

S2 Table. Primers used in this study

Primer name	Sequence (forward/reverse)	Length/description
ΔrpfF	A: AAGCTTCCCAACGAGATCGAAGAC B: GGATCCGGTGGTTCTCCGTGAGAC C: GGATCCAGTCGCGTCGCTCAG D: GCGGAGGAATTCTGAACGCCAGTTC	AB 446 bp; CD 363 bp; For Δ rpfF construction
ΔrpfC	A: GAATTCGACAGCGAGCACGGTCAA B: TCTAGAAGACTTCATAGACGCCTCAGAC C: TCTAGATAGACCGCCGGCGCATCA D: AAGCTTGCCTAAGCTGCCACACGATCA	AB 592 bp; CD 459 bp; For Δ rpfC construction
CrpfC	A:GCAAGCTTATGAAGTCTCCATTGCCATG B: GCGTCGACCTATTCGTTGCTACGGGGGG	2181 bp; for Δ rpfC-rpfC, Δ rpfF Δ rpfC-rpfC construction
ΔrpfF-ΔrpfC	A: GAATTCGACAGCGAGCACGGTCAA B: TCTAGAAGACTTCATAGACGCCTCAGAC C:GCTCTAGATGAGGTGGTTCTCCGTGAGAC D: AAGCTTCCCAACGAGATCGAAGAC	AB 592 bp; CD 446 bp; For Δ rpfF- Δ rpfC construction
PengXcc-GUS-pHM2	A:GCGTCGACTTCGCGCGCAGGCGAG B: GCGGATCCAGAGAACCGGGCTCGAC	254 bp; for pHM2::engXcc-GUS construction
ΔrpfFΔrpfC GUS	A:GCGTCGACTTCGCGCGCAGGCGAG B: GCGGATCCAGAGAACCGGGCTCGAC C:GCGGTACCAGGGAGATCACCATGTC D: GCAAGCTTGCATCTGCACGATCATGTCC	AB 254 bp; CD 235 bp; For Δ rpfF Δ rpfC-GUS construction
Δsensor	A: GCGAATTC GTGCTGATCTTTTGCCGG B: GCCATATG CATAGACGCCTCAGACGCGC C: GCCATATG AATCTGATCCGCATCATC D: GCAAGCTT CAATAAGGAGAAATCAGG	AB 439 bp; CD 374 bp; For $rpfC^{\Delta$ sensor, Δ rpfF- $rpfC^{\Delta$ sensor construction
ΔTM12	A: GCGAATTC GTGCTGATCTTTTGCCGG B: GCCATATG CTGCGCGTGTTCGAATC C: GCCATATG CGACCGCAGGTGTCGCATAC D: GCAAGCTT GAACTCATGGCTCATATTG	AB 502 bp; CD 384 bp; For $rpfC^{\Delta$ TM1-2}, Δ rpfF- $rpfC^{\Delta$ TM1-2 construction
ΔTM23	A: GCGAATTC CATGGCCACGCTCAGCTTC B: GCCATATG CAAGGTATCGCCGTGGGTG C: GCCATATG GGCAACGGTCTGCGCTATG D: GCAAGCTT CACCTCTCCACCAGCGAC	AB 380 bp; CD 387 bp; For $rpfC^{\Delta$ TM2-3}, Δ rpfF- $rpfC^{\Delta$ TM2-3 construction
ΔTM34	A: GCGAATTC CTTCGAGCACGGAAGGATC B: GCCATATG GGTGCAGGTGTAGTCGAG C: GCCATATG AAAGCCAATCCCTATCTG D: GCAAGCTT CACCTCTCCACCAGCGAC	AB 333 bp; CD 291 bp; For $rpfC^{\Delta$ TM3-4}, Δ rpfF- $rpfC^{\Delta$ TM3-4 construction
ΔTM45	A: GCGAATTC AATCTGATCCGCATCATC B: GCCATATG GTTGCTGCCATAGCGCAG C: GCCATATG TTACGTGCGATGACCCGTG	AB 306 bp; CD 315 bp; For $rpfC^{\Delta$ TM4-5}, Δ rpfF- $rpfC^{\Delta$ TM4-5 construction

	D: GCAAGCTT CTGCAGGATCAAGTTGAC	construction
