



PvuI (7)
SgfI (6) 1 GGATCTGCGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCCGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA

MfeI (82)
101 GAGAAGGTGGCGCGGGTAAACTGGAAAAGTATGTCGTGACTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

Psp1406I (203) **HindIII (245)** **Bsu36I (291)**
201 GTGAACGTTCTTTTTTCGCAACGGGTTTCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCCTTACCGCGCCCGCCCTACCTGAGGCC

301 GCCATCCACGCCGTTGAGTCGCGTTCTGCCGCTCCCGCTGTGGTGCTCCTGAACTGCGTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMIV (441)
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCGCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCAACTCTACGCTTTTGTTCGTTT

AgeI (552) **BspLU11I (560)**
501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGCGCCTACCTGAGATCACCGGTCAACATGTGCATCAGGCAACTCAAGTTTTTACCACGGCATG
1 M C I R Q L K F F T T A C

HpaI (646)
601 TGTCTGTGAATGTCGCAAAACATTCTCTCTCCCAGCCTTATGTGTTAACTGGGGATGATGTGGACCTGGGCACTGTGGATGCTCCCTCACTCTGC
13 V C E C P Q N I L S P Q P S C V N L G M M W T W A L W M L P S L C
701 AAATTCAGCCTGGCAGCTCTGCCAGCTAAGCCTGAGAACATTTCTGTGTCTACTACTATAGGAAAAATTTAACCTGCACTTGGAGTCAGGAAAGGAAA
47 K F S L A A L P A K P E N I S C V Y Y Y R K N L T C T W S P G K E

BsrGI (859)
801 CCAGTTATACCCAGTACACAGTTAAGAGAACTTACGCTTTTGGAGAAAAACATGATAATTGTACAACCAATAGTTCTACAAGTAAAACTGTCCTTCGTG
80 T S Y T Q Y T V K R T Y A F G E K H D N C T T N S S T S E N R A S C
901 CTCTTTTTTCTTCCAAGAATAACGATCCAGATAATTATACATTGAGGTGGAAGCTGAAAAATGGAGATGGTGAATTAATCTCATATGACATACTGG
113 S F F L P R I T I P D N Y T I E V E A E N G D G V I K S H M T Y W
1001 AGATTAGAGAACATAGCGAAAACTGAACCACCTAAGATTTTCCGTGTGAAACAGTTTTGGGCATCAAACGAATGATTCAAATGAATGGATAAAGCCTG
147 R L E N I A K T E P P K I F R V K P V L G I K R M I Q I E W I K P
1101 AGTTGGCGCTGTTTCTGATTTAAATACACACTTCGATTGAGGACAGTCAACAGTACCAGCTGGATGGAAGTCAACTTCGCTAAGAACCCTAAGGA
180 E L A P V S S D L K Y T L R F R T V N S T S W M E V N F A K N R K D

PstI (1228)
1201 TAAAAACCAAACGTACAACCTCACGGGGCTGCAGCCTTTTACAGAATATGTCATAGCTCTGCGATGTGCGGTCAAGGAGTCAAAGTTCTGGAGTGACTGG
213 K N Q T Y N L T G L Q P F T E Y V I A L R C A V K E S K F W S D W
1301 AGCCAAGAAAAATGGGAATGACTGAGGAAGAAGCTCCATGTGGCCTGGAAGTGTGGAGAGTCTGAAACAGCTGAGCGGATGGAAGAAGGCCAGTGC
247 S Q E K M G M T E E E A P C G L E L W R V L K P A E A D G R R P V
1401 GGTGTTATGGAAGAAGGCAAGAGGAGCCCCAGTCTAGAGAAAAACCTTGGCTACAACATATGGTACTATCCAGAAAGCAACTAACCTCACAGAAAC
280 R L L W K K A R G A P V L E K T L G Y N I W Y Y P E S N T N L T E T
1501 AATGAACACTAACCAGCAGCTTGAAGTGCATCTGGGAGGCGAGAGCTTTGGGTGTCTATGATTTCTTATAATTTCTTGGGAAGTCTCAGTGGCC
313 M N T T N Q Q L E L H L G G E S F W V S M I S Y N S L G K S P V A

Bsu36I (1602)
1601 ACCCTGAGGATCCAGCTATTCAAGAAAAATCATTTCAGTGCATTGAGGTGCATGCAGGCTGCGTTGCTGAGGACCAGCTAGTGGTGAAGTGGCAAAGCT
347 T L R I P A I Q E K S F Q C I E V M Q A C V A E D Q L V V K W Q S

XbaI (1704) **BspEI (1737)**
1701 CTGCTAGACGTGAACACTTGGATGATTGAATGGTTCCGGATGTGGACTCAGAGCCACCACCCTTCTGGGAATCTGTGTCTCAGGCCACGAAGTGC
380 S A L D V N T W M I E W F P D V D S E P T T L S W E S V S Q A T N W
1801 GACGATCCAGCAAGATAAATTAACCTTTCTGGTGTATAACATCTCTGTGTATCCAATGTTGCATGACAAAGTTGGCGAGCCATATCCATCCAGGCT
413 T I Q Q D K L K P F W C Y N I S V Y P M L H D K V G E P Y S I Q A
1901 TATGCCAAAGAAGGCGTTCCATCAGAAGTCTGAGACCAAGTGGAGAACATTTGGCGTGAAGACGGTACGATCACATGGAAGAGATTCCCAAGAGTG
447 Y A K E G V P S E G P E T K V E N I G V K T V T I T W K E I P K S

XcmI (2037)
2001 AGAGAAAGGTATCATCTGCAACTACACCATCTTTTACCAAGTGAAGGTGAAAAGGATTCTCAAGACAGTCAATTCCAGCATCTTGCAGTACGGCCT
480 E R K G I I C N Y T I F Y Q A E G G K G F S K T V N S S I L Q Y G L

Tth111I (2190)
2101 GGAGTCCCTGAAACGAAAGACCTTTACATTGTTGAGTGCATGGCCACACCAGTGTGGGGAAACCAACGGGACCAGCATAAATTTCAAGACATTGTCA
513 E S L K R K T S Y I V Q V M A N T S A G G T N G T S I N F K T L S
2201 TTCAGTGTCTTTGAGATTATCCTCATAACTTCTGATTGGTGGAGGCCTTCTATTCTCATTATCCTGACAGTGGCATATGGTCTCAAAAAACCAACA
547 F S V F E I I L I T S L I G G G L L I L I L T V A Y G L K K P N
2301 AATTGACTCATCTGTGTTGGCCACCGTTCCCAACCTGCTGAAAGTAGTATAGCCACATGGCATGGAGATGATTTCAAGGATAAGCTAAACCTGAAGGA
580 K L T H L C W P T V P N P A E S S I A T W H G D D F K D K L N L K E

XcmI (2453)
2401 GTCTGATGACTCTGTGAACACAGAAGACAGGATCTTAAACCATGTTCCACCCCGAGTACAAGTTGGTGATTGACAAGTTGGTGGTGAACCTTTGGGAAT
613 S D D S V N T E D R I L K P C S T P S D K L V I D K L V V N F G N
2501 GTTCTGCAAGAAATTTTACAGATGAAGCCAGAACGGGTCAGGAAAACAATTTAGGAGGGGAAAAGAATGGGTATGTGACCTGCCCTTACAGGCTGATT
647 V L Q E I F T D E A R T G Q E N N L G G E K N G Y V T C P F R P D

SmaI (2689)
2601 GTCCCTGGGAAAAGTTTTGAGGAGCTCCAGTTTACCTGAGATTCGCCCCAGAAAATCCCAATACCTACGTTTCGAGGATGCCAGAGGGGACCCGCC
680 C P L G K S F E E L P V S P E I P P R K S Q Y L R S R M P E G T R P

2701 AGAAGCCAAAGAGCAGCTTCTCTTTTCTGGTCAAAGTTTAGTACCAGATCATCTGTGTGAGGAAGGAGCCCCAAATCCATATTTGAAAAATTCAGTGACA
713▶ E A K E Q L L F S G Q S L V P D H L C E E G A P N P Y L K N S V T
NheI (2878)

2801 GCCAGGGAATTTCTTGTGTCTGAAAACTTCCAGAGCACACCAAGGGAGAAGTCTAAATGCGACCATAGCATGAGACCCCTAGCTGCCAGACATGATAA
747▶ A R E F L V S E K L P E H T K G E V •

2901 GATACATTGATGAGTTTGGACAAACCACAACACTAGAATGCAGTGAAAAAATGCTTTATTGTGAAATTTGTGATGCTATTGCTTTATTGTAAACCATTAT

HpaI (3016) MfeI (3027)

3001 AAGCTGCAATAAAACAAGTTAAACAACAACAATTGCATTCATTTTATGTTTCAGGTTTCAGGGGAGGTGTGGGAGTTTTTTAAAGCAAGTAAACCTCTAC

EcoRI (3112)

3101 AAATGTGGTATGGAAATTCATAAATACAGCATAGCAAACTTTAACCTCAAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGC

SapI (3294)

3201 ATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTGCAGCCTCACCTTCTTTTATGAGTAAAGATATAGTGATTTTCCCAAGTGTGAAGTACTGCTCTT

SspI (3351) SmaI (3365)

3301 CATTTCTTTATGTTTTAAATGCACTGACCTCCACATTCCTTTTTAGTAAAAATTCAGAAAAATTTAAATACATCATTGCAATGAAAATAAATGTTT

3401 TTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAGAACCTTTAATAGAAATTTGGACAG

3501 CAAGAAAGCGAGCTTCTAGCTTTAGTTCCTGGTGTACTTGAGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTCCATTCTCAATGAGCACA
141◀ • N R T Y K L P I L E E I T T K V L K G N M E I L V

3601 AAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTCTGCACATGCCACAGGGGCTGACCACCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCTGA
114◀ F C D P A Y D S I L E R C M G C P S V V R I S R D V E D S Y P H R V

3701 CAGCCACAATGGTGTCAAAGTCTTCTGCCCGTTGCTCAGCAGACCAATGGCAATGGCTTCAGCAGACAGACAGTACCCTGCCAATGTAGGCCTCAAT
81◀ A V I T D F D K Q G N S V A S G I A I A E A C V T V R G I Y A E I

3801 GTGGACAGCAGAGATGATCTCCCGAGTCTGGTCTGATGGCCGCCCGACATGGTGTCTGTGTCTCATAGAGCATGGTATCTTCTCAGTGGCGACC
48◀ H V A S I I E G T K T R I A A G V H H K N D E Y L M T I K E T A V

AseI (3998)

3901 TCCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGGTCTTCATGGTGGCCCTCTATAGTGAGTCGTATTATACTATGCCGATATACTATGCCGATGAT
14◀ E V L E L D Q Q S I N F T K M

4001 TAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTCACTAAACGAGCTCTGCTTATATAGACCTCCACCGTACACGCCTACCGCCA

SpeI (4153)

4101 TTTGCGTCAATGGGGCGGAGTGTACGACATTTTGGAAAGTCCCGTTGATTTACTAGTCAAACAAACTCCATTGACGTCAATGGGGTGGAGACTTGG

SnaBI (4281)

4201 AAATCCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTAAGTCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTACTGCCAA

4301 GTAGGAAAGTCCATAAGGTCATGTAAGTGGCATAATGCCAGGCGGGCCATTACCGTCAATGACGTCAATAGGGGGCTACTTGGCATATGATACTT

4401 GATGTAAGTCCAAAGTGGGCGATTTACCGTAAATACTCCACCCATTGACGTCAATGAAAGTCCCTATTGGCGTTACTATGGGAACATACGTCAATTATTGA

PacI (4572)

PstI (4565)

SdaI (4564)

BspLU11I (4582)

4501 CGTCAATGGGCGGGGCTGTTGGGCGGTGAGCCAGGCGGGCCATTTACCGTAAAGTTATGTAACCGCTGAGGTTAATAAGAACATGTGAGCAAAAGGCC
CCTGAGGTTAATAAGAACATGTGAGCAAAAGGCC

4601 AGCAAAAGGCCAGGAACCGTAAAAAGGCCGCTTGTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAG

4701 GTGGCGAAACCCACAGGACTATAAAGATACCAGGCGTTTCCCCTGGAAGTCCCTCGTGCCTCTCTGTTCCGACCTGCCGTTACCGGATACCTG

ApaLI (4896)

4801 TCCGCTTTCTCCCTTCGGGAAGCGTGGCGTTTTCTCATAGCTCAGCTGTAGGTATCTCAGTTCGGTGTAGGTGTTTCGCTCCAAGTGGGCTGTGTGC

4901 ACGAACCCCGTTTCCAGCCGACCGCTGCGCCTTATCCGTAACCTATCGTCTTGTAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCAC

5001 TGGTAACAGGATTAGCAGAGCGAGGTATGTAGCGGTGCTACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATC

5101 TGCCTCTGCTGAAGCCAGTTACCTTCGAAAAAGAGTTGGTAGTCTTGTATCCGGCAAAACAAACCCGCTGGTAGCGGTGTTTTTTTGTGTTGCAAGC

5201 AGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTACGGGCTGACGCTCAGTGAACGAAAACTCACGTTAAGGGATTTT

EagI (5332)

PacI (5312) SmaI (5321) NotI (5331)

5301 GGTGATGGCTAGTTAATTAACATTTAAATCAGCGCGCCGAATAAAATATCTTTATTTTATTACATCTGTGTGTTGGTTTTTTGTGTAATCGTAACTAA

5401 CATACGCTCTCCATCAAACAAACGAAACAAACAACTAGCAAAATAGGCTGTCCCAGTGAAGTGCAGGTGCCAGAACATTTCTCTATCGAA