

AseI  
|  
TAGTTATTAATAGTAATCAATTACGGGGTCATTAGTTCATAGCCCATATATGGAGTTCCGCGTTACATAA  
ATCAATAATTATCATTAGTTAATGCCCCAGTAATCAAGTATCGGGTATATACCTCAAGGCGCAATGTATT  
10 20 30 40 50 60 70

Bgl I AatII  
| |  
CTTACGGTAAATGGCCCGCCTGGCTGACCGCCCAACGACCCCCGCCATTGACGTCAATAATGACGTATG  
GAATGCCATTTACCGGGCGGACCGACTGGCGGGTTGCTGGGGGCGGGTAACTGCAGTTATTACTGCATAC  
80 90 100 110 120 130 140

AatII  
|  
TTCCCATAGTAACGCCAATAGGGACTTTCCATTGACGTCAATGGGTGGAGTATTTACGGTAAACTGCCCA  
AAGGTATCATTGCGGTTATCCCTGAAAGGTAAGTGCAGTTACCCACCTCATAAATGCCATTTGACGGGT  
150 160 170 180 190 200 210

Bgl I NdeI AatII  
| | |  
CTTGGCAGTACATCAAGTGTATCATATGCCAAGTACGCCCCCTATTGACGTCAATGACGGTAAATGGCC  
GAACCGTCATGTAGTTCACATAGTATACGGTTCATGCGGGGGATAACTGCAGTTACTGCCATTTACCGGG  
220 230 240 250 260 270 280

Bgl I SnaBI  
| |  
GCCTGGCATTATGCCCAGTACATGACCTTATGGGACTTTCTACTTGGCAGTACATCTACGTATTAGTCA  
CGGACCGTAATACGGGTCATGTACTGGAATACCCTGAAAGGATGAACCGTCATGTAGATGCATAATCAGT  
290 300 310 320 330 340 350

NcoI  
|  
TCGCTATTACCATGGTGATGCGGTTTTGGCAGTACATCAATGGGCGTGGATAGCGGTTTTGACTCACGGGG  
AGCGATAATGGTACCCTACGCCAAAACCGTCATGTAGTTACCCGCACCTATCGCCAAACTGAGTGCCCC  
360 370 380 390 400 410 420

AatII  
|  
ATTTCCAAGTCTCCACCCCATGACGTCAATGGGAGTTTGTTTTGGCACCAAATCAACGGGACTTTCCA  
TAAAGGTTTCAGAGGTGGGGTAACTGCAGTTACCCTCAAACAAAACCGTGGTTTTAGTTGCCCTGAAAGGT  
430 440 450 460 470 480 490

AAATGTCGTAACAACCTCCGCCCCATTGACGCAAATGGGCGGTAGGCGTGTACGGTGGGAGGTCTATATAA  
TTTACAGCATTGTTGAGGCGGGGTAAGTGCAGTTTACCCGCCATCCGCACATGCCACCCCTCCAGATATAT  
500 510 520 530 540 550 560

EcoRI  
BstBI  
HindIII

XhoI      SacI

NheI   Eco47 III      Bgl II      Eco1136 II

GCAGAGCTGGTTT TAGTGAACCGTCAGATCCGCTAGCGCTACCGGACTCAGATCTCGAGCTCAAGCTTCGA  
CGTCTCGACCAAATCACTTGGCAGTCTAGGCGATCGCGATGGCCTGAGTCTAGAGCTCGAGTTCGAAGCT

570                  580                  590                  600                  610                  620                  630

SacII

Sal I                  KpnI

PstI      Asp718 I                  EagI                  NcoI      Bsp120 I

ATTCTGCAGTCGACGGTACCGCGGATGTTCCAGGCGGCCGAGCGCCCCAGGAGTGGGCCATGGAGGGCC  
TAAGACGTCAGCTGCCATGGCGCCTACAAGGTCCGCCGGCTCGCGGGGGTCTCACCCGGTACCTCCCGG

640                  650                  660                  670                  680                  690                  700

ApaI                  BsrBI                  Eco57 I

CCC GCGACGGGCTGAAGAAGGAGCGGCTACTGGACGACCGCCACGACAGCGGCCTGGACTCCATGAAAGA  
GGGCGCTGCCCGACTTCTTCTCGCCGATGACCTGCTGGCGGTGCTGTCGCCGGACCTGAGGTACTTTCT

