Supporting information

Legends:

Table S1 Accession numbers of PdhS kinases in representative *Alphaproteobacteria*.

Table S2 Transduction of tetR deletion of *divK* in different genetic backgrounds.

Table S3 Transduction of tetR deletion of *pleC* in different genetic backgrounds.

Table S4 Strains and Plasmids

Table S5 Primers used in this work

Figure S1 *In vitro* phosphorylation assay using the HK domain of DivJ(H249A). DivJ(H249A) was incubated with ATP as described in the text and then loaded on a Phos-Tag SDS-PAGE gel. No detectable DivJ(H249A)-P is produced over time. For positive phosphorylation using wild type DivJ refers to figure 3.

Figure S2 Alignment of DivJs and PleCs in *Alphaproteobacteria* using ClustalW. Accession numbers of othologs of DivJ and PleC are in the bottom table. The consensus sequence of HELIX 1 is shown in figure 6A.

Figure S3 Lac assay with promoters fused with β-galactosidase in wild type and Δ*divJ* cells. Asterisks represent significant differences in comparison with wild type cells.

Figure S4 Overexpression of *divK* and *divK(D53A).* A. Morphology of cells; B. Immunoblots using antibodies against DivK.

Figure S5 Comparison between DivJ and PleC kinase domains in a phosphorylation assay. Purified DivJ histidine kinase domain is able to auto-phosphorylate a histidine residue using ATP (not GTP) as the phosphate source. DivJ in presence of ATP gives two distinct bands in a SDS-PAGE Phos-tag™ gel. PleC preparation is not able to autophosphorylate using ATP or GTP. The gel was stained with Coomassie blue.

Figure S6 Immunoblot using antibodies against CtrA on normal culture cells and bacteroids isolated form mature nodules of alfalfa (see Experimental Procedures).

Figure S7 CFU growth curve in logarithmic scale corresponding to curve in figure 1B. Colony Forming Units (CFU) of wild type, Δ*divJ* (BM253), Δ*divJ* + *divJ* (BM224).

Table S1			
Accession	**Organism**	**score_helix_1/(average_distance*score_DivK)**	**# of PdhS with score <=0.3**
NP_354006.1	Agrobacterium tumefaciens str. C58	0.088498585	4
NP_354868.1	Agrobacterium tumefaciens str. C58	0.126829268	
NP_353940.1	Agrobacterium tumefaciens str. C58	0.153000013	
NP_353640.1	Agrobacterium tumefaciens str. C58	0.201896873	
YP_988756.1	Bartonella bacilliformis KC583	0.140709214	1
YP_033319.1	Bartonella henselae str. Houston-1	0.104583799	1
YP_032083.1	Bartonella quintana str. Toulouse	0.102990267	1
NP_769780.1	Bradyrhizobium japonicum USDA 110	0.10104476	4
NP_769711.1	Bradyrhizobium japonicum USDA 110	0.127952112	
NP_770378.1	Bradyrhizobium japonicum USDA 110	0.181887699	
NP_768927.1	Bradyrhizobium japonicum USDA 110	0.249975805	
YP_001239118.1	Bradyrhizobium sp. BTAi1	0.115492053	3
YP_001239071.1	Bradyrhizobium sp. BTAi1	0.146246595	
YP_001239459.1	Bradyrhizobium sp. BTAi1	0.207893847	
YP_001206887.1	Bradyrhizobium sp. ORS278	0.115492053	3
YP_001204758.1	Bradyrhizobium sp. ORS278	0.146246595	
YP_001206686.1	Bradyrhizobium sp. ORS278	0.207893847	
YP_221371.1	Brucella abortus biovar 1 str. 9-941	0.091076438	3
YP_221337.1	Brucella abortus biovar 1 str. 9-941	0.202902343	
YP_222279.1	Brucella abortus biovar 1 str. 9-941	0.254688924	
NP_540242.1	Brucella melitensis 16M	0.087309376	3
NP_540274.1	Brucella melitensis 16M	0.19450999	
NP_539334.1	Brucella melitensis 16M	0.244154598	
YP_414082.1	Brucella melitensis biovar Abortus 2308	0.091156664	3
YP_414047.1	Brucella melitensis biovar Abortus 2308	0.203081073	
YP_414983.1	Brucella melitensis biovar Abortus 2308	0.254913271	
YP_001258609.1	Brucella ovis ATCC 25840	0.08522413	3
YP_001258574.1	Brucella ovis ATCC 25840	0.189864425	
YP_001259471.1	Brucella ovis ATCC 25840	0.238323351	
NP_697630.1	Brucella suis 1330	0.078442544	3
NP_697593.1	Brucella suis 1330	0.174756241	
NP_698596.1	Brucella suis 1330	0.219359118	
NP_421285.1	Caulobacter crescentus CB15	0.131354472	4
NP_419879.1	Caulobacter crescentus CB15	0.142003722	
NP_419469.1	Caulobacter crescentus CB15	0.278908373	
NP_419878.1	Caulobacter crescentus CB15	0.287512895	
YP_761588.1	Hyphomonas neptunium ATCC 15444	0.12771933	1
YP_420030.1	Magnetospirillum magneticum AMB-1	0.088498585	12
YP_421331.1	Magnetospirillum magneticum AMB-1	0.088498585	
YP_422459.1	Magnetospirillum magneticum AMB-1	0.120234513	
YP_422213.1	Magnetospirillum magneticum AMB-1	0.122575438	
YP_421909.1	Magnetospirillum magneticum AMB-1	0.140878115	
YP_421376.1	Magnetospirillum magneticum AMB-1	0.152545194	

