



**PvuI (7)**  
**SgfI (6)** 1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA  
EcoNI (96)  
101 GAGAAGTGGCGCGGGTAAACTGGAAAGTGTGCTGTACTGGCTCCGCCTTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

**Psp1406I (203)** 201 GTGAACGTTCTTTTTCGCAACGGGTTTGGCCGAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCTTACCGCCGCCCGCCCTACCTGAGGCC  
**HindIII (245)**  
EcoNI (287) **Bsu36I (291)**  
301 GCCATCCACGCGGTTGAGTCGCGTTCTGCCGCTCCCGCTGTGGTGCTCTGAACTGCGTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

**NgoMIV (441)**  
401 GGGCCTTTGTCCGGCGCTCCTTGGAGCCTACCTAGACTCAGCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCTAACTCTACGTCTTTGTTTCGTTT

**KasI (535)** 501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGGGCGCTA  
**AgeI (552)** CCTGAGATCACCGGTAGGAGGGCCATCATGAGACAGACTTTGCCTGTATCTACTTT  
**BspHI (568)** 1 M R Q T L P C I Y F

**ApaLI (650)**  
**DraIII (644)**  
601 TGGGGGGCCTTTTGGCCTTTGGGATGCTGTGCATCCTCCACCACAGTGCACTGTTAGCCATGAAGTTGCTGACTGCAGCCACCTGAAGTTGACTC  
11 W G G L L P F G M L C A S S T T K C T V S H E V A D C S H L K L T  
**Acc65I (701)**  
701 AGGTACCCGATGATCTACCCACAACATAACAGTGTGAACTTACCCATAATCAACTCAGAAGATTACCAGCCGCAACTTCACAAGGTATAGCCAGCT  
44 Q V P D D L P T N I T V L N L T H N Q L R R L P A A N F T R Y S Q L

**XcmI (826)**  
801 AACTAGCTTGGATGTAGGATTTAACACCATCTCAAACCTGGAGCCAGAATTGTGCCAGAACTTCCCATGTTAAAAGTTTTGAACCTCCAGCACAAATGAG  
77 T S L D V G F N T I S K L E P E L C Q K L P M L K V L N L Q H N E  
901 CTATCTAACTTTCTGATAAAACCTTGCCTTTCGACGAATTTGACTGAACTCCATCTCATGTCCAACCTCAATCCAGAAAATTTAAAATAATCCCTTTG  
111 L S Q L S D K T F A F C T N L T E L H L M S N S I Q K I K N N P F

**BglIII (1025)**  
1001 TCAAGCAGAAGAATTTAATCACATTAGATCTGTCTCATAATGGCTTGCATCTACAAAATTAGGAACTCAGGTTGAGTGGAAAATCTCCAAGAGCTTCT  
144 V K Q K N L I T L D L S H N G L S S T K L G T Q V Q L E N L Q E L L

**Eco47III (1121)** 1101 ATTATCAACAATAAAAATTCAGCGCTAAAAAGTGAAGAACTGGATATCTTTGCCAATTCATCTTTAAAAAATTAGAGTTGTCATCGAATCAAATTA  
177 L S N N K I Q A L K S E E L D I F A N S S L K K L E L S S N Q I K  
**EcoRV (1143)**

**SandI (1268)**  
1201 GAGTTTTCTCCAGGGTGTTTTACGCAATTTGGAAGATTATTTGGCCTCTTTCTGAACAATGTCCAGCTGGGTCCAGCCTTACAGAGAAGCTATGTTTGG  
211 E F S P G C F H A I G R L F G L F L N N V Q L G P S L T E K L C L  
1301 AATTAGCAAAACACAGCATTTCGGAATCTGTCTCTGAGTAACAGCCAGCTGTCCACCACCAGCAATACAACCTTTCTGGGACTAAAGTGGACAAATCTCAC  
244 E L A N T S I R N L S L S N S Q L S T T S N T T F L G L K W T N L T  
1401 TATGCTCGATCTTCTACAACAACCTAAATGTGGTTGGTAACGATTCTTTGCTTGGCTTCCACAACAGAAATTTCTTCTAGAGTATAATAATATA  
277 M L D L S Y N N L N V V G N D S F A W L P Q L E Y F F L E Y N N I

**Acc65I (1543)**  
1501 CAGCATTTGTTTTCTCACTCTTTGCACGGGCTTTTCAATGTGAGGTACCTGAAATTTGAAACGGTCTTTTACTAAACAAAGTATTTCCCTTGCCTCACTCC  
311 Q H L F S H S L H G L F N V R Y L N L K R S F T K Q S I S L A S L  
1601 CCAAGATTGATGATTTTTCTTTTCACTGCTTAAATGTTTGGAGCACCTTAACATGGAAGATAATGATATCCAGGCATAAAAAGCAATATGTTACAGG  
344 P K I D D F S F Q W L K C L E H L N M E D N D I P G I K S N M F T G  
1701 ATTGATAAACCTGAAATCTAAGTCTATCCAACCTCTTACAAGTTTGGCAACTTTGACAAAATGAAACATTTGATCACTTGTCTCCTTCCCTTAC  
377 L I N L K Y L S L S N S F T S L R T L T N E T F V L A H S P L H

