

Supplementary Table S4 Bacterial colonization associated genes in the genome of V4 strain

	Number	Gene	Accession number	Gene product	Function
Flagellar assembly	1	flgA	NLG40_16185	Flagella basal body P-ring formation protein FlgA	Flagellar basal body P-ring biosynthesis protein
	2	flgA	NLG40_02020	Flagella basal body P-ring formation protein FlgA	Flagellar basal body P-ring biosynthesis protein
	3	flgB	NLG40_02015	Flagellar basal body rod protein FlgB	Flagellar basal body protein
	4	flgB	NLG40_16190	Flagellar basal body rod protein FlgB	Flagellar basal body protein
	5	flgC	NLG40_02010	Flagellar basal-body rod protein FlgC	Flagellar basal body rod protein
	6	flgC	NLG40_16195	Flagellar basal-body rod protein FlgC	Flagellar basal body rod protein
	7	flgD	NLG40_02005	Basal-body rod modification protein FlgD	Flagellar hook capping protein
	8	flgD	NLG40_16200	Basal-body rod modification protein FlgD	Flagellar hook capping protein
	9	flgE	NLG40_02000	Flagellar hook protein FlgE	Flagellar hook protein FlgE
	10	flgE	NLG40_16205	Flagellar hook protein FlgE	Flagellar hook protein FlgE
	11	flgF	NLG40_01995	Flagellar basal-body rod protein FlgF	Flagellar basal body rod protein
	12	flgF	NLG40_16210	Flagellar basal-body rod protein FlgF	Flagellar basal body rod protein
	13	flgG	NLG40_01990	Flagellar basal-body rod protein FlgG	Flagellar basal body rod protein
	14	flgG	NLG40_16215	Flagellar basal-body rod protein FlgG	Flagellar basal body rod protein
	15	flgH1	NLG40_01985	Flagellar L-ring protein 1	Flagellar basal body L-ring protein
	16	flgH1	NLG40_16220	Flagellar L-ring protein 1	Flagellar basal body L-ring protein
	17	flgI	NLG40_01980	Flagellar P-ring protein	Flagellar basal-body P-ring protein
	18	flgI	NLG40_16225	Flagellar P-ring protein	Flagellar basal-body P-ring protein
	19	flgK	NLG40_01970	Flagellar hook-associated protein 1	Flagellar hook-associated protein
	20	flgK	NLG40_16235	Flagellar hook-associated protein 1	Flagellar hook-associated protein
	21	flgL	NLG40_01965	Flagellar hook-associated protein 3	Flagellin and related hook-associated proteins
	22	flgL	NLG40_16240	Flagellar hook-associated protein 3	Flagellin and related hook-associated proteins
	23	flgM	NLG40_02025	Negative regulator of flagellin synthesis	Negative regulator of flagellin synthesis (anti-sigma28 factor)
	24	flgN	NLG40_02030	Flagella synthesis protein FlgN	Flagellar biosynthesis/type III secretory pathway chaperone
	25	flgN	NLG40_16175	Flagella synthesis protein FlgN	Flagellar biosynthesis/type III secretory pathway chaperone
	26	flhA	NLG40_00945	Flagellar biosynthesis protein FlhA	Flagellar biosynthesis pathway, component FlhA
	27	flhA	NLG40_16030	Flagellar biosynthesis protein FlhA	Flagellar biosynthesis pathway, component FlhA
	28	flhB	NLG40_00950	Flagellar biosynthetic protein FlhB	Flagellar biosynthesis pathway, component FlhB
	29	flhB	NLG40_16035	Flagellar biosynthetic protein FlhB	Flagellar biosynthesis pathway, component FlhB
	30	flhC	NLG40_01010	Flagellar transcriptional regulator FlhC	--
	31	flhC	NLG40_16265	Flagellar transcriptional regulator FlhC	--
	32	flhD	NLG40_01015	Flagellar transcriptional regulator FlhD	--
	33	flhD	NLG40_16260	Flagellar transcriptional regulator FlhD	--
	34	motA	NLG40_01005	Motility protein A	Flagellar motor component
	35	motA	NLG40_16270	Motility protein A	Flagellar motor component
	36	motB	NLG40_01000	Motility protein B	Flagellar motor protein
	37	motB	NLG40_16275	Motility protein B	Flagellar motor protein
	38	fliA	NLG40_01385	RNA polymerase sigma factor FliA	DNA-directed RNA polymerase specialized sigma subunit
	39	fliA	NLG40_16250	RNA polymerase sigma factor FliA	DNA-directed RNA polymerase specialized sigma subunit
