



125

PvuI (7)
SgfI (6) 1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCCGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA
MfeI (82)
101 GAGAAAGTGGCGCGGGTAAACTGGAAAGTGATGTCGTGACTGGTCCGCCTTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

Psp1406I (203) 201 GTGAACGTTCTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCTTTCACGCGCCCGCCCTACCTGAGGCC
HindIII (245)
301 GCCATCCAGCGCGGTTGAGTCGCGTTTCTGCCGCCTCCCGCCTGTGGTGCCTCCTGAAGTGCCTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCAACTCTACGCTTTTGTTCGTTT
NgoMI (441)
NaeI (441)

501 TCTGTTTCTGCGCCGTTACAGATCCAAGCTGTGACCGGGCGCTACCTGAGATCACCGGTCATGAGCTGGTACCTTCCAGTTCGACACGACAGCATGTGG
KasI (535) **AgeI (552)** **BstEII (569)** **BspLU11I (592)**
1 M S W S P S L T T Q T C G

601 GGCCTGGGAAATGAAAGAGCGCCTTGGGACAGGGGATTTGAAATGTATCCGATGGCACAATCAGGAAACAGGTGAGCAGATTGCCATCAAGCAGTGC
BsaBI (681) **NgoMI (698)** **NaeI (698)**
13 A W E M K E R L G T G G F G N V I R W H N Q E T G E Q I A I K Q C

701 CGGCAGGAGCTCAGCCCCGGAACCGAGAGCGGTGGTGCCTGGAGATCCAGATCATGAGAAGGCTGACCCACCCCAATGTGGTGGCTGCCCGAGATGTCC
BsrBI (727) **BsaBI (744)**
47 R Q E L S P R N R E R W C L E I Q I M R R L T H P N V V A A R D V

801 CTGAGGGGATGCAGAAGTGGCGCCCAATGACCTGCCCTGCTGGCCATGGAGTACTGCCAAGGAGGAGATCTCCGGAAGTACCTGAACCAGTTTGAGAA
KasI (819) **MscI (842)** **ScaI (851)** **BglII (867)**
80 P E G M Q N L A P N D L P L L A M E Y C Q G G D L R K Y L N Q F E N
90 CTGCTGGTCTGCGGGAAGGTGCCATCTCACCTTGTGAGTGACATTGCCTCTGCGCTTAGATACCTTCAAGAAACAGAAATCATCCATCCGGGATCTA
113 C C G L R E G A I L T L L S D I A S A L R Y L H E N R I I H R D L
AvrII (1059)

1001 AAGCCAGAAAACATCGTCTGCAGCAAGGAGAACAGAGGTTAATACACAAAATTATTGACCTAGGATATGCCAAGGAGCTGGATCAGGGCAGTCTTTGCA
147 K P E N I V L Q Q G E Q R L I H K I I D L G Y A K E L D Q G S L C

1101 CATCATTGTTGGGACCTGCAGTACCTGGCCAGAGCTACTGGAGCAGCAGAAGTACACAGTGACCGTGCAGTACTGGAGCTTCGGCACCCCTGGCCTT
SandI (1111) **SalI (1168)**
180 T S F V G T L Q Y L A P E L L E Q Q K Y T V T V D Y W S F G T L A F
1201 TGAGTGCATCAGGGCTTCGGCCCTTCCCAACTGGCAGCCCGTGCAGTGGCATTCAAAGTGGCGCAGAAGAGTGAAGTGGACATTGTTGTAGC
213 E C I T G F R P F L P N W Q P V Q W H S K V R Q K S E V R Q I V V S
1301 GAAGACTGGAATGGAACGGTGAAGTTTTCAAGCTCTTACCTACCCCAATAATCTTAACAGTGTCTGGCTGAGCGACTGGAGAAGTGGCTGCAACTGA
247 E D L N G T V K F S S S L P Y P N N L N S V L A E R L E K W L Q L

1401 TGCTGATGTGGCACCCCGACAGAGGGGACGGATCCCACGTATGGGCCAATGGTGCCTCAAGGCCCTGGATGACATCTTAAACTTAAAGCTGGTTCA
BamHI (1431) **Bsp120I (1444)**
280 M L M W H P R Q R G T D P T Y G A P N G C F K A L D D I L N L K L V H
1501 TATCTGAACATGGTCACGGGACCATCCACACCTACCCTGTGACAGAGGATGAGAGTCTGCAGAGCTTGAAGGCCAGAATCCAACAGGACACGGGCATC
313 I L N M V T G T I H T Y P V T E D E S L Q S L K A R I Q Q D T G I

