

**Table S1.** Primers used for amplification of six cDNA fragments of C-strain (GenBank: HM175885) and for re-sequencing.

Primer name	Primer sequence	location	Product length
CF1-upnew	5-GTATACGAGGTTAGTTCATTCTCG	1-24	2441bp
CF1-lownew	5-GCCTTGCCCCAGTACT	2423-2441	
CF1-upper	5-AAATCTAGATAATACGACTCACTATAGTATACGAGGTTAGTTCATTCTC	1-23	2428bp
CF1-lower	5-AAAACTAGTAACAGCCATACCACAC	2404-2425	
CF2-upper-new	5-GCTTGATAAAAAGTATTAAGAGGACAG	2368-2393	1924bp
CF2-lower-new	5-AACTCGTAAGTGGGCAGTATGA	4270-4291	
CF2-upper	5-ACGGACTAGTAACTGGGGCACAAGGC	2420-2441	1755bp
CF2-lower	5-GGGCTGCAGTGGAAATAAGGTACACGAGAA	4141-4167	
CF3-upnew	5-TTAATAAGGGTGCTGAAGGGAATAGGTGAG	4062-4091	2476bp
CF3-lownew	5-CCACATCCAAGTCCGGGAGAGTAA	6514-6537	
CF3-upper	5-AAAGCGGCCGCCTCGAGTGGTAACAAGAT	4162-4179	2301bp
CF3-lower	5-GCAGTCGACGGATCCTCACCATAATA	6423-6442	
CF4-upnew	5-GATTAAAGATAACCAGTAGAGGAGATGAAGA	6307-6336	1763bp
CF4-lownew	5-CACGGATACTGGATTTTGTGACAT	8046-8069	
CF4-upper	5-CGTGACGTCGGATCCATCTAACCTGAGGGTGGTAACATCG	6437-6467	1615bp
CF4-lower	5-TACCATGGCCGACTAACCCCGTGCCTAGCAAACCATCGCTT	8000-8040	
CF5-upnew	5-AATCAGGCGCGGAAAAAG	7985-8002	2731bp
CF5-lownew	5-CCTCTTCTCATTCTTTGGGATC	10694-10715	
CF5-upper	5-ACCCATGGAGATCATGTCACAAAATC	8035-8058	2572bp
CF5-lower	5-CAGGCGGCCGCTTCGAAAAAACCAGCAGCAC	10573-10592	
CF6-upnew	5-ATTGAAACGACCCGAGTTAGAG	10496-10517	1816bp
CF6-lownew	5-GGGCCGTTAGAAATTACCTTAG	12290-12311	
CF6-upper	5-GGGTTCGAAACGCAAAAATATAGGGGAAATAT	10587-10614	1737bp
CF6-lower	5-AAAGTCGACCTCGAGGGCCGTTAGAAATTACCTTAG	12290-12311	

**Table S2.** Additional sequencing primers for RecC (primer location based on C-strain, GenBank: HM175885).

Primer name	Primer sequence	location	Product length
CF1-round1-up	5-GTATACGAGGTTAGTTCATTCTCG	1-24	2473bp
CF1-round1-low	5-GCGTACCTGTAATCTTCCTTGCA	2451-2473	
CF1a -upper	same as CF1-round1-up	1-24	1465bp
CF1a -lower	5-GTTCTATTCATCAGCTGTATCCAGG	1411-1465	
CF1b-up	5-TAATGGTATCCAGCATGCTATGTACC	1214-1239	1241bp
CF1b -low	5- TGCAGGCTAGCCGGCCTGTGTC	2433-2454	
CF6-round1-up	5-ATTGAAACGACCCGAGTTAGAG	10496-10517	1816bp
CF6-round1-low	5-GGGCCGTTAGAAATTACCTTAG	12290-12311	
CF6a -upper	5-CGCAAAAATATAGGGGAAATAT	10593-10614	1278bp
CF6a -lower	5- TAGTCTGTCTGCATTGAC	11853-11870	
CF6b-upnew	5- ACTGAACTGCAAGTGAAACCA	11619-11639	693bp
CF6b -lownew	same as CF6-round1-low	12290-12311	

**Table S3.** Primers for site-directed single mutations on the C-strain-based infectious clone pA-RecC.

Primer name	Primer sequence <sup>a</sup>	Targeting
26-A-G-forward	5-CGAGGTTAGTTCATTCTCGT <u>G</u> TACACGATTGGACAAATCAA	5-UTR
26-A-G-reverse	5-TTGATTTGTCCAATCGTGTA <u>C</u> ACGAGAATGAACTAACCTCG	5-UTR
83-A-G- forward	5-CCTCCAGCGACG <u>A</u> CCGAACTGGGCT	5-UTR
83-A-G- reverse	5-AGCCAGTTCGG <u>I</u> CGTCGCTGGAGG	5-UTR
3310-A-G- forward	5-CTAGTGCTGGTCCTGTAA <u>AGG</u> AAAAACCTCCTGTACATT	E2
3310-A-G- reverse	5-AATGTACAGGAGGTTTT <u>CCTT</u> TACAGGACCAGCACTAG	E2
3531-A-G- forward	5-TGTGGCTGATAGTGACCTACT <u>TTA</u> GTTTTAACAGAACAACCTC	E2
3531-A-G- reverse	5-GAGTTGTTCTGTAAAACT <u>TA</u> AGTAGGTCACTATCAGCCACA	E2
8268-A-G-forward	5-GACAGTCGGCAACCC <u>TTT</u> TAGACTTGTATACCAC	NS4B
8268-A-G- reverse	5-GTGGTATACAAGTCT <u>AAA</u> AGGGTTGCCGACTGTC	NS4B