	40	fliC	NLG40_01415	Flagellin	Flagellin and related hook-associated proteins

	41	fliC	NLG40_04410	Flagellin	Flagellin and related hook-associated proteins
	42	fliC	NLG40_16155	Flagellin	Flagellin and related hook-associated proteins
	43	fliD	NLG40_01420	Flagellar hook-associated protein 2	Flagellar capping protein
	44	fliD	NLG40_16160	Flagellar hook-associated protein 2	Flagellar capping protein
	45	fliE	NLG40_16060	Flagellar hook-basal body complex protein FliE	Flagellar hook-basal body protein
	46	fliE	NLG40_19165	Flagellar hook-basal body complex protein FliE	Flagellar hook-basal body protein
	47	fliF	NLG40_16065	Flagellar M-ring protein	Flagellar biosynthesis/type III secretory pathway lipoprotein
	48	fliF	NLG40_19160	Flagellar M-ring protein	Flagellar biosynthesis/type III secretory pathway lipoprotein
	49	fliG	NLG40_16070	Flagellar motor switch protein FliG	Flagellar motor switch protein
	50	fliG	NLG40_19155	Flagellar motor switch protein FliG	Flagellar motor switch protein
	51	fliH	NLG40_16075	Flagellar assembly protein FliH	Flagellar biosynthesis/type III secretory pathway protein
	52	fliH	NLG40_19150	Flagellar assembly protein FliH	Flagellar biosynthesis/type III secretory pathway protein
	53	fliI	NLG40_16080	Flagellum-specific ATP synthase	Flagellar biosynthesis/type III secretory pathway ATPase
	54	fliI	NLG40_19145	Flagellum-specific ATP synthase	Flagellar biosynthesis/type III secretory pathway ATPase
	55	fliJ	NLG40_16085	Flagellar FliJ protein	Flagellar biosynthesis chaperone
	56	fliJ	NLG40_19140	Flagellar FliJ protein	Flagellar biosynthesis chaperone
	57	fliK	NLG40_19135	Flagellar hook-length control protein	Flagellar hook-length control protein
	58	fliM	NLG40_16100	Flagellar motor switch protein FliM	Flagellar motor switch protein
	59	fliM	NLG40_19125	Flagellar motor switch protein FliM	Flagellar motor switch protein
	60	fliN	NLG40_16105	Flagellar motor switch protein FliN	Flagellar motor switch/type III secretory pathway protein
	61	fliN	NLG40_19120	Flagellar motor switch protein FliN	Flagellar motor switch/type III secretory pathway protein
	62	fliO	NLG40_16110	Flagellar protein FliO	Flagellar biogenesis protein
	63	fliO	NLG40_19115	Flagellar protein FliO	Flagellar biogenesis protein
	64	fliP	NLG40_16115	Flagellar biosynthetic protein FliP	Flagellar biosynthesis pathway, component FliP
	65	fliP	NLG40_19110	Flagellar biosynthetic protein FliP	Flagellar biosynthesis pathway, component FliP
	66	fliQ	NLG40_16120	Flagellar biosynthetic protein FliQ	Flagellar biosynthesis pathway, component FliQ
	67	fliQ	NLG40_19105	Flagellar biosynthetic protein FliQ	Flagellar biosynthesis pathway, component FliQ
	68	fliR	NLG40_16125	Flagellar biosynthetic protein FliR	Flagellar biosynthesis pathway, component FliR
	69	fliR	NLG40_19100	Flagellar biosynthetic protein FliR	Flagellar biosynthesis pathway, component FliR
	70	fliS	NLG40_01425	Flagellar secretion chaperone FliS	Flagellin-specific chaperone FliS
	71	fliS	NLG40_16165	Flagellar secretion chaperone FliS	Flagellin-specific chaperone FliS
	72	fliT	NLG40_01430	Flagellar protein FliT	--
Bacterial chemotaxis	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	cheB	NLG40_00965	Protein-glutamate methyltransferase/protein-glutamine glutaminase	Chemotaxis response regulator containing a CheY-like receiver domain and a methyltransferase domain
	4	cheB	NLG40_16050	Protein-glutamate methyltransferase/protein-glutamine glutaminase	Chemotaxis response regulator containing a CheY-like receiver domain and a methyltransferase domain
	5	cheR	NLG40_00970	Chemotaxis protein methyltransferase	Methylase of chemotaxis methyl-accepting proteins
