

EcoRI | SphI | BpmI

GAATTCTACCGGGTAGGGGAGGCGCTTTTCCCAAGGCAGTCTGGAGCATGCGCTTTAGCAGCCCGCTGG
 CTTAAGATGGCCCATCCCCTCCGCGAAAAGGGTTCCGTCAGACCTCGTACGCGAAATCGTCGGGGCGACC

10 20 30 40 50 60 70

BbeI
 EheI
 NarI
 AgeI | KasI

GCACTTGGCGCTACACAAGTGGCCTCTGGCCTCGCACACATTCCACATCCACCGGTAGGCGCCAACCGGC
 CGTGAACCGCGATGTGTTACCCGGAGACCCGGAGCGTGTGTAAGGTGTAGGTGGCCATCCGCGGTTGGCCG

80 90 100 110 120 130 140

BseRI

TCCGTTCTTTGGTGGCCCCCTTCGCGCCACCTTCTACTCCTCCCCTAGTCAGGAAGTTCCCCCGCCCCG
 AGGCAAGAAACCACCGGGGAAGCGCGGTGGAAGATGAGGAGGGGATCAGTCCTTCAAGGGGGGGCGGGGC

150 160 170 180 190 200 210

BsgI | SpeI | BsmBI | BssSI

CAGCTCGCGTCGTGCAGGACGTGACAAATGGAAGTAGCACGTCTCACTAGTCTCGTGCAGATGGACAGCA
 GTCGAGCGCAGCACGTCTGCACTGTTTACCTTCATCGTGCAGAGTGATCAGAGCACGTCTACCTGTCTGT

220 230 240 250 260 270 280

BsgI
 BlpI | BsrDI | StuI | Bgl I

CCGCTGAGCAATGGAAGCGGGTAGGCCTTTGGGGCAGCGGCCAATAGCAGCTTTGCTCCTTCGCTTTCTG
 GGCGACTCGTTACCTTCGCCCATCCGAAAACCCCGTCGCCGGTTATCGTCGAAACGAGGAAGCGAAAGAC

290 300 310 320 330 340 350

BbeI
 EheI
 NarI
 KasI

AlwNI

GGCTCAGAGGCTGGGAAGGGGTGGGTCCGGGGGCGGGCTCAGGGGCGGGCTCAGGGGCGGGGCGGGCGCC
 CCGAGTCTCCGACCCTTCCCCACCCAGGCCCGCCGAGTCCCCGCCCAGTCCCCGCCCCCGCCGCGG

360 370 380 390 400 410 420

BspEI
 PpuMI | BsgI | BsmI | BseRI

CGAAGGTCTCCGGAGGCCCGGCATTCTGCACGCTTCAAAAGCGCACGTCTGCCGCGCTGTTCTCCTCTT
 GCTTCCAGGAGGCTCCGGGCCGTAAGACGTGCGAAGTTTTCGCGTGCAGACGGCGCGACAAGAGGAGAA

430 440 450 460 470 480 490

BspMI

EarI | PstI | HindIII

CCTCATCTCCGGCCTTTTCGACCTGCAGCCCAAGCTTACCATGACCGAGTACAAGCCCACGGTGCGCCTC
 GGAGTAGAGGCCCGGAAAGCTGGACGTCCGGTTCGAATGGTACTGGCTCATGTTCCGGGTGCCACGCGGAG

500 510 520 530 540 550 560

AatII
 Tth111 I BsiWI
 | | |
 GCCACCCGCGACGACGTCCCAGGGCCGTACGCACCCTCGCCGCCGCGTTCGCCGACTACCCCGCCACGC
 CGGTGGGCGCTGCTGCAGGGGTCCCGGCATGCGTGGGAGCGGCGGCGCAAGCGGCTGATGGGGCGGTGCG
 570 580 590 600 610 620 630

RsrII BstEII
 BspEI BsrBI EarI
 | | | | |
 GCCACACCGTCGATCCGGACCGCCACATCGAGCGGGTCACCGAGCTGCAAGAACTCTTCCTCACGCGCGT
 CGGTGTGGCAGCTAGGCCTGGCGGTGTAGCTCGCCCAGTGGCTCGACGTTCTTGAGAAGGAGTGCGCGCA
 640 650 660 670 680 690 700