YP_420475.1	Magnetospirillum magneticum AMB-1	0.153492905	
YP_422411.1	Magnetospirillum magneticum AMB-1	0.164444529	
YP_419930.1	Magnetospirillum magneticum AMB-1	0.213403284	
YP_421236.1	Magnetospirillum magneticum AMB-1	0.273527398	
YP_423509.1	Magnetospirillum magneticum AMB-1	0.284382449	
YP_421204.1	Magnetospirillum magneticum AMB-1	0.284382449	
YP_756181.1	Maricaulis maris MCS10	0.13444302	2
YP_756130.1	Maricaulis maris MCS10	0.162056922	
NP_107962.1	Mesorhizobium loti MAFF303099	0.082212876	5
NP_102338.1	Mesorhizobium loti MAFF303099	0.132925302	
NP_107924.1	Mesorhizobium loti MAFF303099	0.135740861	
NP_107026.1	Mesorhizobium loti MAFF303099	0.229902589	
NP_103743.1	Mesorhizobium loti MAFF303099	0.257759282	
YP_673467.1	Mesorhizobium sp. BNC1	0.082212876	3
YP_674114.1	Mesorhizobium sp. BNC1	0.132925302	
YP_672741.1	Mesorhizobium sp. BNC1	0.211601023	
YP_576731.1	Nitrobacter hamburgensis X14	0.104478005	3
YP_577865.1	Nitrobacter hamburgensis X14	0.1322996	
YP_576751.1	Nitrobacter hamburgensis X14	0.188067783	
YP_317814.1	Nitrobacter winogradskyi Nb-255]	0.088498585	3
YP_318827.1	Nitrobacter winogradskyi Nb-255]	0.112064998	
YP_317826.1	Nitrobacter winogradskyi Nb-255]	0.159303699	
YP_001371204.1	Ochrobactrum anthropi ATCC 49188	0.090217639	3
YP_001371224.1	Ochrobactrum anthropi ATCC 49188	0.197751728	
YP_001372457.1	Ochrobactrum anthropi ATCC 49188	0.252287352	
YP_001412216.1	Parvibaculum lavamentivorans DS-1	0.101618194	12
YP_001411928.1	Parvibaculum lavamentivorans DS-1	0.101618194	
YP_001412341.1	Parvibaculum lavamentivorans DS-1	0.101618194	
YP_001412704.1	Parvibaculum lavamentivorans DS-1	0.101618194	
YP_001412976.1	Parvibaculum lavamentivorans DS-1	0.101618194	
YP_001414513.1	Parvibaculum lavamentivorans DS-1	0.101618194	
YP_001412635.1	Parvibaculum lavamentivorans DS-1	0.101618194	
YP_001412236.1	Parvibaculum lavamentivorans DS-1	0.101618194	
YP_001414415.1	Parvibaculum lavamentivorans DS-1	0.114645267	
YP_001414737.1	Parvibaculum lavamentivorans DS-1	0.128678247	
YP_001413207.1	Parvibaculum lavamentivorans DS-1	0.14170532	
YP_001412397.1	Parvibaculum lavamentivorans DS-1	0.169892849	
YP_468829.1	Rhizobium etli CFN 42	0.088498585	4
YP_468784.1	Rhizobium etli CFN 42	0.119314813	
YP_469945.1	Rhizobium etli CFN 42	0.126829268	
YP_468263.1	Rhizobium etli CFN 42	0.201896873	
YP_767049.1	Rhizobium leguminosarum bv. viciae 3841	0.092434277	5
YP_766988.1	Rhizobium leguminosarum bv. viciae 3841	0.124620958	
YP_768363.1	Rhizobium leguminosarum bv. viciae 3841	0.132469594	
YP_766379.1	Rhizobium leguminosarum bv. viciae 3841	0.210875591	