710                  720                  730                  740                  750                  760                  770

BseRI                  PstI                  XhoI

CGAGGAGTACGAGCAGATGGTCAAGGAGCTGCAGGAGATCCGCCTCGAGCCGCAGGAGGTGCCGCGCGGC  
GCTCCTCATGCTCGTCTACCAGTTCTCGACGTCCTCTAGGCGGAGCTCGGCGTCTCCACGGCGCGCCC

780                  790                  800                  810                  820                  830                  840

BsgI                  MscI

TCGAGCCCTGGAAGCAGCAGCTCACCGAGGACGGGGACTCGTTCCTGCACTTGGCCATCATCCATGAAG  
AGCCTCGGGACCTTCGTGTCGAGTGGCTCCTGCCCTGAGCAAGGACGTGAACCGGTAGTAGGTACTTC

850                  860                  870                  880                  890                  900                  910

NcoI                  BsaI

AAAAGGCACTGACCATGGAAGTGATCCGCCAGGTGAAGGGAGACCTGGCTTTCCTCAACTTCCAGAACAA  
TTTTCCGTGACTGGTACCTTCACTAGGCGGTCCACTTCCCTCTGGACCGAAAGGAGTTGAAGGTCTTGTT

920                  930                  940                  950                  960                  970                  980

BspMI

PstI                  Bcl I

CCTGCAGCAGACTCCACTCCACTTGGCTGTGATACCAACCAGCCAGAAATTGCTGAGGCACTTCTGGGA  
GGACGTGCTCTGAGGTGAGGTGAACCGACACTAGTGGTTGGTTCGGTCTTTAACGACTCCGTGAAGACCTT

990                  1000                  1010                  1020                  1030                  1040                  1050

SacI  
Ecl136 II

| |

GCTGGCTGTGATCCTGAGCTCCGAGACTTTCGAGGAAATACCCCCCTACACCTTGCCTGTGAGCAGGGCT  
CGACCGACACTAGGACTCGAGGCTCTGAAAGCTCCTTTATGGGGGGATGTGGAACGGACACTCGTCCCGA

1060            1070            1080            1090            1100            1110            1120

MscI            BsgI            Tth111 I

|            |            |

GCCTGGCCAGCGTGGGAGTCTGACTCAGTCCTGCACCACCCCGCACCTCCACTCCATCCTGAAGGCTAC  
CGGACCGGTTCGCACCCTCAGGACTGAGTCAGGACGTGGTGGGGCGTGGAGGTGAGGTAGGACTTCCGATG

1130            1140            1150            1160            1170            1180            1190

MscI    Pml I  
Eco57 I            NcoI

| |            |            |

CAACTACAATGGCCACACGTGTCTACACTTAGCCTCTATCCATGGCTACCTGGGCATCGTGGAGCTTTTG  
GTTGATGTTACCGGTGTGCACAGATGTGAATCGGAGATAGGTACCGATGGACCCGTAGCACCTCGAAAC

1200            1210            1220            1230            1240            1250            1260

GTGTCCTTGGGTGCTGATGTCAATGCTCAGGAGCCCTGTAATGGCCGGACTGCCCTTCACCTCGCAGTGG  
CACAGGAACCCACGACTACAGTTACGAGTCCTCGGGACATTACCGCCTGACGGGAAGTGGAGCGTCACC

1270            1280            1290            1300            1310            1320            1330

AhdI

BspMI    SexAI

|            |            |

ACCTGCAAAATCCTGACCTGGTGTCACTCCTGTTGAAGTGTGGGGCTGATGTCAACAGAGTTACCTACCA  
TGGACGTTTTAGGACTGGACCACAGTGAGGACAAC TTCACACCCCGACTACAGTTGTCTCAATGGATGGT

1340            1350            1360            1370            1380            1390            1400

AlwNI    Eco57 I  
PvuII    PvuII

|            |

GGGCTATTCTCCCTACCAGCTCACCTGGGGCCGCCAAGCACCCGGATACAGCAGCAGCTGGGCCAGCTG  
CCCATAAGAGGGATGGTTCGAGTGGACCCCGCGGGTTCGTGGGCCTATGTCGTCGTCGACCCGGTTCGAC