Δinput	A: GCGAATTC GTGCTGATCTTTTGCCGG B: GCCATATG CATAGACGCCTCAGACGCGC C: GCCATATG TTACGTGCGATGACCCGTG D: GCAAGCTT CTGCAGGATCAAGTTGAC	AB 439 bp; CD 315 bp; For <i>rpfC</i> ^{Δinput} , Δ <i>rpfF</i> - <i>rpfC</i> ^{Δinput} construction
Pro-RpfCΔinput	A:CGCATATGTTACGTGCGATGACCCGTG B: CGAAGCTTTTCGTTGCTACGGGGGGAG	1668 bp; for protein RpfC ^{Δinput} expression
Pro-RpfCFL	A: CATATGAAGTCTCCATTGCCATGG B: AAGCTTTTCGTTGCTACGGGGGGA	2181 bp; for protein RpfC expression
Pro-H198A	A:CTTCCTGGCCAATATGAGCGCTGAGTTCCGCACG B:AGCGCTCATATTGGCCAGGAAGCGGCTCTTGCC	For the H198A point mutated protein of RpfC expression
Pro-D512V	A:GACGCGGTGATTGTGGTCCTGCACATGCCGG B: GACCACAATCACCGCGTCGTAATCCTCTTC	For the D512V point mutated protein of RpfC expression
Pro-H657A	A:CAACTGCGCGAGAGTGCGGCTGCCTTACGCGGC B: AGCCGCACTCTCGCGCAGTTGTTCCAGTCCGA	For the H657A point mutated protein of RpfC expression
rpfC-K2A	A: CGATTGCAAGCTTATGGCGTCTCCATTGC B: GCCATAAGCTTGCAATCGAATTCCCGC	For the recombinant vector pHM1:: <i>rpfC</i> (K2A) construction
rpfC-S3A	A: GATTGCAAGCTTATGAAGGCTCCATTGCC B: CCTTCATAAGCTTGCAATCGAATTCCCGC	For the recombinant vector pHM1:: <i>rpfC</i> (S3A) construction
rpfC-P4A	A: GATTGCAAGCTTATGAAGTCTGCATTGCCATGG B: CAGACTTCATAAGCTTGCAATCGAATTCCCGC	For the recombinant vector pHM1:: <i>rpfC</i> (P4A) construction
rpfC-L5A	A: CAAGCTTATGAAGTCTCCAGCGCCATGGTTG B: GCTGGAGACTTCATAAGCTTGCAATCGAATTC	For the recombinant vector pHM1:: <i>rpfC</i> (L5A) construction
rpfC-P6A	A: GCTTATGAAGTCTCCATTGGCATGGTTGAAG B: CCAATGGAGACTTCATAAGCTTGCAATCGA	For the recombinant vector pHM1:: <i>rpfC</i> (P6A) construction
rpfC-W7A	A: TGAAGTCTCCATTGCCAGCGTTGAAGCGG B: GCTGGCAATGGAGACTTCATAAGCTTGCA	For the recombinant vector pHM1:: <i>rpfC</i> (W7A) construction
rpfC-L8A	A: GTCTCCATTGCCATGGGCGAAGCGGCGC B: GCCCATGGCAATGGAGACTTCATAAGCTTG	For the recombinant vector pHM1:: <i>rpfC</i> (L8A) construction

rpfC-K9A	A: CTCATTGCCATGGTTGGCGCGGCGCCTG B: GCCAACCATGGCAATGGAGACTTCATAAG	For the recombinant vector pHM1:: <i>rpfC</i> (K9A) construction
rpfC-R10A	A: CATTGCCATGGTTGAAGGCGCGCCTGTCAG B: GCCTTCAACCATGGCAATGGAGACTTCAT	For the recombinant vector pHM1:: <i>rpfC</i> (R10A) construction
rpfC-R11A	A: GCCATGGTTGAAGCGGGCCCTGTCAGGG B: GCCCGCTTCAACCATGGCAATGGAGACT	For the recombinant vector pHM1:: <i>rpfC</i> (R11A) construction
