

NheI Afl II
| |
TTTGAAAGACCCACCCGTAGGTGGCAAGCTAGCTTAAGTAACGCCACTTTGCAAGGCATGGAAAAATAC
AACTTTTCTGGGGTGGGCATCCACCGTTCGATCGAATTCATTGCGGTGAAACGTTCCGTACCTTTTTATG
10 20 30 40 50 60 70

PvuII EcoRV
| |
ATAACTGAGAATAGAAAAGTTCAGATCAAGGTCAGGAACAAAGAAACAGCTGAATACCAAACAGGATATC
TATTGACTCTTATCTTTTCAAGTCTAGTTCCAGTCCTTGTTCCTTTGTGCGACTTATGGTTTGTCCATATG
80 90 100 110 120 130 140

PvuII
|
TGTGGTAAGCGGTTCTGCCCCGGCTCAGGGCCAAGAACAGATGAGACAGCTGAGTGATGGGCCAAACAG
ACACCATTTCGCCAAGGACGGGGCCGAGTCCCGGTTCTTGTCTACTCTGTGCGACTCACTACCCGGTTTGTG
150 160 170 180 190 200 210

EcoRV AlwNI
| |
GATATCTGTGGTAAGCAGTTCCTGCCCGGCTCGGGGCCAAGAACAGATGGTCCCCAGATGCGGTCCAGC
CTATAGACACCATTTCGTCAAGGACGGGGCCGAGCCCCGGTTCTTGTCTACCAGGGGTCTACGCCAGGTCC
220 230 240 250 260 270 280

PpuMI
|
CCTCAGCAGTTTCTAGTGAATCATCAGATGTTTCCAGGGTGCCCCAAGGACCTGAAAATGACCCTGTACC
GGAGTCGTCAAAGATCACTTAGTAGTCTACAAAGGTCCCACGGGGTTCCTGGACTTTTACTGGGACATGG
290 300 310 320 330 340 350

BssHII BsrBI EcoRV
| | |
TTATTTGAACTAACCAATCAGTTCGCTTCTCGCTTCTGTTTCGCGCGCTTCCGCTCTCCGAGCTCAATAAA
AATAAACTTGATTGGTTAGTCAAGCGAAGAGCGAAGACAAGCGCGCGAAGGCGAGAGGCTCGAGTTATTT
360 370 380 390 400 410 420

BbsI Asp718 I
AscI XmaI
BssHII Tth111 I SmaI KpnI
| | | | |
AGAGCCCACAACCCCTCACTCGGCGCGCCAGTCTTCCGATAGACTGCGTCCGCCGGGTACCCGTATTCCC
TCTCGGGTGTGGGGAGTGAGCCGCGCGGTGAGAAGGCTATCTGACGCAGCGGGCCCATGGGCATAAGGG
430 440 450 460 470 480 490

BcgI BsaI BseRI BsaI
| | | |
AATAAAGCCTCTTGCTGTTTGCATCCGAATCGTGGTCTCGCTGTTTCCTTGGGAGGGTCTCCTCTGAGTGA
TTATTTTCGGAGAACGACAAACGTAGGCTTAGCACCAGAGCGACAAGGAACCTCCCAGAGGAGACTCACT
500 510 520 530 540 550 560

PshAI BsaI

TTGACTACCCACGACGGGGTCTTTTCATTTGGGGGCTCGTCCGGGATTTGGAGACCCCTGCCAGGGACC
AACTGATGGGTGCTGCCCCAGAAAGTAAACCCCGAGCAGGCCCTAAACCTCTGGGGACGGGTCCCTGG

570 580 590 600 610 620 630

MscI

ACCGACCCACCACCGGGAGGTAAGCTGGCCAGCAACTTATCTGTGTCTGTCCGATTGTCTAGTGTCTATG
TGGCTGGGTGGTGGCCCTCCATTTCGACCGGTCGTTGAATAGACACAGACAGGCTAACAGATCACAGATAC

640 650 660 670 680 690 700

SpeI

TTTGATGTTATGCGCCTGCGTCTGTACTAGTTAGCTAACTAGCTCTGTATCTGGCGGACCCGTGGTGGAA
AACTACAATACGCGGACGCAGACATGATCAATCGATTGATCGAGACATAGACCGCTGGGCACCACCTT

710 720 730 740 750 760 770

EagI BsmBI AatII

CTGACGAGTTCTGAACACCCGGCCGCAACCCTGGGAGACGTCCCAGGGACTTTGGGGCCGTTTTTGTGG
GACTGCTCAAGACTTGTGGCCGGCGTTGGGACCCCTCTGCAGGGTCCCTGAAACCCCGGCAAAAACACC

780 790 800 810 820 830 840

EcoNI Bsu36 I Tth111 I BsmBI

CCCGACCTGAGGAAGGGAGTCGATGTGGAATCCGACCCCGTCAGGATATGTGGTTCTGGTAGGAGACGAG
GGGCTGGACTCCTTCCCTCAGCTACACCTTAGGCTGGGGCAGTCCTATACACCAAGACCATCCTCTGCTC

