta hcaR$	The <i>hcaR</i> in-frame deletion mutant, Rif ^R	This study
$\Delta hcaL(hcaL)$	The <i>hcaL</i> in-frame deletion mutant harboring the <i>hcaL</i> expression plasmid pBBR- <i>hcaL</i> , Rif ^R Kan ^R	This study
$\Delta hcaH(hcaH)$	The <i>hcaH</i> in-frame deletion mutant harboring the <i>hcaH</i> expression plasmid pBBR- <i>hcaH</i> , Rif ^R Kan ^R	This study
$\Delta hcaD(hcaD)$	The <i>hcaD</i> in-frame deletion mutant harboring the <i>hcaD</i> expression plasmid pBBR- <i>hcaD</i> , Rif ^R Kan ^R	This study
$\Delta hcaR(hcaR)$	The <i>hcaR</i> in-frame deletion mutant harboring the <i>hcaR</i> expression plasmid pBBR- <i>hcaR</i> , Rif ^R Kan ^R	This study
XC1:: <i>gusA</i>	The XC1 harboring a single copy of T0T1- <i>gusA</i> at the attTn7 site on its chromosome, Rif ^R	This study
XC1::P _{pobA} - <i>gusA</i>	The XC1 harboring a single copy of T0T1-P _{pobA} - <i>gusA</i> at the attTn7 site on its chromosome, Rif ^R	[Chen <i>et al.</i> , 2020]
XC1::P _{hcaL} - <i>gusA</i>	The XC1 harboring a single copy of T0T1-P _{hcaL} - <i>gusA</i> at the attTn7 site on its chromosome, Rif ^R	This study
XC1::P _{hcaD} - <i>gusA</i>	The XC1 harboring a single copy of T0T1-P _{hcaD} - <i>gusA</i> at the attTn7 site on its chromosome, Rif ^R	This study
XC1::P _{hcaH} - <i>gusA</i>	The XC1 harboring a single copy of T0T1-P _{hcaH} - <i>gusA</i> at the attTn7 site on its chromosome, Rif ^R	This study
XC1::P _{hca} - <i>gusA</i>	The XC1 harboring a single copy of T0T1-P _{hca} - <i>gusA</i> at the attTn7 site on its chromosome, Rif ^R	This study
$\Delta hcaL$::P _{hca} - <i>gusA</i>	The $\Delta hcaL$ harboring a single copy of T0T1-P _{hca} - <i>gusA</i> at the attTn7 site on its chromosome, Rif ^R	This study
$\Delta hcaH$::P _{hca} - <i>gusA</i>	The $\Delta hcaH$ harboring a single copy of T0T1-P _{hca} - <i>gusA</i> at the attTn7 site on its chromosome, Rif ^R	This study
$\Delta hcaR$::P _{hca} - <i>gusA</i>	The $\Delta hcaR$ harboring a single copy of T0T1-P _{hca} - <i>gusA</i> at the attTn7 site on its chromosome, Rif ^R	This study
<i>E. coli</i> strains		
DH5 α	<i>E. coli</i> F- Φ 80lacZ Δ M15 Δ (lacZYA-argF) U169 recA1 endA1 hsdR17 (rK-, mK+) phoA supE44 λ - thi-1 gyrA96 relA1	Lab stock
S17-1	res ⁻ pro mod ⁺ integrated copy of RP4, mob ⁺	Lab stock
BL21(DE3)	<i>E. coli</i> B F- dcm ompT hsdS(r _B - m _B -) gal [malB ⁺] _{K-12} (λ ^S)	Lab stock
pRK2013	Triparental mating helper strain, Kan ^R	Lab stock

