Supplemental Table 1 Strains

Strain	Genotype	Reference
E. coli Top10 DH5a	F$^-$ *mcr*A Δ(*mrr-hsd*RMS-*mcr*BC) φ80*lacZ*ΔM15 Δ*lac*X74 *rec*A1 *ara*D139 Δ(*ara-leu*) 7697 *gal*U *gal*K *rps*L (Str^R) *end*A1 *nup*G λ-	Invitrogen, CA
E. coli inv110	F´ {*tra*Δ*36 proAB lacI$_q$ lacZΔM15*} *rps*L (Str^R) *thr leu end*A *thi*-1 *lacY galK galT ara ton*A *tsx dam dcm supE44* Δ*(lac-proAB)* Δ*(mcr*C*-mrr)102*::Tn*10* (Tet^R)	Invitrogen, CA
H. volcanii DS70		[5]
H. volcanii H26	DS70 Δ*pyrE2*	[1]
VDC2177	H26 Δ*HVO_2736*	[2]
VDC3226	H26 pJAM202c	This work
VDC2329	H26 Δ*HVO_1105*	This work
VDC2347	H26 Δ*HVO_0156*	This work
VDC2364	H26 Δ*HVO_2493*	This work
VDC2385	H26 Δ*HVO_0236*	This work
VDC2399	H26 Δ*HVO_B0354*	This work

VDC2414	H26 Δ*HVO_0390*	This work
VDC2452	H26 Δ*HVO_2888*	This work
VDC2457	H26 Δ*HVO_0580*	This work
VDC2459	H26 Δ*HVO_1852*	This work
VDC2469	H26 Δ*HVO_1475*	This work
VDC2476	H26 Δ*HVO_2478*	This work
VDC2506	H26 Δ*HVO_0658*	This work
VDC2514	H26 Δ*HVO_2744*	This work
VDC2517	H26 Δ*HVO_0916*	This work
VDC2527	H26 Δ*HVO_1631*	This work
VDC2545	H26 Δ*HVO_2906*	This work
VDC3241	H26 Δ*HVO_2001*	[2]
VDC3347	H26 Δ*HVO_1717*	This work
VDC3352	H26 Δ*HVO_1716*	This work
VDC3259	H26 Δ*HVO_2001* pJAM202c	This work
VDC3265	H26 Δ*HVO_2001* pGP109	This work
VDC3414	H26 Δ*HVO_1105* Δ*HVO_2008*	This work
VDC5203	H26 Δ*HVO_2008*	This work
VDC2554	H26 Δ*HVO_0253* pIKB437	This work
VDC2552	H26 Δ*HVO_2747* pIKB434	This work
VDC2556	H26 Δ*HVO_0339* pIKB434	This work

Supplemental Table 2 Plasmids

Plasmid	Description	Reference
pJAM202	*H. volcanii* shuttle vector	[3]
pTA131	Amp^R; ColE1	[1]
pBY158	pTA131 derivative containing the attCm^{R}Ccd^R cassette	[2]
pBY165.31	pTA131 Δ*HVO_2001*	[2]
pNAB135	pTA131 Δ*HVO_2008*	[4]
pGP068	pBY158 Δ*HVO_2747*	This work
pGP041	pCR8/GW 1000BpUpDn Δ *HVO_0929*	This work
pGP019	pCR8/GW 1000BpUPDn *HVO_0929*	This work
pIKB264	pTA131 Δ*HVO_1383*	This work
pIKB103	pTA131 Δ*HVO_2736*	[2]
pIKB154	pTA131 Δ*HVO_0156*	This work
pIKB156	pTA131 Δ*HVO_0574*	This work
pIKB162	pTA131 Δ*HVO_1105*	This work
pIKB172	pTA131 Δ*HVO_1594*	This work
pIKB180	pTA131 Δ*HVO_1979*	This work
pIKB184	pTA131 Δ*HVO_1173*	This work
pIKB199	pTA131 Δ*HVO_1852*	This work

pIKB203	pTA131 Δ*HVO_2888*	This work
pIKB207	pTA131 Δ*HVO_1475*	This work
pIKB211	pTA131 Δ*HVO_0697*	This work
pIKB215	pTA131 Δ*HVO_0236*	This work
pIKB219	pTA131 Δ*HVO_2493*	This work
pIKB229	pTA131 Δ*HVO_0339*	This work
pIKB240	pTA131 Δ*HVO_0580*	This work
pIKB251	pTA131 Δ*HVO_2906*	This work
pIKB262	pTA131 Δ*HVO_B0354*	This work
pIKB265	pTA131 Δ*HVO_0253*	This work
pIKB268	pTA131 Δ*HVO_1717*	This work
pIKB271	pTA131 Δ*HVO_3412*	This work
pIKB274	pTA131 Δ*HVO_0390*	This work
pIKB276	pTA131 Δ*HVO_1716*	This work
pIKB290	pTA131 Δ*HVO_1173*	This work
pIKB304	pTA131 Δ*HVO_2478*	This work
pIKB315	pTA131 Δ*HVO_0658*	This work
pIKB415	pTA131 Δ*HVO_1631*	This work
pIKB417	pTA131 Δ*HVO_0916*	This work
pIKB418	pTA131 Δ*HVO_2744*	This work
pIKB371	*HVO_0339* inserted between the *Nde*I *Blp*I sites of pJAM202c	This work