850 860 870 880 890 900 910

AACCTAAAACAGTTCCCGCCTCCGTCTGAATTTTTGCTTTCGGTTTGGAAACCGAAGCCGCGCGTCTTGTC
TTGGATTTTTGTCAAGGGCGGAGGCAGACTTAAAAACGAAAGCCAAACCTTGGCTTCGGCGCGCAGAACAG

920 930 940 950 960 970 980

Eco47 III PstI PstI

TGCTGCAGCGCTGCAGCATCGTTCTGTGTTGTCTCTGTCTGACTGTGTTTCTGTATTTGTCTGAAAATTA
ACGACGTCGCGACGTCGTAGCAAGACACAACAGAGACAGACTGACACAAAGACATAAACAGACTTTTAAAT

990 1000 1010 1020 1030 1040 1050

AhdI Afl II Bsu36 I BsrBI

GGGCCAGACTGTTACCACTCCCTTAAGTTTGACCTTAGGTCAGTGGAAAGATGTGCGAGCGGATCGCTCAC
CCCGGTCTGACAATGGTGAGGGAATTCAAACCTGGAATCCAGTGACCTTTCTACAGCTCGCCTAGCGAGTG

1060 1070 1080 1090 1100 1110 1120

BsmBI
EarI
BstEII
PstI
MscI

AACCAGTCGGTAGATGTCAAGAAGAGACGTTGGGTTACCTTCTGCTCTGCAGAATGGCCAACCTTTAACG
TTGGTCAGCCATCTACAGTTCTTCTCTGCAACCCAATGGAAGACGAGACGTCTTACCGGTTGGAAATTGC
1130 1140 1150 1160 1170 1180 1190

BsmBI
BsaI

TCGGATGGCCGCGAGACGGCACCTTTAACCGAGACCTCATCACCCAGGTTAAGATCAAGGTCTTTTCACC
AGCCTACCGGCGCTCTGCCGTGAAATTGGCTCTGGAGTAGTGGGTCCAATTCTAGTTCCAGAAAAGTGG
1200 1210 1220 1230 1240 1250 1260

PpuMI
Tth111 I
SexAI

TGCCCCGCATGGACACCCAGACCAGGTTCCCTACATCGTGACCTGGGAAGCCTTGGCTTTTGGACCCCCCT
ACCGGGCGTACCTGTGGGTCTGGTCCAGGGGATGTAGCACTGGACCCTTCGGAACCGAAAAGTGGGGGA
1270 1280 1290 1300 1310 1320 1330

BsrGI
BseRI
EarI
BseRI
BsmBI

CCCTGGGTCAAGCCCTTTGTACACCCTAAGCCTCCGCCTCCTCTTCTCCATCCGCCCCGTCTCTCCCC
GGGACCCAGTTTCGGAAACATGTGGGATTCGGAGGCGGAGGAGAAGGAGGTAGGCGGGGCAGAGAGGGGG
1340 1350 1360 1370 1380 1390 1400

BbeI
EheI
KasI
EcoNI
NarI

TTGAACCTCCTCGTTCGACCCCGCCTCGATCCTCCCTTTATCCAGCCCTCACTCCTTCTCTAGGCGCCGG
AACTTGAGGAGCAAGCTGGGGCGGAGCTAGGAGGAAATAGGTGCGGAGTGAGGAAGAGATCCGCGGCC
1410 1420 1430 1440 1450 1460 1470

EcoRI
Bcl I
BsaBI
BspMI

AATTCCGATCTGATCAAGAGACAGGATGAGGATCGTTTCGCATGATTGAACAAGATGGATTGCACGCAGG
TTAAGGCTAGACTAGTTCTCTGTCTACTCCTAGCAAAGCGTACTAACTTGTCTACCTAACGTGCGTCC
1480 1490 1500 1510 1520 1530 1540

EagI

TTCTCCGGCCGCTTGGGTGGAGAGGCTATTCCGGCTATGACTGGGCACAACAGACAATCGGCTGCTCTGAT
AAGAGGCCGCGCAACCCACCTCTCCGATAAGCCGATACTGACCCGTGTTGTCTGTTAGCCGACGAGACTA
1550 1560 1570 1580 1590 1600 1610

BbeI
 EheI
 NarI
 KasI
 DrdI

GCCGCCGTGTTCCGGCTGTCAGCGCAGGGGCGCCCGGTTCTTTTTGTCAAGACCGACCTGTCCGGTGCC
 CGGCGGCACAAGGCCGACAGTCGCGTCCCCGCGGGCCAAGAAAAACAGTTCTGGCTGGACAGGCCACGGG
 1620 1630 1640 1650 1660 1670 1680

PstI
 MscI
 PvuII
 FspI

TGAATGAACTGCAGGACGAGGCAGCGGGCTATCGTGGCTGGCCACGACGGGCGTTCCTTGCGCAGCTGT
 ACTTACTTGACGTCTTGCTCCGTCGCGCCGATAGCACCGACCGGTGCTGCCCGCAAGGAACGCGTCGACA
 1690 1700 1710 1720 1730 1740 1750