BbeI
 EheI
 NarI Bgl I
 KasI SacII
 ||| | |
 CGGGCTCGACATCGGCAAGGTGTGGGTGCGGGACGACGGCGCCGCGGTGGCGGTCTGGACCACGCCGGAG
 GCCCGAGCTGTAGCCGTTCCACACCCAGCGCCTGCTGCCGCGGGCGCCACCGCCAGACCTGGTGCGGCCTC
 710 720 730 740 750 760 770

BsrBI
 |
 AGCGTCGAAGCGGGGCGGTGTTCCGCCGAGATCGCCCCGCGCATGGCCGAGTTGAGCGGTTCCCGGCTGG
 TCGCAGCTTCGCCCCCGCCACAAGCGGCTCTAGCCGGGCGCGTACCGGCTCAACTCGCCAAGGGCCGACC
 780 790 800 810 820 830 840

BbeI
 EheI
 NarI
 StuI KasI Bgl I MscI
 | | | | |
 CCGCGCAGCAACAGATGGAAGGCCTCCTGGCGCCGCACCGGCCAAGGAGCCCGCGTGGTTCCCTGGCCAC
 GGCGCGTCGTTGTCTACCTTCCGGAGGACCGCGGCGTGGCCGGGTTCCCTCGGGCGCACCAAGGACCGGTG
 850 860 870 880 890 900 910

BsmBI BcgI EagI
 | | | |
 CGTCGGCGTCTCGCCGACCACCAGGGCAAGGGTCTGGGCAGCGCCGTCGTGCTCCCCGGAGTGGAGGCG
 GCAGCCGCAGAGCGGGCTGGTGGTCCCGTTCCAGACCCGTCGCGGCAGCACGAGGGCCTCACCTCCGC
 920 930 940 950 960 970 980

BssHII BsaI BpmI BsrBI
 | | | |
 GCCGAGCGCGCCGGGGTGCCCGCCTTCCTGGAGACCTCCGCGCCCCGCAACCTCCCCTTCTACGAGCGGC
 CGGCTCGCGCGGCCCCACGGGCGGAAGGACCTCTGGAGGCGGGGCGTTGGAGGGGAAGATGCTCGCCG
 990 1000 1010 1020 1030 1040 1050

DraIII
 AatII SexAI
 | | |
 TCGGCTTACCGTCACCGCCGACGTGAGGTGCCCGAAGGACCGCGCACCTGGTGCATGACCCGCAAGCC
 AGCCGAAGTGGCAGTGGCGGTGCAGCTCCACGGGCTTCCTGGCGCGTGGACCACGTACTGGGCGTTCGG
 1060 1070 1080 1090 1100 1110 1120

CCGTGCCTGACGCCCGCCCCACGACCCGCGAGCGCCCCGACCGAAAGGAGCGCACGACCCCATGCATCGGGC
 GCCACGGACTGCGGGCGGGGTGCTGGGCGTTCGCGGGCTGGCTTTCCTCGCGTGCTGGGGTACGTAGCCGC
 1130 1140 1150 1160 1170 1180 1190

TCTCGAGATATCAGTGGTCCAGGCTCTAGTTTTGACTCAACAATATCACCAGCTGAAGCCTATAGAGTAC
 AGAGCTCTATAGTCACCAGGTCCGAGATCAAACTGAGTTGTTATAGTGGTCGACTTCGGATATCTCATG
 1200 1210 1220 1230 1240 1250 1260

GAGCCATAGATAAAAATAAAAGATTTTTATTTAGTCTCCAGAAAAAGGGGGGAATGAAAGACCCACCTGTA
 CTCGGTATCTATTTTATTTTCTAAAATAAATCAGAGGTCTTTTTCCCCCTTACTTTCTGGGGTGGACAT
 1270 1280 1290 1300 1310 1320 1330