1601 CCAGAGGAGGACCAGGAGCTGCTGCAGGAAGCGGGCCTGGCGTTGATCCCCGATAAGCCTGCCACTCAGTGTATTTTCAGACGGCAAGTAAATGAGGGCC
DraIII (1662)
347 P E E D Q E L L Q E A G L A L I P D K P A T Q C I S D G K L N E G

1701 ACACATTGGACATGGATCTGTTTTCTCTTTGACAACAGTAAATACCTATGAGACTCAGATCTCCCCACGGCCCCAACCTGAAAGTGCAGCTGTAT
BglII (1760)
380 H T L D M D L V F L F D N S K I T Y E T Q I S P R P Q P E S V S C I
1801 CCTCAAGAGCCCAAGAGGAATCTCGCTTCTTCCAGCTGAGGAAGGTGTGGGGCCAGGTCTGGCACAGCATCCAGACCCTGAAGGAAGATTGCAACCCGG
413 L Q E P K R N L A F F Q L R K V W G Q V W H S I Q T L K E D C N R

1901 CTGCAAGGAGGACAGCGAGCCGATGTAATCTCCTCCGAAACAACAGCTGCCTCTCCAAAATGAAGAATTCATGGCTTCCATGTCTCAGCAGCTCA
EcoRI (1968)
447 L Q Q G Q R A A M M N L L R N N S C L S K M K N S M A S M S Q Q L
2001 AGGCCAAGTTGGATTTCTTCAAAAACGACATCCAGATTGACCTGGAGAAGTACAGCGAGCAAACCGAGTTTGGGATCACATAAATGCTGCTGGC
480 K A K L D F F K T S I Q I D L E K Y S E Q T E F G I T S D K L L L A
2101 CTGGAGGAAATGGAGCAGGCTGTGGAGCTCTGTGGCGGGAGAACGAAGTAAACTCCTGGTAGAACGGATGATGGCTCTGCAGACCCGACATTGTGGAC
513 W R E M E Q A V E L C G R E N E V K L L V E R M M A L Q T D I V D

2201 TTACAGAGGAGCCCCATGGGCGGAAAGCAGGGGGAACGCTGGACGACCTAGAGGAGCAAGCAAGGAGCTGTACAGGAGACTAAGGGAAAAACCTCGAG
BsrGI (2270) **XhoI (2294)**
547 L Q R S P M G R K Q G G T L D D L E E Q A R E L Y R R L R E K P R
2301 ACCAGGAACTGAGGGTACAGTACAGGAAATGGTACGGCTGCTGCTTCCAGCAATTCAGAGCTTCGAGAAGAAAGTGGAGTGTATATACGACGCTCAG
580 D Q R T E G D S Q E M V R L L L Q A I Q S F E K K V R V I Y T Q L S

2401 TAAAAGTGTGTTTGAAGCAGAAGCGCTGGAAGTGTGCCCCAAGGTGGAAGAGTGGTGGAGCTTAATGAATGAGGATGAGAAGACTGTTGTCGGCTG
PshAI (2484)
613 K T V V C K Q K A L E L L P K V E E V V S L M N E D E K T V V R L
2501 CAGGAGAAGCGGCAAGGAGCTGGAATCTCCTGAAGATTGCTTGTAGCAAGTCCGTGGTCTGTGAGTGAAGCCCGGATAGCATGAATGCCTCTC
647 Q E K R Q K E L W N L L K I A C S K V R G P V S G S P D S M N A S
2601 GACTTAGCAGCCTGGCAGCTGTCTCAGCCCTCCACGGCTCCAACAGCTTACCTGAGCCAGCAAGAAGAGTGAAGAAGTGGTGGCTGAAGCACA
680 R L S Q P G Q L M S Q P S T A S N S L P E P A K K S E E L V A E A H
2701 TAACCTCTGCACCCTGCTAGAAAATGCCATACAGGACACTGTGAGGGAACAAGACCAGAGTTTACGGCCCTAGACTGGAGCTGGTTACAGACGGAAGAA
713 N L C T L L E N A I Q D T V R E Q D Q S F T A L D W S W L Q T E E

2801 GAAGAGCACAGCTGCCTGGAGCAGGCCTCAGGATCCTATCCCTATGATGTGCCAGACTATGCTGGCTATCCATATGATGTTCTGATTATGCTGGATACC
747▶ E E H S C L E Q A S G S Y P Y D V P D Y A G Y P Y D V P D Y A G Y

2901 CTTATGATGTGCCAGACTATGCCTAAAGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGGACAAACCACAACCTAGAATGCAGTGAAAAAAT
780▶ P Y D V P D Y A •

3001 GCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAAAGTTAAACAACAATTGCATTCAATTTTATGTTTCA

3101 GGTTCAAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAACCTCTACAAATGTGGTATGGAATCTAAAATACAGCATAGCAAACTTTAACCTCCAA
3201 ATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTGCAGCCTCACCTTCTTT
3301 CATGGAGTTAAGATATAGTGTATTTTCCCAAGGTTTGAAGTACTGCTTTCATTTCTTTATGTTTTAAATGCACTGACCTCCACATTCCCTTTTATGTA

3401 AATATTGAGAAATAATTTAAATACATCATTGCAATGAAAAATAATGTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTT
3501 TAGTAGTTGGACTTAGGGAACAAAGAACCTTTAATAGAAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCTGGTGTACTTGAGGGGGATGAG
3601 TTCCTCAATGGTGGTTTTGACCAGCTTGCATTCTCAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTGCACATGCCACAGGGG
131▶ E E I T T K V L K G N M E I L V F C D P A Y D S I L E R C M G C P
3701 CTGACCACCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCCGTTGCTCACAGCAGACCCAA
97▶ S V V R I S R D V E D S Y P H R V A V I T D F D K Q G N S V A S G I

3801 TGGCAATGGCTTCAACACAGACAGTACCTGCCAATGTAGGCTCAATGTGGACAGCAGAGATGATCTCCAGTCTTGGTCTGATGGCCGCCCGAC
64▶ A I A E A C V T V R G I Y A E I H V A S I I E G T K T R I A A G V

3901 ATGGTCTTGTGCTCATAGAGCATGGTGTCTTCTAGTGGCAGCTCCACCAGCTCCAGATCTGCTGAGAGATGTTGAAGGTCTTCTGATGGCC
31▶ H H K N D E Y L M T I K E T A V E V L E L D Q Q S I N F T K M

4001 CTCCTATAGTGAGTCGTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTCACT
4101 AACGAGCTCTGCTTATATAGACCTCCACCGTACACGCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTTACGACATTTTGAAAGTCCCGTTGAT

4201 TTACTAGTCAAAAACAACTCCCATTGACGTCAATGGGTGGAGACTTGAAATCCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTAAGTCCAAA

4300 ACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGACTGCCAAGTAGGAAAGTCCATAAGGTCATGACTGGCATAATGCCAGCGGGGCCA

4400 TTTACCGTCAATGACGTCAATAGGGGGCTACTTGGCATATGATACACTTGTACTGCAAGTGGGAGTTTACCGTAAATACTCCACCCATTGACGT
4500 CAATGAAAGTCCCTATTGGCGTACTATGGGAACATACGTCATTATTGACGTCAATGGGCGGGGTCGTTGGCGGTGACCCAGCGGGCCATTACCG

4600 TAAGTTATGTAACGCCTGCAGGTTAA TTAAGAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGCCGCTTGTGGCGTTTTTCC
4698 ATAGGCTCCGCCCTGACGAGCATCAGAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGCGTTTTCCCTGG
4798 AAGCTCCCTCGTGCCTCTCTGTTCCGACCCTGCCGTTACCGGATACCTGTCCGCTTTCTCCCTCGGGAAGCGTGGCGCTTCTCATAGCTCACGC

4898 TGTAGGTATCTCAGTTCGGTGTAGTCTGCTCCAAGCTGGGCTGTGTGCACGAACCCCGTTAGCCCGACCGCTGCGCTTATCCGGTAACTATC
4998 GTCTTGAGTCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGCGGTGCTACAGGTT
5098 CTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGAAAAAGAGTTGGTAGCTCT
5198 TGATCCGGCAAAACAAACCACCGTGGTAGCGGTGTTTTTTTTGTTTGAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCT

5298 TTTCTACGGGCTGACGCTCAGTGAACGAAAACTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATCAGCGCCGCAATAAAATA

5398 TCTTTATTTTTCATTACATCTGTGTGTTGTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAAAACAAAACGAAACAAAACAACTAGCAAAAT
5498 AGGCTGTCCCGTGAAGTGCAGGTGCCAGAACATTTCTTATCGAA