Tth111 I
 Eco57 I

GCTCGACGTTGTCACTGAAGCGGGAAGGGACTGGCTGCTATTGGGCGAAGTGCCGGGGCAGGATCTCCTG
 CGAGCTGCAACAGTGACTTCGCCCTTCCCTGACCGACGATAACCCGCTTCACGGCCCCGTCTAGAGGAC
 1760 1770 1780 1790 1800 1810 1820

BsrDI

TCATCTCACCTTGCTCCTGCCGAGAAAGTATCCATCATGGCTGATGCAATGCGGGCGGCTGCATACGCTTG
 AGTAGAGTGGAACGAGGACGGCTCTTTCATAGGTAGTACCGACTACGTTACGCCCGCCGACGTATGCGAAC
 1830 1840 1850 1860 1870 1880 1890

BspMI

ATCCGGCTACCTGCCCATTGACCACCAAGCGAAACATCGCATCGAGCGAGCACGTA CTGGATGGAAGC
 TAGGCCGATGGACGGGTAAGCTGGTGGTTTCGCTTTGTAGCGTAGCTCGCTCGTGCATGAGCCTACCTTCG
 1900 1910 1920 1930 1940 1950 1960

EarI
 SapI

CGGTCTTGTCGATCAGGATGATCTGGACGAAGAGCATCAGGGGCTCGCGCCAGCCGAACTGTTCCGCCAGG
 GCCAGAACAGCTAGTCCTACTAGACCTGCTTCTCGTAGTCCCCGAGCGGGTTCGGCTTGACAAGCGGTCC
 1970 1980 1990 2000 2010 2020 2030

BssHII SphI NcoI

CTCAAGGCGCGCATGCCCGACGGCGAGGATCTCGTTCGTGACCCATGGCGATGCCTGCTTGCCGAATATCA
 GAGTTCGCGCGTACGGGCTGCCGCTCCTAGAGCAGCACTGGGTACCGCTACGGACGAACGGCTTATAGT
 2040 2050 2060 2070 2080 2090 2100

NaeI
 NgoMI
 RsrII

TGGTGAAAATGGCCGCTTTTCTGGATTCATCGACTGTGGCCGGCTGGGTGTGGCGGACCGCTATCAGGA
 ACCACCTTTTACCGGCGAAAAGACCTAAGTAGCTGACACCGGCCGACCCACACCGCTGGCGATAGTCTT
 2110 2120 2130 2140 2150 2160 2170

BsrGI
|
ATCCATATCATAATATGTACATTTATATTGGCTCATGTCCAACATTACCGCCATGTTGACATTGATTATT
TAGGTATAGTATTATACATGTAAATATAACCGAGTACAGGTTGTAATGGCGGTACAACGTAACTAATAA
2740 2750 2760 2770 2780 2790 2800

SpeI AseI
| |
GACTAGTTATTAATAGTAATCAATTACGGGGTCATTAGTTCATAGCCCATATATGGAGTTCGCGGTTACA
CTGATCAATAATTATCATTAGTTAATGCCCCAGTAATCAAGTATCGGGTATATACCTCAAGGCGCAATGT
2810 2820 2830 2840 2850 2860 2870

Bgl I AatII
| |
TAACTTACGGTAAATGGCCCGCCTGGCTGACCGCCCAACGACCCCCGCCCATTTGACGTCAATAATGACGT
ATTGAATGCCATTTACCGGGCGGACCGACTGGCGGGTTGCTGGGGCGGGTAACTGCAGTTATTACTGCA
2880 2890 2900 2910 2920 2930 2940

AatII
|
ATGTTCCCATAGTAACGCCAATAGGGACTTTCCATTGACGTCAATGGGTGGAGTATTTACGGTAAACTGC
TACAAGGGTATCATTGCGGTTATCCCTGAAAGGTAACTGCAGTTACCCACCTCATAAATGCCATTTGACG
2950 2960 2970 2980 2990 3000 3010

Bgl I NdeI AatII
| | |
CCACTTGGCAGTACATCAAGTGTATCATATGCCAAGTACGCCCCCTATTGACGTCAATGACGGTAAATGG
GGTGAACCGTCATGTAGTTCACATAGTATACGGTTCATGCGGGGATAACTGCAGTTACTGCCATTTACC
3020 3030 3040 3050 3060 3070 3080

Bgl I SnaBI
| |
CCCGCCTGGCATTATGCCAGTACATGACCTTATGGGACTTTCTACTTGGCAGTACATCTACGTATTAG
GGGCGGACCGTAATACGGGTCATGTACTGGAATACCCTGAAAGGATGAACCGTCATGTAGATGCATAATC
3090 3100 3110 3120 3130 3140 3150

NcoI
|
TCATCGCTATTACCATGGTGTATGCGGTTTTGGCAGTACATCAATGGGCGTGGATAGCGGTTTTGACTCACG
AGTAGCGATAATGGTACCACTACGCCAAAACCGTCATGTAGTTACCCGCACCTATCGCCAAACTGAGTGC
3160 3170 3180 3190 3200 3210 3220

