

**Supplementary Table S5** Copy numbers of bacterial colonization associated genes in the genome of V4 strain and other strains

	Gene	V4	EA_18B1	EP_B64	ER_BY21311	ET_Et1/99	HS_Z67
<b>Flagellar assembly</b>	flgA	2	1	1	1	1	1
	flgB	2	2	1	1	1	1
	flgC	2	2	1	1	1	1
	flgD	2	1	1	1	1	1
	flgE	2	2	1	1	1	2
	flgF	2	2	1	1	1	1
	flgG	2	2	1	1	1	1
	flgH1	2	2	1	1	1	1
	flgI	2	2	1	1	1	1
	flgK	2	1	1	1	1	1
	flgL	2	2	1	1	1	1
	flgM	1	1	1	1	1	0
	flgN	2	1	1	1	1	0
	flhA	2	2	1	1	1	1
	flhB	2	0	1	1	1	1
	flhC	2	1	1	1	2	1
	flhD	2	2	1	1	2	1
	motA	2	1	1	1	1	1
	motB	2	0	1	1	1	1
	fliA	2	2	1	1	1	1
	fliC	3	2	2	1	1	1
	fliD	2	1	1	1	1	0
	fliE	2	1	1	1	1	1
	fliF	2	1	1	1	1	1
	fliG	2	2	1	1	1	1
	fliH	2	2	1	1	1	0
	fliI	2	2	1	1	1	1
	fliJ	2	1	1	1	1	1
	fliK	1	1	1	1	1	1
	fliM	2	2	1	1	1	1
	fliN	2	1	1	1	1	1
	fliO	2	1	1	1	1	1
	fliP	2	1	1	1	1	1
fliQ	2	2	1	1	1	1	
fliR	2	1	1	1	1	1	
fliS	2	1	1	1	1	1	
fliT	1	1	1	1	1	0	
<b>Bacterial chemotaxis</b>	cheA	2	1	1	1	1	1
	cheB	2	2	1	1	1	1
	cheR	2	1	1	1	1	1
	cheW	2	1	1	1	1	1
	cheY	2	1	1	1	1	1
	cheZ	2	1	1	1	1	1
	cheV2	1	1	1	1	1	1
	mcpA	2	1	1	2	1	1
	tap	1	1	1	1	1	1
	tar	4	3	4	4	4	1
	tas	6	4	5	6	1	7
	tsr	2	1	1	1	1	0
	tcp	1	0	0	0	0	0
	trg	1	1	1	1	0	0
	aer	1	0	1	1	1	1
	ctpL	1	1	1	1	0	0
	dppA	2	2	2	2	2	1
	mglB	1	1	1	1	1	0
	mocB	1	1	1	1	0	0
	rbsB	1	1	1	1	1	1
	motA	2	1	1	1	1	1
	motB	2	0	1	1	1	1
	fliG	2	2	1	1	1	1
fliM	2	2	1	1	1	1	
fliN	2	1	1	1	1	1	
<b>P pilus assembly</b>	yadV	3	2	0	2	0	0
	yhcA	2	2	1	1	0	0

yhcD	3	3	1	1	1	0
yfcS	3	1	2	1	2	0
yfcU	3	1	3	1	2	0
afaC	1	1	0	0	0	0
cpxP	1	1	1	1	1	0
htrE	4	1	1	3	5	0
lpfB	1	1	0	0	3	0
pmfD	1	1	0	0	1	0
pmfC	1	0	0	0	1	0
smf-1	2	1	0	1	2	0
smfA	3	2	3	1	1	0
spy	1	1	1	1	1	0
--	2	1	0	1	1	0
--	1	0	0	1	0	0
--	1	1	0	0	0	0
--	1	0	1	1	1	1
--	1	0	1	1	1	1
ppdD	1	1	1	1	1	1
hofB	1	1	1	1	1	0
yggR	1	0	1	1	1	1
--	1	0	1	1	1	0