rpfC-L12A	A: CATGGTTGAAGCGGCGCGTCAGGGCGAG B: GCGCGCCGCTTCAACCATGGCAATGGAGAC	For the recombinant vector pHM1:: <i>rpfC</i> (L12A) construction
rpfC-S13A	A:GGTTGAAGCGGCGCCTGGCAGGGCGAGC B: CCAGGCGCCGCTTCAACCATGGCAATGG	For the recombinant vector pHM1:: <i>rpfC</i> (S13A) construction
rpfC-G14A	A: GAAGCGGCGCCTGTCAGCGCGAGCAGATTC B: GCTGACAGGCGCCGCTTCAACCATGGCA	For the recombinant vector pHM1:: <i>rpfC</i> (G14A) construction
rpfC-R15A	A: GCGGCGCCTGTCAGGGGCAGCAGATTCG B: GCCCCTGACAGGCGCCGCTTCAACCATG	For the recombinant vector pHM1:: <i>rpfC</i> (R15A) construction
rpfC-A16D	A: GCGCCTGTCAGGGCGAGACGATTCGGAAC B: GTCTCGCCCTGACAGGCGCCGCTTCAACC	For the recombinant vector pHM1:: <i>rpfC</i> (A16D) construction
rpfC-D17A	A: CCTGTCAGGGCGAGCAGCTTCGGAACAC B: GCTGCTCGCCCTGACAGGCGCCGCTTCAAC	For the recombinant vector pHM1:: <i>rpfC</i> (D17A) construction
rpfC-S18A	A: CTGTCAGGGCGAGCAGATGCGGAACACGC B: CATCTGCTCGCCCTGACAGGCGCCGCTTC	For the recombinant vector pHM1:: <i>rpfC</i> (S18A) construction
rpfC-E19A	A: CAGGGCGAGCAGATTCGGCACACGCGCAG B: GCCGAATCTGCTCGCCCTGACAGGCGCCG	For the recombinant vector pHM1:: <i>rpfC</i> (E19A) construction
rpfC-H20A	A: GCGAGCAGATTCGGAAGCCGCGCAGAATC	For the recombinant

	B: GCTTCCGAATCTGCTCGCCCTGACAGGC	vector pHM1:: <i>rpfC</i> (H20A) construction
rpfC-A21D	A: GAGCAGATTCGGAACACGACCAGAATCTGA B: GTCGTGTTCCGAATCTGCTCGCCCTGACAG	For the recombinant vector pHM1:: <i>rpfC</i> (A21D) construction
rpfC-Q22A	A: AGATTCGGAACACGCGGCGAATCTGATC B: GCCGCGTGTTCCGAATCTGCTCGCCCTG	For the recombinant vector pHM1:: <i>rpfC</i> (Q22A) construction
Pro-S3A	A: TTAAGAAGGAGATATACATATGATGAAGG B: GGCAATGGAGCCTTCATCATATGTATATC	For the S3A point mutated protein of RpfC expression
rpfC-R15K	A: AAGCGGCGCCTGTCAGGGAAAGCAGATTCG B: TTCCCTGACAGGCGCCGCTTCAACCATGGC	For the recombinant vector pHM1:: <i>rpfC</i> (R15K) construction
rpfC-R15H	A: AGCGGCGCCTGTCAGGGCATGCAGATTCGG B: ATGCCCTGACAGGCGCCGCTTCAACCATGG	For the recombinant vector pHM1:: <i>rpfC</i> (R15H) construction
rpfC-A16V	A: GGC GCCTGTCAGGGCGAGTAGATTCGGAA B: ACTCGCCCTGACAGGCGCCGCTTCAACCA	For the recombinant vector pHM1:: <i>rpfC</i> (A16V) construction
rpfC-A16G	A: GGC GCCTGTCAGGGCGAGGAGATTCGGAAC B: CCTCGCCCTGACAGGCGCCGCTTCAACCA	For the recombinant vector pHM1:: <i>rpfC</i> (A16G) construction