1410            1420            1430            1440            1450            1460            1470

AhdI

XmnI            AlwNI            BseRI

|            |            | |

ACACTAGAAAACCTTCAGATGCTGCCAGAGAGTGAGGATGAGGAGAGCTATGACACAGAGTCAGAGTTCA  
TGTGATCTTTTGAAGTCTACGACGGTCTCTCACTCCTACTCCTCTCGATACTGTGTCTCAGTCTCAAGT

1480            1490            1500            1510            1520            1530            1540

AlwNI            BamHI

|            |

CGGAGTTCACAGAGGACGAGCTGCCCTATGATGACTGTGTGTTTGGAGGCCAGCGTCTGACGTTAGGATC  
GCCTCAAGTGTCTCCTGCTCGACGGGATACTACTGACACACAAACCTCCGGTTCGACACTGCAATCCTAG

1550            1560            1570            1580            1590            1600            1610

NcoI  
 XcmI  
 BseRI

CATCGCCACCATGGTGAGCAAGGGCGAGGAGCTGTTACCCGGGGTGGTGCCCATCCTGGTCGAGCTGGAC  
 GTAGCGGTGGTACCACTCGTTCCTCCGCTCCTCGACAAGTGGCCCCACCACGGGTAGGACCAGCTCGACCTG

1620 1630 1640 1650 1660 1670 1680

BcgI  
 BsgI  
 BcgI

GGCGACGTAAACGGCCACAAGTTCAGCGTGTCCGGCGAGGGCGAGGGCGATGCCACCTACGGCAAGCTGA  
 CCGCTGCATTTGCCGGTGTTCAGTTCGACAGGCGCTCCCGCTCCCGCTACGGTGGATGCCGTTTCGACT

1690 1700 1710 1720 1730 1740 1750

Eco57 I  
 BssSI  
 Eco57 I

CCCTGAAGTTCATCTGCACCACCGCAAGCTGCCCGTGCCCTGGCCCACCCTCGTGACCACCCTGACCTA  
 GGGACTTCAAGTAGACGTGGTGGCCGTTTCGACGGGCACGGGACCGGGTGGGAGCACTGGTGGGACTGGAT

1760 1770 1780 1790 1800 1810 1820

BsgI

CGGCGTGCAGTGCTTCAGCCGCTACCCCGACCACATGAAGCAGCACGACTTCTTCAAGTCCGCCATGCC  
 GCCGCACGTCACGAAGTCGGCGATGGGGCTGGTGTACTTCGTCTGTGCTGAAGAAGTTCAGGCGGTACGGG

1830 1840 1850 1860 1870 1880 1890

GAAGGCTACGTCCAGGAGCGCACCATCTTCTTCAAGGACGACGGCAACTACAAGACCCGCGCCGAGGTGA  
 CTTCCGATGCAGGTCTCGCGTGGTAGAAGAAGTTCCTGCTGCCGTTGATGTTCTGGGCGCGGCTCCACT

1900 1910 1920 1930 1940 1950 1960

Eco57 I

AGTTCGAGGGCGACACCCTGGTGAACCGCATCGAGCTGAAGGGCATCGACTTCAAGGAGGACGGCAACAT  
 TCAAGCTCCCGCTGTGGGACCACCTTGGCGTAGCTCGACTTCCCGTAGCTGAAGTTCCTCCTGCCGTTGTA

1970 1980 1990 2000 2010 2020 2030

BpmI

CCTGGGGCACAAGCTGGAGTACAACACTACAACAGCCACAACGTCTATATCATGGCCGACAAGCAGAAGAAC  
 GGACCCCGTGTTCGACCTCATGTTGATGTTGTCGGTGTTCAGATATAGTACCGGCTGTTTCGTCTTCTTG

2040 2050 2060 2070 2080 2090 2100

GGCATCAAGGTGAACTTCAAGATCCGCCACAACATCGAGGACGGCAGCGTGCAGCTCGCCGACCACTACC  
 CCGTAGTTCACCTTGAAGTTCAGGCGGTGTTGTAGCTCCTGCCGTCGCACGTCGAGCGGCTGGTGATGG

