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| logo RD-Biotech | **Sequencing of the plasmid:**  **839.3** |
| **Date** | **2020/07/24** |
| **Customer** | **Institut de la Vision** |
| **Author** | **Justine Grisez** |
| **Quotation** | **RDBIOTECH Amendement 200617 Midix5.jg.ml** |
| **Batch** | **200911VB\_839.3** |
| **Report release** | **Justine Grisez** |

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| --- |
| **Insert 839.3 (theoretical sequence)** |

**atgccggggttttacgagattgtgattaaggtccccagcgaccttgacgagcatctgcccggcatttctgacagctttgtgaactgggtggccgagaaggaatgggagttgccgccagattctgacatggatctgaatctgattgagcaggcacccctgaccgtggccgagaagctgcagcgcgactttctgacggaatggcgccgtgtgagtaaggccccggaggctcttttctttgtgcaatttgagaagggagagagctacttccacatgcacgtgctcgtggaaaccaccggggtgaaatccatggttttgggacgtttcctgagtcagattcgcgaaaaactgattcagagaatttaccgcgggatcgagccgactttgccaaactggttcgcggtcacaaagaccagaaatggcgccggaggcgggaacaaggtggtggatgagtgctacatccccaattacttgctccccaaaacccagcctgagctccagtgggcgtggactaatatggaacagtatttaagcgcctgtttgaatctcacggagcgtaaacggttggtggcgcagcatctgacgcacgtgtcgcagacgcaggagcagaacaaagagaatcagaatcccaattctgatgcgccggtgatcagatcaaaaacttcagccaggtacatggagctggtcgggtggctcgtggacaaggggattacctcggagaagcagtggatccaggaggaccaggcctcatacatctccttcaatgcggcctccaactcgcggtcccaaatcaaggctgccttggacaatgcgggaaagattatgagcctgactaaaaccgcccccgactacctggtgggccagcagcccgtggaggacatttccagcaatcggatttataaaattttggaactaaacgggtacgatccccaatatgcggcttccgtctttctgggatgggccacgaaaaagttcggcaagaggaacaccatctggctgtttgggcctgcaactaccgggaagaccaacatcgcggaggccatagcccacactgtgcccttctacgggtgcgtaaactggaccaatgagaactttcccttcaacgactgtgtcgacaagatggtgatctggtgggaggaggggaagatgaccgccaaggtcgtggagtcggccaaagccattctcggaggaagcaaggtgcgcgtggaccagaaatgcaagtcctcggcccagatagacccgactcccgtgatcgtcacctccaacaccaacatgtgcgccgtgattgacgggaactcaacgaccttcgaacaccagcagccgttgcaagaccggatgttcaaatttgaactcacccgccgtctggatcatgactttgggaaggtcaccaagcaggaagtcaaagactttttccggtgggcaaaggatcacgtggttgaggtggagcatgaattctacgtcaaaaagggtggagccaagaaaagacccgcccccagtgacgcagatataagtgagcccaaacgggtgcgcgagtcagttgcgcagccatcgacgtcagacgcggaagcttcgatcaactacgcagacaggtaccaaaacaaatgttctcgtcacgtgggcatgaatctgatgctgtttccctgcagacaatgcgagagaatgaatcagaattcaaatatctgcttcactcacggacagaaagactgtttagagtgctttcccgtgtcagaatctcaacccgtttctgtcgtcaaaaaggcgtatcagaaactgtgctacattcatcatatcatgggaaaggtgccagacgcttgcactgcctgcgatctggtcaatgtggatttggatgactgcatctttgaacaataaatgatttaaatcaggtatggctgccgatggttatcttccagattggctcgaggacactctctctgaaggaataagacagtggtggaagctcaaacctggcccaccaccaccaaagcccgcagagcggcataaggacgacagcaggggtcttgtgcttcctgggtacaagtacctcggacccttcaacggactcgacaagggagagccggtcaacgaggcagacgccgcggccctcgagcacgacaaagcctacgaccggcagctcgacagcggagacaacccgtacctcaagtacaaccacgccgacgcggagtttcaggagcgccttaaagaagatacgtcttttgggggcaacctcggacgagcagtcttccaggcgaaaaagagggttcttgaacctctgggcctggttgaggaacctgttaagacggctccgggaaaaaagaggccggtagagcactctcctgtggagccagactcctcctcgggaaccggaaaggcgggccagcagcctgcaagaaaaagattgaattttggtcagactggagacgcagactcagtacctgacccccagcctctcggacagccaccagcagccccctctggtctgggaactaatacgatggctacaggcagtggcgcaccaatggcagacaataacgagggcgccgacggagtgggtaattcctcgggaaattggcattgcgattccacatggatgggcgacagagtcatcaccaccagcacccgaacctgggccctgcccacctacaacaaccacctctacaaacaaatttccagccaatcaggagcctcgaacgacaatcactactttggctacagcaccccttgggggtattttgacttcaacagattccactgccacttttcaccacgtgactggcaaagactcatcaacaacaactggggattccgacccaagagactcaacttcaagctctttaacattcaagtcaaagaggtcacgcagaatgacggtacgacgacgattgccaataaccttaccagcacggttcaggtgtttactgactcggagtaccagctcccgtacgtcctcggctcggcgcatcaaggatgcctcccgccgttcccagcagacgtcttcatggtgccacagtatggatacctcaccctgaacaacgggagtcaggcagtaggacgctcttcattttactgcctggagtactttccttctcagatgctgcgtaccggaaacaactttaccttcagctacacttttgaggacgttcctttccacagcagctacgctcacagccagagtctggaccgtctcatgaatcctctcatcgaccagtacctgtattacttgagcagaacaaacactccaagtggaaccaccacgcagtcaaggcttcagttttctcaggccggagcgagtgacattcgggaccagtctaggaactggcttcctggaccctgttaccgccagcagcgagtatcaaagacatctgcggataacaacaacagtgaatactcgtggactggagctaccaagtaccacctcaatggcagagactctctggtgaatccgggcccggccatggcaagccacaaggacgatgaagaaaagttttttcctcagagcggggttctcatctttgggaagcaaggctcagagaaaacaaatgtggacattgaaaaggtcatgattacagacgaagaggaaatcaggacaaccaatcccgtggctacggagcagtatggttctgtatctaccaacctccagagaggcaacgcggctaatcaaacagataataacaaggcgcgccaagcagctaccgcagatgtcaacacacaaggcgttcttccaggcatggtctggcaggacagagatgtgtaccttcaggggcccatctgggcaaagattccacacacggacggacattttcacccctctcccctcatgggtggattcggacttaaacaccctcctccacagattctcatcaagaacaccccggtacctgcgaatccttcgaccaccttcagtgcggcaaagtttgcttccttcatcacacagtactccacgggacaggtcagcgtggagatcgagtgggagctgcagaaggaaaacagcaaacgctggaatcccgaaattcagtacacttccaactacaacaagtctgttaatgtggactttactgtggacactaatggcgtgtattcagagcctcgccccattggcaccagatacctgactcgtaatctgtaattgcggccgcttgttaatcaataaaccgtttaa**