YP_765221.1	Rhizobium leguminosarum bv. viciae 3841	0.273182044	
YP_780875.1	Rhodopseudomonas palustris BisA53	0.093966077	3
YP_780800.1	Rhodopseudomonas palustris BisA53	0.134252608	
YP_780902.1	Rhodopseudomonas palustris BisA53	0.16914557	
YP_531725.1	Rhodopseudomonas palustris BisB18	0.093966077	3
YP_531657.1	Rhodopseudomonas palustris BisB18	0.118988436	
YP_531937.1	Rhodopseudomonas palustris BisB18	0.16914557	
YP_569154.1	Rhodopseudomonas palustris BisB5	0.093966077	3
YP_569080.1	Rhodopseudomonas palustris BisB5	0.118988436	
YP_569182.1	Rhodopseudomonas palustris BisB5	0.16914557	
NP_947283.1	Rhodopseudomonas palustris CGA009	0.106012176	3
NP_947203.1	Rhodopseudomonas palustris CGA009	0.134242309	
NP_947317.1	Rhodopseudomonas palustris CGA009	0.1908294	
YP_487043.1	Rhodopseudomonas palustris HaA2	0.093966077	3
YP_487121.1	Rhodopseudomonas palustris HaA2	0.159339831	
YP_487002.1	Rhodopseudomonas palustris HaA2	0.16914557	
YP_425158.1	Rhodospirillum rubrum ATCC 11170	0.103610047	3
YP_425419.1	Rhodospirillum rubrum ATCC 11170	0.103610047	
YP_428295.1	Rhodospirillum rubrum ATCC 11170	0.160718158	
YP_001326332.1	Sinorhizobium medicae WSM419	0.100850407	4
YP_001326308.1	Sinorhizobium medicae WSM419	0.135967682	
YP_001327276.1	Sinorhizobium medicae WSM419	0.144530935	
YP_001326011.1	Sinorhizobium medicae WSM419	0.230075789	
NP_385131.1	Sinorhizobium meliloti 1021	0.104235039	5
NP_385108.1	Sinorhizobium meliloti 1021	0.140530883	
NP_385988.1	Sinorhizobium meliloti 1021	0.149381527	
NP_436882.1	Sinorhizobium meliloti 1021	0.205390222	
NP_384827.1	Sinorhizobium meliloti 1021	0.237797345	
YP_616172.1	Sphingopyxis alaskensis RB2256	0.242958911	2
YP_615219.1	Sphingopyxis alaskensis RB2256	0.2964993	
YP_001416529.1	Xanthobacter autotrophicus Py2	0.098100623	2
YP_001416311.1	Xanthobacter autotrophicus Py2	0.133279878	

Table S2

Recipient strain	**Number of transduced colonies (cfu/ml)**
Rm1021 + pMR10	0
Rm1021 + pMR10-*divK*	87

Table S3

Recipient strain	Number of transduced colonies (cfu/ml)
Wild type	0
***cbrA*::Tn5**	51
Δ*divJ*	0
1021 + pMR10 *pleC*	122