AatII
|
GGGATTTCCAAGTCTCCACCCATTGACGTCAATGGGAGTTTTGTTTTGGCACCAAAATCAACGGGACTTT
CCCTAAAGGTTTACAGAGGTGGGGTAACTGCAGTTACCCCTCAAACAAAACCGTGGTTTTAGTTGCCCTGAAA
3230 3240 3250 3260 3270 3280 3290

CCAAAATGTCGTAACAACCTCCGCCCCATTGACGCAAATGGGCGGTAGGCATGTACGGTGGGAGTCTATA
GGTTTTACAGCATTGTTGAGGCGGGGTAAGTGCCTTTACCCGCCATCCGTACATGCCACCCCTCCAGATAT
3300 3310 3320 3330 3340 3350 3360

SacI
 Ecl136 II
 BsmBI
 BpmI
 TAAGCAGAGCTCGTTTAGTGAACCGTCAGATCGCCTGGAGACGCCATCCACGCTGTTTTGACCTCCATAG
 ATTCGTCTCGAGCAAATCACTTGGCAGTCTAGCGGACCTCTGCGGTAGGTGCGACAAAACCTGGAGGTATC
 3370 3380 3390 3400 3410 3420 3430

BbsI
 SacII
 Bgl I
 HindIII
 XbaI
 AAGACACCGGGACCGATCCAGCCTCCGCGGCCCAAGCTTCCACCATGTCTAGATTAGATAAAAAGTAAAG
 TTCTGTGGCCCTGGCTAGGTTCGAGGCGCCGGGGTTTGAAGGTGGTACAGATCTAATCTATTTTCATTTT
 3440 3450 3460 3470 3480 3490 3500

TGATTAACAGCGCATTAGAGCTGCTTAATGAGGTCGGAATCGAAGGTTTAAACAACCCGTAAACTCGCCCA
 ACTAATTGTCGCGTAATCTCGACGAATTACTCCAGCCTTAGCTTCCAAATTGTTGGGCATTTGAGCGGGT
 3510 3520 3530 3540 3550 3560 3570

GAAGCTAGGTGTAGAGCAGCCTACATTGTATTGGCATGTAAAAAATAAGCGGGCTTTGCTCGACGCCTTA
 CTTTCGATCCACATCTCGTTCGGATGTAACATAACCGTACATTTTTTATTTCGCCCGAAACGAGCTGCGGAAT
 3580 3590 3600 3610 3620 3630 3640

EcoNI
 GCCATTGAGATGTTAGATAGGCACCATACTCACTTTTTGCCCTTTAGAAGGGGAAAGCTGGCAAGATTTTT
 CGGTAACCTCTACAATCTATCCGTGGTATGAGTGAAAACGGGAAATCTTCCCCTTTTCGACCGTTCTAAAAA
 3650 3660 3670 3680 3690 3700 3710

SnaBI
 NruI
 TACGTAATAACGCTAAAAGTTTTAGATGTGCTTTACTAAGTCATCGCGATGGAGCAAAAAGTACATTTAGG
 ATGCATTATTGCGATTTTCAAATCTACACGAAATGATTCAGTAGCGCTACCTCGTTTTTCATGTAAATCC
 3720 3730 3740 3750 3760 3770 3780

TACACGGCCTACAGAAAAACAGTATGAAACTCTCGAAAATCAATTAGCCTTTTTATGCCAACAAGGTTTT
 ATGTGCCGGATGTCTTTTTGTCATACTTTGAGAGCTTTTAGTTAATCGGAAAAATACGTTTGTTCAAAA
 3790 3800 3810 3820 3830 3840 3850

NsiI
 BsmI
 Ppu10 I
 Eco47 III
 TCACTAGAGAATGCATTATATGCACTCAGCGCTGTGGGGCATTTTACTTTAGGTTGCGTATTGGAAGATC
 AGTGATCTCTTACGTAATATACGTGAGTCGCGACACCCCGTAAAATGAAATCCAACGCATAACCTTCTAG
 3860 3870 3880 3890 3900 3910 3920

AAGAGCATCAAGTCGCTAAAGAAGAAAGGGAAACACCTACTACTGATAGTATGCCGCCATTATTACGACA
 TTCTCGTAGTTTCAGCGATTTCTTCTTTCCCTTTGTGGATGATGACTATCATAACGGCGGTAATAATGCTGT
 3930 3940 3950 3960 3970 3980 3990

NdeI

Bcl I

BsgI

Bcl I

AGCTATCGAATTATTTGATCACCAAGGTGCAGAGCCAGCCTTCTTATTCGGCCTTGAATTGATCATATGC
 TCGATAGCTTAATAAACTAGTGGTTCCACGTCTCGGTTCGGAAGAATAAGCCGGAAGCTTAACTAGTATACG

4000

4010

4020

4030

4040

4050

4060

BsiWI

BssHII

GGATTAGAAAAACAACCTTAAATGTGAAAGTGGGTCCGCGTACAGCCGCGCGCGTACGAAAAACAATTACG
 CCTAATCTTTTTTGTGAATTTACACTTTCACCCAGGCGCATGTTCGGCGCGCGCATGCTTTTTTGTTAATGC

4070

4080

4090

4100

4110

4120

4130

EarI

GGTCTACCATCGAGGGCCTGCTCGATCTCCCGGACGACGACGCCCCGAAGAGGCGGGGCTGGCGGCTCC
 CCAGATGGTAGCTCCCGGACGAGCTAGAGGGCTGCTGCTGCGGGGGCTTCTCCGCCCCGACCGCCGAGG

4140

4150

4160

4170

4180

4190

4200

SacII

Sal I

PshAI

GCGCCTGTCCTTTCTCCCCGCGGGACACACGCGCAGACTGTTCGACGGCCCCCCCCGACCGATGTCAGCCTG
 CGCGGACAGGAAAGAGGGGCGCCCTGTGTGCGCGTCTGACAGCTGCCGGGGGGGCTGGCTACAGTCGGAC

4210

4220

4230

4240

4250

4260

4270

SacI

Ecl136 II

SphI

BsaBI

GGGGACGAGCTCCACTTAGACGGCGAGGACGTGGCGATGGCGCATGCCGACGCGCTAGACGATTTTCGATC
 CCCCTGCTCGAGGTGAATCTGCCGCTCCTGCACCGCTACCGCGTACGGCTGCGCGATCTGCTAAAGCTAG

4280

4290

4300

4310

4320

4330

4340

SmaI

BspLU11 I

XmaI

TGGACATGTTGGGGGACGGGGATTCCCCGGGTCCGGGATTTACCCCCACGACTCCGCCCCCTACGGCGC
 ACCTGTACAACCCCCCTGCCCTAAGGGGCCAGGCCCTAAATGGGGGTGCTGAGGCGGGGGATGCCGCG

4350

4360

4370

4380

4390

4400

4410

TCTGGATATGGCCGACTTCGAGTTTGAGCAGATGTTTACCGATGCCCTTGAATTGACGAGTACGGTGGG
 AGACCTATAACCGCTGAAGCTCAAACCTCGTCTACAAATGGCTACGGGAACCTTAACTGCTCATGCCACCC

4420

4430

4440

4450

4460

4470

4480

PpuMI

TAGGGGGCGGAATCGCGTCCGGGGCCGGGGACCTTGCACAGATAGCGTGGTCCGGCCAGGACGACGAGG
 ATCCCCGCGCTTAGCGCAGGCCCGCCCCCTGGAACGTGTCTATCGCACCAGGCCGGTCTGCTGCTCC

4490

4500

4510

4520

4530

4540

4550

DraI
CTTTGCAGGATCATAAATCAGCCATACCACATTTGTAGAGGTTTTACTTGCTTTAAAAAACCTCCCACA
GAAACGTCTAGTATTTAGTCGGTATGGTGTAAACATCTCCAAAATGAACGAAATTTTTTTGGAGGGTGT
4560 4570 4580 4590 4600 4610 4620

BsmI SmaI DraI
MfeI XmaI BamHI PmeI
CCTCCCCCTGAACCTGAAACATAAAATGAATGCAATTGTTGTTGTTCCCGGGGATCCGTTTAAACTTAA
GGAGGGGGACTTGGACTTTGTATTTTACTTACGTTAACAACAACAAGGGCCCCCTAGGCAAATTTGAATT
4630 4640 4650 4660 4670 4680 4690

PacI ClaI BpmI
TTAAGCGGCCAACATCGATAAAATAAAAGATTTTATTTAGTCTCCAGAAAAAGGGGGGAATGAAAGACCC
AATTCGCCGTTGTAGCTATTTTATTTTCTAAAATAAATCAGAGGTCTTTTTCCCCCTTACTTTCTGGG
4700 4710 4720 4730 4740 4750 4760

NheI Afl II
CACCTGTAGGTTTGGCAAGCTAGCTTAAGTAACGCCATTTTGAAGGCATGGAAAAATACATAACTGAGA
GTGGACATCCAAACCGTTTCGATCGAATTCATTGCGGTAAAACGTTCCGTACCTTTTTATGTATTGACTCT
4770 4780 4790 4800 4810 4820 4830

PvuII EcoRV
ATAGAGAAGTTCAGATCAAGGTCAGGAACAGATGGAACAGCTGAATATGGGCCAAACAGGATATCTGTGG
TATCTCTTCAAGTCTAGTTCAGTCTTGTCTACCTTGTCTGACTTATACCCGGTTTGTCTATAGACACC
4840 4850 4860 4870 4880 4890 4900

AlwNI PvuII EcoRV
TAAGCAGTTCCTGCCCCGGCTCAGGGCCAAGAACAGATGGAACAGCTGAATATGGGCCAAACAGGATATC
ATTCTGTAAGGACGGGGCCGAGTCCCGGTTCTTGTCTACCTTGTCTGACTTATACCCGGTTTGTCTATAG
4910 4920 4930 4940 4950 4960 4970

AlwNI
TGTGGTAAGCAGTTCCTGCCCCGGCTCAGGGCCAAGAACAGATGGTCCCAGATGCGGTCCAGCCCTCAG
ACACCATTCTGTAAGGACGGGGCCGAGTCCCGGTTCTTGTCTACCAGGGGTCTACGCCAGGTCTGGGAGTC
4980 4990 5000 5010 5020 5030 5040