rpfC-D17E	A: GCCTGTCAGGGCGAGCAGAATCGGAACACG B: TTCTGCTCGCCCTGACAGGCGCCGCTTCAAC	For the recombinant vector pHM1:: <i>rpfC</i> (D17E) construction
rpfC-D17N	A: CGCCTGTCAGGGCGAGCAAATTCGGAACAC B: TTGCTCGCCCTGACAGGCGCCGCTTCAAC	For the recombinant vector pHM1:: <i>rpfC</i> (D17N) construction
rpfC-E19D	A: GGGCGAGCAGATTCGGACCACGCGCAGA B: GTCCGAATCTGCTCGCCCTGACAGGCGC	For the recombinant vector pHM1:: <i>rpfC</i> (E19D) construction
rpfC-E19Q	A: TCAGGGCGAGCAGATTCGCAACACGCGCAG B: GCGAATCTGCTCGCCCTGACAGGCGCCG	For the recombinant vector pHM1::

		<i>rpfC</i> (E19Q) construction
rpfC-A21V	A: GAGCAGATTCGGAACACGTCCAGAATCTGA B: GACGTGTTCCGAATCTGCTCGCCCTGACAG	For the recombinant vector pHM1:: <i>rpfC</i> (A21V) construction
rpfC-A21G	A: GAGCAGATTCGGAACACGGGCAGAATCTG B: CCGTGTTCGAATCTGCTCGCCCTGACAG	For the recombinant vector pHM1:: <i>rpfC</i> (A21G) construction
rpfC-Q22N	A: GCAGATTCGGAACACGCGAACAATCTGATCC B: GTTCGCGTGTTCGAATCTGCTCGCCCTGAC	For the recombinant vector pHM1:: <i>rpfC</i> (Q22N) construction
rpfC-Q22E	A: GCAGATTCGGAACACGCGGAGAATCTGATC B: CCGCGTGTTCGAATCTGCTCGCCCTGAC	For the recombinant vector pHM1:: <i>rpfC</i> (Q22E) construction
rpfC-S18N	A: CTGTCAGGGCGAGCAGATAACGAACACGCGC B: GTTATCTGCTCGCCCTGACAGGCGCCGCTTC	For the recombinant vector pHM1:: <i>rpfC</i> (S18N) construction
rpfC-S18Q	A: CTGTCAGGGCGAGCAGATCAAGAACACGCGC B: TTGATCTGCTCGCCCTGACAGGCGCCGCTTC	For the recombinant vector pHM1:: <i>rpfC</i> (S18Q) construction
rpfC-S18D	A: CTGTCAGGGCGAGCAGATGACGAACACGCGC B: GTCATCTGCTCGCCCTGACAGGCGCCGCTTC	For the recombinant vector pHM1:: <i>rpfC</i> (S18D) construction
rpfC-S18E	A: CTGTCAGGGCGAGCAGATGAAGAACACGCGC B: TTCATCTGCTCGCCCTGACAGGCGCCGCTTC	For the recombinant vector pHM1:: <i>rpfC</i> (S18E) construction
rpfC-S18K	A: CTGTCAGGGCGAGCAGATAAAGAACACGCGC B: TTTATCTGCTCGCCCTGACAGGCGCCGCTTC	For the recombinant vector pHM1:: <i>rpfC</i> (S18K) construction
rpfC-S18R	A: CTGTCAGGGCGAGCAGATCGCGAACACGCGC B: GCGATCTGCTCGCCCTGACAGGCGCCGCTTC	For the recombinant vector pHM1:: <i>rpfC</i> (S18R) construction
rpfC-S18H	A: CTGTCAGGGCGAGCAGATCACGAACACGCGC B: GTGATCTGCTCGCCCTGACAGGCGCCGCTTC	For the recombinant vector pHM1:: <i>rpfC</i> (S18H)