Table S4

Organism or plasmid	Strain or plasmid name	Description	Resistence	Source
Strains				
S. meliloti	Rm1021	SU47 *str-21*	Sm	(Galibert, *et al.*, 2001)
	Rm1021G	Rm1021 + pGECE		This work
	KEG2016	*cbrA*::Tn*5*	Sm, Km	(Gibson, *et al.*, 2006)
	BM224	Rm1021 Δ*divJ* ::tc + pMR10 *divJ*	Sm, Km, Tc	This work
	BM253	Rm1021 Δ*divJ* ::tc pMR10 (deletion transduced from BM224)	Sm, Km, Tc	This work
	BM253G	BM253 + pGECE		This work
	BM317	Rm1021 + pSRKKm*divJ* (S.mel)	Sm, Km	This work
	EB775	Rm1021 + pSRKKm*divJ* H249A (*S.meliloti*)	Sm, Km	This work
	BM240	Rm1021 + pSRKKm*ctrA* (S.mel)	Sm, Km	This work
	BM264	Rm1021Δ*divJ*::tc+ pSRKKm*ctrA* (*S.meliloti*)	Sm, Km, Tc	This work
	EB594	Rm1021 + pJS70	Sm, Tc	This work
	EB638	Rm1021Δ*divJ*::tc + pJS70	Sm, Tc	This work
	EB593	Rm1021*cbrA*::tn5 + pJS70	Sm, Km, Tc	This work
	EB602	Rm1021Δ*divJ*::tc + *cbrA*::tn5 +pSRK Gm *divJ*	Sm, Km, Tc, Gm	This work
	EB601	Rm1021Δ*pleC* + pSRKKm *pleC*	Sm, Km, Tc	This work
	EB630	Rm1021Δ*pleC* + *cbrA*::tn5	Sm, Km, Tc	This work
	EB704	Rm1021 + pMR10 *divK*	Sm, Km	This work
	EB705	Rm1021 + pSRK Km *divK*	Sm, Km	This work
	EB710	1021Δ*divK* + pMR10 *divK*	Sm, Km, Tc	This work
	EB775	Rm1021 + pSRKKmdivJ H249A	Sm, Km	This work
	EB841	Rm1021 + pSRK Km divK D53A	Sm, Km	This work
	EB864	Rm1021 + pFP01	Sm, Tc	This work
	EB865	Rm1021 + pFP02	Sm, Tc	This work
	EB866	Rm1021Δ*divJ* + pFP01	Sm, Tc	This work
	EB868	Rm1021Δ*divJ* + pFP02	Sm, Tc	This work
	EB825	Rm1021 pdhA plasmid insertion	Sm, Km	(Pobigaylo *et al.*, 2006)
	EB826	Rm 2011 pdhB::Tn5_1	Sm, Km	(Pobigaylo *et al.*, 2006)
	EB826	Rm 2011 pdhB::Tn5_2	Sm, Km	(Pobigaylo *et al.*, 2006)
	EB827	Rm 2011 pdhB::Tn5_3	Sm, Km	(Pobigaylo *et al.*, 2006)
	EB827	Rm 2011 pdhB::Tn5_4	Sm, Km	(Pobigaylo *et al.*, 2006)
C. crescentus	BM328	CB15 + pSRKKm	Km, Tc	This work
	BM330	CB15 + pSRKKm *divJ* (S.mel)	Km, Tc	This work
	BM331	CB15 ΔdivJ-tet from (Skerker et al 2005) + pSRKKm (S.mel)	Km, Tc	This work
	BM333	CB15 ΔdivJ-tet from (Skerker et al 2005) + pSRKKm divJ (S.mel)	Km, Tc	This work
E. coli	S17-1	*recA*, *pro*, *hsdR*, *RP4-2-Tc::Mu-km::Tn7*	-	(Simon, *et al.*, 1983)
Bacteriophage	ΦM12	Transducing phage		(Finan, *et al.*, 1984)
Plasmids				
General purpose vectors	pNTPS138	Suicide vector, *oriT*, *sacB*	Km	D. Alley
	pMR10	Broad host-range cloning vector, low copy number	Km	(Roberts, *et al.*, 1996)
	pSRKKm	pBBR1MCS-2-derived broad-host-range expression vector containing *lac* promoter and *lacI*^{q}, *lacZ*$^{+}$	Km	(Khan, *et al.*, 2008)
	pSRKGm	pBBR1MCS-5-derived broad-host-range expression vector containing *lac* promoter and *lacI*^{q}, *lacZ*$^{+}$	Gm	(Khan, *et al.*, 2008)
Deletion plasmids	p*ΔdivJ*	pNPTS138-Tc deletion cassette for *divJ*	Km, Tc	This work
	p*ΔdivJ* markerless	pNPTS138 deletion cassette for *divJ*	Km	This work
	p*ΔpleC*	pNPTS138-Tc deletion cassette for *pleC*	Km, Tc	This work
	p*ΔdivK*	pNPTS138-Tc deletion cassette for *divK*	Km, Tc	This work
Overexpression	pSRKKm*ctrA*	pSRKKm containing *ctrA* inserted	Km	This work

plasmids		between NdeI and KpnI sites		
	pSRKKm*divJ*	pSRKKm containing *divJ* inserted between NdeI and XhoI sites	Km	This work
	pSRKGm*divJ*	pSRKGm containing *divJ* inserted between NdeI and XhoI sites	Gm	This work
	pSRKKm*pleC*	pSRKKm containing *pleC* inserted between NdeI and KpnI sites		
	pSRKKm *divK*	pSRKKm containing *divK* inserted between NdeI and KpnI sites	Km	This work
	pSRKKm *divK* D53A	pSRKKm containing *divK* D53A inserted between NdeI and KpnI sites	Km	This work
	pSRKKm *divJ* H249A	pSRKKm containing *divJ* H249A inserted between NdeI and XhoI sites	Km	This work
GFP-tagging	pGEE	pG18mob derivative; promoterless *eGFP* gene, it integrates between the *exoP* terminator and the *thiD* gene	Gm	Elizaveta Krol (unpublished)
	pSRmig	pSRPP18 derivative; promoterless *lacZ* replaced with promoterless *egfp*	Km	(McIntosh *et al.*, 2009)
	pSRmigPsinR171mutcc	pSRmig derivative; containing a mutated constitutive sinR promoter	Km	Matthew McIntosh (unpublished)
	pGECE	integrative vector overexpressing EGFP	Gm	This work
Reporter plasmid	pJS70	*pilA* promoter–*lacZ* fusion in pRKlac290	Tc	(Skerker & Shapiro 2000)
	pRKlac290-$P_{Smc00360}$	*SMc0360* promoter–*lacZ* fusion in pRKlac290	Tc	This work
	pRKlac290-$P_{Smc00949}$	*SMc0949* promoter–*lacZ* fusion in pRKlac290	Tc	This work

