

**ΔA1**

| Position         | Mutation    | Annotation             | Gene                | Description  |
|------------------|-------------|------------------------|---------------------|--|
| 837,985          | 5343 bp→GCA | intergenic (-868/-94)  | M164_0887/M164_0889 | CopG DNA-binding domain protein/CRISPR-associated protein, Csa1 family <sup>CR</sup> |
| <b>1,925,022</b> | <b>G→A</b>  | <b>L115F (CTT→TTT)</b> | <b>M164_2103</b>    | <b>DEAD/DEAH box helicase*</b>   |
| 2,012,512        | Δ1 bp       | intergenic (-45/-330)  | M164_2193/M164_2194 | AbrB family transcriptional regulator/hypothetical protein                           |

**Δcas3**

| Position         | Mutation     | Annotation            | Gene                    | Description  |
|------------------|--------------|-----------------------|-------------------------|--|
| 847,297          | C→T          | intergenic (-225/+82) | M164_0893/M164_0894     | hypothetical protein/integrase family protein <sup>CR</sup>      |
| 868,585          | 2027 bp→6 bp | deletion              | [M164_0912]-[M164_0913] | [M164_0912], [M164_0913] <sup>CR</sup>                           |
| 908,940          | C→T          | L37L (CTG→CTA)        | M164_0959               | Mg2 transporter protein CorA family protein                      |
| 909,055          | A→T          | intergenic (-5/+61)   | M164_0959/M164_0960     | Mg2 transporter protein CorA family protein/hypothetical protein |
| 909,057          | T→A          | intergenic (-7/+59)   | M164_0959/M164_0960     | Mg2 transporter protein CorA family protein/hypothetical protein |
| 1,684,823        | G→A          | G204G (GGC→GGT)       | M164_1836               | hypothetical protein   |
| 1,755,541        | G→A          | G159G (GGG→GGA)       | M164_1918               | DNA-directed RNA polymerase subunit B                            |
| <b>1,933,080</b> | <b>G→A</b>   | <b>P65L (CCT→CTT)</b> | <b>M164_2111</b>        | <b>hypothetical protein</b>                                      |

**Δcas6**

| Position       | Mutation    | Annotation             | Gene             | Description                                  |
|----------------|-------------|------------------------|------------------|--|
| 412,091        | T→C         | L37L (CTA→CTG)         | M164_0481        | hypothetical protein                         |
| <b>871,454</b> | <b>A→G</b>  | <b>E267G (GAA→GGA)</b> | <b>M164_0914</b> | <b>hypothetical protein <sup>CR</sup></b>    |
| 871,719        | 861 bp→6 bp | coding (28-888/897 nt) | M164_0915        | CRISPR-associated protein Cas6 <sup>CR</sup> |