pIKB437	*HVO_0253* inserted between the *Nde*I *Blp*I sites of pJAM202c	This work
pIKB367	*HVO_1979* inserted between the *Nde*I *Blp*I sites of pJAM202c	This work
pIKB434	*HVO_2747* inserted between the *Nde*I *Blp*I sites of pJAM202c	This work
pGP109	*HVO_2001* inserted between the *Nde*I and *Blp*I sites of pJAM202	This work

Supplemental Table 3 Oligonucleotides

Oligonucleotide	Sequence	Purpose
Deletion constructs using In-fusion		
HVO_1631_NF	cgggcccccccctcgaggaggaagaccgtcgaaacc	Construction
HVO_1631_NR	gacgcgttcatatgcgttccacaagccgatgct	of *HVO_1631*
HVO_1631_CF	gcatatgaacgcgtctcgacgatctgttcgagttc	deletion
HVO_1631_CR	cgggctgcaggaattcgtaatcgcgccctgactg	construct, pIKB415
HVO_0916_NF	cgggcccccccctcgagcatcgaatcactcggctaca	Construction
HVO_0916_NR	gacgcgttcatatgcgtccaccacgtcgaagc	of *HVO_0916*

HVO_0916_CF	gcatatgaacgcgtccctcccgcccttcgac	deletion
HVO_0916_CR	cgggctgcaggaattcaggatgccgccttcgag	construct, pIKB417
HVO_2744_NF	cgggcccccccctcgagacggcgtcgaggaactc	Construction
HVO_2744_NR	gacgcgttcatatgcgaggtcgtcgttcaggagtc	of *HVO_2744*
HVO_2744_CF	gcatatgaacgcgtcggctggtagaccgaggtgtt	deletion
HVO_2744_CR	cgggctgcaggaattctctcccgaccgttcgaaat	construct, pIKB418
HVO_2478_N_Fwd	cgggcccccccctcgaggaacgtgcgggcgaag	Construction
HVO_2478_N_Rev	gacgcgttcatatgccgacgaaagcgaggtgtc	of *HVO_2478*
HVO_2478_C_Fwd	gcatatgaacgcgtcgctgaggctcgcaacg	deletion
HVO_2478_C_Rev	cgggctgcaggaattcgtccacatcactcgcacct	construct, pIKB304
HVO_1716_N_Fwd	cgggcccccccctcgagcgacgacgactaccacctg	Construction of
HVO_1716_N_Rev	gacgcgttcatatgcgacgtgggttcggtagtca	*HVO_1716*
HVO_1716_C_Fwd	gcatatgaacgcgtcgcgacccgattccgta	deletion
HVO_1716_C_Rev	cgggctgcaggaattcgttgtcctcgaaggcgaag	construct, pIKB276
HVO_1717_N_Fwd	cgggcccccccctcgaggagcgacctagaacgacacc	Construction
HVO_1717_N_Rev	gacgcgttcatatgcgcgaacagctcgtttatcg	of *HVO_1717*
HVO_1717_C_Fwd	gcatatgaacgcgtccgactccacgtcgacctct	deletion
HVO_1717_C_Rev	cgggctgcaggaattcctcgaaggcgtcgaagaact	construct, pIKB268

HVO_339_N_IfKO_Fwd	cgggcccccctcgagtcgaggctcacgtacagtcc	Construction
HVO_339_N_IfKO_Rev	gacgcgttcatatgccgccagataggtcgtacaca	of *HVO_339*
HVO_339_C_IfKO_Fwd	gcatatgaacgcgtcatcgctaagccgctcgtt	deletion
HVO_339_C_IfKO_Rev	cgggctgcaggaattcacggtccatgctcgatatgt	construct,
		pIKB229
HVO_1475_N_IfKO_Fwd	cgggcccccctcgagagtcgacgacgaccaacac	Construction
HVO_1475_N_IfKO_Rev	gacgcgttcatatgcagttcgacttccacgacgag	of *HVO_1475*
HVO_1475_C_IfKO_Fwd	gcatatgaacgcgtcggtactgttcgagcgagacct	deletion
HVO_1475_C_IfKO_Rev	cgggctgcaggaattcgaacccaccccgttagatta	construct,
		pIKB207
HVO_0697_N_IfKO_Fwd	cgggcccccctcgagcccttggaggtcgactacg	Construction
HVO_0697_N_IfKO_Rev	gacgcgttcatatgctcaggagatgcaacagcaac	of *HVO_0697*
HVO_0697_C_IfKO_Fwd	gcatatgaacgcgtccagcccctcgatgaggac	deletion
HVO_0697_C_IfKO_Rev	cgggctgcaggaattcgtcccctacgtcaacgtcac	construct,
		pIKB211
HVO_0253_N_IfKO_Fwd	cgggcccccctcgaggtcaacgcggagttctgg	Construction
HVO_0253_N_IfKO_Rev	gacgcgttcatatgcgtctcggtcgggtagacg	of *HVO_0253*
HVO_0253_C_IfKO_Fwd	gcatatgaacgcgtcgacatcgaggcgtggttaga	deletion
HVO_0253_C_IfKO_Rev	cgggctgcaggaattcgtcgcgcacaaactcgtc	construct,
		pIKB265
HVO_0236_N_IfKO_Fwd	cgggcccccctcgaggtgagccgtgtgcttacaga	Construction
HVO_0236_N_IfKO_Rev	gacgcgttcatatgccctgtgtggggttgtagaaga	of *HVO_0236*
HVO_0236_C_IfKO_Fwd	gcatatgaacgcgtcgctgagatacgcgaggtgac	deletion

HVO_0236_C_IfKO_Rev	cgggctgcaggaattcgcgagagcagttggagaaac	construct, pIKB215
HVO_2493_N_IfKO_Fwd	cgggcccccctcgagcagagagcgacagttgacga	Construction of *HVO_2493* deletion construct, pIKB219
HVO_2493_N_IfKO_Rev	gacgcgttcatatgccgtctgtctgggcgaact	
HVO_2493_C_IfKO_Fwd	gcatatgaacgcgtcgcttgtcgaggttgacgac	
HVO_2493_C_IfKO_Rev	cgggctgcaggaattcgcacccagcatggatatgtt	
HVO_574_N_IfKO_Fwd	cgggcccccctcgagcgacggcgagcagttc	Construction of *HVO_0574* deletion construct, pIKB156
HVO_574_N_IfKO_Rev	gacgcgttcatatgcgatttcggtcatctcgggta	
HVO_574_C_IfKO_Fwd	gcatatgaacgcgtccgaggatgcgctcgac	
HVO_574_C_IfKO_Rev	cgggctgcaggaattcgcgcaggcgaacctc	
HVO_1979_N_IfKO_Fwd	cgggcccccctcgagccgacgatggcgtgtt	Construction of *HVO_1979* deletion construct, pIKB180
HVO_1979_N_IfKO_Rev	gacgcgttcatatgcaggacgagccgttcgag	
HVO_1979_C_IfKO_Fwd	gcatatgaacgcgtcagacaggcgtcgcagacc	
HVO_1979_C_IfKO_Rev	cgggctgcaggaattccggagaacagaagcgagaag	
HVO_1105_N_IfKO_Fwd	cgggcccccctcgagggccatgccgtagagacc	Construction of *HVO_1105* deletion construct, pIKB162
HVO_1105_N_IfKO_Rev	gacgcgttcatatgcccggaggtcgtccaaatc	
HVO_1105_C_IfKO_Fwd	gcatatgaacgcgtccgcggacgaagagtgag	
HVO_1105_C_IfKO_Rev	cgggctgcaggaattcgagaacgctgggcgaag	
HVO_1383_N_IfKO_Fwd	cgggcccccctcgagagccgacgccgacac	Construction