Table S5

Primer name	Sequence
pSmc00059_P1	AACAGGCAATCGCGTTTCCCC
pSmc00059_P2	CGATATCAAGCTTATCGATACCGTGTCCATCTGCCAGCCAT
pSmc00059_P3	AACTTCGAATTCCTGCAGCCGGGGGACATGGCGCCGCG
pSmc00059_P4	AGTGGTGCGCAACTGCTC
pSmc00059_P0	GGCATATGGCTGGCAGATGGACATC
pSmc00059_P6	CTCGAGCTGAAGACGACGGCAAAGAT
pSmc00059_P2 ecoRI	GAATTCTGTCCATCTGCCAGCCAT
pSmc00059_P3 ecoRI	GAATTCGGGGGACATGGCGCCGCG
pSmc02369_P1alt	GAAGCTTGGATGCCATTTACGCCGG
pSmc02369_P2alt	GGAATTCATCCCATCTTCAGCGGTTTCC
pSmc02369_P3 fw	GGAATTCGGCACCATCATATCGGTCAGG
pSmc02369_P4 rv	GGTCGACACCGACCTTGCCGATCTGA
pSmc00059_P1tris	GCGCATCGTTATCTCACCTT
pSmc00059_P4tris	CGCATGCAAAGCTGATACAC
pSmc02369_Pext_fw	GTTCCGATCGCAAGTGATGT
pSmc02369_Pext_rv	ACTACGAGGAGGTGCTGGAC
pSmc02369_Pint_fw	AAGATCCATTCGGCAGAGAA
M13 Fw	GTAAAACGACGGCCAG
M13 Rv	CAGGAAACAGCTATGAC
psinRmut_fwd	GTGCATATCGCGAGGTACCA
psinRmut_rev	AGGCTCTAGACATACCTCCTTAGGATCTGAGGC
pSmc00059_H249A_sense	TTCCTTGCCGCCGTCAGCGCCGAACTGCGCACGCCG
pSmc00059_H249A_antisense	CGGCGTGCGCAGTTCGGCGCTGACGGCGGCAAGGAA
pSmc01371_D53A_sense	CCGACCTGATTCTGATGGCCATCCAGTTGCCGGAGG
pSmc01371_D53A_antisense	CCTCCGGCAACTGGATGGCCATCAGAATCAGGTCGG
pSmc00059_CACC_HK_fw	CACCGAGTCGGCCAACGATGCCA
PSMC01371_CACC_fw	CACCGTGCCCAAACAGGTAATG
pSmc01371_P6	GGTACCGCCGTAAGCACGTCGAAATA
pSMc00654-*NdeI*-ctrA-fw	GGCATATGCGGGTTCTACTGATCGAAG
pSMc00654-*KpnI*-ctrA-rv	GGGGTACCATGTCGCCTACGGGAATGCC
pSmc01371 P1	GAAGCTTTCGAGGGCTTTGAACATAGG
pSmc01371 P2	GGAATTCTTCAGCTCGTTATCCTCAACAA
pSmc01371 P3	GGAATTCAAAACATATCTGGGCGATGC
pSmc01371P4	GGTCGACATCAGCAGCTTCAGGTGGTT
pSmc01371 P0	CATATGCCCAAACAGGTAATGATTG
pSmc01371_P1ext	GAAGCTTACGCGCACATATTTCTCCAT
pSmc01371_P4ext	GGTCGACCGTGAGTGTCGTTCACACG
pSmc0360 (prom) XbaI	TCTAGACAGATCCCCTGCAACGCGCCCG
pSmc0360 (prom) BamHI	GGATCCGCTCGCCGAACGGGGTTATTTCG
pSmc0949 (prom) XbaI	TCTAGACGCAACACATCCTTTCAGACA
pSmc0949 (prom) BamHI	GGATCCTCCTGCTCGCCTATTCGGCCCGCAA