GGTTTGGCAAGCTAGCTTAAGTAACGCCATTTTGCAAGGCATGGAAAATACATAACTGAGAATAGAGAA
 CCAAACCGTTCGATCGAATTCATTGCGGTAAAACGTTCCGTACCTTTTTATGTATTGACTCTTATCTCTT
 1340 1350 1360 1370 1380 1390 1400

GTTCAGATCAAGGTCAGGAACAGATGGAACAGGGTTCGACCCTAGAGAACCATCAGATGTTTCCAGGGTGC
 CAAGTCTAGTTCCAGTCTTGTCTACCTTGTCCAGCTGGGATCTCTTGGTAGTCTACAAAGGTCCCACG
 1410 1420 1430 1440 1450 1460 1470

CCCAAGGACCTGAAATGACCCTGTGCCTTATTTGAACTAACCAATCAGTTCGCTTCTCGCTTCTGTTTCGC
 GGGTTCCTGGACTTTACTGGGACACGGAATAAACTTGATTGGTTAGTCAAGCGAAGAGCGAAGACAAGCG
 1480 1490 1500 1510 1520 1530 1540

GCGCTTCTGCTCCCCGAGCTCAATAAAAAGAGCCACAACCCCTCACTCGGGGCGCCAGTCTCCGATTGA
 CGCGAAGACGAGGGGCTCGAGTTATTTTCTCGGGTGTGGGGAGTGAGCCCCGCGGTCAGGAGGCTAACT
 1550 1560 1570 1580 1590 1600 1610

CTGAGTCGCCCCGGGTACCCGTGTATCCAATAAACCCCTCTTGCAAGTTGCATCCGACTTGTGGTCTCGCTGT
 GACTCAGCGGGCCCATGGGCACATAGGTTATTTGGGAGAACGTCAACGTAGGCTGAACACCAGAGCGACA
 1620 1630 1640 1650 1660 1670 1680

Psp1406 I

FspI BsrDI PstI

GGAAGCTAGAGTAAGTAGTTTCGCCAGTTAATAGTTTTCGCGCAACGTTGTTGCCATTGCTGCAGGCATCGTG
 CCTTCGATCTCATTTCATCAAGCGGTCAATTATCAAACGCGTTGCAACAACGGTAACGACGTCCGTAGCAC

3650 3660 3670 3680 3690 3700 3710

GTGTCACGCTCGTCGTTTTGGTATGGCTTCATTTCAGCTCCGGTTCCCAACGATCAAGGCGAGTTACATGAT
 CACAGTGCAGCAGCAAACCATAACCGAAGTAAGTCGAGGCCAAGGGTTGCTAGTTCCGCTCAATGTACTA

3720 3730 3740 3750 3760 3770 3780

PvuI

CCCCATGTTGTGCAAAAAAGCGGTTAGCTCCTTCGGTCCCTCCGATCGTTGTCAGAAGTAAGTTGGCCGC
 GGGGTACAACACGTTTTTTTCGCCAATCGAGGAAGCCAGGAGGCTAGCAACAGTCTTCATTCAACCGGC

3790 3800 3810 3820 3830 3840 3850

AGTGTATCACTCATGGTTATGGCAGCACTGCATAATTCTCTTACTGTCATGCCATCCGTAAGATGCTTT
 TCACAATAGTGAGTACCAATACCGTTCGTGACGTATTAAGAGAATGACAGTACGGTAGGCATTCTACGAAA

3860 3870 3880 3890 3900 3910 3920

ScaI BcgI

TCTGTGACTGGTGAGTACTCAACCAAGTCATTCTGAGAATAGTGTATGCGGCGACCGAGTTGCTCTTGCC
 AGACACTGACCACTCATGAGTTGGTTCAGTAAGACTCTTATCACATACGCCGCTGGCTCAACGAGAACGG

3930 3940 3950 3960 3970 3980 3990

BcgI DraI Psp1406 I
 XmnI

CGGCGTCAACACGGGATAATACCGCGCCACATAGCAGAACTTTAAAAGTGCTCATCATTGGAAAACGTTT
 GCCGAGTTGTGCCCTATTATGGCGCGGTGTATCGTCTTGAAATTTTCACGAGTAGTAACCTTTTGCAAG