HVO_1383_N_IfKO_Rev	gacgcgttcatatgcccgtggacgaggagtatcac	of *HVO_1383*
HVO_1383_C_IfKO_Fwd	gcatatgaacgcgtccaccggctacctcgtgtt	deletion
HVO_1383_C_IfKO_Rev	cgggctgcaggaattccgtggcgctttctgttc	construct,
		pIKB
HVO_0658_N_IfKO_Fwd	cgggccccccctcgagcgctcgtggccatcttc	Construction
HVO_0658_N_IfKO_Rev	gacgcgttcatatgcgacgacctcgtcttcgactt	of *HVO_0658*
HVO_0658_C_IfKO_Fwd	gcatatgaacgcgtccgcacgcggaagtcct	deletion
HVO_0658_C_IfKO_Rev	cgggctgcaggaattccacgagcgcgacgac	construct,
		pIKB315
HVO_1173_N_IfKO_Fwd	cgggccccccctcgagagcttggaggagccgtagat	Construction
HVO_1173_N_IfKO_Rev	gacgcgttcatatgcgacgtgcgtcgtcatcc	of *HVO_1173*
HVO_1173_C_IfKO_Fwd	gcatatgaacgcgtcccgaaaaccgggtggt	deletion
HVO_1173_C_IfKO_Rev	cgggctgcaggaattcgaggtcgtcgttgtccatc	construct,
		pIKB265
HVO_1852_N_IfKO_Fwd	cgggccccccctcgaggcgcgctcgatgtagtg	Construction
HVO_1852_N_IfKO_Rev	gacgcgttcatatgcatccgcgagggagtcg	of *HVO_1852*
HVO_1852_C_IfKO_Fwd	gcatatgaacgcgtccggctgtcgctggaac	deletion
HVO_1852_C_IfKO_Rev	cgggctgcaggaattcgtttccgcccgtcgta	construct,
		pIKB199
HVO_2906_N_IfKO_Fwd	cgggccccccctcgagcgacaccgctactttctcca	Construction
HVO_2906_N_IfKO_Rev	gacgcgttcatatgcgctgacgggcgtgttc	of *HVO_2906*
HVO_2906_C_IfKO_Fwd	gcatatgaacgcgtcgccgtgttggcggtatc	deletion
HVO_2906_C_IfKO_Rev	cgggctgcaggaattcccgagatattcaccgacgag	construct,

		pIKB251
HVO_0156_N_IfKO_Fwd	cggggcccccctcgagagcgacatcgaactctcg	Construction
HVO_0156_N_IfKO_Rev	gacgcgttcatatgcgtgcggtacgtgcatctg	of *HVO_0156*
HVO_0156_C_IfKO_Fwd	gcatatgaacgcgtccccgaccagttcgacgac	deletion
HVO_0156_C_IfKO_Rev	cggggctgcaggaattccgagagtggaactgcgagtc	construct,
		pIKB154
HVO_1594_N_IfKO_Fwd	cggggcccccctcgaggatgcccgagaggaacac	Construction
HVO_1594_N_IfKO_Rev	gacgcgttcatatgcaaaaaggcctcctcgtcgt	of *HVO_1594*
HVO_1594_C_IfKO_Fwd	gcatatgaacgcgtccgtctacccgcaccacaac	deletion
HVO_1594_C_IfKO_Rev	cggggctgcaggaattctattccggtttgacgaggtc	construct,
		pIKB172
HVO_2747_N_IfKO_Fwd	cggggcccccctcgagccgaactccttttggaacat	Construction
HVO_2747_N_IfKO_Rev	gacgcgttcatatgcgaaggaggtcatcgtcgag	of *HVO_2747*
HVO_2747_C_IfKO_Fwd	gcatatgaacgcgtcgtggcggagtacgtcgag	deletion
HVO_2747_C_IfKO_Rev	cggggctgcaggaattccgcttcaacggtctcacc	construct,
		pGP035
ORF02092_N_IfKO_Fwd	cggggcccccctcgagcgacggcgagcagttc	Construction
ORF02092_N_IfKO_Rev	gacgcgttcatatgcgatttcggtcatctcgggta	of *HVO_2888*
ORF02092_C_IfKO_Fwd	gcatatgaacgcgtccgaggatgcgctcgac	deletion
ORF02092_C_IfKO_Rev	cggggctgcaggaattcgcgcaggcgaacctc	construct,
		pIKB207
HVO_580_N_IfKO_Fwd	cggggcccccctcgagcgccgtttcggagctt	Construction
HVO_580_N_IfKO_Rev	gacgcgttcatatgcgcacttgtcgcactccatt	of *HVO_0580*

HVO_580_C_IfKO_Fwd	gcatatgaacgcgtcggaagtgccgactcatcg	deletion construct, pIKB240
HVO_580_C_IfKO_Rev	cgggctgcaggaattcgtggcctcgtccacatcac	
HVO_B0357_N_Fwd	cgggccccccctcgagagcgcgaggtcgtactcc	Construction of *HVO_B0357* deletion construct, pIKB262
HVO_B0357_N_Rev	gacgcgttcatatgcccgcgaggaacactacgg	
HVO_B0357_C_Fwd	gcatatgaacgcgtccgtgatgacgtactgggtga	
HVO_B0357_C_Rev	cgggctgcaggaattccgacgactggtacgagaaca	
HVO_0339_N_Fwd	cgggccccccctcgagtctatctccaccggtccttg	Construction of *HVO_0390* deletion construct, pIKB274
HVO_0339_N _Rev	gacgcgttcatatgcgcgggacttgaccttcatac	
HVO_0339_C _For	gcatatgaacgcgtccgacgacctcttcgagttct	
HVO_0339_C _Rev	cgggctgcaggaattcgctgacgaacgtcggact	
Deletion constructs, synthesised using methods other than In-Fusion		
tgtA2HvUPF	tctagaggtgattaccacgcgcaag	Construction of *HVO_2008* deletion plasmid, described in [4]
tgtA2HvUPR	ggatccgcgtgaacctcgaagtagt	
tgtA2HvDSol1	aatggatcctcgaagggtaattcgg	
tgtA2HvDSol2	aatgcggccgcaagcttcggcagtcgcgtgttgatg	
UpDn_HVOB2736_fwd	ctg gag gat gtc gcc ctc gc	Construction