EA\_18B1: *Erwinia aphidicola* 18B1, EP\_B64: *Erwinia persicina* B64, ER\_BY21311: *Erwinia rhapontici* BY21311, ET\_Et1/99: *Erwinia tasmaniensis* Et1/99, HS\_Z67: *Herbaspirillum seropedicae* Z67

**Supplementary Table S6** Signal transduction mechanisms associated genes in the genome of V4 strain

Number	Gene	Accession number	Gene product	Function	
<b>Two-component system</b>					
1	1)	cheA	NLG40_00995	Chemotaxis protein CheA	Chemotaxis protein histidine kinase and related kinases
2		cheA	NLG40_16280	Chemotaxis protein CheA	Chemotaxis protein histidine kinase and related kinases
3		cheW	NLG40_00990	Chemotaxis protein CheW	Chemotaxis signal transduction protein
4		cheW	NLG40_16285	Chemotaxis protein CheW	Chemotaxis signal transduction protein
5		cheY	NLG40_00960	Chemotaxis protein CheY	FOG: CheY-like receiver
6		cheY	NLG40_16045	Chemotaxis protein CheY	FOG: CheY-like receiver
7		cheB	NLG40_00965	Protein-glutamate methylesterase/protein-glutamine glutaminase	Chemotaxis response regulator containing a CheY-like receiver domain and a methylesterase domain
8		cheB	NLG40_16050	Protein-glutamate methylesterase/protein-glutamine glutaminase	Chemotaxis response regulator containing a CheY-like receiver domain and a methylesterase domain
9		cheR	NLG40_00970	Chemotaxis protein methyltransferase	Methylase of chemotaxis methyl-accepting proteins
10		cheR	NLG40_16055	Chemotaxis protein methyltransferase	Methylase of chemotaxis methyl-accepting proteins
11		tar	NLG40_00975	Methyl-accepting chemotaxis protein II	Methyl-accepting chemotaxis protein
12		tar	NLG40_00985	Methyl-accepting chemotaxis protein II	Methyl-accepting chemotaxis protein
13		tar	NLG40_15495	Methyl-accepting chemotaxis protein II	Methyl-accepting chemotaxis protein
14		tar	NLG40_21575	Methyl-accepting chemotaxis protein II	Methyl-accepting chemotaxis protein
15		tsr	NLG40_00980	Methyl-accepting chemotaxis protein I	Methyl-accepting chemotaxis protein
16		tsr	NLG40_03225	Methyl-accepting chemotaxis protein I	Methyl-accepting chemotaxis protein
17		tas	NLG40_04250	Methyl-accepting chemotaxis aspartate transducer	Methyl-accepting chemotaxis protein
18		tas	NLG40_07960	Methyl-accepting chemotaxis aspartate transducer	Methyl-accepting chemotaxis protein
19		tas	NLG40_16290	Methyl-accepting chemotaxis aspartate transducer	Methyl-accepting chemotaxis protein
20		tas	NLG40_16405	Methyl-accepting chemotaxis aspartate transducer	Methyl-accepting chemotaxis protein
21		tas	NLG40_14610	Methyl-accepting chemotaxis aspartate transducer	Methyl-accepting chemotaxis protein