**AAV2 rep Cap2**

Primer Rep2\_Fw1 atctgcttcactcacgg

1730 1740 1750 1760 1770 1780

839 TCTCAACCCGTTTCTGTCGTCAAAAAGGCGTATCAGAAACTGTGCTACATTCATCATATC

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rep2Fw TCTCAACCCGTTTCTGTCGTCAAAAAGGCGTATCAGAAACTGTGCTACATTCATCATATC

10 20 30 40 50 60

1790 1800 1810 1820 1830 1840

839 ATGGGAAAGGTGCCAGACGCTTGCACTGCCTGCGATCTGGTCAATGTGGATTTGGATGAC

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rep2Fw ATGGGAAAGGTGCCAGACGCTTGCACTGCCTGCGATCTGGTCAATGTGGATTTGGATGAC

70 80 90 100 110 120

1850 1860 1870 1880 1890 1900

839 TGCATCTTTGAACAATAAATGATTTAAATCAGGTATGGCTGCCGATGGTTATCTTCCAGA

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rep2Fw TGCATCTTTGAACAATAAATGATTTAAATCAGGTATGGCTGCCGATGGTTATCTTCCAGA

130 140 150 160 170 180

1910 1920 1930 1940 1950 1960

839 TTGGCTCGAGGACACTCTCTCTGAAGGAATAAGACAGTGGTGGAAGCTCAAACCTGGCCC

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rep2Fw TTGGCTCGAGGACACTCTCTCTGAAGGAATAAGACAGTGGTGGAAGCTCAAACCTGGCCC

190 200 210 220 230 240

1970 1980 1990 2000 2010 2020

839 ACCACCACCAAAGCCCGCAGAGCGGCATAAGGACGACAGCAGGGGTCTTGTGCTTCCTGG

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rep2Fw ACCACCACCAAAGCCCGCAGAGCGGCATAAGGACGACAGCAGGGGTCTTGTGCTTCCTGG

250 260 270 280 290 300

2030 2040 2050 2060 2070 2080

839 GTACAAGTACCTCGGACCCTTCAACGGACTCGACAAGGGAGAGCCGGTCAACGAGGCAGA

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rep2Fw GTACAAGTACCTCGGACCCTTCAACGGACTCGACAAGGGAGAGCCGGTCAACGAGGCAGA

310 320 330 340 350 360

2090 2100 2110 2120 2130 2140

839 CGCCGCGGCCCTCGAGCACGACAAAGCCTACGACCGGCAGCTCGACAGCGGAGACAACCC

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rep2Fw CGCCGCGGCCCTCGAGCACGACAAAGCCTACGACCGGCAGCTCGACAGCGGAGACAACCC

370 380 390 400 410 420

2150 2160 2170 2180 2190 2200

839 GTACCTCAAGTACAACCACGCCGACGCGGAGTTTCAGGAGCGCCTTAAAGAAGATACGTC

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rep2Fw GTACCTCAAGTACAACCACGCCGACGCGGAGTTTCAGGAGCGCCTTAAAGAAGATACGTC

430 440 450 460 470 480

2210 2220 2230 2240 2250 2260

839 TTTTGGGGGCAACCTCGGACGAGCAGTCTTCCAGGCGAAAAAGAGGGTTCTTGAACCTCT

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rep2Fw TTTTGGGGGCAACCTCGGACGAGCAGTCTTCCAGGCGAAAAAGAGGGTTCTTGAACCTCT

490 500 510 520 530 540

2270 2280 2290 2300 2310 2320

839 GGGCCTGGTTGAGGAACCTGTTAAGACGGCTCCGGGAAAAAAGAGGCCGGTAGAGCACTC

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rep2Fw GGGCCTGGTTGAGGAACCTGTTAAGACGGCTCCGGGAAAAAAGAGGCCGGTAGAGCACTC

550 560 570 580 590 600

2330 2340 2350 2360 2370 2380

839 TCCTGTGGAGCCAGACTCCTCCTCGGGAACCGGAAAGGCGGGCCAGCAGCCTGCAAGAAA

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rep2Fw TCCTGTGGAGCCAGACTCCTCCTCGGGAACCGGAAAGGCGGGCCAGCAGCCTGCAAGAAA

610 620 630 640 650 660

2390 2400 2410 2420 2430 2440

839 AAGATTGAATTTTGGTCAGACTGGAGACGCAGACTCAGTACCTGACCCCCAGCCTCTCGG

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rep2Fw AAGATTGAATTTTGGTCAGACTGGAGACGCAGACTCAGTACCTGACCCCCAGCCTCTCGG

670 680 690 700 710 720

2450 2460 2470 2480 2490 2500

839 ACAGCCACCAGCAGCCCCCTCTGGTCTGGGAACTAATACGATGGCTACAGGCAGTGGCGC

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rep2Fw ACAGCCACCAGCAGCCCCCTCTGGTCTGGGAACTAATACGATGGCTACAGGCAGTGGCGC

730 740 750 760 770 780

2510 2520 2530 2540 2550 2560

839 ACCAATGGCAGACAATAACGAGGGCGCCGACGGAGTGGGTAATTCCTCGGGAAATTGGCA

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rep2Fw ACCAATGGCAGACAATAACGAGGGCGCCGACGGAGTGGGTAATTCCTCGGGAAATTGGCA

790 800 810 820 830 840

2570 2580 2590 2600 2610 2620

839 TTGCGATTCCACATGGATGGGCGACAGAGTCATCACCACCAGCACCCGAACCTGGGCCCT

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rep2Fw TTGCGATTCCACATGGATGGGCGACAGAGTCATCACCACCAGCACCCGAACCTGGGCCCT

850 860 870 880 890 900

2630 2640 2650 2660 2670 2680

839 GCCCACCTACAACAACCACCTCTACAAACAAATTTCCAGCCAATCAGGAGCCTCGAACGA

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rep2Fw GCCCACCTACAACAACCACCTCTACAAACAAATTTCCAGCCAATCAGGAGCCTCGAACGA

910 920 930 940 950 960

2690 2700 2710 2720 2730 2740

839 CAATCACTACTTTGGCTACAGCACCCCTTGGGGGTATTTTGACTTCAACAGATTCCACTG

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rep2Fw CAATCACTACTTTGGCTACAGCACCCCTTGGGGGTATTTTGACTTCAACAGATTCCACTG

970 980 990 1000 1010 1020

2750 2760 2770 2780 2790 2800

839 CCACTTTTCACCACGTGACTGGCAAAGACTCATCAACAACAACTGGGGATTCCGACCCAA

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rep2Fw CCACTTTTCACCACGTGACTGGCAAAGACTCATCAACAACAACTGGGGATTCCGACCCAA

1030 1040 1050 1060 1070 1080

2810 2820 2830 2840 2850

839 GAGACTCAACTTCAAGCTCTTTAACATTCAAGTCAAAGAGGTCA

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rep2Fw GAGACTCAACTTCAAGCTCTTTAACATTCAAGTCAAAGAGGTCA