UpDn_HVO2736_rev	gac ggt cag gtg cgc ccc	of *HVO_2736*
RevPCR_HVO2736_fwd	gacgcggcccgcgaggaa	deletion
RevPCR_HVO2736_rev	ttcggtcatgggatggatac	plasmid, described in [2]
Gene deletion verification		
HVO_2478_Int_Fwd	gaggtactcggtcgctgtct	Internal
HVO_2478_Int_Rev	ggattccctcgacgagttc	checks for *HVO_2478*
HVO_2478_Ext_Fwd	acgtcgtacagcgtgcatc	External
HVO_2478_Ext_Rev	gacgtggacaccgtcctct	checks for *HVO_2478*
HVO_1105_Int_F	ccgacgcagacatcgaact	Internal
HVO_1105_Int_R	ccgtctgaaagtcgagcatc	checks for *HVO_1105*
HVO_1105_fwd	gcactgttgaacgacctcct	External
HVO_1105_rev	ctgtcggagcgaaaagagac	checks for *HVO_1105*
HVO_B0357_Int_F	aggtcgtacgtctcgttcgt	Internal
HVO_B0357_Int_R	ggtcgggctgtacttcttca	checks for *HVO_B0357*
HVO_B0357_Ext_F	cggacagtcgtatgtgcaac	External
HVO_B0357_Ext_R	cgacgactggtacgagaaca	checks for

		HVO_B0357
HVO_1594_int_Fwd	gcatcctggaactcgaagac	Internal checks for *HVO_1594*
HVO_1594_int_Rev	aggtgcaggtggagtagacg	
HVO_1594_ext_Fwd	cggcttaaacgtgtagactgc	External checks for *HVO_1594*
HVO_1594_ext_Rev	ggactcagttcgatgacgttc	
HVO_0253_Int_F	aacgcgtcttcgacatcaa	Internal checks for *HVO_0253*
HVO_0253_Int_R	gtcgtcgtgctcgtctaacc	
HVO_0253_Ext_F	cgggaccggaattaagagtt	External checks for *HVO_0253*
HVO_0253_Ext_R	tgccatgtcagtaagccaag	
HVO_2493_Int_Fwd	cgtctttgaggtcgtggag	Internal checks for *HVO_2493*
HVO_2493_Int_Rev	cgaaggctcgaaagagtacg	
HVO_2493_Ext_Fwd	gttcctcggctactccgtct	External checks for *HVO_2493*
HVO_2493_Ext_Rev	gcctctgacagcagcaaata	
HVO_1173_int_Fwd	gggtcatcctaccggacaac	Internal checks for *HVO_1173*
HVO_1173_int_Rev	gccgggacgactttcttg	
HVO_1173_Ext_fwd	gcgataccgacgaggagtc	External

HVO_1173_Ext_rev	ggtcctcgtagcagtccatc	checks for *HVO_1173*
HVO_1852_Int_F	cgaactcgacttccgggta	Internal checks for *HVO_1852*
HVO_1852_Int_R	gtgtcccgactggtgtacg	
HVO_1852_Ext_fwd	gagtacctcggcctcctctc	External checks for *HVO_1852*
HVO_1852_Ext _rev	ctccaactcaggagcgaaag	
HVO_2888_Int_F	cggaagtcctccagacacat	Internal checks for *HVO_2888*
HVO_2888_Int_R	tcgaacagcttcgacacatc	
HVO_2888_Ext_fwd	gaagtcgaagtgggcgacta	External checks for *HVO_2888*
HVO_2888_Ext _rev	ctcggctacgagacgaagag	
HVO_0580_Int_Fwd	ctcttaccgcgagtttcacc	Internal checks for *HVO_0580*
HVO_0580_Int_Rev	accgcgaacttctccagtt	
HVO_0580_Fwd	ttcgcgatatgctcaatgaa	External checks for *HVO_0580*
HVO_0580_Rev	cgcggtagagttcggagtag	
HVO_0339_Int_F	ctcttaccgcgagtttcacc	Internal checks for *HVO_0339*
HVO_0339_Int_R	accgcgaacttctccagtt	