rpfC-S18G	A: CTGTCAGGGCGAGCAGATGGGGAACACGCG B: CCATCTGCTCGCCCTGACAGGCGCCGCTTC	construction For the recombinant vector pHM1:: <i>rpfC</i> (S18G) construction
rpfC-S18V	A: CTGTCAGGGCGAGCAGATGTCGAACACGCGC B: GACATCTGCTCGCCCTGACAGGCGCCGCTTC	For the recombinant vector pHM1:: <i>rpfC</i> (S18V) construction
rpfC-S18L	A: CTGTCAGGGCGAGCAGATCTCGAACACGCGC B: GAGATCTGCTCGCCCTGACAGGCGCCGCTTC	For the recombinant vector pHM1:: <i>rpfC</i> (S18L) construction
rpfC-S18I	A: CTGTCAGGGCGAGCAGATATCGAACACGCGC B: GATATCTGCTCGCCCTGACAGGCGCCGCTTC	For the recombinant vector pHM1:: <i>rpfC</i> (S18I) construction
rpfC-S18P	A: CTGTCAGGGCGAGCAGATCCCGAACACGCGC B: GGGATCTGCTCGCCCTGACAGGCGCCGCTTC	For the recombinant vector pHM1:: <i>rpfC</i> (S18P) construction
rpfC-S18F	A: CTGTCAGGGCGAGCAGATTTTCGAACACGCGC B: GAAATCTGCTCGCCCTGACAGGCGCCGCTTC	For the recombinant vector pHM1:: <i>rpfC</i> (S18F) construction
rpfC-S18Y	A: CTGTCAGGGCGAGCAGATTACGAACACGCGC B: GTAATCTGCTCGCCCTGACAGGCGCCGCTTC	For the recombinant vector pHM1:: <i>rpfC</i> (S18Y) construction
rpfC-S18W	A: CTGTCAGGGCGAGCAGATTGGGGAACACGCGC B: CCAATCTGCTCGCCCTGACAGGCGCCGCTTC	For the recombinant vector pHM1:: <i>rpfC</i> (S18W) construction
rpfC-S18C	A: CTGTCAGGGCGAGCAGATTGCGAACACGCGC B: GCAATCTGCTCGCCCTGACAGGCGCCGCTTC	For the recombinant vector pHM1:: <i>rpfC</i> (S18C) construction
rpfC-S18M	A: CTGTCAGGGCGAGCAGATATGGAACACGCGC B: CATATCTGCTCGCCCTGACAGGCGCCGCTTC	For the recombinant vector pHM1:: <i>rpfC</i> (S18M) construction
rpfC-S18T	A: CTGTCAGGGCGAGCAGATACGGAACACGC B: TATCTGCTCGCCCTGACAGGCGCCGCTTC	For the recombinant vector pHM1:: <i>rpfC</i> (S18T) construction

rpfC-L172A	A: CTGTA CT TCGACTCGCTGGCACGTGCGATG B: GCCAGCGAGTCGAAGTACAGCGGCACCGCA	For the recombinant vector pHM1:: <i>rpfC</i> (L172A) construction
rpfC-R173A	A: TACTTCGACTCGCTGTTAGCTGCGATGACC B: CGTAACAGCGAGTCGAAGTACAGCGGCACC	For the recombinant vector pHM1:: <i>rpfC</i> (R173A) construction
rpfC-A174D	A: TCGACTCGCTGTTACGTGACATGACCCGTG B: GTCACGTAACAGCGAGTCGAAGTACAGCGG	For the recombinant vector pHM1:: <i>rpfC</i> (A174D) construction
rpfC-M175A	A: GACTCGCTGTTACGTGCGGCGACCCGTGCA B: GCCGCACGTAACAGCGAGTCGAAGTACAGC	For the recombinant vector pHM1:: <i>rpfC</i> (M175A) construction
