



125

**PvuI (7)**  
**SgfI (6)** 1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGTGCCTA  
**MfeI (82)**  
101 GAGAAGTGGCGCGGGTAAACTGGAAAGTGTGTCGTGACTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

**HindIII (245)**  
**Psp1406I (203)** 201 GTGAACGTTCTTTTTCGCAACGGGTTTGGCCGAGAACACAGCTGAAGCTTCAGAGGGCTCGCATCTCTCTTACAGCGCCCGCCGCCCTACCTGAGGCC  
**PvuII (239)**  
301 GCCATCCACGCGGTTGAGTGCAGTCTGCCGCTCCCGCCTGTGGTGCCTCTGAAGTGCCTCCGCGCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

**NgoMIV (441)**  
**NaeI (441)** 401 GGGCCTTTGTCCGGCGCTCCCTTGGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCAACTCTACGTCTTTGTTTCGTTT

**SphI (560)**  
**KasI (535)** 501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGGGCGCTACCTGAGATCACCGGTGAGCATGCCATGTGCTTTGTGGACAGCATGGGTCTTGGGGAT  
**AgeI (552)** 1 M P C A L W T A W V L G I  
**XcmI (565)**  
**BsaBI (597)**  
**BsrBI (678)**  
**EagI (675)**

601 TGTAATCAGCCTCTCCAAGGAAGGAGCCCCCATCAGGCTTCTTCTGTCTTGTGACCTGCTGGTGTCTGGACGGCCGCTCCAGATCTTTGAGCTCC  
13 V I S L S K E G A P H Q A S S L S C D P A G V C D G R S R S L S S

**Bsu36I (704)** 701 ATCCCTCAGGGCTCACGGCAGCTGTGAAAAGCCTTGACCTGTCCAATAACAGGATCGCCTATGTGGGACGAGTGACCTGCGGAAATGCGTGAACCTCA  
47 I P S G L T A A V K S L D L S N N R I A Y V G S S D L R K C V N L  
801 GAGCTCTGAGGCTGGGGCCAATAGCATTACATCCGTTGGAGGAAGATTCTTTTCTCCCTGGGAAAGTCTCGAACATCTGGACTTATCTATAATCACTT  
80 R A L R L G A N S I H T V E E D S F S S L G S L E H L D L S Y N H L  
901 GTCTAACTTATCATCCTCTGGTTCAAGTCCCTTCCACCTTGAATTTAAACTTACTGGAAATCCTTACAAAACACTCGGGGAAAACACCGCTTTTT  
113 S N L S S S W F K S L S T L K F L N L L G N P Y K T L G E T P L F  
1001 TCTCATCTCCAAATCTGCGAATCTGAAAATAGGCAATAATGACACCTTCTGAGATTGAGCCAAAGATTCCAGGGGCTCACTTTTCTCCAGGAAC  
147 S H L P N L R I L K I G N N D T F A E I Q A K D F Q G L T F L Q E

**PstI (1120)** 1101 TTGAGATTGGTGCCTCACATGTCAGAGTACGCGCCAAAGAGTCTGAGGTCAATTGAGAATCAGCCATCTGATTCTTACATGAGCGGCCTGCTCT  
180 L E I G A S H L Q R Y A P K S L R S I Q N I S H L I L H M R R P A L

**XmnI (1206)** 1201 GCTGCCAAGATTTTCGTAGATCTTTAAGTTCCTTGGAAATATTTAGAACTGAGAAACACTGATTTTAGCACTTTCAATTTTTCAGACGTATCCATCAAT  
213 L P K I F V D L L S S L E Y L L R N T D F S T F N F S D V S I N

**BstBI (1331)** 1301 GAACCAGCACAGTGATGAAAAATTTACGTTTCAAAGGAGGAGAAATCACTGACGCAAGTTTTACGAAATTTGAAACTGTTAAATTATGTTTCTGGAG  
247 E P S T V M K K F T F R K A E I T D A S F T E I V K L L N Y V S G  
1401 CCTTAGAAGTAGAGTTTGTGACTGCACCTTAACGGACGTGGTGATTTAGTACATCTGCTTTGGACACAATTAATCCCTCGGTAATGTGGAGACATT  
280 A L E V E F E D D C T L N G R G D F S T S A L D T I K S L G N V E T L

