

A

Parent TTATTGACGTTAGACTATGTATCTTACTATCTGCACAAGACATAGAACCAGAAAACAAGTCAGGCATTGCCA
 Mutant TTATTGACGTTAGACTATGTATCTTACTATCTGCACAAGACATAGAACCAGAAAACAAGT**CAGGCATTGCCA**

Parent GAATAAAATCAACGTCATGAAACA**ATG**AAAAAACCTGTTTTTTTCTTCTGACCATGATCATCTGCAGCTA
 Mutant **GAATAAAATCAACGTCATGAAACA**GTGTAGGCTGGAGCTGCTTCGAAGTTCCTATACTTTCTAGAGAATAG

Parent TATTTCTTTTGCCTGCGCTAATATCAGTGACTACAAAGTTATGACCTGGAATCTTCAGGGCTCTTCAGCAT
 Mutant **GAACTTCGGAATAGGAA**-----

Parent CTACAGAAAGTAAATGGAATGTCAATGTCAGACAGCTTTTAAGTGGTACTGCCGGTGTGGATATTCTTA
 Mutant -----

Parent TGGTACAGGAGGCCGGTGTCTGTTCCACCTCAGCGGTTCTACCGGACGACATATTCAGCCTTTTGGAGT
 Mutant -----

Parent GGGTATTCCCATTGATGAATACACCTGGAATCTCGGAACCACCAGCCGTCAGGATATAAGATATATCTAC
 Mutant -----

Parent CACTCGGCTATTGATGTTGGAGCACGCCGTGTTAATCTGGCAATAGTTTTCCAGACAAAGAGCGGATAATG
 Mutant -----

Parent TTTATGTCTTGCCTCCGACAACCTGTCGCATCTCGCCCCGTCATTGGCATCGGACTGGGTAATGATGTTTTTC
 Mutant -----

Parent TGACAGCGCACGCACTGGCTAGTGGAGGTCCGGATGCTGCAGCTATTGTCAGGGTTACCATTAATTTTTT
 Mutant -----

Parent TAGACAACCTCAGATGCGGCATTTATCCTGGTTTTCTTGCCGGGGATTTTAATCGCAGCCCAGACAGACTTG
 Mutant -----

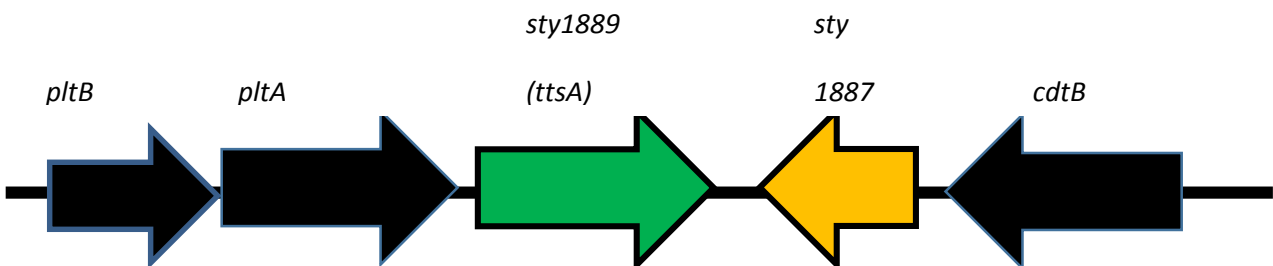
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 Mutant -----

Parent GGCGGTGGTATTTTAGATTATGGGGTCATTGTCGATCGAGCACCTTATTCACAAAGGGTTGAAGCTCGCTT
 Mutant -----

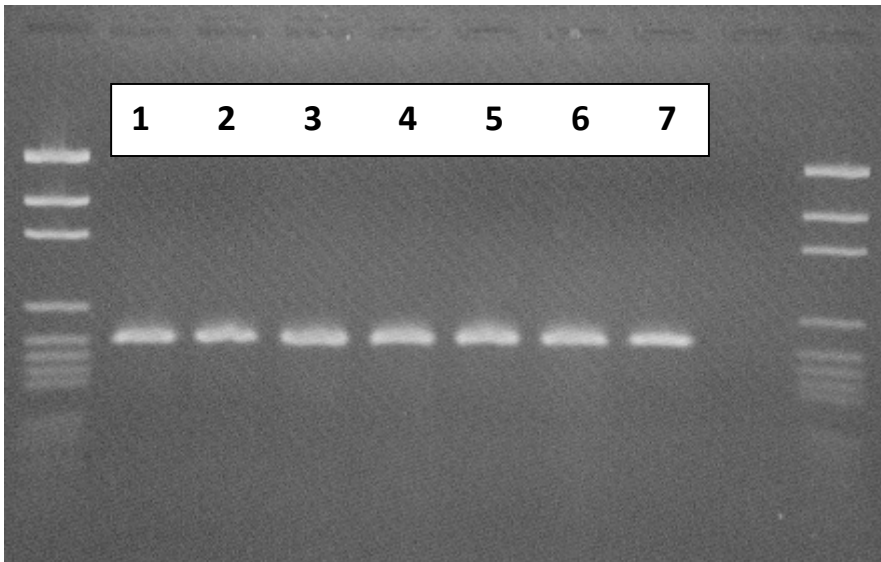
Parent CTGATCATTATCCCGTAGCCTTTTTGGCACGAAGCTGT**TAA**TGAGTAAATAGCGTTGACGACATGTACTTTG
 Mutant -----**CTAAGGAGGATATTCATATGGACCT**TGAGTAAATAGCGTTGACGACATGTACTTTG

Parent **AGCGTAAGGTGCAGA**ATATATATTTATTATAAGGTA AAAATTATGAGTTGTTTTACCAGTCCAGCAATTAT
 Mutant **AGCGTAAGGTGCAGA**ATATATATTTATTATAAGGTA AAAATTATGAGTTGTTTTACCAGTCCAGCAATTAT

B



C



Additional File 4. (A) Sequence of *cdtB* and surrounding region, indicating that deletion is internal to *cdtB*; *cdtB* start and stop codons are boxed. Primer sequences in bold. Primer sequence homologous to pKD4 template primer P1 and P2 are italicized. 'Scar' sequence from pKD4 in orange. The sequence shown is for the serovar Javiana mutant; the serovar Schwarzengrund and Montevideo mutants showed equivalent sequences. (B) Organization of the region that contains *pltB*, *pltA*, and *cdtB*, which indicates that the *cdtB* deletion shown in (a) will not disrupt *pltA* or *pltB*. (C) Gel that shows the PCR product for the *cdtB* deletion alleles in serovars Schwarzengrund (lane 1), Montevideo (lane 4), and Javiana (lane 7); these PCR products were used to generate the sequencing data shown in part (A).