Figure S1

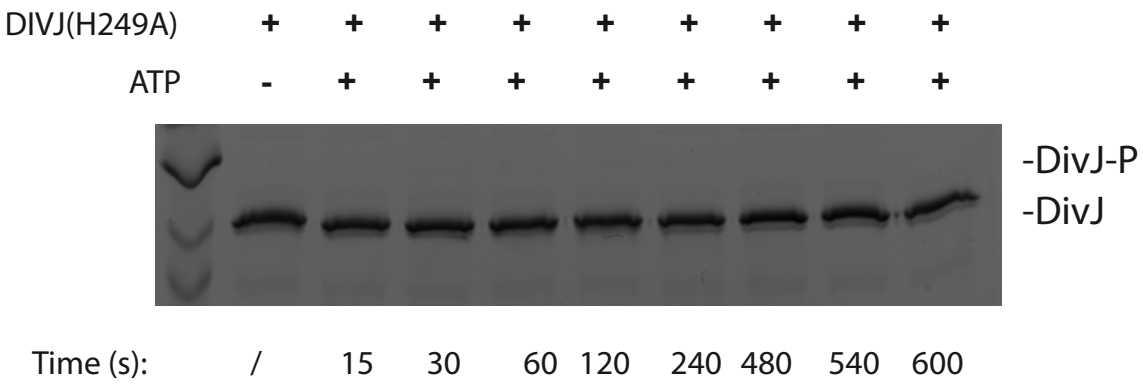
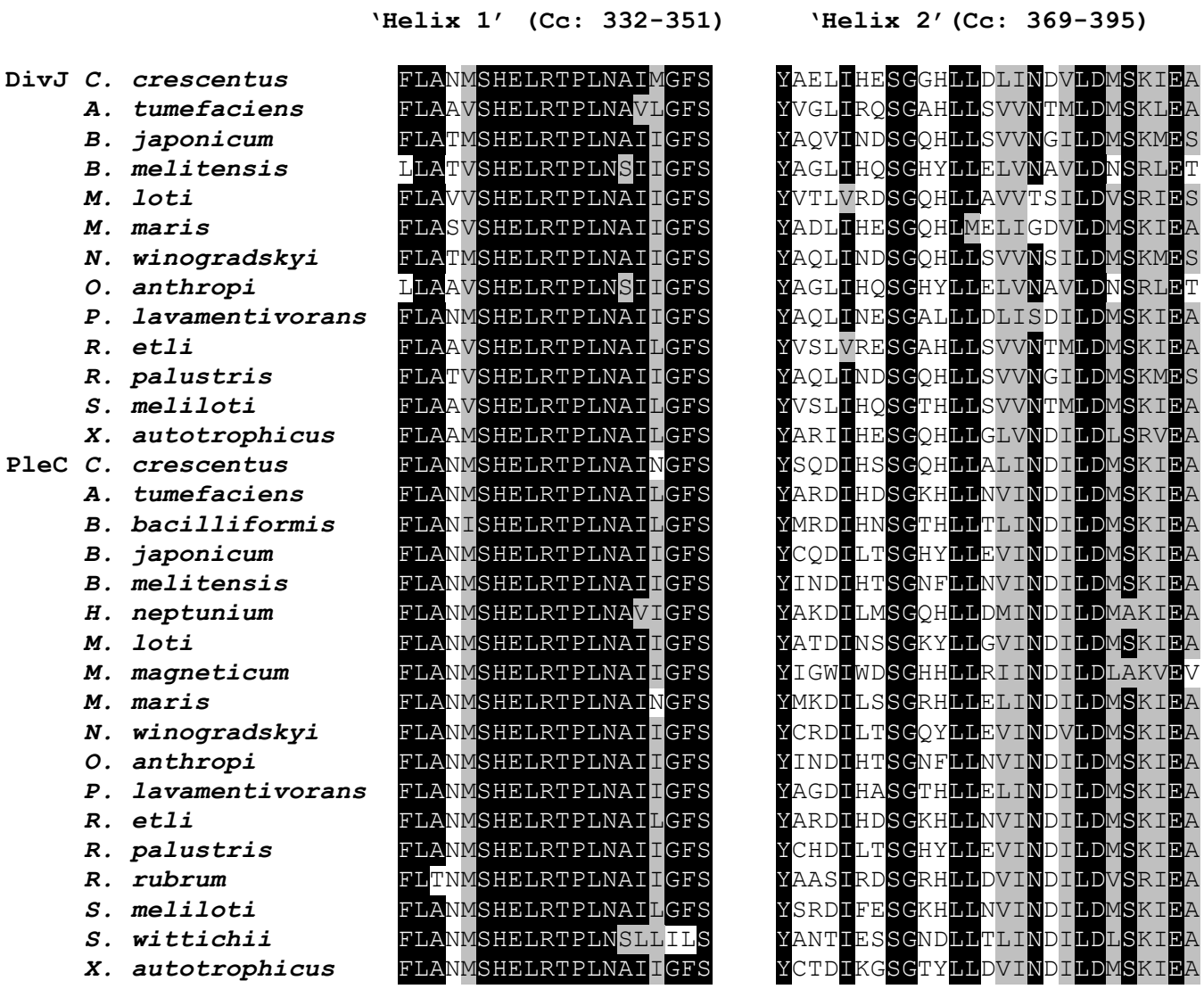


Figure S2



DivJ	PleC	Organism	Abbreviation
13476354	13476392	*Mesorhizobium loti MAFF303099*	*M. loti*
15888259	15888325	*Agrobacterium tumefaciens str. C58*	*A. tumefaciens*
15964755	15964778	*Sinorhizobium meliloti 1021*	*S. meliloti*
16125315	16126721	*Caulobacter crescentus CB15*	*C. crescentus*
17987640	17987608	*Brucella melitensis 16M*	*B. melitensis*
27378182	27378251	*Bradyrhizobium japonicum USDA 110*	*B. japonicum*
75676406	75675393	*Nitrobacter winogradskyi Nb-255*	*N. winogradsky*
	83309766	*Magnetospirillum magneticum AMB-1*	*M. magneticum*
	83594543	*Rhodospirillum rubrum ATCC 11170*	*R. rubrum*
86356892	86356937	*Rhizobium etli CFN 42*	*R. etli*
90423287	90423355	*Rhodopseudomonas palustris BisB18*	*R. palustris*
114569450	114569501	*Maricaulis maris MCS10*	*M. maris*
	114797754	*Hyphomonas neptunium ATCC 15444*	*H. neptunium*
	121602141	*Bartonella bacilliformis KC583*	*B. bacilliformis*
	148550789	*Sphingomonas wittichii RW1*	*S. witthichii*
153010009	153009989	*Ochrobactrum anthropi ATCC 49188*	*O. anhropi*
154245353	154245571	*Xanthobacter autotrophicus Py2*	*X. autotrophicus*
154251104	154251412	*Parvibaculum lavamentivorans DS-1*	*P. lavamentivorans*