HVO_0339_Ext_F	gttcatgccgtttttcgtact	External
HVO_0339_Ext_R	cgacagtcatcgtgaaatcg	checks for *HVO_0339*
HVO_0697_Int_F	gttgctgttgcatctcctga	Internal
HVO_0697_Int_R	ctaccacctcaccgacacct	checks for *HVO_0697*
HVO_0697_Ext_F	cccgacgtagtgttccatct	External
HVO_0697_Ext_R	gacaagccgacgaagaagac	checks for *HVO_0697*
HvO_1383_Int_F	cggacctcttcaaccacttc	Internal
HvO_1383_Int_R	tcgttgaagtccatctgtcg	checks for *HVO_1383*
HvO_1383_Ext_fwd	gctagcacggctcctacaac	External
HvO_1383_Ext_rev	cggtcgtgaactcctctttc	checks for *HVO_1383*
HVO_0156_Int_Fwd	ggtacttgacgaagccgaag	Internal
HVO_0156_Int_Rev	acgctgtccaaggagttcag	checks for *HVO_0156*
HVO_0156_Ext_Fwd	gatgcagcagatgcacgta	External
HVO_0156_Ext_Rev	gacgtgcgaggactcacc	checks for *HVO_0156*
HVO_0658_Int_fwd	gtggagaccgactgtgtgg	Internal
HVO_0658_Int_rev	cgaactcgactcgctgaac	checks for

		HVO_0658
HVO_0658_Ext_fwd	gttcgggtggatacaggaga	External checks for *HVO_0658*
HVO_0658_Ext_rev	agaactcgtggtggagttgc	
HVO_0236_Int_Fwd	caacgccctcatgtacgac	Internal checks for *HVO_0236*
HVO_0236_Int_Rev	ccgaagtcctctgtcacctc	
HVO_0236_Ext_fwd	cggaccggaacatctcag	External checks for *HVO_0236*
HVO_0236_Ext_rev	gtacgagcatacccgttcgt	
HVO_2906_Int_FWD	gagcaactcgtcgaaaaagc	Internal checks for *HVO_2906*
HVO_2906_Int_Rev	acttcggcatctacgacctc	
HVO_2906_Ext_fwd	agttcttgcggttgatggag	External checks for *HVO_2906*
HVO_2906_Ext_rev	gacaccgagtcttcgacctc	
HVO_1594_Int_Fwd	gcatcctggaactcgaagac	Internal checks for *HVO_1594*
HVO_1594_Int_Rev	aggtgcaggtggagtagacg	
HVO_1594_Ext_Fwd	ttcagcgaaccagacgctac	External checks for *HVO_1594*
HVO_1594_Ext_Rev	cggtctttgatttgggactg	
HVO_1475_int_Fwd	aactccttgctcccttcgtt	Internal

HVO_1475_int_Rev	gtctcgctcgaacagtaccc	checks for *HVO_1475*
HVO_1475_Ext_fwd	gacgtgacagtcgaggtggt	External checks for *HVO_1475*
HVO_1475_Ext_rev	agtacgcgtggagccactac	
HVO_0574_Int_Fwd	agttcccgctggagacagt	Internal checks for *HVO_0574*
HVO_0574_Int_Rev	cgaagtcgagtcgttcgtc	
HVO_0574_Ext_fwd	agtccgagcctcgaagagtt	External checks for *HVO_0574*
HVO_0574_Ext_rev	aggacagtcgcaagtccagt	
HVO_1631_Int_Fwd	aggacctgtccctcgtaggt	Internal checks for *HVO_1631*
HVO_1631_Int_Rev	aacagatcgtcgaagccatc	
HVO_1631_Ext_Fwd	gctacctgtgccctgaatgt	External checks for *HVO_1631*
HVO_1631_Ext_Rev	gggaactcctgtgcgataga	
HVO_0916_Int_Fwd	ctcccagtcgaccttgatgt	Internal checks for *HVO_0916*
HVO_0916_Int_Rev	tcgcggagttctacacgag	
HVO_0916_Ext_Fwd	cgtccacaagagctacatcg	External checks for *HVO_0916*
HVO_0916_Ext_Rev	gggtaatctcacgcaatggt	

HVO_2744_Int_Fwd	tcgtagccggtgaagctact	Internal checks for *HVO_2744*
HVO_2744_Int_Rev	gggatgaacacctcggtcta	
HVO_2744_Ext_Fwd	gtcttcgaccagcgtgttct	External checks for *HVO_2744*
HVO_2744_Ext_Rev	gtgcgcccgtggatagac	
HvO_0253_Ext_F	cgggaccggaattaagagtt	External checks for *HVO_0253*
HvO_0253_Ext_R	tgccatgtcagtaagccaag	
HvO_0253_Int_F	aacgcgtcttcgacatcaa	Internal checks for *HVO_0253*
HvO_0253_Int_R	gtcgtcgtgctcgtctaacc	
HVO_1979_Ext_Fwd	cgacgattctcgaagctgat	External checks for *HVO_1979*
HVO_1979_Ext_Rev	gtcgagcaggacgaagtagg	
HVO_1979_Int_Fwd	gggtgtactgctcgatggtc	Internal checks for *HVO_1979*
HVO_1979_Int_Rev	gtgcagttcctcctcgacat	
HVO_2747_Int_Fwd	aaaagtcccgttccgctact	Internal checks for *HVO_2747*
HVO_2747_Int_Rev	acgaaatcctcaacgtcgtc	
HVO_2747_Ext_Fwd	gcgaggttcgattcgaggtc	External checks for
HVO_2747_Ext_Rev	tcgaggcgaggcggaagagc	