	6	cheR	NLG40_16055	Chemotaxis protein methyltransferase	Methylase of chemotaxis methyl-accepting proteins
	7	cheW	NLG40_00990	Chemotaxis protein CheW	Chemotaxis signal transduction protein
	8	cheW	NLG40_16285	Chemotaxis protein CheW	Chemotaxis signal transduction protein

	9	cheY	NLG40_00960	Chemotaxis protein CheY	FOG: CheY-like receiver
	10	cheY	NLG40_16045	Chemotaxis protein CheY	FOG: CheY-like receiver
	11	cheZ	NLG40_00955	Protein phosphatase CheZ	Chemotaxis protein
	12	cheZ	NLG40_16040	Protein phosphatase CheZ	Chemotaxis protein
	13	cheV2	NLG40_19180	Chemotaxis protein CheV2	Chemotaxis signal transduction protein
	14	mcpA	NLG40_01480	Methyl-accepting chemotaxis protein McpA	Methyl-accepting chemotaxis protein
	15	mcpA	NLG40_17385	Methyl-accepting chemotaxis protein McpA	Methyl-accepting chemotaxis protein
	16	tap	NLG40_08095	Methyl-accepting chemotaxis protein IV	Methyl-accepting chemotaxis protein
	17	tar	NLG40_00975	Methyl-accepting chemotaxis protein II	Methyl-accepting chemotaxis protein
	18	tar	NLG40_00985	Methyl-accepting chemotaxis protein II	Methyl-accepting chemotaxis protein
	19	tar	NLG40_15495	Methyl-accepting chemotaxis protein II	Methyl-accepting chemotaxis protein
	20	tar	NLG40_21575	Methyl-accepting chemotaxis protein II	Methyl-accepting chemotaxis protein
	21	tas	NLG40_04250	Methyl-accepting chemotaxis aspartate transducer	Methyl-accepting chemotaxis protein
	22	tas	NLG40_07960	Methyl-accepting chemotaxis aspartate transducer	Methyl-accepting chemotaxis protein
	23	tas	NLG40_14610	Methyl-accepting chemotaxis aspartate transducer	Methyl-accepting chemotaxis protein
	24	tas	NLG40_16290	Methyl-accepting chemotaxis aspartate transducer	Methyl-accepting chemotaxis protein
	25	tas	NLG40_16405	Methyl-accepting chemotaxis aspartate transducer	Methyl-accepting chemotaxis protein
	26	tas	NLG40_17365	Methyl-accepting chemotaxis aspartate transducer	Methyl-accepting chemotaxis protein
	27	tsr	NLG40_00980	Methyl-accepting chemotaxis protein I	Methyl-accepting chemotaxis protein
	28	tsr	NLG40_03225	Methyl-accepting chemotaxis protein I	Methyl-accepting chemotaxis protein
	29	tcp	NLG40_16245	Methyl-accepting chemotaxis citrate transducer	Methyl-accepting chemotaxis protein
	30	trg	NLG40_19090	Methyl-accepting chemotaxis protein III	Methyl-accepting chemotaxis protein
	31	aer	NLG40_08790	Aerotaxis receptor	FOG: PAS/PAC domain
	32	ctpL	NLG40_03385	Methyl-accepting chemotaxis protein CtpL	Methyl-accepting chemotaxis protein
	33	dppA	NLG40_11280	Periplasmic dipeptide transport protein	ABC-type dipeptide transport system, periplasmic component
	34	dppA	NLG40_21540	Periplasmic dipeptide transport protein	ABC-type dipeptide transport system, periplasmic component
	35	mglB	NLG40_18275	D-galactose-binding periplasmic protein	ABC-type sugar transport system, periplasmic component
	36	mocB	NLG40_11665	Putative rhizopine-binding protein	ABC-type sugar transport system, periplasmic component
	37	rbsB	NLG40_10485	Ribose import binding protein RbsB	ABC-type sugar transport system, periplasmic component
	38	motA	NLG40_01005	Motility protein A	Flagellar motor component
	39	motA	NLG40_16270	Motility protein A	Flagellar motor component
	40	motB	NLG40_01000	Motility protein B	Flagellar motor protein
	41	motB	NLG40_16275	Motility protein B	Flagellar motor protein
	42	fliG	NLG40_16070	Flagellar motor switch protein FliG	Flagellar motor switch protein
	43	fliG	NLG40_19155	Flagellar motor switch protein FliG	Flagellar motor switch protein
	44	fliM	NLG40_16100	Flagellar motor switch protein FliM	Flagellar motor switch protein
	45	fliM	NLG40_19125	Flagellar motor switch protein FliM	Flagellar motor switch protein