22		tas	NLG40_17365	Methyl-accepting chemotaxis aspartate transducer	Methyl-accepting chemotaxis protein
23		tap	NLG40_08095	Methyl-accepting chemotaxis protein IV	Methyl-accepting chemotaxis protein
24		tcp	NLG40_16245	Methyl-accepting chemotaxis citrate transducer	Methyl-accepting chemotaxis protein
25		trg	NLG40_19090	Methyl-accepting chemotaxis protein III	Methyl-accepting chemotaxis protein
26		cheV2	NLG40_19180	Chemotaxis protein CheV2 SV=1	Chemotaxis signal transduction protein
27		ctpL	NLG40_03385	Methyl-accepting chemotaxis protein CtpL	Methyl-accepting chemotaxis protein
28		mcpA	NLG40_17385	Methyl-accepting chemotaxis protein McpA	Methyl-accepting chemotaxis protein
29		mcpA	NLG40_01480	Methyl-accepting chemotaxis protein McpA	Methyl-accepting chemotaxis protein
30	2)	bvgS	NLG40_00055	Virulence sensor protein BvgS	ABC-type amino acid transport/signal transduction systems, periplasmic component/domain
31		bvgS	NLG40_03550	Virulence sensor protein BvgS	Signal transduction histidine kinase
32		bvgS	NLG40_11825	Virulence sensor protein BvgS	Signal transduction histidine kinase
33		bvgS	NLG40_11830	Virulence sensor protein BvgS	Signal transduction histidine kinase
34		bvgA	NLG40_11835	Virulence factors putative positive transcription regulator BvgA	Response regulator containing a CheY-like receiver domain and an HTH DNA-binding domain
35		bvgA	NLG40_03545	Virulence factors putative positive transcription regulator BvgA	Response regulator containing a CheY-like receiver domain and an HTH DNA-binding domain
36	3)	kdpD	NLG40_11530	Sensor protein KdpD	Osmosensitive K <sup>+</sup> channel histidine kinase
37		kdpE	NLG40_03765	KDP operon transcriptional regulatory protein KdpE	Response regulators consisting of a CheY-like receiver domain and a winged-helix DNA-binding domain
38	4)	phoR	NLG40_05485	Phosphate regulon sensor protein PhoR	Signal transduction histidine kinase
39		phoB	NLG40_05490	Phosphate regulon transcriptional regulatory protein PhoB	Response regulators consisting of a CheY-like receiver domain and a winged-helix DNA-binding domain
40	5)	cpxA	NLG40_10115	Sensor protein CpxA	Signal transduction histidine kinase
41		cpxR	NLG40_10110	Transcriptional regulatory protein CpxR	Response regulators consisting of a CheY-like receiver domain and a winged-helix DNA-binding domain

42	6)	ntrB	NLG40_10400	Sensory histidine kinase/phosphatase NtrB	Signal transduction histidine kinase, nitrogen specific
43		ntrC	NLG40_10405	DNA-binding transcriptional regulator NtrC	Response regulator containing CheY-like receiver, AAA-type ATPase, and DNA-binding domains
44	7)	qseC	NLG40_10530	Sensor protein QseC	Signal transduction histidine kinase
45		qseB	NLG40_10525	Transcriptional regulatory protein QseB	Response regulators consisting of a CheY-like receiver domain and a winged-helix DNA-binding domain
46	8)	pmrB	NLG40_13170	Sensor histidine kinase PmrB	Signal transduction histidine kinase
47		pmrA	NLG40_13175	Transcriptional regulatory protein PmrA	Response regulators consisting of a CheY-like receiver domain and a winged-helix DNA-binding domain
48	9)	phoQ	NLG40_19285	Virulence sensor histidine kinase PhoQ	Signal transduction histidine kinase
49		phoP	NLG40_19290	Transcriptional regulatory protein PhoP	Response regulators consisting of a CheY-like receiver domain and a winged-helix DNA-binding domain
50	10)	rstB	NLG40_21665	Sensor protein RstB	Signal transduction histidine kinase
51		rstA	NLG40_21660	Transcriptional regulatory protein RstA	Response regulators consisting of a CheY-like receiver domain and a winged-helix DNA-binding domain
52	11)	dcuS	NLG40_19515	Sensor histidine kinase DcuS	Signal transduction histidine kinase regulating citrate/malate metabolism
53		dcuR	NLG40_19510	Transcriptional regulatory protein DcuR	Response regulator of citrate/malate metabolism
54	12)	rcsC	NLG40_17960	Sensor histidine kinase RcsC	Signal transduction histidine kinase
55		rcsB	NLG40_17965	Transcriptional regulatory protein RcsB	Response regulator containing a CheY-like receiver domain and an HTH DNA-binding domain
56		rcsB	NLG40_10315	Transcriptional regulatory protein RcsB	Response regulator containing a CheY-like receiver domain and an HTH DNA-binding domain
57		rcsD	NLG40_17970	Phosphotransferase RcsD	FOG; HPt domain
58	13)	baeS	NLG40_18425	Signal transduction histidine-protein kinase BaeS	Signal transduction histidine kinase
59		baeR	NLG40_18420	Transcriptional regulatory protein BaeR	Response regulators consisting of a CheY-like receiver