		HVO_2747
HVO_1717_Ext_Fwd	tcgcgcaccgcaatgagctt	External checks for *HVO_1717*
HVO_1717_Ext_Rev	aggttctggaacgcctgcaa	
HVO_1717_Int_Fwd	acgagctgttcgcgtcgctt	Internal checks for *HVO_1717*
HVO_1717_Int_Rev	acacgtcgctgtcgcggatt	
HVO_1716_Ext_Fwd	gccgtcgtgctcgaagagaa	External checks for *HVO_1716*
HVO_1716_Ext_Rev	ggcgactctgctcacctact	
HVO_1717_Int_Fwd	acgaactctacgcgctccac	Internal checks for *HVO_1716*
HVO_1717_Int_Rev	ggcgactctgctcacctact	
HVO_0929_Int_Fwd	tgctcgtcggcgactcgacc	External checks for *HVO_0929*
HVO_0929_Int_Rev	tcgcgaacgtcgccgtgaat	
HVO_0929_Ext_Fwd	gaataaaaccgaacccggtcgc	External checks for *HVO_0929*
HVO_0929_Ext_Rev	ggcatcgcgaaggaaatcaac	
pJAM202c cloning		
HVO_0253_NdeI_Fwd	atgccatatgatgagcgacgacgtaca	Cloning of *HVO_0253* into pJAM202
HVO_0253_BlpI_Rev	atgcgctgagttacgcgtcgtcgtcgtgct	

Hvo_2747_ndei_fwd	atgccatatgatgacacgtacggagagcgg	Cloning *HVO_2747* into pJAM
Hvo_2747_blpi_rev	atgcgctgagcctgtccgtcgcgtccgacga	
HVO_0339_NdeI_Fwd	atgccatatgatgaccgtcatcggcctcga	Cloning of *HVO_0339* into pJAM202
HVO_0339_BlpI_Rev	atgcgctgagtcagcgctccgggtgcgt	
Hvo697_fwd	atgccatatgatggacgacatcgaaatcga	Cloning of *HVO_0697* into pJAM202
Hvo697_rev	atgcgctgagtcagccgatgtaccggaggt	
HVO_1979_NdeI_Fwd	atgccatatgatgccatatgatgagcatccttgagg	Cloning of *HVO_1979* into pJAM202
HVO_1979_BlpI_Rev	atgcgctgagatgcgctcagctcagtccttgaagaa	
HVO_2001_Fwd	gctcagctacgtcgggtgaacctaaga	Cloning of *HVO_2001* into pJAM202
HVO_2001_Rev	catatgcgcgaccacttcgaactc	

Supplemental Table 4 Salt and temperature tolerance of tested deletion mutants

26˙C

Strain	12%	14%	16%	18%	23%	25%
H26	+	+	+	+	-	-
HVO_0916	-	-	-	-	-	-
HVO_1631	-	-	-	-	-	-
HVO_2477	+	++	++	++	-	-
HVO_2493	+	+	+	+	-	-
HVO_1105	+	+	+	+	-	-
HVO_1105 HVO_2008	+	+	+	+	-	-
HVO_2001	-	-	-	-	-	-
HVO_2008	+	+	+	+	-	-
HVO_1717	+	+	+	+	-	-
HVO_1716	+	+	+	+	-	-
HVO_0253	+	+	+	+	-	-
HVO_1803	+	+	+	+	-	-
HVO_B0354	+	+	+	+	-	-
HVO_1594	+	+	+	+	-	-
HVO_0390	+	+	+	+	-	-
HVO_2888	+	+	+	+	-	-
HVO_1378	+	+	+	+	-	-
HVO_1852	+	+	+	+	-	-