1090 1100 1110 1120

Primer Rep2\_Fw2 gcagactcagtacctgac

2470 2480 2490 2500 2510 2520

839 GCCCCCTCTGGTCTGGGAACTAATACGATGGCTACAGGCAGTGGCGCACCAATGGCAGAC

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rep2Fw GCCCCCTCTGGTCTGGGA-CTAATACGATGGCTACAGGCAGTGGCGCACCAATGGCAGAC

10 20 30 40 50

2530 2540 2550 2560 2570 2580

839 AATAACGAGGGCGCCGACGGAGTGGGTAATTCCTCGGGAAATTGGCATTGCGATTCCACA

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rep2Fw AATAACGAGGGCGCCGACGGAGTGGGTAATTCCTCGGGAAATTGGCATTGCGATTCCACA

60 70 80 90 100 110

2590 2600 2610 2620 2630 2640

839 TGGATGGGCGACAGAGTCATCACCACCAGCACCCGAACCTGGGCCCTGCCCACCTACAAC

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rep2Fw TGGATGGGCGACAGAGTCATCACCACCAGCACCCGAACCTGGGCCCTGCCCACCTACAAC

120 130 140 150 160 170

2650 2660 2670 2680 2690 2700

839 AACCACCTCTACAAACAAATTTCCAGCCAATCAGGAGCCTCGAACGACAATCACTACTTT

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rep2Fw AACCACCTCTACAAACAAATTTCCAGCCAATCAGGAGCCTCGAACGACAATCACTACTTT

180 190 200 210 220 230

2710 2720 2730 2740 2750 2760

839 GGCTACAGCACCCCTTGGGGGTATTTTGACTTCAACAGATTCCACTGCCACTTTTCACCA

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rep2Fw GGCTACAGCACCCCTTGGGGGTATTTTGACTTCAACAGATTCCACTGCCACTTTTCACCA

240 250 260 270 280 290

2770 2780 2790 2800 2810 2820

839 CGTGACTGGCAAAGACTCATCAACAACAACTGGGGATTCCGACCCAAGAGACTCAACTTC

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rep2Fw CGTGACTGGCAAAGACTCATCAACAACAACTGGGGATTCCGACCCAAGAGACTCAACTTC

300 310 320 330 340 350

2830 2840 2850 2860 2870 2880

839 AAGCTCTTTAACATTCAAGTCAAAGAGGTCACGCAGAATGACGGTACGACGACGATTGCC

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rep2Fw AAGCTCTTTAACATTCAAGTCAAAGAGGTCACGCAGAATGACGGTACGACGACGATTGCC

360 370 380 390 400 410

2890 2900 2910 2920 2930 2940

839 AATAACCTTACCAGCACGGTTCAGGTGTTTACTGACTCGGAGTACCAGCTCCCGTACGTC

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rep2Fw AATAACCTTACCAGCACGGTTCAGGTGTTTACTGACTCGGAGTACCAGCTCCCGTACGTC

420 430 440 450 460 470

2950 2960 2970 2980 2990 3000

839 CTCGGCTCGGCGCATCAAGGATGCCTCCCGCCGTTCCCAGCAGACGTCTTCATGGTGCCA

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rep2Fw CTCGGCTCGGCGCATCAAGGATGCCTCCCGCCGTTCCCAGCAGACGTCTTCATGGTGCCA

480 490 500 510 520 530

3010 3020 3030 3040 3050 3060

839 CAGTATGGATACCTCACCCTGAACAACGGGAGTCAGGCAGTAGGACGCTCTTCATTTTAC

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rep2Fw CAGTATGGATACCTCACCCTGAACAACGGGAGTCAGGCAGTAGGACGCTCTTCATTTTAC

540 550 560 570 580 590

3070 3080 3090 3100 3110 3120

839 TGCCTGGAGTACTTTCCTTCTCAGATGCTGCGTACCGGAAACAACTTTACCTTCAGCTAC

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rep2Fw TGCCTGGAGTACTTTCCTTCTCAGATGCTGCGTACCGGAAACAACTTTACCTTCAGCTAC

600 610 620 630 640 650

3130 3140 3150 3160 3170 3180

839 ACTTTTGAGGACGTTCCTTTCCACAGCAGCTACGCTCACAGCCAGAGTCTGGACCGTCTC

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rep2Fw ACTTTTGAGGACGTTCCTTTCCACAGCAGCTACGCTCACAGCCAGAGTCTGGACCGTCTC

660 670 680 690 700 710

3190 3200 3210 3220 3230 3240

839 ATGAATCCTCTCATCGACCAGTACCTGTATTACTTGAGCAGAACAAACACTCCAAGTGGA

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rep2Fw ATGAATCCTCTCATCGACCAGTACCTGTATTACTTGAGCAGAACAAACACTCCAAGTGGA

720 730 740 750 760 770

3250 3260 3270 3280 3290 3300

839 ACCACCACGCAGTCAAGGCTTCAGTTTTCTCAGGCCGGAGCGAGTGACATTCGGGACCAG

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rep2Fw ACCACCACGCAGTCAAGGCTTCAGTTTTCTCAGGCCGGAGCGAGTGACATTCGGGACCAG

780 790 800 810 820 830

3310 3320 3330 3340 3350 3360

839 TCTAGGAACTGGCTTCCTGGACCCTGTTACCGCCAGCAGCGAGTATCAAAGACATCTGCG

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rep2Fw TCTAGGAACTGGCTTCCTGGACCCTGTTACCGCCAGCAGCGAGTATCAAAGACATCTGCG

840 850 860 870 880 890

3370 3380 3390 3400 3410 3420

839 GATAACAACAACAGTGAATACTCGTGGACTGGAGCTACCAAGTACCACCTCAATGGCAGA

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rep2Fw GATAACAACAACAGTGAATACTCGTGGACTGGAGCTACCAAGTACCACCTCAATGGCAGA

900 910 920 930 940 950

3430 3440 3450 3460 3470 3480

839 GACTCTCTGGTGAATCCGGGCCCGGCCATGGCAAGCCACAAGGACGATGAAGAAAAGTTT

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rep2Fw GACTCTCTGGTGAATCCGGGCCCGGCCATGGCAAGCCACAAGGACGATGAAGAAAAGTTT

960 970 980 990 1000 1010

3490 3500 3510 3520 3530 3540

839 TTTCCTCAGAGCGGGGTTCTCATCTTTGGGAAGCAAGGCTCAGAGAAAACAAATGTGGAC

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rep2Fw TTTCCTCAGAGCGGGGTTCTCATCTTTGGGAAGCAAGGCTCAGAGAAAACAAATGTGGAC

1020 1030 1040 1050 1060 1070

3550 3560 3570 3580 3590 3600