	46	fliN	NLG40_16105	Flagellar motor switch protein FliN	Flagellar motor switch/type III secretory pathway protein
	47	fliN	NLG40_19120	Flagellar motor switch protein FliN	Flagellar motor switch/type III secretory pathway protein
P pilus assembly	1	yadV	NLG40_08510	Probable fimbrial chaperone YadV	P pilus assembly protein, chaperone PapD
	2	yadV	NLG40_17620	Probable fimbrial chaperone YadV	P pilus assembly protein, chaperone PapD
	3	yadV	NLG40_11710	Probable fimbrial chaperone YadV	P pilus assembly protein, chaperone PapD

4	yhcA	NLG40_07975	Uncharacterized fimbrial chaperone YhcA	P pilus assembly protein, chaperone PapD
5	yhcA	NLG40_08000	Uncharacterized fimbrial chaperone YhcA	P pilus assembly protein, chaperone PapD
6	yhcD	NLG40_00085	Uncharacterized outer membrane usher protein YhcD	P pilus assembly protein, porin PapC
7	yhcD	NLG40_07970	Uncharacterized outer membrane usher protein YhcD	P pilus assembly protein, porin PapC
8	yhcD	NLG40_08010	Uncharacterized outer membrane usher protein YhcD	P pilus assembly protein, porin PapC
9	yfcS	NLG40_02360	Probable fimbrial chaperone YfcS	P pilus assembly protein, chaperone PapD
10	yfcS	NLG40_10755	Probable fimbrial chaperone YfcS	P pilus assembly protein, chaperone PapD
11	yfcS	NLG40_11150	Probable fimbrial chaperone YfcS	P pilus assembly protein, chaperone PapD
12	yfcU	NLG40_02365	Putative outer membrane usher protein YfcU	P pilus assembly protein, porin PapC
13	yfcU	NLG40_10760	Putative outer membrane usher protein YfcU	P pilus assembly protein, porin PapC
14	yfcU	NLG40_11155	Putative outer membrane usher protein YfcU	P pilus assembly protein, porin PapC
15	afaC	NLG40_17610	Outer membrane usher protein AfaC	P pilus assembly protein, porin PapC
16	cpxP	NLG40_10105	Periplasmic protein CpxP	P pilus assembly/Cpx signaling pathway, periplasmic inhibitor/zinc-resistance associated protein
17	fimD	NLG40_11805	Outer membrane usher protein FimD	P pilus assembly protein, porin PapC
18	htrE	NLG40_08505	Outer membrane usher protein HtrE	P pilus assembly protein, porin PapC
19	htrE	NLG40_17615	Outer membrane usher protein HtrE	P pilus assembly protein, porin PapC
20	lpfB	NLG40_11810	Probable fimbrial chaperone LpfB	P pilus assembly protein, chaperone PapD
21	mrkC	NLG40_11715	Outer membrane usher protein MrkC	P pilus assembly protein, porin PapC
22	pmfD	NLG40_13700	Chaperone protein PmfD	P pilus assembly protein, chaperone PapD
23	pmfC	NLG40_13705	Outer membrane usher protein PmfC	P pilus assembly protein, porin PapC
24	smf-1	NLG40_08515	Major fimbrial subunit SMF-1	P pilus assembly protein, pilin FimA
25	smf-1	NLG40_11815	Major fimbrial subunit SMF-1	P pilus assembly protein, pilin FimA
26	smfA	NLG40_02370	Fimbria A protein	P pilus assembly protein, pilin FimA
27	smfA	NLG40_10765	Fimbria A protein	P pilus assembly protein, pilin FimA
28	smfA	NLG40_11165	Fimbria A protein	P pilus assembly protein, pilin FimA
29	spy	NLG40_19965	Periplasmic chaperone Spy	P pilus assembly/Cpx signaling pathway, periplasmic inhibitor/zinc-resistance associated protein
30	--	NLG40_08015	--	P pilus assembly protein, chaperone PapD
31	--	NLG40_08500	--	P pilus assembly protein, pilin FimA
32	--	NLG40_11720	--	P pilus assembly protein, pilin FimA
33	--	NLG40_14295	--	P pilus assembly protein, porin PapC
34	--	NLG40_14300	--	P pilus assembly protein, chaperone PapD
35	ppdD	NLG40_06695	Prepilin peptidase-dependent protein D	Tfp pilus assembly protein, major pilin PilA
36	hofB	NLG40_06700	Protein transport protein HofB homolog	Type II secretory pathway, ATPase Pule/Tfp pilus assembly pathway, ATPase PilB
37	yggR	NLG40_14840	Uncharacterized protein YggR	Tfp pilus assembly protein, pilus retraction ATPase PilT
38	--	NLG40_16650	--	Tfp pilus assembly protein PilF