					domain and a winged-helix DNA-binding domain
60	14)	arcB	NLG40_13005	Aerobic respiration control sensor protein ArcB	Signal transduction histidine kinase
61		arcA	NLG40_07180	Aerobic respiration control protein ArcA	Response regulators consisting of a CheY-like receiver domain and a winged-helix DNA-binding domain
62	15)	envZ	NLG40_12245	Sensor histidine kinase EnvZ	Signal transduction histidine kinase
63		ompR	NLG40_12240	DNA-binding dual transcriptional regulator OmpR	Response regulators consisting of a CheY-like receiver domain and a winged-helix DNA-binding domain
64		barA	NLG40_15460	Signal transduction histidine-protein kinase BarA	Signal transduction histidine kinase
65		qseE	NLG40_16535	Sensor histidine kinase QseE	Signal transduction histidine kinase
66		gltI	NLG40_03905	Glutamate/aspartate import solute-binding protein	ABC-type amino acid transport/signal transduction systems, periplasmic component/domain
67		dgcQ	NLG40_08300	Probable diguanylate cyclase DgcQ	FOG: GGDEF domain
68		aer	NLG40_08790	Aerotaxis receptor	FOG: PAS/PAC domain
69		crp	NLG40_12375	cAMP-activated global transcriptional regulator CRP	cAMP-binding proteins - catabolite gene activator and regulatory subunit of cAMP-dependent protein kinases
70		csrA	NLG40_15685	Translational regulator CsrA	Carbon storage regulator (could also regulate swarming and quorum sensing)
71		glrR	NLG40_16545	Transcriptional regulatory protein GlrR	Response regulator containing CheY-like receiver, AAA-type ATPase, and DNA-binding domains
72		narP	NLG40_16975	Nitrate/nitrite response regulator protein NarP	Response regulator containing a CheY-like receiver domain and an HTH DNA-binding domain
73		amsI	NLG40_18505	Probable low molecular weight protein-tyrosine-phosphatase AmsI	Protein-tyrosine-phosphatase
74		PA0034	NLG40_11820	Putative transcriptional regulator	Response regulator containing a CheY-like receiver domain and an HTH DNA-binding domain
75		PA0034	NLG40_00060	Putative transcriptional regulator	Response regulator containing a CheY-like receiver

76	uvrY	NLG40_02210	Response regulator UvrY	domain and an HTH DNA-binding domain Response regulator containing a CheY-like receiver domain and an HTH DNA-binding domain
<b>Quorum sensing</b>				
1	qseC	NLG40_10530	Sensor protein QseC	Signal transduction histidine kinase
2	qseE	NLG40_16535	Sensor histidine kinase QseE	Signal transduction histidine kinase
3	qseB	NLG40_10525	Transcriptional regulatory protein QseB	Response regulators consisting of a CheY-like receiver domain and a winged-helix DNA-binding domain
4	crp	NLG40_12375	cAMP-activated global transcriptional regulator CRP	cAMP-binding proteins - catabolite gene activator and regulatory subunit of cAMP-dependent protein kinases
5	luxS	NLG40_15730	S-ribosylhomocysteine lyase	LuxS protein involved in autoinducer AI2 synthesis
6	glrR	NLG40_16545	Transcriptional regulatory protein GlrR	Response regulator containing CheY-like receiver, AAA-type ATPase, and DNA-binding domains
7	pdeR	NLG40_00105	Cyclic di-GMP phosphodiesterase PdeR	FOG: EAL domain
8	kdpE	NLG40_03765	KDP operon transcriptional regulatory protein KdpE	Response regulators consisting of a CheY-like receiver domain and a winged-helix DNA-binding domain