rpfC-T176A	A: TCGCTGTTACGTGCGATGGCCCGTGCAGT B: CCATCGCACGTAACAGCGAGTCGAAGTAC	For the recombinant vector pHM1:: <i>rpfC</i> (T176A) construction
rpfC-R177A	A: CTGTTACGTGCGATGACCGCTGCAGTGCGC B: GCGGTCATCGCACGTAACAGCGAGTCGAAG	For the recombinant vector pHM1:: <i>rpfC</i> (R177A) construction
rpfC-A178D	A: TACGTGCGATGACCCGTGACGTGCGCGAAG B: GTCACGGGTCATCGCACGTAACAGCGAGTC	For the recombinant vector pHM1:: <i>rpfC</i> (A178D) construction
rpfC-V179A	A: GTGCGATGACCCGTGCAGCGCGCGAAGCC B: GCTGCACGGGTCATCGCACGTAACAGCGA	For the recombinant vector pHM1:: <i>rpfC</i> (V179A) construction
rpfC-R180A	A: GCGATGACCCGTGCAGTGGCCGAAGCCCGG B: GCCACTGCACGGGTCATCGCACGTAACAGC	For the recombinant vector pHM1:: <i>rpfC</i> (R180A) construction
rpfC-E181A	A: TGACCCGTGCAGTGCAGCGCAGCCCGGCAC B: GCGCGCACTGCACGGGTCATCGCACGTA	For the recombinant vector pHM1:: <i>rpfC</i> (E181A) construction
rpfC-A182D	A: CCCGTGCAGTGCAGCGAAGACCGGCACGCC B: TCTTCGCGCACTGCACGGGTCATCGCACG	For the recombinant vector pHM1:: <i>rpfC</i> (A182D) construction
rpfC-R183A	A: CGTGCAGTGCAGCGAAGCCGCGCACGCCAAC	For the recombinant

	B: GCGGCTTCGCGCACTGCACGGGTCATCGCA	vector pHM1:: <i>rpfC</i> (R183A) construction
rpfC-H184A	A: GCAGTGCGCGAAGCCCGGGCCGCAACCAG B: GCCCGGGCTTCGCGCACTGCACGGGTCATC	For the recombinant vector pHM1:: <i>rpfC</i> (H184A) construction
rpfC-A185D	A: TGCGCGAAGCCCGGCACGACAACCAGGCC B: TCGTGCCGGGCTTCGCGCACTGCACGGGT	For the recombinant vector pHM1:: <i>rpfC</i> (A185D) construction
rpfC-N186A	A: CGCGAAGCCCGGCACGCCGCCAGGCCAAG B: GCGGCGTGCCGGGCTTCGCGCACTGCACGG	For the recombinant vector pHM1:: <i>rpfC</i> (N186A) construction
rpfC-Q187A	A: GAAGCCCGGCACGCCAACGCGGCCAAGAGC B: GCGTTGGCGTGCCGGGCTTCGCGCACTGCA	For the recombinant vector pHM1:: <i>rpfC</i> (Q187A) construction
Pro-RpfCΔsensor	A: GCCATATGAATCTGATCCGCATCATCATCACC B: GCGTCGACTTCGTTGCTACGGGGGAG	2115 bp; for protein RpfC Δ sensor expression
Pro-Sensor-GST	A: GCGGATCCATGAAGTCTCCATTGCC B: GCGTCGACTCACTGCGCGTGTTCCGAATC	69 bp; for protein Sensor-GST expression
Pro-RpfGFL	A: CATATGCAGGATGTTTTAGGGAAT B: AAGCTTCACCCAGGACGCGCCGA	1137 bp; for protein RpfG expression
Pro-RpfGD80V	A: GGATCTGTTGCTGCTCGTGTACCGGATGCC B: CACGAGCAGCAACAGATCCACGCGACCAGCT	For the D80V point mutated protein of RpfG expression