Table S2. Plasmids used in this study

Plasmids	Properties / characteristics	Reference source /
pK18mobsacB	A mobilizable vector, allows for selection of double crossover in <i>Xcc</i> , Kan ^R	[Schäfer <i>et al.</i> , 1994]
pK18- <i>hcaL</i>	<i>Xcc hcaL</i> deletion cassette in pK18mobscaB, Kan ^R	This study
pK18- <i>hcaH</i>	<i>Xcc hcaH</i> deletion cassette in pK18mobscaB, Kan ^R	This study
pK18- <i>hcaD</i>	<i>Xcc hcaD</i> deletion cassette in pK18mobscaB, Kan ^R	This study
pK18- <i>hcaR</i>	<i>Xcc hcaR</i> deletion cassette in pK18mobscaB, Kan ^R	This study
pBBR1MCS-2	Plasmid for gene complementation, Kan ^R	[Kovach <i>et al.</i> , 1995]
pBBR- <i>hcaL</i>	<i>Xcc hcaL</i> cloned in pBBR1MCS-2, Kan ^R	This study
pBBR- <i>hcaH</i>	<i>Xcc hcaH</i> cloned in pBBR1MCS-2, Kan ^R	This study
pBBR- <i>hcaD</i>	<i>Xcc hcaD</i> cloned in pBBR1MCS-2, Kan ^R	This study
pBBR- <i>hcaR</i>	<i>Xcc hcaR</i> cloned in pBBR1MCS-2, Kan ^R	This study
pET28a	His-tag protein expression vector, Kan ^R	NEB
pET28a- <i>hcaR</i>	pET28a containing the coding sequence of <i>hcaR</i> , Amp ^R	This study
pMD18T-T0T1- <i>gusA</i>	Promoter probe cassette T0T1-MCS- <i>gusA</i> cloned in pMD18-T simple, Amp ^R	[Zhao <i>et al.</i> , 2014]
mini-Tn7T-Gm	A versatile mini-Tn7 delivery vector mini-Tn7T-Gm, Gm ^R	[Choi and Schweizer, 2006]
mini-Tn7-T0T1- <i>gusA</i>	mini-Tn7T-Gm containing a T0T1 terminator fused to the coding region for <i>gusA</i> , Gm ^R	This study
mini-Tn7-T0T1-P _{<i>hcaL</i>} - <i>gusA</i>	mini-Tn7T-Gm containing a T0T1 terminator and 497 bp promoter region of <i>hcaL</i> fused to the coding region for <i>gusA</i> , Gm ^R	This study
mini-Tn7-T0T1-P _{<i>hcaD</i>} - <i>gusA</i>	mini-Tn7T-Gm containing a T0T1 terminator and 516 bp promoter region of <i>hcaD</i> fused to the coding region for <i>gusA</i> , Gm ^R	This study
mini-Tn7-T0T1-P _{<i>hcaH</i>} - <i>gusA</i>	mini-Tn7T-Gm containing a T0T1 terminator and 324 bp promoter region of <i>hcaH</i> fused to the coding region for <i>gusA</i> , Gm ^R	This study
mini-Tn7-T0T1-P _{<i>hcaR</i>} - <i>gusA</i>	mini-Tn7T-Gm containing a T0T1 terminator and 517 bp promoter region of <i>hcaR</i> fused to the coding region for <i>gusA</i> , Gm ^R	This study
pUC19-T-P _{<i>hca</i>}	The 335 bp promoter region of <i>hcaR</i> cloned in pUC19-T, Amp ^R	This study

References:

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Table S3. Oligonucleotide primers used in this study