2110 2120 2130 2140 2150 2160 2170

BsgI

AGCAGAACACCCCCATCGGCGACGGCCCCGTGCTGCTGCCCGACAACCACTACCTGAGCACCCAGTCCGC  
 TCGTCTTGTGGGGGTAGCCGCTGCCGGGGCAGCAGACGGGCTGTTGGTGTGACTCGTGGGTGATGGG

2180 2190 2200 2210 2220 2230 2240

BpmI  
|

CCTGAGCAAAGACCCCAACGAGAAGCGCGATCACATGGTCCTGCTGGAGTTCGTGACCGCCGCGGGGATC  
GGACTCGTTTCTGGGGTTGCTCTTCGCGCTAGTGTACCAGGACGACCTCAAGCACTGGCGGCGGCCCTAG

2250            2260            2270            2280            2290            2300            2310

BsrGI            EagI            XbaI            BsaBI  
|            |            |            |

ACTCTCGGCATGGACGAGCTGTACAAGTAAAGCGGCCGCGACTCTAGATCATAATCAGCCATAACACATT  
TGAGAGCCGTACCTGCTCGACATGTTCAATTCGCCGGCGCTGAGATCTAGTATTAGTCGGTATGGTGTAA

2320            2330            2340            2350            2360            2370            2380

DraI            MfeI  
|            |

TGTAGAGGTTTTACTTGCTTTAAAAAACCTCCACACCTCCCCCTGAACCTGAAACATAAAATGAATGCA  
ACATCTCCAAAATGAACGAAATTTTTTGGAGGGTGTGGAGGGGGACTTGGACTTTGTATTTTACTTACGT

2390            2400            2410            2420            2430            2440            2450

BsmI            HpaI  
|            |

ATTGTTGTTGTTAACTTGTTTATTGCAGCTTATAATGGTTACAAATAAAGCAATAGCATCACAAATTTCA  
TAACAACAACAATTGAACAATAACGTCGAATATTACCAATGTTTATTTTCGTTATCGTAGTGTTTAAAGT

2460            2470            2480            2490            2500            2510            2520

BsmI            Afl II  
|            |

CAAATAAAGCATTTTTTTCACTGCATTCTAGTTGTGGTTTGTCCAAACTCATCAATGTATCTTAAGGCGT  
GTTTATTTTCGTAAAAAAGTGACGTAAGATCAACACCAAACAGGTTTGAGTAGTTACATAGAATTCGCGCA

2530            2540            2550            2560            2570            2580            2590

SspI  
|

AAATTGTAAGCGTTAATATTTTGTAAAATTCGCGTTAAATTTTTGTAAATCAGCTCATTFTTTAAACCA  
TTTAACATTCGCAATTATAAAACAATTTTAAGCGCAATTTAAAACAATTTAGTCGAGTAAAAAATTGGT

2600            2610            2620            2630            2640            2650            2660

ATAGGCCGAAATCGGCAAAATCCCTTATAAATCAAAGAATAGACCGAGATAGGGTTGAGTGTTGTTCCA  
TATCCGGCTTTAGCCGTTTTAGGGAATATTTAGTTTTCTTATCTGGCTCTATCCCAACTCACAACAAGGT

2670            2680            2690            2700            2710            2720            2730

DrdI  
|

GTTTGGAAACAAGAGTCCACTATTAAGAACGTGGACTCCAACGTCAAAGGGCGAAAAACCGTCTATCAGG  
CAAACCTTGTTCTCAGGTGATAATTTCTTGCACCTGAGGTTGCAGTTTCCCGCTTTTTGGCAGATAGTCC

2740            2750            2760            2770            2780            2790            2800

DraIII  
|

GCGATGGCCCACTACGTGAACCATCACCCATAATCAAGTTTTTTTTGGGGTTCGAGGTGCCGTAAAGCACTAAA  
CGCTACCGGGTGATGCACTTGGTAGTGGGATTAGTTCAAAAAACCCAGCTCCACGGCATTTCGTGATTT

2810            2820            2830            2840            2850            2860            2870