839 ATTGAAAAGGTCATGATTACAGACGAAGAGGAAATCAGGACAACCAATCCCGTGGCTACG

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rep2Fw ATTGAAAAGGTCATGATTACCGACGAAGAGGAA-TCCGGACACCCA-TCCCGTGGCTACG

1080 1090 1100 1110 1120 1130

Primer Rep2\_Fw3 gcagtaggacgctcttc

3090 3100 3110 3120 3130 3140

839 GCTGCGTACCGGAAACAACTTTACCTTCAGCTACACTTTTGAGGACGTTCCTTTCCACAG

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rep2Fw GCTGCGTACCGGAA-CAACTTTACCTTCAGCTACACTTTTGAGGACGTTCCTTTCCACAG

10 20 30 40 50

3150 3160 3170 3180 3190 3200

839 CAGCTACGCTCACAGCCAGAGTCTGGACCGTCTCATGAATCCTCTCATCGACCAGTACCT

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rep2Fw CAGCTACGCTCACAGCCAGAGTCTGGACCGTCTCATGAATCCTCTCATCGACCAGTACCT

60 70 80 90 100 110

3210 3220 3230 3240 3250 3260

839 GTATTACTTGAGCAGAACAAACACTCCAAGTGGAACCACCACGCAGTCAAGGCTTCAGTT

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rep2Fw GTATTACTTGAGCAGAACAAACACTCCAAGTGGAACCACCACGCAGTCAAGGCTTCAGTT

120 130 140 150 160 170

3270 3280 3290 3300 3310 3320

839 TTCTCAGGCCGGAGCGAGTGACATTCGGGACCAGTCTAGGAACTGGCTTCCTGGACCCTG

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rep2Fw TTCTCAGGCCGGAGCGAGTGACATTCGGGACCAGTCTAGGAACTGGCTTCCTGGACCCTG

180 190 200 210 220 230

3330 3340 3350 3360 3370 3380

839 TTACCGCCAGCAGCGAGTATCAAAGACATCTGCGGATAACAACAACAGTGAATACTCGTG

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rep2Fw TTACCGCCAGCAGCGAGTATCAAAGACATCTGCGGATAACAACAACAGTGAATACTCGTG

240 250 260 270 280 290

3390 3400 3410 3420 3430 3440

839 GACTGGAGCTACCAAGTACCACCTCAATGGCAGAGACTCTCTGGTGAATCCGGGCCCGGC

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rep2Fw GACTGGAGCTACCAAGTACCACCTCAATGGCAGAGACTCTCTGGTGAATCCGGGCCCGGC

300 310 320 330 340 350

3450 3460 3470 3480 3490 3500

839 CATGGCAAGCCACAAGGACGATGAAGAAAAGTTTTTTCCTCAGAGCGGGGTTCTCATCTT

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rep2Fw CATGGCAAGCCACAAGGACGATGAAGAAAAGTTTTTTCCTCAGAGCGGGGTTCTCATCTT

360 370 380 390 400 410

3510 3520 3530 3540 3550 3560

839 TGGGAAGCAAGGCTCAGAGAAAACAAATGTGGACATTGAAAAGGTCATGATTACAGACGA

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rep2Fw TGGGAAGCAAGGCTCAGAGAAAACAAATGTGGACATTGAAAAGGTCATGATTACAGACGA

420 430 440 450 460 470

3570 3580 3590 3600 3610 3620

839 AGAGGAAATCAGGACAACCAATCCCGTGGCTACGGAGCAGTATGGTTCTGTATCTACCAA

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rep2Fw AGAGGAAATCAGGACAACCAATCCCGTGGCTACGGAGCAGTATGGTTCTGTATCTACCAA

480 490 500 510 520 530

3630 3640 3650 3660 3670 3680

839 CCTCCAGAGAGGCAACGCGGCTAATCAAACAGATAATAACAAGGCGCGCCAAGCAGCTAC

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rep2Fw CCTCCAGAGAGGCAACGCGGCTAATCAAACAGATAATAACAAGGCGCGCCAAGCAGCTAC

540 550 560 570 580 590

3690 3700 3710 3720 3730 3740

839 CGCAGATGTCAACACACAAGGCGTTCTTCCAGGCATGGTCTGGCAGGACAGAGATGTGTA

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rep2Fw CGCAGATGTCAACACACAAGGCGTTCTTCCAGGCATGGTCTGGCAGGACAGAGATGTGTA

600 610 620 630 640 650

3750 3760 3770 3780 3790 3800

839 CCTTCAGGGGCCCATCTGGGCAAAGATTCCACACACGGACGGACATTTTCACCCCTCTCC

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rep2Fw CCTTCAGGGGCCCATCTGGGCAAAGATTCCACACACGGACGGACATTTTCACCCCTCTCC

660 670 680 690 700 710

3810 3820 3830 3840 3850 3860

839 CCTCATGGGTGGATTCGGACTTAAACACCCTCCTCCACAGATTCTCATCAAGAACACCCC

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rep2Fw CCTCATGGGTGGATTCGGACTTAAACACCCTCCTCCACAGATTCTCATCAAGAACACCCC

720 730 740 750 760 770

3870 3880 3890 3900 3910 3920

839 GGTACCTGCGAATCCTTCGACCACCTTCAGTGCGGCAAAGTTTGCTTCCTTCATCACACA

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rep2Fw GGTACCTGCGAATCCTTCGACCACCTTCAGTGCGGCAAAGTTTGCTTCCTTCATCACACA

780 790 800 810 820 830

3930 3940 3950 3960 3970 3980

839 GTACTCCACGGGACAGGTCAGCGTGGAGATCGAGTGGGAGCTGCAGAAGGAAAACAGCAA

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rep2Fw GTACTCCACGGGACAGGTCAGCGTGGAGATCGAGTGGGAGCTGCAGAAGGAAAACAGCAA

840 850 860 870 880 890

3990 4000 4010 4020 4030 4040

839 ACGCTGGAATCCCGAAATTCAGTACACTTCCAACTACAACAAGTCTGTTAATGTGGACTT

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rep2Fw ACGCTGGAATCCCGAAATTCAGTACACTTCCAACTACAACAAGTCTGTTAATGTGGACTT

900 910 920 930 940 950

4050 4060 4070 4080 4090 4100

839 TACTGTGGACACTAATGGCGTGTATTCAGAGCCTCGCCCCATTGGCACCAGATACCTGAC

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rep2Fw TACTGTGGACACTAATGGCGTGTATTCAGAGCCTCGCCCCATTGGCACCAGATACCTGAC

960 970 980 990 1000 1010

4110 4120 4130 4140 4150

839 TCGTAATCTGTAATTGCGGCCGCTTGTTAATCAATAAACCGTTTAA

::::::::::::::::::::::::::::::::::::::::::::::