Figure S3

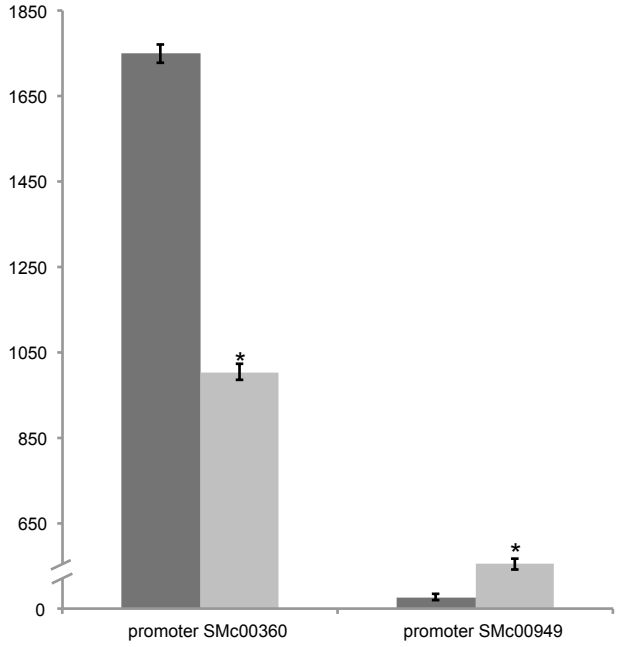
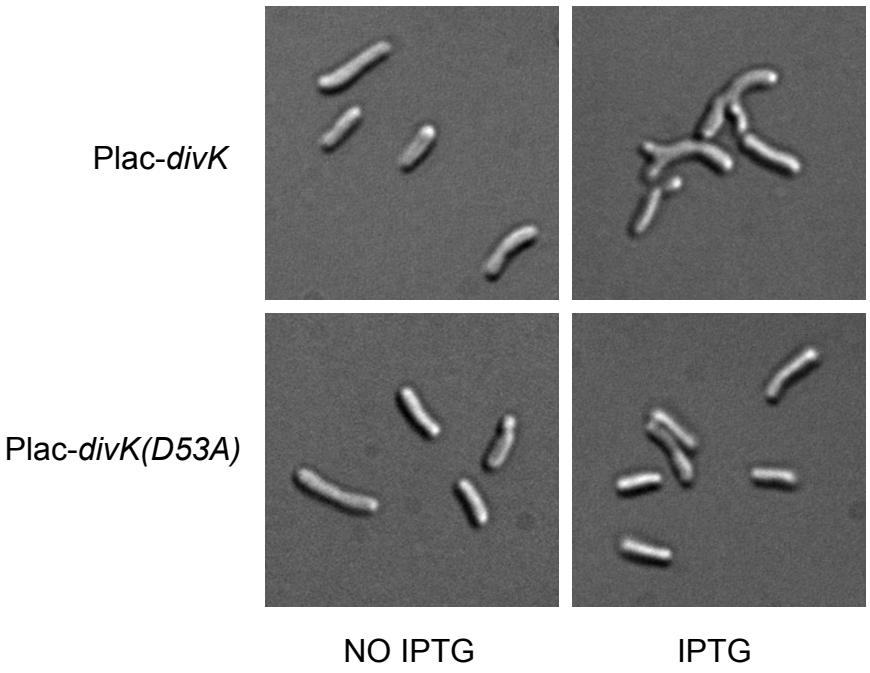