NaeI  
 NgoMI  
 | |

TCGGAACCCTAAAGGGAGCCCCGATTTAGAGCTTGACGGGGAAAGCCGGCGAACGTGGCGAGAAAGGAA  
 AGCCTTGGGATTTCCCTCGGGGGCTAAATCTCGAACTGCCCTTTTCGGCCGCTTGACACCGCTCTTTCCTT  
 2880            2890            2900            2910            2920            2930            2940

BsrBI  
 |

GGGAAGAAAGCGAAAGGAGCGGGCGCTAGGGCGCTGGCAAGTGTAGCGGTCACGCTGCGCGTAACCACCA  
 CCCTTCTTTTCGCTTTCCTCGCCCGGATCCCGCGACCGTTCACATCGCCAGTGCACGCGCATTTGGTGGT  
 2950            2960            2970            2980            2990            3000            3010

CACCCGCGCGCTTAATGCGCCGCTACAGGGCGCGTCAGGTGGCACTTTTCGGGGAAATGTGCGCGGAAC  
 GTGGGCGGCGGAATTACGCGGCGATGTCCC CGCGCAGTCCACCGTGAAAAGCCCCTTTACACGCGCCTTG  
 3020            3030            3040            3050            3060            3070            3080

BspHI  
 BsrBI  
 | |

CCCTATTTGTTTATTTTCTAAATACATTCAAATATGTATCCGCTCATGAGACAATAACCCTGATAAATG  
 GGGATAAACAAATAAAAAGATTTATGTAAGTTTATAACATAGGCGAGTACTCTGTTATTGGGACTATTTAC  
 3090            3100            3110            3120            3130            3140            3150

SspI    EarI            Bsu36 I            PvuII  
 |        |            |            |

CTTCAATAATATTGAAAAGGAAGAGTCCTGAGGCGGAAAGAACCAGCTGTGGAATGTGTGTCAGTTAGG  
 GAAGTTATTATAACTTTTTCTTCTCAGGACTCCGCCTTTCTTGGTCGACACCTTACACACAGTCAATCC  
 3160            3170            3180            3190            3200            3210            3220

NsiI  
 SphI  
 Ppu10 I            SexAI  
 | | |            |

GTGTGGAAAGTCCCCAGGCTCCCCAGCAGGCAGAAGTATGCAAAGCATGCATCTCAATTAGTCAGCAACC  
 CACACCTTTCAGGGGTCCGAGGGGTTCGTCCTTTCATACGTTTCGTACGTAGAGTTAATCAGTCGTTGG  
 3230            3240            3250            3260            3270            3280            3290

NsiI  
 SphI  
 Ppu10 I  
 | | |

AGGTGTGGAAAGTCCCCAGGCTCCCCAGCAGGCAGAAGTATGCAAAGCATGCATCTCAATTAGTCAGCAA  
 TCCACACCTTTCAGGGGTCCGAGGGGTTCGTCCTTTCATACGTTTCGTACGTAGAGTTAATCAGTCGTT  
 3300            3310            3320            3330            3340            3350            3360

NcoI  
 |

CCATAGTCCCGCCCCCTAACTCCGCCCATCCCGCCCCCTAACTCCGCCAGTTCGCCCATTTCTCCGCCCA  
 GGTATCAGGGCGGGGATTGAGGCGGGTAGGGCGGGGATTGAGGCGGGTCAAGGCGGGTAAGAGGCGGGGT  
 3370            3380            3390            3400            3410            3420            3430

SfiI  
Bgl I  
|

TGGCTGACTAATTTTTTTTATTTATGCAGAGGCCGAGGCCGCCTCGGCCTCTGAGCTATTCCAGAAGTAG  
ACCGACTGATTAATAAAAAATAAATACGTCTCCGGCTCCGGCGGAGCCGGAGACTCGATAAGGTCTTCATC  
3440 3450 3460 3470 3480 3490 3500

AvrII  
StuI  
BseRI  
| |  
ClaI  
|  
BsaBI  
|

TGAGGAGGCTTTTTTGGAGGCCTAGGCTTTTGC AAAGATCGATCAAGAGACAGGATGAGGATCGTTTTCGC  
ACTCCTCCGAAAAACCTCCGGATCCGAAAACGTTTCTAGCTAGTTCTCTGTCTACTCCTAGCAAAGCG  
3510 3520 3530 3540 3550 3560 3570