HVO_0658	+	+	+	+	-	-
HVO_2478	+	+	+	+	-	-
HVO_2736	+	+	+	+	-	-
HVO_1475	+	+	+	+	-	-
HVO_0236	+	+	+	+	-	-

30˙C

Strain	12%	14%	16%	18%	23%	25%
H26	++	++	++	++	-	-
HVO_0916	-	-	-	-	-	-
HVO_1631	++	++	++	++	-	-
HVO_2477	++	++	++	++	-	-
HVO_2493	++	++	++	++	-	-
HVO_1105	++	++	++	++	-	-
HVO_1105 HVO_2008	++	++	++	+	-	-
HVO_2001	++	++	++	++	-	-
HVO_2008	++	++	++	++	-	-
HVO_1717	++	++	++	++	-	-
HVO_1716	++	++	++	++	-	-
HVO_0253	++	++	++	++	-	-
HVO_1803	++	++	++	++	-	-
HVO_B0354	++	++	++	++	-	-

HVO_1594	++	++	++	++	-	-
HVO_0390	++	++	++	++	-	-
HVO_2888	++	++	++	++	-	-
HVO_1378	++	++	++	++	-	-
HVO_1852	++	++	++	++	-	-
HVO_0658	++	++	++	++	-	-
HVO_2478	++	++	++	++	-	-
HVO_2736	++	++	++	++	-	-
HVO_1475	++	++	++	++	-	-
HVO_0236	++	++	++	++	-	-

37˙C

Strain	12%	14%	16%	18%	23%	25%
H26	++	++	++	++	-	-
HVO_0916	-	-	-	-	-	-
HVO_1631	++	++	++	++	-	-
HVO_2477	++	++	++	++	-	-
HVO_2493	++	++	++	++	-	-
HVO_1105	++	++	++	++	-	-
HVO_1105 HVO_2008	++	++	++	+	-	-
HVO_2001	++	++	++	++	-	-
HVO_2008	++	++	++	++	-	-

HVO_1717	++	++	++	++	-	-
HVO_1716	++	++	++	++	-	-
HVO_0253	++	++	++	++	-	-
HVO_1803	++	++	++	++	-	-
HVO_B0354	++	++	++	++	-	-
HVO_1594	++	++	++	++	-	-
HVO_0390	++	++	++	++	-	-
HVO_2888	++	++	++	++	-	-
HVO_1378	++	++	++	++	-	-
HVO_1852	++	++	++	++	-	-
HVO_0658	++	++	++	++	-	-
HVO_2478	++	++	++	++	-	-
HVO_2736	++	++	++	++	-	-
HVO_1475	++	++	++	++	-	-
HVO_0236	++	++	++	++	-	-

44˙C

Strain	12%	14%	16%	18%	23%	25%
H26	++	++	++	++	++	+
HVO_0916	+	+	++	++	+	-
HVO_1631	++	++	++	++	++	-
HVO_2477	++	++	++	++	++	+
HVO_2493	++	++	++	++	++	+

HVO_1105	++	++	++	++	++	+
HVO_1105 *HVO_2008*	++	++	++	++	++	+
HVO_2001	++	++	++	++	++	+
HVO_2008	++	++	++	++	++	+
HVO_1717	++	++	++	++	++	+
HVO_1716	++	++	++	++	++	+
HVO_0253	++	++	++	++	++	+
HVO_1803	++	++	++	++	++	+
HVO_B0354	++	++	++	++	++	+
HVO_1594	++	++	++	++	++	+
HVO_0390	++	++	++	++	++	+
HVO_2888	++	++	++	++	++	+
HVO_1378	++	++	++	++	++	+
HVO_1852	++	++	++	++	++	+
HVO_0658	++	++	++	++	++	+
HVO_2478	++	++	++	++	++	+
HVO_2736	++	++	++	++	++	+
HVO_1475	++	++	++	++	++	+
HVO_0236	++	++	++	++	++	+

50˙C

Strain	12%	14%	16%	18%	23%	25%

H26	-	-	-	++	++	++
HVO_0916	-	-	-	+	+	+
HVO_1631	-	-	-	++	++	++
HVO_2477	-	-	-	++	++	++
HVO_2493	-	-	-	++	++	++
HVO_1105	-	-	-	++	++	++
HVO_1105 *HVO_2008*	-	-	-	++	++	++
HVO_2001	-	-	-	++	++	++
HVO_2008	-	-	-	++	++	++
HVO_1717	-	-	-	++	++	++
HVO_1716	-	-	-	++	++	++
HVO_0253	-	-	-	++	++	++
HVO_1803	-	-	-	++	++	++
HVO_B0354	-	-	-	++	++	++
HVO_1594	-	-	-	++	++	++
HVO_0390	-	-	-	++	++	++
HVO_2888	-	-	-	++	++	++
HVO_1378	-	-	-	++	++	++
HVO_1852	-	-	-	++	++	++
HVO_0658	-	-	-	++	++	++
HVO_2478	-	-	-	++	++	++
HVO_2736	-	-	-	++	++	++

HVO_1475	-	-	-	++	++	++
HVO_0236	-	-	-	++	++	++

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