**BspEI (1505)** 1501 AACAGTCCGGAGGTTGCATATTTCCACAGTTTTTCTGTTTTATGATCTAAGAAGTATATTTACTCACAGGAGCAGTAAAAAGAAATCACAATAGAAAAC  
313 T V R R L H I P Q F F L F Y D L R S I Y S L T G A V K R I T I E N  
1601 AGTAAGTTTTTCTGTTCCCTGTTCCCTTTCACAGCATTTAAATCACTGGAATATTTAGATCTCAGTGAATAATTAATGTCTGAAGAATACTTAAAA  
347 S K V F L V P C S L S Q H L K S L E Y L D L S E N L M S E E Y L K

**SphI (1713)** 1701 ACTCAGCCTGTGAGCATGCTGGCCCTTCTACACACTTTAATTTAAGGCAAAATCATTGAAATCATTAGAAAAAACTGGAGAAGTTTTGTTTACTCT  
380 N S A C E H A W P F L H T L I L R Q N H L K S L E K T G E V L V T L

**EcoRV (1819)** 1801 GAAAAACCTGACTAACCTTGATATCAGTAAGAATAATTTGATTCCATGCCGAAACTTGCCAGTGGCCGAAAAGATGAAATATTTGAACTTATCCAGC  
413 K N L T N L D I S K N N F D S M P E T C Q W P E K M K Y L N L S S  
1901 ACGAGAATACACAGTTTAAACCATTGTCTTCCCGAGACCTGGAAAGTTTGTAGATATTAGCAATAACAATCTCAACTCGTTTTCTTTGAGTCTGCCACAAC  
447 T R I H S L T H C L P Q T L E V L D I S N N N L N S F S L S L P Q  
2001 TCAAAGAACCTTTATTTCCAGAAATAAGTTGAAGACGCTCCAGATGCCTCTTCTACCCATGTTGTGAGTTCAGAAATCAAGCAAGAAATACGATCAA  
480 L K E L Y I S R N K L K T L P D A S F L P M L S V L R I S R N T I N  
2101 TACTTTCTAAGGAGCAACTTGATTCTTTTCAAAGCTGAAGACTTTGGAAGCTGGAGGCAACAACCTTCACTGCTCCTGTGACTTCTGTCTTCACTTCACT  
513 T F S K E Q L D S F Q K L K T L E A G G N N F I C S C D F L S F T

**BbrPI (2269)** 2201 CAGGGGACGAGCGCTGGCCAGGTGCTGAGCGACTGGCCGAGAACTACCTGTGACTCTCCATCCACGTGCGGGGCCAGCGGGTCCAGGACACC  
547 Q G Q Q A L A Q V L S D W P E N Y L C D S P S H V R G Q R V Q D T

**DraIII (2310)** 2301 GCCTCTCGCTCACTGAGTGCCACAGGGTGGCCGTGGTGTCCGTGCTGTGCTTCTTCTGCTGCTCCTGCTCACGGGGCTCTGTGCCACCACTT  
580 R L S L T E C H R V A V V S V V C A L F L L L L T G A L C H H F

**SacII (2455)** 2401 CCACGGACTGTGGTACATGAAGATGATGTGGCCCTGGCTCCAGGCCAAGAGGAAGCCGCGAAAGCTCCCGCAGGGACGTGTGCTATGACGCTTTCTGT  
613 H G L W Y M K M M W A W L Q A K R K P R K A P R R D V C Y D A F V  
2501 TCCTACAGTGAGCAGGACTCCTACTGGGTGGAGAACCTCATGGTCCAGGAGCTGGAGCACTTCCAGCCTCCCTTTAAGTTGTGCTTTCATAAGCGGACT  
647 S Y S E Q D S Y W V E N L M V Q E L E H F Q P P F K L C L H K R D

**BstXI (2605)** 2601 TCATTCCAGGCAAGTGGATTATTGACAACATCATGACTCCATCGAAAAGAGCCAGAAAACCATTTCTGCTGCTTCCGAGAATTTGTGAAGAGCGAGTG  
680 F I P G K W I I D N I I D S I E K S Q K T I F V L S E N F V K S E W

2701 GTGCAAGTACGAGCTGGACTTCTCCACTTCCGTCCTTTGATGAGAACGATGACACCCGCATCCTCATTCTGCTGGAACCCATCGAGAAGAAGGCCATT  
713▶ C K Y E L D F S H F R L F D E N D D T A I L I L L E P I E K K A I

EcoO109I (2839) XcmI (2837) SacII (2858)

2801 CCCACGCTTTCTGTAAGCTGCGGAAGATAATGAACACCAGGACTACCTGGAGTGGCCCGGGATGAGACGCAGCGGGAAGGGTTTTGGTTAAATTTGA  
747▶ P Q R F C K L R K I M N T R T Y L E W P A D E T Q R E G F W L N L