**ScaI (1871)**  
1801 ATACTCAACCTAACCAAGAATAAAAATCTCAAAAATAGAGAGTGATGCTTTCTCTTGGTTGGGCCACCTAGAAGTACTTGACCTGGGCCTTAATGAAATTG  
411 I L N L T K N K I S K I E S D A F S W L G H L E V L D L G L N E I

**XbaI (1931)**  
1901 GGCAAGAAGTACAGGCCAGGAATGGAGAGGTCTAGAAAATATTTTTGAAATCTATCTTTCTACAACAAGTACCTGCAGCTGACTAGGAACTCCTTTGG  
444 G Q E L T G Q E W R G L E N I F E I Y L S Y N K Y L Q L T R N S F A  
2001 CTTGGTCCCAAGCCTTCAACGACTGATGCTCCGAGGGTGGCCCTTAAAAATGTGGATAGCTCTCTTACCATTCCAGCCTCTTCGTAACCTGACCATT  
477 L V P S L Q R L M L R R V A L K N V D S S P S P F Q P L R N L T I

**BspLU11I (2140)**  
2101 CTGGATCTAAGCAACAACAACATAGCCAACATAAATGATGACATGTTGGAGGGTCTTGAGAACTAGAAATCTCGATTTGCAGCATAACAACCTAGCAC  
511 L D L S N N N I A N I N D D M L E G L E K L E I L D L Q H N N L A  
2201 GGCTCTGGAACACGCAACCCCTGGTGGTCCCATTATTTCTAAAGGGTCTGTCTCACCTCCACATCCTTAACCTGGAGTCCAACGGCTTTGACGAGAT  
544 R L W K H A N P G P I Y F L K G L S H L H I L N L E S N G F D E I

**ClaI (2340)**  
2301 CCCAGTTGAGGTCTTCAAGGATTTATTTGAACTAAAGATCATGATTTAGGATTGAATAATTTAAACACACTTCCAGCATCTGTCTTTAATAATCAGGTG  
577 P V E V F K D L F E L K I I D L G L N N L N T L P A S V F N N Q V

**XmnI (2450)**  
2401 TCTCTAAAGTCATTGAACCTTCAGAAGAATCTCATAACATCCGTTGAGAAGAAGGTTTTTCGGGCCAGCTTTCAGGAACCTGACTGAGTTAGATATGCGCT  
611 S L K S L N L Q K N L I T S V E K K V F G P A F R N L T E L D M R

**BbrPI (2516)**  
2501 TTAATCCCTTTGATTGCACGTGTGAAAGTATTGCCTGGTTTGTAAATTGGATTAACGAGACCCATACCAACATCCCTGAGCTGTCAAGCCACTACCTTTG  
644 F N P F D C T C E S I A W F V N W I N E T H T N I P E L S S H Y L C

**BspHI [m] (2686)**  
2601 CAACACTCCACCTCACTATCATGGGTTCCAGTGAGACTTTTTGATACATCATCTTGAAAGACAGTGCCCCCTTTGAACTCTTTTTCATGATCAATACC  
677 N T P P H Y H G F P V R L F D T S S C K D S A P F E L F F M I N T

