



**PvuI (7)**  
**SgfI (6)** 1 GGATCTGCATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA  
**MfeI (82)**  
101 GAGAAAGTGGCGCGGGTAAACTGGAAAGTGATGTCGTGTAAGTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

**Psp1406I (203)** **HindIII (245)** **Bsu36I (291)**  
201 GTGAACGTTCTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCCTTACGCGCCCGCCCTACCTGAGGCC  
301 GCCATCCACGCCGGTTGAGTCGCGTTTCTGCCGCCCTCCCGCTGTGGTGCCTCCTGAAGTCCGCTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

**NgoMIV (441)**  
401 GGGCCTTTGTCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTCTCAACTCTACGCTTTGTTTCGTTT

**KasI (535)** **AgeI (552)** **SphI (568)** **SapI (587)**  
501 TCTGTTCTGCGCGTTACAGATCCAAGCTGTGACCGCGCGCTACCTGAGATCACCGGTAGGAGGGCCAGCATGCTACGAGCTCTTTGGCTCTTCTGGATC  
1▶ M L R A L W L F W I

**BsrBI (683)**  
601 TTGGTGGCCATAACAGTCTCTTTCAGCAAACGCTGTTCTGCTCAGGAGTCTGTGTATGATGCTTCTGGGTGTGTATGGCCGCTCAGGCTTTTCA  
11▶ L V A I T V L F S K R C S A Q E S L S C D A S G V C D G R S R S F

**BstEII (777)** **NcoI (773)**  
701 CCTCTATTCCTCCGGACTCACAGCAGCCATGAAAAGCCTTGACCTGTCTTTCAACAAGATCACCTACATTGGCCATGGTGACCTCCGAGCGTGTGCGAA  
44▶ T S I P S G L T A A M K S L D L S F N K I T Y I G H G D L R A C A N  
801 CCTCCAGGTTCTGATTTTGAAGTCCAGCAGAATCAATAACAATAGAGGGAGACGCTTTTATTCTCTGGCAGTCTTGAACATTTGGATTTGTCTGATAAT  
77▶ L Q V L I L K S S R I N T I E G D A F Y S L G S L E H L D L S D N

**Bsp120I (930)** **EcoO109I (930)**  
901 CACCTATCTAGTTTATCTTCTCCTCGTTCCGGCCCTTTCTCTTTGAAATACTTAACTTAATGGGAAATCCTTACCAGACACTGGGGTAACATCGC  
111▶ H L S S L S S S W F G P L S S L K Y L N L M G N P Y Q T L G V T S

**Bsu36I (1028)**  
1001 TTTTTCCCAATCTCACAAATTTACAAACCTCAGGATAGGAAATGTAGAGACTTTCAGTGAAGATAAGGAGAATAGATTTTGTGGGCTGACTTCTCTCAA  
144▶ L F P N L T N L Q T L R I G N V E T F S E I R R I D F A G L T S L N  
1101 TGAACCTGAAATTAAGGCATTAAGTCTCCGGAATTACAGTCCCAAAGTCTAAAGTCGATCCGCGACATCCATCAGTCTTCTCACTTAAGCGAGTCT  
177▶ E L E I K A L S L R N Y Q S Q S L R I R D I H L T L H L S E S  
1201 GCTTTCCTGCTGGAGATTTTGCAGATATTCTGAGTTCGTGAGATATTTAGAACTAAGAGATACTAAGTGGCCAGGTTCCAGTTTTACCAGTCCCGC  
211▶ A F L L E I F A D I L S S V R Y L E L R D T N L A R F Q F S P L P

**HindIII (1361)**  
1301 TAGATGAAGTCAGCTCACCGATGAAGAAGCTGGCATTCCGAGGCTCGGTTCTCACTGATGAAAGCTTTAACGAGCTCCTGAAGCTGTTGCGTTACATCTT  
244▶ V D E V S S P M K K L A F R G S V L T D E S F N E L L K L L R Y I L  
1401 GGAAGTGTGCGAGGTAGAGTTCGACGACTGTACCTCAATGGGCTCGGCGATTCAACCCCTCGGAGTCAGACGTAGTGAAGGAGCTGGGTAAAGTAGAA  
277▶ E L S E V E F D D C T L N G L G D F N P S E S D V V S E L G K V E

**ScaI (1554)**  
1501 ACAGTCACTATCCGGAGGTTGCATATCCCCAGTTCATTTGTTTATGACCTGAGTACTGTCTATTCCCTCCTGGAGAAGTGAAGCGAATCACAGTAG  
311▶ T V T I R R L H I P Q F Y L F Y D L S T V Y S L L E K V K R I T V