AvrII (2915) MscI (2954) NheI (2948)

2901 GAGCTGCGATCAAGTCTAGGTTCTTCGTGAAAGGCCAGTCTTGGTGCCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGGACAAACACAA  
780▶ R A A I K S •

HpaI (3086) MfeI (3097)

3001 CTAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAAAGTTAACAAACA  
3101 TTGCATTCATTTTATGTTTCAGGTTTCAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAAACCTCTACAAATGTGGTATGGAATTCATAAATACAGCA  
3201 TAGCAAACTTTAACCTCCAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCT  
3301 GTTTGACGCTCACCTTCTTTCATGGAGTTAAGATATAGTGATTTTCCAAGGTTGAACTAGCTCTTCATTTCTTATGTTTTAAATGCACTGACCT

Swal (3435) EcoO109I (3496)

3401 CCCACATTCCTTTTATGTAATAATTCAGAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTATTAGGCAGAATCCAGATGCTCAAGGC  
3501 CCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAGGAACCTTTAATAGAAATGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCTCT  
3601 GGTGACTTGAGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCATTATCTCAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAGC  
138▶ T Y K L P I L 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

BstXI (3725)

3701 TCTCTGCACATGCCACAGGGGCTGACCACCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCTGACAGCCACAATGGTGTCAAAGTCTTCTGCC  
104▶ E R C M G C P 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

StuI (3860)

3801 CGTTGCTCACAGCAGACCAATGGCAATGGCTTCAGCAGACAGTACCCTGCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCAGTCTT  
71▶ N S V A S G I 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  
3901 GGTCTGATGGCCGCCGACATGGTGTCTGTTGCTCATAGAGCATGGTGTCTTCTCAGTGGCGACCTCCACCAGCTCCAGATCCTGCTGAGAGATG  
38▶ T R I A A G V 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

BspHI (4010) XmnI (4002) AseI (4068)

4001 TTGAAGTCTTATGATGGCCCTCTATAGTGAGTCTGATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTC  
4▶ N F T K M

4101 CAGCTTATCTGACGGTTCATAAACGAGCTCTGTTATATAGACCTCCACCCTACACGCCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTTACGAC

SpeI (4223)

4201 ATTTTGAAAGTCCCGTTGATTTACTAGTCAAAAACAACTCCCATTGACGTCAATGGGTGGAGACTTGAAATCCCGTGAGTCAAACCGCTATCCAC

SnaBI (4351)

4300 GCCATTGATGACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGACTGCCAAGTAGGAAAGTCCATAAGGTCATGACTG

NdeI (4456)

4400 GGCATAATGCCAGGGGCCATTTACCGTCATTGACGTCAATAGGGGGCTACTTGGCATATGATACACTTGATGACTGCCAAGTGGGCAGTTTACCGT  
4500 AAATACTCCACCATTGACGTCAATGAAAGTCCCTATTGGCGTTACTATGGGAACATACGTCAATATTGACGTCAATGGGGGGGCTGTTGGGCGGTC

PstI (4635) SdaI (4634) PacI (4642) BspLU11I (4652)

4600 AGCCAGGCGGCCATTTACCGTAAGTTATGTAACGCCTG C A G G T T A A T T A A G A A C A T G T G A G C A A A A G G C C A G A A A A G G C C A G A A C C G T A A A A A G G  
4698 CCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAG  
4798 ATACCAGGCGTTTCCCTGGAAGTCCCTCGTGCCTCTCTGTTCCGACCCTGCCGTTACCGGATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTG

ApaI (4966)

4898 GCGCTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCCAAGCTGGGCTGTGTGCACGAACCCCGTTCCAGCCGACCGCT  
4998 GCGCTTATCCGTAACATCGTCTTGAAGTGGTGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTC  
5098 TGTAGCGGTGCTACAGAGTCTTGAAGTGGTGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTC  
5198 GGAAAAAGAGTTGGTAGCTCTTGAAGTGGTGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTC

PacI (5382) SwaI (5391)

5298 CCAAGAAGATCCTTTGATCTTTTCTACGGGTCTGACGCTCAGTGGAACGAAAACCTCACGTTAAGGGATTTTGGTCAATGGCTAGTTAATTAACATTTAA

EagI (5402) NotI (5401)

5398 ATC AGCGGCCGCAATAAAATATCTTTATTTTTCATTACATCTGTGTGTTGTTTTTTTGTGTGAATCGTAACATAACATACGCTCTCCATCAAAAACAAACGA  
5498 AACAAAACAACTAGCAAAATAGGCTGTCCCGAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA