

**Table S2 Oligonucleotide primers used for strain construction and confirmation**

No.	Name	Sequence (5' to 3')
1	KS farA 5'fk F	cctccaagtccactgttctg
2	KS farA 5'fk+AfupyrG R	cgaagaggggtgaagagcattgttgaggcacgttgctatggaacagcg
3	KS farA 3'fk+AfupyrG F	gtgacgacaatacctcccgacgatacctggcttgaacgtggaagactgg
4	KS farA 3'fk R	taggtggcgttcaagggtcg
5	KS farB 5'fk F	caatcacagtgtggatctgg
6	KS farB 5'fk+AfupyrG R	cgaagaggggtgaagagcattgttgaggcatagttgctggatctgaggg
7	KS farB 3'fk+AfupyrG F	gtgacgacaatacctcccgacgatacctggtcgaagccgaacttgattg
8	KS farB 3'fk R	atgagcaaccgggaactgtg
9	XL farC 5'fk F	tccgctcaaagctggagagg
10	XL farC 5'fk+AfupyrG R	cgaagaggggtgaagagcattgttgaggcacgaggaagattgaatgccgc
11	XL farC 3'fk+AfupyrG F	gtgacgacaatacctcccgacgatacctggagtgtgctaacggccctcag
12	XL farC 3'fk R	atcacgccagatttgccgc
13	KS Afu pyrG F	tgcctcaacaatgctcttc
14	KS Afu pyrG R	ccaggtatcgtcgggaggt
15	KS JP Extended T7 F	cgtaatacgactcactataggg
16	KS JP gpdA(p) fusion R	catggtgatgtctgctcaag
17	XL OEFarA 5'fk F	tggttcctcactgggaggc
18	XL OEFarA 5'fk R	caattcgccctatagtgagtcgtattacgggcaaaaagtatccatgcag
19	XL OEFarA 3'fk F	ctaccccgcttgagcagacatcaccatgatgagcacaacaggagaaaacc
20	XL OEFarA 3'fk R	agattcgaggactcgccgag
21	KS OEFarB 5'fk F	gacgcacctgtcctttgacc
22	KS OEFarB 5'fk R	ccaattcgccctatagtgagtcgtattacgtgtgaagtgtgcggttttag
23	KS OEFarB 3'fk F	agctaccccgcttgagcagacatcaccatgactaatctcactgcctcgcc
24	KS OEFarB 3'fk R	cctggcgcgttgaagaatg
25	XL OEFarC 5'fk R	ccaattcgccctatagtgagtcgtattacggtctggtctgcttatcgacg
26	XL OEFarC 3'fk F	agctaccccgcttgagcagacatcaccatggcggcattcaatcttctcg
27	XL OEFarC 3'fk R	tgcaatgggcatgtcttggc