Application	Primers	Sequence (5' to 3')
<i>hcaL</i> deletion	<i>hcaL</i> _F1	CGggatccTACACGCCCCGTCACCTCCCTCATCC
	<i>hcaL</i> _R1	AGCTGCTTGGCGTTGTTCGATGAAG
	<i>hcaL</i> _F2	CAACGCCAAGCAGCTATGGGGCGAAGTGGGCTATCTG
	<i>hcaL</i> _R2	CCCaaagcttGGTCGTGTCCGTGTCCGTGTATCT
<i>hcaH</i> deletion	<i>hcaH</i> _F1	CGggatccCGGCGCAGCAAGGGGCTCTATC
	<i>hcaH</i> _R1	GCCGCGCAGGCCTTGTGCT
	<i>hcaH</i> _F2	CAAGGCCTGCGCGGCCGCAAGGAAGGCATCCGTCAGT
	<i>hcaH</i> _R2	CCCaaagcttGCGCGCGCGGACCTTGTAG
<i>hcaD</i> deletion	<i>hcaD</i> _F1	CGggatccTCTGCACCGAGGAGGGAGTATGGA
	<i>hcaD</i> _R1	CGGCGGCGACCTTGTAGCAGAG
	<i>hcaD</i> _F2	ACAAGGTCGCGCGCCGCGCTGGCCACGCTCAAACTC
	<i>hcaD</i> _R2	CCCaaagcttGTGTCAGGCGGGCATGGAACGATA
<i>hcaR</i> deletion	<i>hcaR</i> _F1	CGggatccCCAGCGGCGAAGTGACCCACCA
	<i>hcaR</i> _R1	TGAGATGCAGTTCGCCAGTTCCTG
	<i>hcaR</i> _F2	CCGAATGCATCTCAAAGACGCGCTGGCCGAATCACT
	<i>hcaR</i> _R2	CCCaaagcttGAAGCCGCCGCGAAACACCAC
<i>hcaL</i> complementation	<i>hcaL</i> _F	CCCaaagcttTTGACCATGCCGACCGACTCGA
	<i>hcaL</i> _R	CGggatccATGCGTGGGTAGTGCGGAATGACA
<i>hcaH</i> complementation	<i>hcaH</i> _F	CCCaaagcttTTGAACGAGCATGACGTGGTATCGG
	<i>hcaH</i> _R	CGggatccGTCGCGGCTAAGGCTTCCATACTCC
<i>hcaD</i> complementation	<i>hcaD</i> _F	CCCaaagcttATGGAAGCCTTAGCCGCGACCC
	<i>hcaD</i> _R	CGggatccGTGTCAGGCGGGCATGGAACGATA
<i>hcaR</i> complementation	<i>hcaR</i> _F	CCCaaagcttATGACCGCTCGCCTGGCCCTT
	<i>hcaR</i> _R	CGggatccTCAGAGTGATTGCGCCAGCGCGT
HcaR protein expression	HcaR_F	CGggatccATGACCGCTCGCCTGGCCCTT
	HcaR_R	CCCaaagcttTCAGAGTGATTGCGCCAGCGCGT
Construction of transcriptional activity reporter vectors	T0T1-F	AGAgaaattcGACTCCTGTTGATAGATCCAG
	<i>gusA</i> -R	AACggtaccTCATTGTTTGCCTCCCTGCT
promoter of <i>hcaL</i> for GUS activity	P _{hcaL} -F	CCCaaagcttTTCGGCCCCGTCGTGAGTTTATC
	P _{hcaL} -R	CGggatccGGCGCTGTCTTCCGGT
promoter of <i>hcaH</i> for GUS activity	P _{hcaH} -F	CCCaaagcttGCCAACGCCTGCTGGTCAATCG
	P _{hcaH} -R	CGggatccTCCTAGCAGTGAGGGATGTAGCGGG
promoter of <i>hcaD</i> for GUS activity	P _{hcaD} -F	CCCaaagcttATTCGGCCTGTCGAAATCAACTG
	P _{hcaD} -R	CGggatccTGGTCTTCTGCACCGAGGAGGGAGT
promoter of <i>hcaR</i> for GUS activity	P _{hca} -F	CCCaaagcttTGTTTTTGTCTGCTGCTCGCCA
	P _{hca} -R	CGggatccGATGTCCAGATTGTATCCATGAAATA
promoter of <i>hcaR</i> for EMSA	Cy5-P _{hca} -F	AGCCAGTGGCGATAAAGGGCGCCGTCTTTACCTATTGC
	Cy5-P _{hca} -R	AGCCAGTGGCGATAAGTGAGATGCAGTTCGGCCAGTTCCT
promoter of <i>hcaR</i> for footprinting	FP-P _{hca} -F	ACTGGCCGATGAATTCGACGCACT
	FP-P _{hca} -R	TGAGATGCAGTTCGCCAGTTCCT
RT-PCR analysis	<i>hcaH-hcaR</i> -F	GCAAATTGAACGCCAGCACTGTCCT
	<i>hcaH-hcaR</i> -R	CTTCGCCACCAAGCACCAGCA
	<i>hcaD-hcaH</i> -F	CGTCGCGTCGGCACCATGA
	<i>hcaD-hcaH</i> -R	GCAGCAGGCGTTCTTCGGTGTG

The sequences in lower cases are the introduced restriction sites