rep2Fw TCGTAATCTGTAATTGCGGCCGCTTGTTAATCAATAAACCGTTTAA

1020 1030 1040 1050 1060

Primer Rev5 CACAGTTTCTGATACGCC

600 610 620 630 640 650

839 ACGCAGGAGCAGAACAAAGAGAATCAGAATCCCAATTCTGATGCGCCGGTGATCAGATCA

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rev5 ACGCAGGAGCAGAACAAAGRGAATCAGAATCCCAATTCTGATGSGCCGGTGATCAGATCA

10 20 30 40 50 60

660 670 680 690 700 710

839 AAAACTTCAGCCAGGTACATGGAGCTGGTCGGGTGGCTCGTGGACAAGGGGATTACCTCG

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rev5 AAAACTTCAGCCAGGTACATGGAGCTGGTCGGGTGGCTCGTGGACAAGGGGATTACCTCG

70 80 90 100 110 120

720 730 740 750 760 770

839 GAGAAGCAGTGGATCCAGGAGGACCAGGCCTCATACATCTCCTTCAATGCGGCCTCCAAC

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rev5 GAGAAGCAGTGGATCCAGGAGGACCAGGCCTCATACATCTCCTTCAATGCGGCCTCCAAC

130 140 150 160 170 180

780 790 800 810 820 830

839 TCGCGGTCCCAAATCAAGGCTGCCTTGGACAATGCGGGAAAGATTATGAGCCTGACTAAA

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rev5 TCGCGGTCCCAAATCAAGGCTGCCTTGGACAATGCGGGAAAGATTATGAGCCTGACTAAA

190 200 210 220 230 240

840 850 860 870 880 890

839 ACCGCCCCCGACTACCTGGTGGGCCAGCAGCCCGTGGAGGACATTTCCAGCAATCGGATT

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rev5 ACCGCCCCCGACTACCTGGTGGGCCAGCAGCCCGTGGAGGACATTTCCAGCAATCGGATT

250 260 270 280 290 300

900 910 920 930 940 950

839 TATAAAATTTTGGAACTAAACGGGTACGATCCCCAATATGCGGCTTCCGTCTTTCTGGGA

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rev5 TATAAAATTTTGGAACTAAACGGGTACGATCCCCAATATGCGGCTTCCGTCTTTCTGGGA

310 320 330 340 350 360

960 970 980 990 1000 1010

839 TGGGCCACGAAAAAGTTCGGCAAGAGGAACACCATCTGGCTGTTTGGGCCTGCAACTACC

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rev5 TGGGCCACGAAAAAGTTCGGCAAGAGGAACACCATCTGGCTGTTTGGGCCTGCAACTACC

370 380 390 400 410 420

1020 1030 1040 1050 1060 1070

839 GGGAAGACCAACATCGCGGAGGCCATAGCCCACACTGTGCCCTTCTACGGGTGCGTAAAC

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rev5 GGGAAGACCAACATCGCGGAGGCCATAGCCCACACTGTGCCCTTCTACGGGTGCGTAAAC

430 440 450 460 470 480

1080 1090 1100 1110 1120 1130

839 TGGACCAATGAGAACTTTCCCTTCAACGACTGTGTCGACAAGATGGTGATCTGGTGGGAG

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rev5 TGGACCAATGAGAACTTTCCCTTCAACGACTGTGTCGACAAGATGGTGATCTGGTGGGAG

490 500 510 520 530 540

1140 1150 1160 1170 1180 1190

839 GAGGGGAAGATGACCGCCAAGGTCGTGGAGTCGGCCAAAGCCATTCTCGGAGGAAGCAAG

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rev5 GAGGGGAAGATGACCGCCAAGGTCGTGGAGTCGGCCAAAGCCATTCTCGGAGGAAGCAAG

550 560 570 580 590 600

1200 1210 1220 1230 1240 1250

839 GTGCGCGTGGACCAGAAATGCAAGTCCTCGGCCCAGATAGACCCGACTCCCGTGATCGTC

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rev5 GTGCGCGTGGACCAGAAATGCAAGTCCTCGGCCCAGATAGACCCGACTCCCGTGATCGTC

610 620 630 640 650 660

1260 1270 1280 1290 1300 1310

839 ACCTCCAACACCAACATGTGCGCCGTGATTGACGGGAACTCAACGACCTTCGAACACCAG

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rev5 ACCTCCAACACCAACATGTGCGCCGTGATTGACGGGAACTCAACGACCTTCGAACACCAG

670 680 690 700 710 720

1320 1330 1340 1350 1360 1370

839 CAGCCGTTGCAAGACCGGATGTTCAAATTTGAACTCACCCGCCGTCTGGATCATGACTTT

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rev5 CAGCCGTTGCAAGACCGGATGTTCAAATTTGAACTCACCCGCCGTCTGGATCATGACTTT

730 740 750 760 770 780

1380 1390 1400 1410 1420 1430

839 GGGAAGGTCACCAAGCAGGAAGTCAAAGACTTTTTCCGGTGGGCAAAGGATCACGTGGTT

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rev5 GGGAAGGTCACCAAGCAGGAAGTCAAAGACTTTTTCCGGTGGGCAAAGGATCACGTGGTT

790 800 810 820 830 840

1440 1450 1460 1470 1480 1490

839 GAGGTGGAGCATGAATTCTACGTCAAAAAGGGTGGAGCCAAGAAAAGACCCGCCCCCAGT

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rev5 GAGGTGGAGCATGAATTCTACGTCAAAAAGGGTGGAGCCAAGAAAAGACCCGCCCCCAGT

850 860 870 880 890 900

1500 1510 1520 1530 1540 1550

839 GACGCAGATATAAGTGAGCCCAAACGGGTGCGCGAGTCAGTTGCGCAGCCATCGACGTCA

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rev5 GACGCAGATATAAGTGAGCCCAAACGGGTGCGCGAGTCAGTTGCGCAGCCATCGACGTCA

910 920 930 940 950 960

1560 1570 1580 1590 1600 1610

839 GACGCGGAAGCTTCGATCAACTACGCAGACAGGTACCAAAACAAATGTTCTCGTCACGTG

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rev5 GACGCGGAAGCTTCGATCAACTA-GCAGACAGGTACCAAAACAAATGTTCTCGTCACGTG

970 980 990 1000 1010

1620 1630 1640 1650 1660 1670

839 GGCATGAATCTGATGCTGTTTCCCTGCAGACAATGCGAGAGAATGAATCAGAATTCAAAT

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rev5 GGCATGAATCTGATGCTGTTTCCCTGCAGACAATGCGAGAGAATGAATCAGAATTCAAAT

1020 1030 1040 1050 1060 1070

1680 1690 1700 1710

839 ATCTGCTTCACTCACGGACAGAAAGACTGTTTAGAGTGCT

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rev5 ATCTGCTTCACTCACGGACAGAAAGACTGTTTAGAGTGCT