**BbsI (1611)** **EcoRI (1656)** **SspI (1693)**  
1601 AGAACAGCAAGGCTTCCCTGGTTCCCTGCTCGTCTCCAGCATTAAATCATTAGAAATCTTAGACCTCAGCGAAAATCTGATGGTTGAAGAATATTT  
344▶ E N S K V F L V P C S F S Q H L K S L E F L D L S E N L M V E E Y L  
1701 GAAGAACTCAGCTGTAAGGGAGCCTGGCCTTCTACAAACCTTAGTTTGGCCAGAACTATTGAGATCAATGCAAAAAACAGGAGAGATTTTGTCTG  
377▶ K N S A C K G A W P S L Q T L V L S Q N H L R S M Q K T G E I L L

**PshAI (1857)**  
1801 ACTCTGAAAAACCTGACCTCCCTTGACATCAGCAGGAACACTTTTCATCCGATGCCCGACAGCTGTCAAGTGGCCAGAAAAGATGCGCTTCTGAAATTTGT  
411▶ T L K N L T S L D I S R N T F H P M P D S C Q W P E K M R F L N L

**BamHI (1909)**  
1901 CCAGTACAGGGATCCGGGTGGTAAAAACGTGCATTCTCAGACGCTGGAGGTGTTGGATGTTAGTAACAACAATCTTGACTCATTCTTTCTTTGTTCTTGGC  
444▶ S S T G I R V V K T C I P Q T L E V L D V S N N N L D S F S L F L P

**BspHI (2077)**  
2001 TCGGCTGCAAGAGCTCTATATTTCCAGAAATAAGTGAAGAACTCCAGATGCTTCTGTTGTTCCCTGTGTTGCTGGTCAAGAAATCAGAGAGAATGCA  
477▶ R L Q E L Y I S R N K L K T L P D A S L F P V L L V M K I R E N A

**ScaI (2103)**  
2101 GTAAGTACTTTCTCTAAAGACCAACTTGGTTCTTTTCCAAACTGGAGACTCTGGAAGCAGGCGACAACCACTTTGTTTGTCTCCTGCGAACTCCTATCCT  
511▶ V S T F S K D Q L G S F P K L E T L E A G D N H F V C S C E L L S  
2201 TTACTATGGAGACGCCAGCTCTGGCTCAATCCTGGTTGACTGCGCAGACAGTACTCTGTGACTCTCCGCTCGCCTGCAGCGCCACAGGCTTCAGGA  
544▶ F T M E T P A L A Q I L V D W P D S Y L C D S P P R L H G H R L Q D  
2301 TGCCCGCCCTCCGTCTTGAATGTCACCAGGCTGCACTGGTGTCTGGAGTCTGCTGTGCCCTTCTCCTGTTGATCTTGCTCGTAGGTGCCCTGTGCCAC  
577▶ A R P S V L E C H Q A A L V S G V C C A L L L L I L L V G A L C H

**Acc65I (2416)** **PstI (2474)** **SdaI (2473)**  
2401 CATTTCACGGAAGTGGTACCTGAGAATGATGTGGCGTGGCTCCAGGCCAAGAGGAAGCCCAAGAAAGCTCCCTGCAGGGACGTTTGTATGATGCCT  
611▶ H F H G L W Y L R M M W A W L Q A K R K P K K A P C R D V C Y D A  
2501 TTGTTTCTACAGTGAGCAGGATCCCATTTGGGTGGAGAACCCTCATGTTCCAGCAGCTGGAGAAGTCTGACCCGCCCTTAAAGCTGTGTCTCCACAAGCG  
644▶ F V S Y S E Q D S H W V E N L M V Q Q L E N S D P P F K L C L K R

**ClaI (2637)** **BsiWI (2690)**  
2601 GGACTTCTGTTCCGGGCAATGGATCATTGACAACATCATCGATTCCATCGAAAAGAGCCACAAAAGTGTGTTCTGTTGCTTCTGAGAAGTTCGTACGGAGC  
677▶ D F V P G K W I I D N I I D S I E K S H K T V F V L S E N F V R S

2701 GAGTGGTGAAGTACGAAGTGGACTTCTCCACTTCAGGCTCTTTGACGAGAACAACGACGGCCATCCTTGTGTTTGTGGAGCCATTGAGAGGAAAG  
 711▶ E W C K Y E L D F S H F R L F D E N N D A A I L V L L E P I E R K  
 Eco47III (2809) FspI (2824) XcmI (2842)  
 2801 CCATTCCCCAGCGCTTCTGCAAAGTAAATGAACACCAAGACCTACCTGGAGTGGCCCTTGGATGAAGGCCAGCAGGAAGTGTGTTGGGTAAA  
 744▶ A I P Q R F C K L R K I M N T K T Y L E W P L D E G Q Q E V F W V N  
 AvrII (2920) NheI (2945)  
 2901 TCTGAGAACTGCAATAAAGTCTAGGTTCTCCACCCAGTTCCTGAGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGGACAAACCACAAC  
 777▶ L R T A I K S •  
 HpaI (3083) MfeI (3094)  
 3001 GAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAAGTTAACACAACAATG  
 EcoRI (3179)  
 3101 CATTCAATTTATGTTTCAGGTTTCAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAACCTCTACAAATGTGGTATGGAATTTCAAATAACAGCATAG  
 3201 CAAAACCTTAACTCCAATCAAGCCTCTACTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTT  
 SapI (3361)  
 3301 TGCAGCCTCACCTCTTTTCATGGAGTTTAAAGATATAGTATTTTTCCCAAGGTTTGAAGTACTAGCTCTTTCATTCTTTATGTTTTAAATGCACTGACCTCCC  
 SspI (3418) SmaI (3432) EcoO109I (3493)  
 3401 ACATTCCCTTTTATAGTAAATATTCAGAAATAATTTAAATACATCATTGCAATGAAAAATAATGTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCT  
 3501 TCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTAAATAGAAATGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCCTGGT  
 141▶ • N R T  
 3601 GTACTTGAGGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCATTCTCAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCT  
 137▶ 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 E  
 BstXI (3722)  
 3701 CTGCACATGCCACAGGGGCTGACCACCCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCCGT  
 103▶ 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 N  
 StuI (3857)  
 3801 TGCTCACAGCAGACCAATGGCAATGGCTTCCAGCACAGACAGTACCCTGCCAATGTAGGCCTCAATGTGGCAGCAGAGATGATCTCCCAGTCTTGGT  
 70▶ 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 T  
 XmnI (3999)  
 3901 CCTGATGGCCGCCGACATGGTCTTGTGTCCTCATAGAGCATGGTATCTTCTCAGTGGCGACCTCCACCAGCTCCAGATCCTGCTGAGAGATGTTG  
 37▶ 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 N  
 BbsI (4003) AseI (4065)  
 4001 AAGGTCTTCATGGTGGCCCTCTATAGTGAGTCGTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAG  
 34▶ F T K M  
 4101 CTTATCTGACGGTCACTAAACGAGCTCTGCTTATATAGACCTCCACCGTACACGCCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTTACGACATT  
 SpeI (4220)  
 4201 TTGGAAAGTCCCCTGATTTACTAGTCAAACAAACTCCCATTTGACGTCAATGGGGTGGAGACTTGGAAATCCCCTGAGTCAAACCGCTATCCACGCC  
 SnaBI (4348)  
 4301 ATTGATGACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTACTGCCAAGTAGGAAAGTCCCATAGGTCATGACTGGGCA  
 NdeI (4453)  
 4401 TAATGCCAGGCGGGCATTACCCTGATTGACGTCAATAGGGGGCTACTTGGCATATGATACACTTGTACTGCAAGTGGGCGAGTTTACCGTAAAT  
 4501 ACTCCACCATTGACGTCAATGGAAAGTCCCTATTGGCGTTACTATGGGAACATACGTCAATTATTGACGTCAATGGCGGGGGTCTGTTGGCGGTCAGCC  
 PstI (4632) SdaI (4631) PacI (4639) BspLU11I (4649)  
 4601 AGCGGGCCATTTACCGTAAGTTATGTAACGCTGCAGGTTAAATAAGAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGCCGCT  
 4701 TGCTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCA  
 4801 GCGGTTTCCCCTGGAAGCTCCCTCGTGCCTCTCTGTTCCGACCCTGCCGTTACCGGATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTGGCGCTT  
 ApaLI (4963)  
 4901 TCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTGCTTCCGCTCAAGCTGGGCTGTGTGCACGAACCCCGTTCCAGCCGACCGCTGCGCT  
 5001 TATCCGGTAACTATCGTCTTGTAGTCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGG  
 5101 CGGTGCTACAGAGTTCTTGAAGTGGTGGCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGAAAA  
 5201 AGAGTTGGTAGCTCTTGTATCCGGCAAAACAAACCCGCTGGTAGCGGTGGTTTTTTTTGTTTGCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAG  
 PacI (5379) SmaI (5388) EagI (5399) NotI (5398)  
 5301 AAGATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGAACGAAAACCTCACGTTAAGGGATTTTGGTCAATGGCTAGTTAATTAACATTTAAATC AGC  
 5401 GGCCGCAATAAAAATATCTTTATTTTATTACATCTGTGTGTTGGTTTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAAACAAAACGAAACAAA  
 5501 ACAAACTAGCAAAATAGGCTGTCCCAAGTGAAGTGCAGGTGCCAGAACATTTCTCTATCGAA