BspMI  
|  
EagI  
|

ATGATTGAACAAGATGGATTGCACGCAGGTTCTCCGGCCGCTTGGGTGGAGAGGCTATTCGGCTATGACT  
TACTA ACTTGTCTACCTAACGTGCGTCCAAGAGGCCGGCGAACCCACCTCTCCGATAAGCCGATACTGA  
3580 3590 3600 3610 3620 3630 3640

BbeI  
EheI  
NarI  
KasI  
| | | |

GGGCACAACAGACAATCGGCTGCTCTGATGCCGCCGTGTTCCGGCTGTCAGCGCAGGGGCGCCCGGTTCT  
CCCGTGTTGTCTGTTAGCCGACGAGACTACGGCGGCACAAGGCCGACAGTCGCGTCCCCGCGGGCCAAGA  
3650 3660 3670 3680 3690 3700 3710

DrdI  
|

TTTTGTCAAGACCGACCTGTCCGGTGCCCTGAATGAACTGCAAGACGAGGCAGCGCGGCTATCGTGGCTG  
AAAACAGTTCTGGCTGGACAGGCCACGGGACTTACTTGACGTTCTGCTCCGTCCGCGCCGATAGCACCGAC  
3720 3730 3740 3750 3760 3770 3780

PvuII  
MscI  
|  
FspI  
| |  
Tth111 I  
|  
Eco57 I  
|

GCCACGACGGGCGTTCCCTTGCGCAGCTGTGCTCGACGTTGTCACTGAAGCGGGAAGGGACTGGCTGCTAT  
CGGTGCTGCCCGCAAGGAACGCGTTCGACACGAGCTGCAACAGTGACTTCGCCCTTCCCTGACCGACGATA  
3790 3800 3810 3820 3830 3840 3850

TGGCGAAGTGCCGGGGCAGGATCTCCTGTCATCTCACCTTGCTCCTGCCGAGAAAGTATCCATCATGGC  
ACCCGCTTACGGCCCCGTCTAGAGGACAGTAGAGTGAACGAGGACGGCTCTTTCATAGGTAGTACCG  
3860 3870 3880 3890 3900 3910 3920

BsrDI  
|  
BspMI  
|

TGATGCAATGCGGCGGCTGCATACGCTTGATCCGGCTACCTGCCCATTCGACCACCAAGCGAAACATCGC  
ACTACGTTACGCCCGGACGTATGCGAACTAGGCCGATGGACGGGTAAGCTGGTGGTTTCGCTTTGTAGCG  
3930 3940 3950 3960 3970 3980 3990

SapI  
EarI  
|

ATCGAGCGAGCACGTA  
CTCGGATGGAAGCCGGTCTTGT  
CGATCAGGATGATCTGGACGAAGAGCATCAGG  
TAGCTCGCTCGTGCATGAGCCTACCTTCGGCCAGAACAGCTAGTCCTACTAGACCTGCTTCTCGTAGTCC

4000      4010      4020      4030      4040      4050      4060

SphI  
|

GGCTCGCGCCAGCCGA  
ACTGTTTCGCCAGGCTCAAGGCGAGCATGCCCGACGGCGAGGATCTCGT  
CGTGAC  
CCGAGCGCGGTTCGGCTT  
GACAAGCGGTCGGAGTTCGGCTCGTACGGGCTGCCGCTCCTAGAGCAGCACTG

4070      4080      4090      4100      4110      4120      4130

NcoI  
|

NgoMI  
|

CCATGGCGATGCCTGCTT  
GCCGAATATCATGGTGGAAAATGGCCGCTTTTCTGGATT  
CATCGACTGTGGC  
GGTACCGCTACGGACGAACGGCTTATAGTACCACCTTTTACCGGC  
GAAAAGACCTAAGTAGCTGACACCG

4140      4150      4160      4170      4180      4190      4200

NaeI  
|

RsrII  
|

SapI  
EarI  
|

CGGCTGGGTGTGGCGGACCGCTATCAGGACATAGCGTTGGCTACCCGTGATATTGCTGAAGAGCTTGGCG  
GCCGACCCACACCGCCTGGCGATAGTCCTGTATCGCAACCGATGGGCACTATAACGACTTCTCGAACCGC