**Supplementary Table S7** Copy numbers of signal transduction mechanisms associated genes in the genome of V4 strain and other strains

	Gene	V4	EA_18B1	EP_B64	ER_BY21311	ET_Et1/99	HS_Z67
<b>Two-component system</b>							
1)	cheA	2	1	1	1	1	1
	cheW	2	1	1	1	1	1
	cheY	2	1	1	1	1	1
	cheB	2	2	1	1	1	1
	cheR	2	1	1	1	1	1
	tar	4	3	4	4	4	1
	tsr	2	1	1	1	1	0
	tas	6	4	5	6	1	7
	tap	1	1	1	1	1	1
	tcp	1	0	0	0	0	0
	trg	1	1	1	1	0	0
	cheV2	1	1	1	1	1	1
	ctpL	1	1	1	1	0	0
	mcpA	2	1	1	2	1	1
2)	bvgS	4	4	1	1	0	0
	bvgA	1	1	1	1	1	1
3)	kdpD	1	0	1	1	1	1
	kdpE	1	1	1	1	1	1
4)	phoR	1	1	1	1	1	2
	phoB	1	0	1	1	1	0
5)	cpxA	1	1	1	1	1	0
	cpxR	1	0	1	1	1	1
6)	ntrB	2	1	1	1	1	1



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	ntrC	1	1	1	1	1	1
7)	qseC	1	1	1	1	0	3
	qseB	1	1	1	1	0	1
8)	pmrB	1	1	1	1	1	2
	pmrA	1	1	1	1	1	0
9)	phoQ	1	0	1	1	1	0
	phoP	1	1	1	1	1	0
10)	rstB	1	1	1	1	1	0
	rstA	1	0	1	1	1	0
11)	dcuS	1	1	1	1	1	0
	dcuR	1	1	1	1	1	0
12)	rcsC	1	0	1	1	1	0
	rcsB	2	2	2	2	2	1
	rcsD	1	1	1	1	1	0
13)	baeS	1	0	1	1	1	1
	baeR	1	1	1	1	1	1
14)	arcB	1	0	1	1	1	1
	arcA	1	1	1	1	1	0
15)	envZ	1	1	1	1	1	1
	ompR	1	1	1	1	1	1
	barA	1	1	1	1	1	1
	qseE	1	1	1	1	1	1
	gltI	1	1	1	1	1	1
	dgcQ	1	0	0	0	0	0
	aer	1	0	1	1	1	1
	crp	1	1	1	1	1	0

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	csrA	1	1	1	1	1	0
	glrR	1	1	1	1	1	1
	narP	1	1	1	1	1	2
	amsI	1	1	1	1	1	0
	PA0034	2	2	0	0	0	0
	uvrY	1	1	1	1	1	2
<b>Quorum sensing</b>							
	qseC	1	1	1	1	0	3
	qseE	1	1	1	1	1	1
	qseB	1	1	1	1	0	1
	crp	1	1	1	1	1	0
	luxS	1	1	1	1	1	0
	glrR	1	1	1	1	1	1
	pdeR	3	0	2	3	1	8
	kdpE	1	0	1	1	1	1

EA\_18B1: *Erwinia aphidicola* 18B1, EP\_B64: *Erwinia persicina* B64, ER\_BY21311: *Erwinia rhapontici* BY21311, ET\_Et1/99: *Erwinia tasmaniensis* Et1/99, HS\_Z67: *Herbaspirillum seropedicae* Z67