1080 1090 1100 1110

Primer Rev6 TCCCACCAGATCACCATC

10 20 30 40 50 60

839 ATGCCGGGGTTTTACGAGATTGTGATTAAGGTCCCCAGCGACCTTGACGAGCATCTGCCC

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rev6 ATGCCGGGGTTTTACGAGATTGKGATTAAGGTCCCCAGCGACCTTGACGAGCATCTGCCC

50 60 70 80 90 100

K = T (correction manuelle du chromatogramme)

70 80 90 100 110 120

839 GGCATTTCTGACAGCTTTGTGAACTGGGTGGCCGAGAAGGAATGGGAGTTGCCGCCAGAT

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rev6 GGCATTTCTGACAGCTTTGTGAACTGGGTGGCCGAGAAGGAATGGGAGTTGCCGCCAGAT

110 120 130 140 150 160

130 140 150 160 170 180

839 TCTGACATGGATCTGAATCTGATTGAGCAGGCACCCCTGACCGTGGCCGAGAAGCTGCAG

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rev6 TCTGACATGGATCTGAATCTGATTGAGCAGGCACCCCTGACCGTGGCCGAGAAGCTGCAG

170 180 190 200 210 220

190 200 210 220 230 240

839 CGCGACTTTCTGACGGAATGGCGCCGTGTGAGTAAGGCCCCGGAGGCTCTTTTCTTTGTG

::::::::::::::::::::::::::::::::::::::::::::::: ::::::::::::

rev6 CGCGACTTTCTGACGGAATGGCGCCGTGTGAGTAAGGCCCCGGAGGCCCTTTTCTTTGTG

230 240 250 260 270 280

250 260 270 280 290 300

839 CAATTTGAGAAGGGAGAGAGCTACTTCCACATGCACGTGCTCGTGGAAACCACCGGGGTG

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rev6 CAATTTGAGAAGGGAGAGAGCTACTTCCACATGCACGTGCTCGTGGAAACCACCGGGGTG

290 300 310 320 330 340

310 320 330 340 350 360

839 AAATCCATGGTTTTGGGACGTTTCCTGAGTCAGATTCGCGAAAAACTGATTCAGAGAATT

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rev6 AAATCCATGGTTTTGGGACGTTTCCTGAGTCAGATTCGCGAAAAACTGATTCAGAGAATT

350 360 370 380 390 400

370 380 390 400 410 420

839 TACCGCGGGATCGAGCCGACTTTGCCAAACTGGTTCGCGGTCACAAAGACCAGAAATGGC

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rev6 TACCGCGGGATCGAGCCGACTTTGCCAAACTGGTTCGCGGTCACAAAGACCAGAAATGGC

410 420 430 440 450 460

430 440 450 460 470 480

839 GCCGGAGGCGGGAACAAGGTGGTGGATGAGTGCTACATCCCCAATTACTTGCTCCCCAAA

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rev6 GCCGGAGGCGGGAACAAGGTGGTGGATGAGTGCTACATCCCCAATTACTTGCTCCCCAAA

470 480 490 500 510 520

490 500 510 520 530 540

839 ACCCAGCCTGAGCTCCAGTGGGCGTGGACTAATATGGAACAGTATTTAAGCGCCTGTTTG

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rev6 ACCCAGCCTGAGCTCCAGTGGGCGTGGACTAATATGGAACAGTATTTAAGCGCCTGTTTG

530 540 550 560 570 580

550 560 570 580 590 600

839 AATCTCACGGAGCGTAAACGGTTGGTGGCGCAGCATCTGACGCACGTGTCGCAGACGCAG

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rev6 AATCTCACGGAGCGTAAACGGTTGGTGGCGCAGCATCTGACGCACGTGTCGCAGACGCAG

590 600 610 620 630 640

610 620 630 640 650 660

839 GAGCAGAACAAAGAGAATCAGAATCCCAATTCTGATGCGCCGGTGATCAGATCAAAAACT

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rev6 GAGCAGAACAAAGAGAATCAGAATCCCAATTCTGATGCGCCGGTGATCAGATCAAAAACT

650 660 670 680 690 700

670 680 690 700 710 720

839 TCAGCCAGGTACATGGAGCTGGTCGGGTGGCTCGTGGACAAGGGGATTACCTCGGAGAAG

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rev6 TCAGCCAGGTACATGGAGCTGGTCGGGTGGCTCGTGGACAAGGGGATTACCTCGGAGAAG

710 720 730 740 750 760

730 740 750 760 770 780

839 CAGTGGATCCAGGAGGACCAGGCCTCATACATCTCCTTCAATGCGGCCTCCAACTCGCGG

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rev6 CAGTGGATCCAGGAGGACCAGGCCTCATACATCTCCTTCAATGCGGCCTCCAACTCGCGG

770 780 790 800 810 820

790 800 810 820 830 840

839 TCCCAAATCAAGGCTGCCTTGGACAATGCGGGAAAGATTATGAGCCTGACTAAAACCGCC

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rev6 TCCCAAATCAAGGCTGCCTTGGACAATGCGGGAAAGATTATGAGCCTGACTAAAACCGCC

830 840 850 860 870 880

850 860 870 880 890 900

839 CCCGACTACCTGGTGGGCCAGCAGCCCGTGGAGGACATTTCCAGCAATCGGATTTATAAA

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rev6 CCCGACTACCTGGTGGGCCAGCAGCCCGTGGAGGACATTTCCAGCAATCGGATTTATAAA

890 900 910 920 930 940

910 920 930 940 950 960

839 ATTTTGGAACTAAACGGGTACGATCCCCAATATGCGGCTTCCGTCTTTCTGGGATGGGCC

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rev6 ATTTTGGAACTAAACGGGTACGATCCCCAATATGCGGCTTCCGTCTTTCTGGGATGGGCC

950 960 970 980 990 1000

970 980 990 1000 1010 1020

839 ACGAAAAAGTTCGGCAAGAGGAACACCATCTGGCTGTTTGGGCCTGCAACTACCGGGAAG

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rev6 ACGAAAAAGTTCGGCAAGAGGAACACCATCTGGCTGTTTGGGCCTGCAACTACCGGGAAG

1010 1020 1030 1040 1050 1060

1030 1040 1050 1060 1070 1080

839 ACCAACATCGCGGAGGCCATAGCCCACACTGTGCCCTTCTACGGGTGCGTAAACTGGACC

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rev6 ACCAACATCGCGGAGGCCATAGCCCACACTGTGCCCTTCTACGGGTGCGTAAACTGGACC

1070 1080 1090 1100 1110 1120

839 AAT

:::