XbaI PpuMI
CAGTTTCTAGAGAACCATCAGATGTTTCCAGGGTGCCCCAAGGACCTGAAATGACCTGTGCCTTATTTG
GTCAAAGATCTCTTGGTAGTCTACAAAGGTCCCACGGGGTTCTCTGGACTTTACTGGGACACGGAATAAC
5050 5060 5070 5080 5090 5100 5110

SacI
Ecl136 II

BssHII

AACTAACCAATCAGTTCGCTTCTCGCTTCTGTTTCGCGCTTCTGCTCCCCGAGCTCAATAAAAGAGCCC
TTGATTGGTTAGTCAAGCGAAGAGCGAAGACAAGCGCGCGAAGACGAGGGGCTCGAGTTATTTTCTCGGG

5120 5130 5140 5150 5160 5170 5180

BbeI
EheI
NarI
KasI

Asp718 I
XmaI

Tth111 I SmaI KpnI

ACAACCCCTCACTCGGGGCGCCAGTCCCTCCGATTGACTGAGTCGCCCGGGTACCCGTGTATCCAATAAAC
TGTTGGGGAGTGAGCCCCGCGGTCAGGAGGCTAACTGACTCAGCGGGCCCATGGGCACATAGGTTATTTG

5190 5200 5210 5220 5230 5240 5250

AhdI BsaI BseRI BsaI

CCTCTTGCA GTTGCATCCGACTTGTGGTCTCGCTGTTCCCTTGGGAGGGTCTCCTCTGAGTGATTGACTAC
GGAGAACGTCAACGTAGGCTGAACACCAGAGCGACAAGGAACCCTCCAGAGGAGACTCACTAACTGATG

5260 5270 5280 5290 5300 5310 5320

AhdI BsaI

CCGTCAGCGGGGTCTTTCATTTGGGGGCTCGTCCGGGATCGGGAGACCCCTGCCAGGGACCACCGACC
GGCAGTCGCCCCAGAAAGTAAACCCCGAGCAGGCCCTAGCCCTCTGGGGACGGGTCCCTGGTGGCTGG

5330 5340 5350 5360 5370 5380 5390

CACCACCGGGAGGTAAGCTGGCTGCCTCGCGGTTTTCGGTGATGACGGTGAAAACCTCTGACACATGCAG
GTGGTGGCCCTCCATTCGACCGACGGAGCGCGCAAAGCCACTACTGCCACTTTTGGAGACTGTGTACGTC

5400 5410 5420 5430 5440 5450 5460

BsmBI DrdI

CTCCCGGAGACGGTCACAGCTTGTCTGTAAGCGGATGCCGGGAGCAGACAAGCCCCTCAGGGCGCGTCAG
GAGGGCCTCTGCCAGTGTGGAACAGACATTTCGCTACGGCCCTCGTCTGTTTCGGGCAGTCCCAGCGCAGTC

5470 5480 5490 5500 5510 5520 5530

Tth111 I Bst1107 I

CGGGTGTGGCGGGTGTGCGGGCGCAGCCATGACCCAGTCACGTAGCGATAGCGGAGTGTATACTGGCTT
GCCACAACCGCCACAGCCCCGCGTCCGTTACTGGGTCAGTGCATCGCTATCGCCTCACATATGACCGAA

5540 5550 5560 5570 5580 5590 5600

ApaLI NdeI

AACTATGCGGCATCAGAGCAGATTGTACTGAGAGTGCACCATATGCGGTGTGAAATACCGCACAGATGCG
TTGATACGCCGTAGTCTCGTCTAACATGACTCTCACGTGGTATAACGCCACACTTTATGGCGTGTCTACGC

5610 5620 5630 5640 5650 5660 5670

EarI
SapI
|
TAAGGAGAAAATACCGCATCAGGCGCTCTTCCGCTTCCTCGCTCACTGACTCGCTGCGCTCGGTTCGTTTCG
ATTCCTCTTTTATGGCGTAGTCCGCGAGAAGGCGAAGGAGCGAGTACTGAGCGACGCGAGCCAGCAAGC
5680 5690 5700 5710 5720 5730 5740

BsrBI
|
GCTGCGGCGAGCGGTATCAGCTCACTCAAAGGCGGTAATACGGTTATCCACAGAATCAGGGGATAACGCA
CGACGCCGCTCGCCATAGTCGAGTGAGTTTCCGCCATTATGCCAATAGGTGTCTTAGTCCCCTATTGCGT
5750 5760 5770 5780 5790 5800 5810

BspLU11 I
|
GGAAAGAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGGCCGCGTTGCTGGCGTTTT
CCTTTCTTGTACTCGTTTTCCGGTCGTTTTCCGGTCCTTGGCATTTTTTCCGGCGCAACGACCGCAAAA
5820 5830 5840 5850 5860 5870 5880

DrdI
|
TCCATAGGCTCCGCCCCCTGACGAGCATCACAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGAC
AGGTATCCGAGGCGGGGGGACTGCTCGTAGTGTTTTTAGCTGCGAGTTCAGTCTCCACCGCTTTGGGCTG
5890 5900 5910 5920 5930 5940 5950

