**Supplementary File 1.** Primers for mutagenesis, generated for this study

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| **Purpose** | **Sequence** (sequences homologous to flanking regions are printed in italics) |
| Deletion of *hyaABC* in EcN | 5’-gccatctccttgcatgc*AGAACTAACTATACGATCCATTGAGTCACTCTCTATGAC*-3’ |
| 5’-*gttacttatttGGGCGCACATGGTCGGCA*-3’ |
| 5’-*gtgcgcccAAATAAGTAACAAGGAGCGTTCATG*-3’ |
| 5’-caaggaatggtgcatgc*TGCGTAAGCCAGTCGTCA*-3’ |
| Deletion of *hybABC* in EcN | 5’-gccatctccttgcatgc*GTGTTAGTGGTGGATGGTTC*-3’ |
| 5’-*tccactacTACGTCTGTTCACGGTTATTC*-3’ |
| 5’-*cagacgtaGTAGTGGATGCCGACGGC*-3’ |
| 5’-caaggaatggtgcatgc*ACCAACAGTAAAGGTCATAGTGC*-3’ |
| Deletion of *hyaABC* in MP1 | 5’-ctagaggtaccgcatgc*AGAACTAACTATACGATCCATTGAGTCACTCTCTATGACAG*-3’ |
| 5’-*gttacttatttGGGCGCACATGGTCGGCA*-3’ |
| 5’-*gtgcgcccAAATAAGTAACAAGGAGCGTTCATG*-3’ |
| 5’-agctcgatatcgcatgc*TGCGTAAGCCAGTCGTCAAG*-3' |
| Deletion of *hybABC* in MP1 | 5’-ctagaggtaccgcatgc*GCCGATTGTGGATCACATC*-3’ |
| 5’-*cacttcgtTTATTCTCCCCGTGAGTC*-3’ |
| 5’-*ggagaataaACGAAGTGGTTTCAGTGAAGG*-3’ |
| 5’-agctcgatatcgcatgc*TGCACTCAGCATCCACGG*-3’ |
| Deletion of *frdABCD* in EcN | 5’-tcttctagaggtaccgcatg*GCGGTGTAGGTTGCGAGATG*-3’ |
| 5’-*gctgtgggatCGCATCGCCAATGTAAATCC*-3’ |
| 5’-*tggcgatgcgATCCCACAGCCCCGTACTTC*-3’ |
| 5’-ggagagctcgatatcgcatg*GGGCCAACGAAACGTGTC*-3’ |
| Amplification of EcN *hybABC* promoter region | 5’-acggttattcGTTATTCCGTTGCGAAGAC-3’ |
| 5’-tggatcccccgggctgcaggATGGATTTCTTTCGTGAGAATAATTC-3’ |
| Amplification of EcN *hybABC* coding sequence | 5’-tatcgataagcttgatatcgTTACAGAACCTTCACTGAAAC-3’ |
| 5’-acggaataacGAATAACCGTGAACAGAC-3’ |