rev6 AAT

1130

Primer 839\_rev1 gtaggctttgtcgtgc

940 950 960 970 980 990

839 GCTTCCGTCTTTCTGGGATGGGCCACGAAAAAGTTCGGCAAGAGGAACACCATCTGGCTG

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rev9 GCTTCCGTCTTTCTGGGATGGGCCACGAAAAAGTTCGGCAAGAGGAACACCATCTGGCTG

70 80 90 100 110 120

1000 1010 1020 1030 1040 1050

839 TTTGGGCCTGCAACTACCGGGAAGACCAACATCGCGGAGGCCATAGCCCACACTGTGCCC

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rev9 TTTGGGCCTGCAACTACCGGGAAGACCAACATCGCGGAGGCCATAGCCCACACTGTGCCC

130 140 150 160 170 180

1060 1070 1080 1090 1100 1110

839 TTCTACGGGTGCGTAAACTGGACCAATGAGAACTTTCCCTTCAACGACTGTGTCGACAAG

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rev9 TTCTACGGGTGCGTAAACTGGACCAATGAGAACTTTCCCTTCAACGACTGTGTCGACAAG

190 200 210 220 230 240

1120 1130 1140 1150 1160 1170

839 ATGGTGATCTGGTGGGAGGAGGGGAAGATGACCGCCAAGGTCGTGGAGTCGGCCAAAGCC

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rev9 ATGGTGATCTGGTGGGAGGAGGGGAAGATGACCGCCAAGGTCGTGGAGTCGGCCAAAGCC

250 260 270 280 290 300

1180 1190 1200 1210 1220 1230

839 ATTCTCGGAGGAAGCAAGGTGCGCGTGGACCAGAAATGCAAGTCCTCGGCCCAGATAGAC

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rev9 ATTCTCGGAGGAAGCAAGGTGCGCGTGGACCAGAAATGCAAGTCCTCGGCCCAGATAGAC

310 320 330 340 350 360

1240 1250 1260 1270 1280 1290

839 CCGACTCCCGTGATCGTCACCTCCAACACCAACATGTGCGCCGTGATTGACGGGAACTCA

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rev9 CCGACTCCCGTGATCGTCACCTCCAACACCAACATGTGCGCCGTGATTGACGGGAACTCA

370 380 390 400 410 420

1300 1310 1320 1330 1340 1350

839 ACGACCTTCGAACACCAGCAGCCGTTGCAAGACCGGATGTTCAAATTTGAACTCACCCGC

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rev9 ACGACCTTCGAACACCAGCAGCCGTTGCAAGACCGGATGTTCAAATTTGAACTCACCCGC

430 440 450 460 470 480

1360 1370 1380 1390 1400 1410

839 CGTCTGGATCATGACTTTGGGAAGGTCACCAAGCAGGAAGTCAAAGACTTTTTCCGGTGG

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rev9 CGTCTGGATCATGACTTTGGGAAGGTCACCAAGCAGGAAGTCAAAGACTTTTTCCGGTGG

490 500 510 520 530 540

1420 1430 1440 1450 1460 1470

839 GCAAAGGATCACGTGGTTGAGGTGGAGCATGAATTCTACGTCAAAAAGGGTGGAGCCAAG

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rev9 GCAAAGGATCACGTGGTTGAGGTGGAGCATGAATTCTACGTCAAAAAGGGTGGAGCCAAG

550 560 570 580 590 600

1480 1490 1500 1510 1520 1530

839 AAAAGACCCGCCCCCAGTGACGCAGATATAAGTGAGCCCAAACGGGTGCGCGAGTCAGTT

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rev9 AAAAGACCCGCCCCCAGTGACGCAGATATAAGTGAGCCCAAACGGGTGCGCGAGTCAGTT

610 620 630 640 650 660

1540 1550 1560 1570 1580 1590

839 GCGCAGCCATCGACGTCAGACGCGGAAGCTTCGATCAACTACGCAGACAGGTACCAAAAC

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rev9 GCGCAGCCATCGACGTCAGACGCGGAAGCTTCGATCAACTA-GCAGACAGGTACCAAAAC

670 680 690 700 710

1600 1610 1620 1630 1640 1650

839 AAATGTTCTCGTCACGTGGGCATGAATCTGATGCTGTTTCCCTGCAGACAATGCGAGAGA

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rev9 AAATGTTCTCGTCACGTGGGCATGAATCTGATGCTGTTTCCCTGCAGACAATGCGAGAGA

720 730 740 750 760 770

1660 1670 1680 1690 1700 1710

839 ATGAATCAGAATTCAAATATCTGCTTCACTCACGGACAGAAAGACTGTTTAGAGTGCTTT

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rev9 ATGAATCAGAATTCAAATATCTGCTTCACTCACGGACAGAAAGACTGTTTAGAGTGCTTT

780 790 800 810 820 830

1720 1730 1740 1750 1760 1770

839 CCCGTGTCAGAATCTCAACCCGTTTCTGTCGTCAAAAAGGCGTATCAGAAACTGTGCTAC

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rev9 CCCGTGTCAGAATCTCAACCCGTTTCTGTCGTCAAAAAGGCGTATCAGAAACTGTGCTAC

840 850 860 870 880 890

1780 1790 1800 1810 1820 1830

839 ATTCATCATATCATGGGAAAGGTGCCAGACGCTTGCACTGCCTGCGATCTGGTCAATGTG

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rev9 ATTCATCATATCATGGGAAAGGTGCCAGACGCTTGCACTGCCTGCGATCTGGTCAATGTG

900 910 920 930 940 950

1840 1850 1860 1870 1880 1890

839 GATTTGGATGACTGCATCTTTGAACAATAAATGATTTAAATCAGGTATGGCTGCCGATGG

::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

rev9 GATTTGGATGACTGCATCTTTGAACAATAAATGATTTAAATCAGGTATGGCTGCCGATGG

960 970 980 990 1000 1010

1900 1910 1920 1930 1940 1950

839 TTATCTTCCAGATTGGCTCGAGGACACTCTCTCTGAAGGAATAAGACAGTGGTGGAAGCT

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rev9 TTATCTTCCAGATTGGCTCGAGGACACTCTCTCTGAAGGAATAAGACAGTGGTGGAAGCT

1020 1030 1040 1050 1060 1070

1960 1970 1980 1990 2000 2010

839 CAAACCTGGCCCACCACCACCAAAGCCCGCAGAGCGGCATAAGGACGACAGCAGGGGTCT

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rev9 CAAACCTGGCCCACCACCACCAAAGCCCGCAGAGCGGCATAAGGACGACAGCAGGGGTCT

1080 1090 1100 1110 1120 1130

2020 2030 2040 2050 2060 2070