BssSI
|
AGGACTATAAAGATAACCAGGCGTTTTCCCCCTGGAAGCTCCCTCGTGCGCTCTCCTGTTCCGACCCTGCCG
TCCTGATATTTCTATGGTCCGCAAAGGGGGACCTTCGAGGGAGCACGCGAGAGGACAAGGCTGGGACGGC
5960 5970 5980 5990 6000 6010 6020

CTTACCGGATACCTGTCCGCCTTTCTCCCTTCGGGAAGCGTGGCGCTTTCTCATAGCTCACGCTGTAGGT
GAATGGCCTATGGACAGGCGGAAAGAGGGAAAGCCCTTCGCACCGCGAAAGAGTATCGAGTGCACATCCA
6030 6040 6050 6060 6070 6080 6090

ApaLI
|
ATCTCAGTTCGGTGTAGGTGCTTCGCTCCAAGCTGGGCTGTGTGCACGAACCCCCGTTTCAGCCCGACCG
TAGAGTCAAGCCACATCCAGCAAGCGAGGTTTCGACCCGACACACGTGCTTGGGGGGCAAGTCGGGCTGGC
6100 6110 6120 6130 6140 6150 6160

CTGCGCCTTATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCA
GACGCGGAATAGGCCATTGATAGCAGAACTCAGGTTGGGCCATTCTGTGCTGAATAGCGGTGACCGTCGT
6170 6180 6190 6200 6210 6220 6230

AlwNI
|
GCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTA
CGGTGACCATTGTCTAATCGTCTCGCTCCATACATCCGCCACGATGTCTCAAGAACTTCACCACCGGAT
6240 6250 6260 6270 6280 6290 6300

Eco57 I

ACTACGGCTACACTAGAAGGACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAG
 TGATGCCGATGTGATCTTCCTGTCATAAACCATAGACGCGAGACGACTTCGGTCAATGGAAGCCTTTTTC
 6310 6320 6330 6340 6350 6360 6370

AGTTGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGGTTTTTTTTGTTTGCAAGCAGCAG
 TCAACCATCGAGAACTAGGCCGTTTGTGGTGGCGACCATCGCCACCAAAAAACAAACGTTTCGTCTGTC
 6380 6390 6400 6410 6420 6430 6440

ATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGGGA
 TAATGCGCTCTTTTTTCTAGAGTTCTTCTAGGAACTAGAAAAGATGCCCCAGACTGCGAGTCACCT
 6450 6460 6470 6480 6490 6500 6510

BspHI

DraI

ACGAAAACCTCACGTTAAGGGATTTTGGTTCATGAGATTATCAAAAAGGATCTTCACCTAGATCCTTTTAAA
 TGCTTTTGGAGTGCAATTCCTTAAACAGTACTCTAATAGTTTTTCTAGAAAGTGGATCTAGGAAAATTT
 6520 6530 6540 6550 6560 6570 6580

DraI

TTAAAAATGAAGTTTTAAATCAATCTAAAGTATATATGAGTAAACTTGGTCTGACAGTTACCAATGCTTA
 AATTTTTACTTCAAATTTAGTTAGATTTTCATATATACTCATTTGAACCAGACTGTCAATGGTTACGAAT
 6590 6600 6610 6620 6630 6640 6650

AhdI

ATCAGTGAGGCACCTATCTCAGCGATCTGTCTATTTTCGTTTCATCCATAGTTGCCTGACTCCCCGTCGTGT
 TAGTCACTCCGTGGATAGAGTCGCTAGACAGATAAAGCAAGTAGGTATCAACGGACTGAGGGGCAGCACA
 6660 6670 6680 6690 6700 6710 6720

BsaI

BsrDI

BpmI

AGATAACTACGATACGGGAGGGCTTACCATCTGGCCCCAGTGCTGCAATGATACCGCGAGACCCACGCTC
 TCTATTGATGCTATGCCCTCCCGAATGGTAGACCGGGGTACGACGTTACTATGGCGCTCTGGGTGCGAG
 6730 6740 6750 6760 6770 6780 6790

Bgl I

ACCGGCTCCAGATTTATCAGCAATAAACAGCCAGCCGGAAGGGCCGAGCGCAGAAGTGGTCTTGCAACT
 TGGCCGAGGTCTAAATAGTCGTTATTTGGTTCGGTCGGCCTTCCCGGCTCGCGTCTTACCAGGACGTTGA
 6800 6810 6820 6830 6840 6850 6860

AseI

TTATCCGCCTCCATCCAGTCTATTAATTGTTGCCGGGAAGCTAGAGTAAGTAGTTCGCCAGTTAATAGTT
 AATAGGCGGAGGTAGTTCAGATAATTAACAACGGCCCTTCGATCTCATTTCATCAAGCGGTCAATTATCAA
 6870 6880 6890 6900 6910 6920 6930