4210      4220      4230      4240      4250      4260      4270

Eco57 I      BssSI      BsrBI  
|      |      |

GCGAATGGGCTGACCGCTTCTCGTGCTTTACGGTATCGCCGCTCCCGATTTCGCAGCGCATCGCCTTCTA  
CGCTTACCCGACTGGCGAAGGAGCACGAAATGCCATAGCGGCGAGGGCTAAGCGTCGCGTAGCGGAAGAT

4280      4290      4300      4310      4320      4330      4340

BsrBI      BstBI  
|      |

TCGCCTTCTTGACGAGTTCTTCTGAGCGGGACTCTGGGGTTTCGAAATGACCGACCAAGCGACGCCCAACC  
AGCGGAAGAAGTGTCAAGAAGACTCGCCCTGAGACCCCAAGCTTTACTGGCTGGTTTCGCTGCGGGTTGG

4350      4360      4370      4380      4390      4400      4410

BspMI  
BssSI  
|

TGCCATCACGAGATTTTCGATTCCACCGCCGCCTTCTATGAAAGGTTGGGCTTCGGAATCGTTTTCCGGGA  
ACGGTAGTGCTCTAAAGCTAAGGTGGCGGCGGAAGATACTTTCCAACCCGAAGCCTTAGCAAAGGCCCT

4420      4430      4440      4450      4460      4470      4480

NaeI  
NgoMI  
BpmI  
|      |

BpmI  
AvrII  
|      |

CGCCGGCTGGATGATCCTCCAGCGCGGGGATCTCATGCTGGAGTTCTTCGCCACCCCTAGGGGGAGGCTA  
GCGGCCGACCTACTAGGAGGTCGCGCCCCTAGAGTACGACCTCAAGAAGCGGGTGGGATCCCCCTCCGAT

4490      4500      4510      4520      4530      4540      4550



ACTGAAACACGGAAGGAGACAATACCGGAAGGAACCCGCGCTATGACGGCAATAAAAAGACAGAATAAAA  
 TGACTTTGTGCCCTTCCTCTGTTATGGCCTTCCTTGGGCGCGATACTGCCGTTATTTTTCTGTCTTATTTT  
 4560 4570 4580 4590 4600 4610 4620

BsaI

CGCACGGTGTGGGTCGTTTGTTCATAAACGCGGGGTTCCGGTCCCAGGGCTGGCACTCTGTGCATACCCC  
 GCGTGCCACAACCCAGCAAACAAGTATTTGCGCCCAAGCCAGGGTCCCGACCGTGAGACAGCTATGGGG  
 4630 4640 4650 4660 4670 4680 4690

ACCGAGACCCCATTTGGGGCCAATACGCCCGCGTTTCTTCCTTTTCCCACCCACCCCCCAAGTTCGGGT  
 TGGCTCTGGGGTAACCCCGGTTATGCGGGCGCAAAGAAGGAAAGGGGTGGGGTGGGGGGTTCAAGCCCA  
 4700 4710 4720 4730 4740 4750 4760

AlwNI

Bsu36 I

GAAGGCCAGGGCTCGCAGCCAACGTCGGGGCGGCAGGCCCTGCCATAGCCTCAGGTTACTCATATATAC  
 CTTCCGGGTCCCAGCGTTCGGTTGCAGCCCCGCCGTCCGGGACGGTATCGGAGTCCAATGAGTATATATG  
 4770 4780 4790 4800 4810 4820 4830

DraI

DraI

BspHI

TTTAGATTGATTTAAAACCTTCATTTTTAATTTAAAAGGATCTAGGTGAAGATCCTTTTTGATAATCTCAT  
 AAATCTAACTAAATTTGAAGTAAAATTAATTTTCTAGATCCACTTCTAGGAAAACTATTAGAGTA  
 4840 4850 4860 4870 4880 4890 4900

GACCAAATCCCTTAACGTGAGTTTTTCGTTCCACTGAGCGTCAGACCCCGTAGAAAAGATCAAAGGATCT  
 CTGGTTTTAGGGAATTGCACTCAAAGCAAGGTGACTCGCAGTCTGGGGCATCTTTTCTAGTTTCCTAGA  
 4910 4920 4930 4940 4950 4960 4970