839 TGTGCTTCCTGGGTACAAGTACCTCGGACCCTTCAACGGACTCGACAAGGGAGAGCCG

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rev9 TGTGCTTCCTGGGTACAAGTACCTCGGACCCTTCAACGGACTCGACAAGG-AGAGCCG

1140 1150 1160 1170 1180 1190

|  |
| --- |
| **Final alignment** |

**atgccggggttttacgagattgtgattaaggtccccagcgaccttgacgagcatctgcccggcatttctgacagctttgtgaactgggtggccgagaaggaatgggagttgccgccagattctgacatggatctgaatctgattgagcaggcacccctgaccgtggccgagaagctgcagcgcgactttctgacggaatggcgccgtgtgagtaaggccccggaggctcttttctttgtgcaatttgagaagggagagagctacttccacatgcacgtgctcgtggaaaccaccggggtgaaatccatggttttgggacgtttcctgagtcagattcgcgaaaaactgattcagagaatttaccgcgggatcgagccgactttgccaaactggttcgcggtcacaaagaccagaaatggcgccggaggcgggaacaaggtggtggatgagtgctacatccccaattacttgctccccaaaacccagcctgagctccagtgggcgtggactaatatggaacagtatttaagcgcctgtttgaatctcacggagcgtaaacggttggtggcgcagcatctgacgcacgtgtcgcagacgcaggagcagaacaaagagaatcagaatcccaattctgatgcgccggtgatcagatcaaaaacttcagccaggtacatggagctggtcgggtggctcgtggacaaggggattacctcggagaagcagtggatccaggaggaccaggcctcatacatctccttcaatgcggcctccaactcgcggtcccaaatcaaggctgccttggacaatgcgggaaagattatgagcctgactaaaaccgcccccgactacctggtgggccagcagcccgtggaggacatttccagcaatcggatttataaaattttggaactaaacgggtacgatccccaatatgcggcttccgtctttctgggatgggccacgaaaaagttcggcaagaggaacaccatctggctgtttgggcctgcaactaccgggaagaccaacatcgcggaggccatagcccacactgtgcccttctacgggtgcgtaaactggaccaatgagaactttcccttcaacgactgtgtcgacaagatggtgatctggtgggaggaggggaagatgaccgccaaggtcgtggagtcggccaaagccattctcggaggaagcaaggtgcgcgtggaccagaaatgcaagtcctcggcccagatagacccgactcccgtgatcgtcacctccaacaccaacatgtgcgccgtgattgacgggaactcaacgaccttcgaacaccagcagccgttgcaagaccggatgttcaaatttgaactcacccgccgtctggatcatgactttgggaaggtcaccaagcaggaagtcaaagactttttccggtgggcaaaggatcacgtggttgaggtggagcatgaattctacgtcaaaaagggtggagccaagaaaagacccgcccccagtgacgcagatataagtgagcccaaacgggtgcgcgagtcagttgcgcagccatcgacgtcagacgcggaagcttcgatcaactacgcagacaggtaccaaaacaaatgttctcgtcacgtgggcatgaatctgatgctgtttccctgcagacaatgcgagagaatgaatcagaattcaaatatctgcttcactcacggacagaaagactgtttagagtgctttcccgtgtcagaatctcaacccgtttctgtcgtcaaaaaggcgtatcagaaactgtgctacattcatcatatcatgggaaaggtgccagacgcttgcactgcctgcgatctggtcaatgtggatttggatgactgcatctttgaacaataaatgatttaaatcaggtatggctgccgatggttatcttccagattggctcgaggacactctctctgaaggaataagacagtggtggaagctcaaacctggcccaccaccaccaaagcccgcagagcggcataaggacgacagcaggggtcttgtgcttcctgggtacaagtacctcggacccttcaacggactcgacaagggagagccggtcaacgaggcagacgccgcggccctcgagcacgacaaagcctacgaccggcagctcgacagcggagacaacccgtacctcaagtacaaccacgccgacgcggagtttcaggagcgccttaaagaagatacgtcttttgggggcaacctcggacgagcagtcttccaggcgaaaaagagggttcttgaacctctgggcctggttgaggaacctgttaagacggctccgggaaaaaagaggccggtagagcactctcctgtggagccagactcctcctcgggaaccggaaaggcgggccagcagcctgcaagaaaaagattgaattttggtcagactggagacgcagactcagtacctgacccccagcctctcggacagccaccagcagccccctctggtctgggaactaatacgatggctacaggcagtggcgcaccaatggcagacaataacgagggcgccgacggagtgggtaattcctcgggaaattggcattgcgattccacatggatgggcgacagagtcatcaccaccagcacccgaacctgggccctgcccacctacaacaaccacctctacaaacaaatttccagccaatcaggagcctcgaacgacaatcactactttggctacagcaccccttgggggtattttgacttcaacagattccactgccacttttcaccacgtgactggcaaagactcatcaacaacaactggggattccgacccaagagactcaacttcaagctctttaacattcaagtcaaagaggtcacgcagaatgacggtacgacgacgattgccaataaccttaccagcacggttcaggtgtttactgactcggagtaccagctcccgtacgtcctcggctcggcgcatcaaggatgcctcccgccgttcccagcagacgtcttcatggtgccacagtatggatacctcaccctgaacaacgggagtcaggcagtaggacgctcttcattttactgcctggagtactttccttctcagatgctgcgtaccggaaacaactttaccttcagctacacttttgaggacgttcctttccacagcagctacgctcacagccagagtctggaccgtctcatgaatcctctcatcgaccagtacctgtattacttgagcagaacaaacactccaagtggaaccaccacgcagtcaaggcttcagttttctcaggccggagcgagtgacattcgggaccagtctaggaactggcttcctggaccctgttaccgccagcagcgagtatcaaagacatctgcggataacaacaacagtgaatactcgtggactggagctaccaagtaccacctcaatggcagagactctctggtgaatccgggcccggccatggcaagccacaaggacgatgaagaaaagttttttcctcagagcggggttctcatctttgggaagcaaggctcagagaaaacaaatgtggacattgaaaaggtcatgattacagacgaagaggaaatcaggacaaccaatcccgtggctacggagcagtatggttctgtatctaccaacctccagagaggcaacgcggctaatcaaacagataataacaaggcgcgccaagcagctaccgcagatgtcaacacacaaggcgttcttccaggcatggtctggcaggacagagatgtgtaccttcaggggcccatctgggcaaagattccacacacggacggacattttcacccctctcccctcatgggtggattcggacttaaacaccctcctccacagattctcatcaagaacaccccggtacctgcgaatccttcgaccaccttcagtgcggcaaagtttgcttccttcatcacacagtactccacgggacaggtcagcgtggagatcgagtgggagctgcagaaggaaaacagcaaacgctggaatcccgaaattcagtacacttccaactacaacaagtctgttaatgtggactttactgtggacactaatggcgtgtattcagagcctcgccccattggcaccagatacctgactcgtaatctgtaattgcggccgcttgttaatcaataaaccgtttaa**

The sequence obtained differs from the theoretical sequence (295 T>C and 1645 delC).