

**Table S4. PCR primers used for *P. protegens* and *T. caryophylli* gene replacement mutagenesis<sup>a</sup>.**

<b><i>P. protegens</i></b>		
<b>Gene</b>	<b>Forward primer</b>	<b>Reverse primer</b>
<i>pgnE</i> Fl1	5'- AAA AAA <u>CTA GTG</u> GCT GAC GGT CGC AAC TCC-3'	5'- GCT ACT TAA TTA AGC TAG <u>CGT AGC</u> CCC TGG ATA TTG CCG ATA AA-3'
<i>pgnE</i> Fl2	5'-GCT ACG CTA GCT <u>TAA TTA AGT</u> AGC ATA ACC CGC AGC TGG GAG-3'	5'- AAA <u>AAG AGC TCC</u> AGA AGA ACT CGT CAA GAA GGC G-3'
<i>pgnF</i> Fl1	5'- AAA AAA <u>CTA GTA</u> CAC AGC GAC ACC AGA GGT C-3'	5'-GCT ACT TAA TTA AGC TAG <u>CGT AGC</u> ATC AGC ATC AGG CTG CTC ATC-3'
<i>pgnF</i> Fl2	5'-GCT ACG CTA GCT <u>TAA TTA AGT</u> AGC ATC TTC GTC GCC AAC CAG GCG-3'	5'- AAA <u>AAG AGC TCT</u> GCG GAC TTT GTC GAT CAT TG-3'
<i>pgnH</i> Fl1	5'- AAA AAA <u>CTA GTA</u> CGC TCT CAG GAG ATC GAG GG-3'	5'-GCT ACT TAA TTA AGC TAG <u>CGT AGC</u> TGC ATG TTG TGC ATG TGG C-3'
<i>pgnH</i> Fl2	5'-GCT ACG CTA GCT <u>TAA TTA AGT</u> AGC AAC GGC TAC CTG AAG CTC-3'	5'- AAA <u>AAG AGC TCT</u> TCG GCC ACC TTG ACG TTC TC -3'
<i>Kan<sup>R</sup></i>	5'-GCT ACG <u>CTA GCG</u> TAA GCT TAG GCT GCT GCC-3'	5'-GCT <u>ACT TAA TTA ATC</u> AGA AA ACT CGT CAA GAA GGC G -3'
<b><i>T. caryophylli</i></b>		
<b>Gene</b>	<b>Forward primer</b>	<b>Reverse primer</b>
<i>cayB</i> Fl1	5'-ATC AGC ATC CGC ATG CGT C-3'	5'-GCT ACT TAA TTA AGC TAG <u>CGT AGC</u> GTC GCC TTC CTG ATC GGT-3'
<i>cayB</i> Fl2	5'-GCT ACG CTA GCT <u>TAA TTA AGT</u> AGC ATC GGC GGA ACT GCG TAC-3'	5'-GCT CGA TGA ACG AGC CGG A-3'
<i>cayC</i> Fl1	5'-ACG TAT CAA GGC GTT GAC CGC-3'	5'-GCT ACT TAA TTA AGC TAG <u>CGT AGC</u> ACC CAG AAT AGA ATC GGA C-3'
<i>cayC</i> Fl2	5'-GCT ACG CTA GCT <u>TAA TTA AGT</u> AGC ATT GCC AAT CAG TTC GCG-3'	5'-GAC GCG GTC GAT CAT GT-3'
<i>cayE</i> Fl1	5'-ATT CAG CTA CCC CGA CAG C-3'	5'-GCT ACT TAA TTA AGC TAG <u>CGT AGC</u> ATG CAG GTT ATG CAT GTG-3'
<i>cayE</i> Fl2	5'-GCT ACG CTA GCT <u>TAA TTA AGT</u> AGC ATC ACA TCT CGG ATG ATC-3'	5'-CGA CTG GTA ATA GCC GTG CA-3'
<i>cayF</i> Fl1	5'-ACA GAG CAG TCC ATT CTT CG-3'	5'-GCT ACT TAA TTA AGC TAG <u>CGT AGC</u> AAC ATC GTG CTG CTG TCG-3'
<i>Apr<sup>R</sup></i>	5'-GCT ACG <u>CTA GCA</u> TTC CGG GGA TCC GTC GAC C-3'	5'-GCT <u>ACT TAA TTA ATG</u> TAG GCT GGA GCT GCT TC-3'

<sup>a</sup>Restriction sites are underlined.