TCTTGAGATCCTTTTTTTCTGCGCGTAATCTGCTGCTTGCAAACAAAAAACCACCGCTACCAGCGGTGG  
 AGAACTCTAGGAAAAAAGACGCGCATTAGACGACGAACGTTTGTTTTTTTGGTGGCGATGGTCGCCACC  
 4980 4990 5000 5010 5020 5030 5040

Eco57 I

TTTGTGGCCGATCAAGAGCTACCAACTCTTTTTCCGAAGGTAAGTGGCTTCCAGCAGAGCGCAGATAACC  
 AAACAAACGGCCTAGTTCTCGATGGTTGAGAAAAAGGCTTCCATTGACCGAAGTCGTCTCGCGTCTATGG  
 5050 5060 5070 5080 5090 5100 5110

AAATACTGTCCTTCTAGTGTAGCCGTAGTTAGGCCACCCTTCAAGAACTCTGTAGCACCGCCTACATAC  
 TTTATGACAGGAAGATCACATCGGCATCAATCCGGTGGTGAAGTTCTTGAGACATCGTGGCGGATGTATG  
 5120 5130 5140 5150 5160 5170 5180

AlwNI

CTCGCTCTGCTAATCCTGTTACCAGTGGCTGCTGCCAGTGGCGATAAGTCGTGTCTTACCGGGTTGGACT  
 GAGCGAGACGATTAGACAATGGTCAACGACGACGGTCAACCGCTATTCAGCACAGAATGGCCCAACCTGA  
 5190 5200 5210 5220 5230 5240 5250

ApaLI  
|

CAAGACGATAGTTACCGGATAAGGCGCAGCGGTCTGGGCTGAACGGGGGGTTCGTGCACACAGCCCAGCTT  
GTTCTGCTATCAATGGCCTATTCGCGTTCGCCAGCCCGACTTGCCCCCAAGCACGTGTGTCTGGGTCGAA

5260            5270            5280            5290            5300            5310            5320

GGAGCGAACGACCTACACCGAACTGAGATACCTACAGCGTGAGCTATGAGAAAGCGCCACGCTTCCCGAA  
CCTCGCTTGCTGGATGTGGCTTGACTCTATGGATGTTCGCACTCGATACTCTTTCGCGGTGCGAAGGGCTT

5330            5340            5350            5360            5370            5380            5390

BssSI  
|

GGGAGAAAGGCGGACAGGTATCCGGTAAGCGGCAGGGTCTGGAACAGGAGAGCGCACGAGGGAGCTTCCAG  
CCCTCTTTCGCGCTGTCCATAGGCCATTTCGCGTCCCAGCCTTGTCTCTCGCGTGTCTCCCTCGAAGGTC

5400            5410            5420            5430            5440            5450            5460

DrdI  
|

GGGAAACGCCTGGTATCTTTATAGTCTGTCTGGGTTTCGCCACCTCTGACTTGAGCGTCGATTTTTGTG  
CCCCTTTCGCGGACCATAGAAATATCAGGACAGCCCAAAGCGGTGGAGACTGAACTCGCAGCTAAAAACAC

5470            5480            5490            5500            5510            5520            5530

ATGCTCGTCAGGGGGCGGAGCCTATGGAAAAACGCCAGCAACCGCGCCTTTTTACGGTTCCTGGCCTTT  
TACGAGCAGTCCCCCGCCTCGGATACCTTTTTGCGGTCTGTTGCGCCGGAAAAATGCCAAGGACCGGAAA

5540            5550            5560            5570            5580            5590            5600

BspLU11 I  
|

TGCTGGCCTTTTTGCTCACATGTTCTTTCCTGCGTTATCCCCTGATTCTGTGGATAACCGTATTACCGCCA  
ACGACCGGAAAACGAGTGTACAAGAAAGGACGCAATAGGGGACTAAGACACCTATTGGCATAATGGCGGT

5610            5620            5630            5640            5650            5660            5670

NsiI  
Ppu10 I  
|    |  
TGCAT  
ACGTA  
5680