1850
1650
1450
1250
1050
850
650
0
*
*
promoter SMc00360
promoter SMc00949

Figure S4

A


Plac-*divK*
Plac-*divK(D53A)*
NO IPTG
IPTG

B

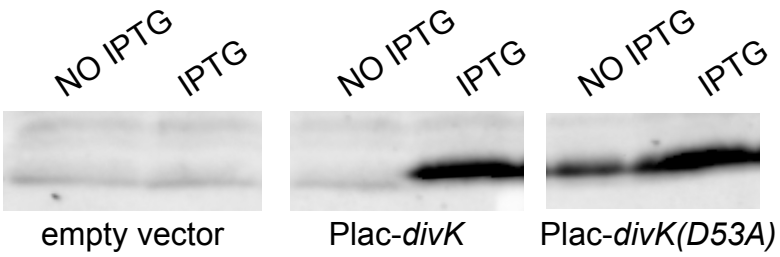
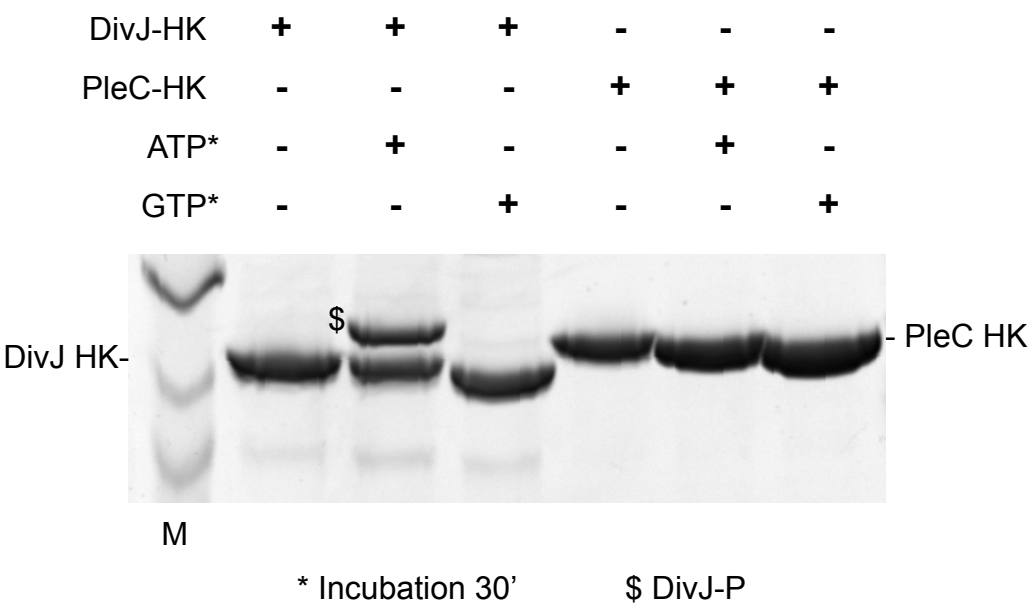

NO IPTG
IPTG
NO IPTG
IPTG
NO IPTG
IPTG
empty vector
Plac-*divK*
Plac-*divK(D53A)*

Figure S5



* Incubation 30’ $ DivJ-P

Figure S6

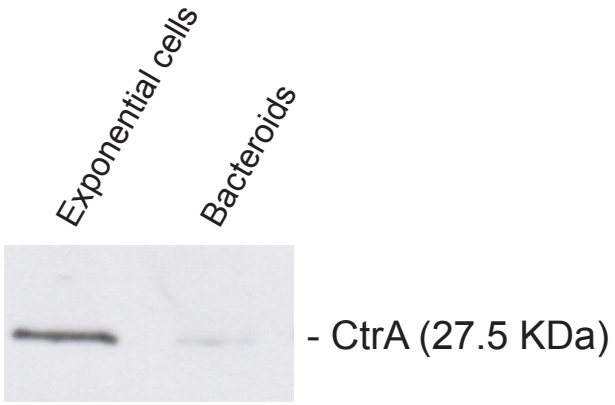
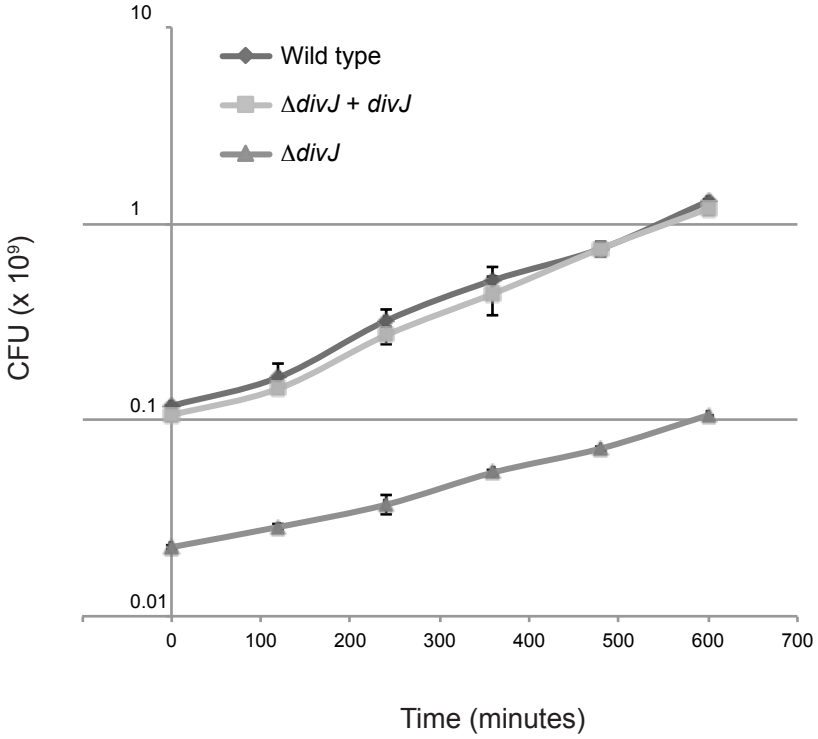


Figure S7


10
1
0.1
0.01
CFU (x 10⁹)
Wild type
ΔdivJ + divJ
ΔdivJ
0
100
200
300
400
500
600
700
Time (minutes)