4000 4010 4020 4030 4040 4050 4060

ApaLI
 Eco57 I
 BssSI

TTCGGGGCGAAAACCTCTCAAGGATCTTACCGCTGTTGAGATCCAGTTTCGATGTAACCCACTCGTGCACCC
 AAGCCCCGCTTTTGTAGAGTTCCCTAGAATGGCGACAACCTCTAGGTCAAGCTACATTGGGTGAGCACGTGGG

4070 4080 4090 4100 4110 4120 4130

AACTGATCTTCAGCATCTTTTACTTTTACCAGCGTTTCTGGGTGAGCAAAAACAGGAAGGCAAAATGCCG
 TTGACTAGAAGTCGTAGAAAATGAAAGTGGTCGCAAAGACCCACTCGTTTTTGTCTTCCGTTTTACGGC

4140 4150 4160 4170 4180 4190 4200

EarI SspI

CAAAAAAGGGAATAAGGGCGACACGGAAATGTTGAATACTCATACTCTTCCTTTTTCAATATTATTGAAG
 GTTTTTTCCCTTATTCCCGCTGTGCCTTTACAACCTTATGAGTATGAGAAGGAAAAAGTTATAATAACTTC

4210 4220 4230 4240 4250 4260 4270

BspHI BsrBI
CATTATCAGGGTTATTGTCTCATGAGCGGATACATATTTGAATGTATTTAGAAAAATAAACAAATAGGG
GTAAATAGTCCCAATAACAGAGTACTCGCCTATGTATAAACTTACATAAAATCTTTTTATTTGTTTATCCC
4280 4290 4300 4310 4320 4330 4340

AatII BspHI
GTTCCGCGCACATTTCCCCGAAAAGTGCCACCTGACGTCTAAGAAACCATTATTATCATGACATTAACCT
CAAGGCGCGTGTAAAGGGGCTTTTCACGGTGGACTGCAGATTCTTTGGTAATAATAGTACTGTAATTGGA
4350 4360 4370 4380 4390 4400 4410

BssSI BbsI BsrDI MscI
ATAAAAAATAGGCGTATCACGAGGCCCTTTTCGTCTTCAAGAATTAGCTTGGCCATTGCATACGTTGTATCC
TATTTTTATCCGCATAGTGTCTCCGGGAAAGCAGAAGTTCCTTAATCGAACCGGTAACGTATGCAACATAGG
4420 4430 4440 4450 4460 4470 4480

BsrGI SpeI
ATATCATAATATGTACATTTATATTGGCTCATGTCCAACATTACCGCCATGTTGACATTGATTATTGACT
TATAGTATTATACATGTAAATATAACCGAGTACAGGTTGTAATGGCGGTACAACGTAACTAATAACTGA
4490 4500 4510 4520 4530 4540 4550

AseI
AGTTATTAATAGTAATCAATTACGGGGTCATTAGTTCATAGCCCATATATGGAGTTCGCGGTTACATAAC
TCAATAATTATCATTAGTTAATGCCCCAGTAATCAAGTATCGGGTATATACCTCAAGGCGCAATGTATTG
4560 4570 4580 4590 4600 4610 4620

Bgl I AatII
TTACGGTAAATGGCCCGCCTGGCTGACCGCCCAACGACCCCGCCATTGACGTCAATAATGACGTATGT
AATGCCATTTACCGGGCGGACCGACTGGCGGGTTGCTGGGGGCGGGTAACTGCAGTTATTACTGCATACA
4630 4640 4650 4660 4670 4680 4690

AatII
TCCCATAGTAACGCCAATAGGGACTTTCCATTGACGTCAATGGGTGGAGTATTTACGGTAAACTGCCAC
AGGGTATCATTGCGGTTATCCCTGAAAGGTAAGTGCAGTTACCCACCTCATAAATGCCATTTGACGGGTG
4700 4710 4720 4730 4740 4750 4760