Psp1406 I
 FspI BsrDI PstI
 | | |
 TGC GCAACGTTGTTGCCATTGCTGCAGGCATCGTGGTGT CACGCTCGTCGTTTGGTATGGCTTCATT CAG
 ACGCGTTGCAACAACGGTAACGACGTCCGTAGCACCACAGT GCGAGCAGCAAACCATAACCGAAGTAAGTC
 6940 6950 6960 6970 6980 6990 7000

CTCCGGTTCCCAACGATCAAGGCGAGTTACATGATCCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTC
 GAGGCCAAGGGTTGCTAGTTCCGCTCAATGTACTAGGGGTACAACACGTTTTTTTCGCCAATCGAGGAAG
 7010 7020 7030 7040 7050 7060 7070

PvuI
 |
 GGTCTCCGATCGTTGTCAGAAGTAAGTTGGCCGAGTGT TATCACTCATGGTTATGGCAGCACTGCATA
 CCAGGAGGCTAGCAACAGTCTTCATTCAACCGGCGTCA CAATAGTGAGTACCAATACCGTCGTGACGTAT
 7080 7090 7100 7110 7120 7130 7140

ScaI
 |
 ATTCTCTTACTGTCATGCCATCCGTAAGATGCTTTTTCTGTGACTGGTGAGTACTCAACCAAGTCATTCTG
 TAAGAGAATGACAGTACGGTAGGCATTCTACGAAAAGACACTGACC ACTCATGAGTTGGTT CAGTAAGAC
 7150 7160 7170 7180 7190 7200 7210

BcgI BcgI
 | |
 AGAATAGTGTATGCGGCGACCGAGTTGCTCTTGCCCGGCGTCAACACGGGATAATACCGCGCCACATAGC
 TCTTATCACATACGCCGCTGGCTCAACGAGAACGGGCCGAGTTGTGCCCTATTATGGCGCGGTGTATCG
 7220 7230 7240 7250 7260 7270 7280

Psp1406 I
 DraI XmnI
 | |
 AGAACTTTAAAAGTGCTCATCATTGGAAAACGTTCTTTCGGGGCGAAA ACTCTCAAGGATCTTACCGCTGT
 TCTTCAAATTTT CACGAGTAGTAACCTTTT GCAAGAAGCCCCGCTTTT GAGAGTTCTTAGAATGGCGACA
 7290 7300 7310 7320 7330 7340 7350

Eco57 I
 ApaLI
 BssSI
 | |
 TGAGATCCAGTTCGATGTAACCCACTCGTGCACCCA ACTGATCTTCAGCATCTTTTACTTT CACCAGCGT
 ACTCTAGGTCAAGCTACATTGGGTGAGCACGTGGGTTGACTAGAA GTCGTAGAAAATGAAAGTGGTTCGCA
 7360 7370 7380 7390 7400 7410 7420

TTCTGGGTGAGCAAAAACAGGAAGGCAAAATGCCGCAAAAAAGGGAATAAGGGCGACACGGAAATGTTGA
 AAGACCCACTCGTTTTTGTCTTCCGTTTTTACGGCGTTTTTTCCCTTATTCCCGCTGTGCCTTTACA ACT
 7430 7440 7450 7460 7470 7480 7490

EarI SspI BspHI BsrBI
| | | |
ATACTCATACTCTTCCTTTTTTCAATATTATTGAAGCATTATCAGGGTTATTGTCTCATGAGCGGATAACA
TATGAGTATGAGAAGGAAAAAGTTATAATAACTTCGTAAATAGTCCCAATAACAGAGTACTCGCCTATGT
7500 7510 7520 7530 7540 7550 7560

TATTTGAATGTATTTAGAAAAATAAACAAATAGGGGTTCCGCGCACATTTCCCCGAAAAGTGCCACCTGA
ATAAACTTACATAAAATCTTTTTATTTGTTTATCCCAAGGCGCGTGTAAAGGGGCTTTTCACGGTGGACT
7570 7580 7590 7600 7610 7620 7630

AatII BspHI BssSI BbsI
| | | |
CGTCTAAGAAACCATTATTATCATGACATTAACCTATAAAAATAGGCGTATCACGAGGCCCTTTTCGTCTT
GCAGATTCTTTGGTAATAATAGTACTGTAATTGGATATTTTTATCCGCATAGTGCTCCGGGAAAGCAGAA
7640 7650 7660 7670 7680 7690 7700

EcoRI
|
CAAGAATTCATACCAGATCACCGAAAAGTGTCTCCAAATGTGTCCCCTCACACTCCCAAATTCGCGGG
GTTCTTAAGTATGGTCTAGTGGCTTTTGACAGGAGGTTTACACAGGGGGAGTGTGAGGGTTTAAGCGCCC
7710 7720 7730 7740 7750 7760 7770

SacII
|
CTTCTGCCTCTTAGACCACTCTACCCTATTCCCCACACTCACCGGAGCCAAAGCCGCGGCCCTTCCGTTT
GAAGACGGAGAATCTGGTGAGATGGGATAAGGGGTGTGAGTGGCTTCGGTTTCGGCGCCGGGAAGGCAAA
7780 7790 7800 7810 7820 7830 7840

CTTTGCT
GAAACGA
7850