Bgl I NdeI AatII
TTGGCAGTACATCAAGTGTATCATATGCCAAGTACGCCCCCTATTGACGTCAATGACGGTAAATGGCCCG
AACCGTCATGTAGTTCACATAGTATACGGTTCATGCGGGGGATAACTGCAGTTACTGCCATTTACCGGGC
4770 4780 4790 4800 4810 4820 4830

BsrBI SnaBI
CTCTGGCATTATGCCAGTACATGACCTTATGGGACTTTCCCTACTTGGCAGTACATCTACGTATTAGTCA
GAGACCGTAATACGGGTCTATGTACTGGAATACCCTGAAAGGATGAACCGTCATGTAGATGCATAATCAGT
4840 4850 4860 4870 4880 4890 4900

EcoNI
Bsu36 I
Tth111 I
GGGCCGTTTTTGTGGCCCGACCTGAGGAAGGGAGTTCGATGTGGAATCCGACCCCGTCAGGATATGTGGTT
CCCGGCAAAAACACCGGGCTGGACTCCTTCCCTCAGCTACACCTTAGGCTGGGGCAGTCCTATACACCAA
5540 5550 5560 5570 5580 5590 5600

BsmBI
CTGGTAGGAGACGAGAACCTAAAACAGTTCCCGCCTCCGTCTGAATTTTTGCTTTTCGGTTTGAACCGAA
GACCATCCTCTGCTCTTGGATTTTGTCAAGGGCGGAGGCAGACTTAAAAACGAAAGCCAAACCTTGGCTT
5610 5620 5630 5640 5650 5660 5670

Eco47 III
PstI PstI
GCCGCGCGTCTTGTCTGCTGCAGCGCTGCAGCATCGTTCTGTGTTGTCTCTGTCTGACTGTGTTTCTGTA
CGGCGCGCAGAACAGACGACGTCGCGACGTCGTAGCAAGACACAACAGAGACAGACTGACACAAAGACAT
5680 5690 5700 5710 5720 5730 5740

AhdI
Afl II Bsu36 I
TTTGTCTGAAAATTAGGGCCAGACTGTTACCACTCCCTTAAGTTTGACCTTAGGTCACTGGAAAGATGTC
AAACAGACTTTTAATCCCGGTCTGACAATGGTGAGGGAATTCAAACCTGGAATCCAGTGACCTTTCTACAG
5750 5760 5770 5780 5790 5800 5810

BsmBI
BsrBI EarI BstEII PstI
GAGCGGATCGCTCACAACCAGTCGGTAGATGTCAAGAAGAGACGTTGGGTTACCTTCTGCTCTGCAGAA
CTCGCCTAGCGAGTGTGGTTCAGCCATCTACAGTTCTTCTCTGCAACCCAATGGAAGACGAGACGTCTTA
5820 5830 5840 5850 5860 5870 5880

MscI BsmBI BsaI
GGCCAACCTTTAACGTCGGATGGCCGCGAGACGGCACCTTTAACCGAGACCTCATCACCCAGGTTAAGAT
CCGTTTGAAATTGCAGCCTACCGGCGCTCTGCCGTGGAAATTGGCTCTGGAGTAGTGGGTCCAATTCTA
5890 5900 5910 5920 5930 5940 5950

PpuMI
Tth111 I
SexAI
CAAGGTCTTTTACCTGGCCCGCATGGACACCCAGACCAGGTCCCCTACATCGTGACCTGGGAAGCCTTG
GTTCCAGAAAAGTGGACCGGGCGTACCTGTGGGTCTGGTCCAGGGGATGTAGCACTGGACCCTTCGGAAC
5960 5970 5980 5990 6000 6010 6020

BsrGI BseRI EarI
GCTTTTGACCCCCCTCCCTGGGTCAAGCCCTTTGTACACCCTAAGCCTCCGCCTCCTCTTCCATCCG
CGAAACTGGGGGGAGGGACCCAGTTTCGGGAAACATGTGGGATTTCGGAGGCGGAGGAGAAGGAGGTAGGC
6030 6040 6050 6060 6070 6080 6090