**BsaBI (2711)** **EcoRV (2756)**  
 2701 AGTATCCTGTGATTTTTATCTTTATTGTACTTCTCATCCACTTTGAGGGCTGGAGGATATCTTTTATTGGAATGTTTCAGTACATCGAGTTCTTGTT  
 711▶ S I L L I F I F I V L L I H F E G W R I S F Y W N V S V H R V L G  
 2801 TCAAAGAAATAGACAGACAGACAGAACAGTTTGAATATGCAGCATATATAATTCATGCCTATAAAGATAAGGATTGGGTCTGGGAACATTTCTTCAAT  
 744▶ F K E I D R Q T E Q F E Y A A Y I I H A Y K D K D W V W E H F S S M  
**HpaI (2979)**  
 2901 GGAAGAAAGAACCAATCTCTCAAATTTGTCTGGAAGAAAGGGACTTTGAGGCGGTGTTTTGAACTAGAAAGCAATTGTTAACAGCATCAAAAAGAGC  
 777▶ E K E D Q S L K F C L E E R D F E A G V F E L E A I V N S I K R S  
 3001 AGAAAAATTTTTTTGTTATAACACACCATCTATTAAGACCCATTATGCAAAAGATTCAAGGTACATCATGCAGTTCAACAAGCTATTGAACAAAATC  
 811▶ R K I I F V I T H H L L K D P L C K R F K V H H A V Q Q A I E Q N  
**BstXI (3106)**  
 3101 TGGATTCATTATATTGTTTTCTTGAGGAGATTCCAGATTATAAACTGAACCATGCACCTCTGTTTGCAGAGGAATGTTTAAATCTCACTGCATCTT  
 844▶ L D S I I L V F L E E I P D Y K L N H A L C L R R G M F K S H C I L  
**MscI (3204)** **BamHI (3261)** **BsrGI (3275)**  
 3201 GAACTGGCCAGTTCAGAAAGAACGGATAGTGCCTTTTCGTATAAATTGCAAGTAGCAGTTGGATCCAAAACCTGTACATTAATTTATTTAAATATT  
 877▶ N W P V Q K E R I G A F R H K L Q V A L G S K N S V H •  
**MscI (3329)** **NheI (3323)**  
 3301 CAATTAGCAAAGGAGAAACTTT**CGTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGGACAAACCACA**ACTAGAAATGCAGTGA  
 AAAAAATGCTT  
**HpaI (3461)**  
 3401 TATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACCAAGTTAAACAACAATTGCATTCA  
 TTTTATGTTTCAGGTT  
**EcoRI (3557)**  
 3501 CAGGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAACCTCTACAAATGTGGTATGAATTTCAAAATACAGCATAGCAAACTTTAACCTC  
 CAAATCA  
 3601 AGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGCTGTTGCCAATGTGCATTAGCTGTTTGCAGCCTCAC  
 TTTCTTTCATG  
**SapI (3739)**  
 3701 GAGTTTAAGATATAGTGTATTTTCCAAGGTTTGAAGTACTCTTCAATTTCTTTATGTTTTAAATGCACTGACCTCCACATTCCCTTTT  
 TAGTAAATA  
 3801 TTCAGAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCC  
 CCCAGTTTAGT  
 3901 AGTTGGACTTAGGGAACAAAGGAACCTTTAATAGAAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCTGGTACTTGAAGGGG  
 ATGAGTTCC  
 141▶ • N R T Y K L P I L E  
**SacI (4071)**  
 4001 TCAATGGTGGTTTTGACCAGCTTGCATTCTCAATGAGCACAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTCTGCACATGCCACAGGGG  
 CTGA  
 129▶ 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 S V  
**BstXI (4100)**  
 4101 CCACCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCGTTGCTCACAGCAGAC  
 CCAATGGC  
 96▶ 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 A  
**StuI (4235)**  
 4201 AATGGCTTCAAGCAGACAGTACCCTGCCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCAAGTCTTGGTCTGATGGCCGCC  
 CCGACATGG  
 63▶ 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 H  
**XmnI (4377)**  
 4301 TGCTTGTCTCATAGAGCATGGTATCTTCTCAGTGGCGACTCCACCAGCTCCAGATCTGCTGAGAGATGTTGAAGGTCTTCA**GGTGGCCCTCC**  
 29▶ 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  
**AseI (4443)**  
 4401 TATAGTGAGTCGTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGT  
 TCACTAAC  
**SacI (4500)** **SpeI (4598)**  
 4501 GAGCTCTGCTTATATAGACCTCCACCGTACACGCCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTTACGACATTTTGGAAAGTCCCGT  
 TGATTTA  
 4601 TAGTCAAACAAACTCCCATTGACGTCAATGGGTGGAGACTTGAAATCCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTACTGCCAAAC  
 CCGC  
**SnaBI (4726)**  
 4701 ATCATCATGGTAATAGCGATGACTAATACGTAGATGACTGCCAAGTAGGAAAGTCCCATAAGGTCATGTACTGGGCATAATGCCAGGCGGGC  
 ATTAC  
**NdeI (4831)**  
 4801 CGTCATTGACGTCAATAGGGGGCTACTTGGCATATGATACACTTGTACTGCTCAAGTGGGAGTTTACCCTAAATACTCCACCCATTGACGT  
 CAATG  
 4901 GAAAGTCCCTATTGGCGTTACTATGGGAACATACGTCAATATTGACGTCAATGGGCGGGGCTGTTGGGCGTCCAGCCAGGCGGGCATT  
 TACCCTAAGT  
**Pacl (5017)** **SdaI (5009)** **BspLU11I (5027)**  
 5001 TATGTAACGCCTGCAGGTTAA**TTAAGA**ACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAA  
 AAGGCCCGCTTGTGGCGTTTTTCCATAGGCT  
 5101 CCGCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGCGCTTCC  
 CCTGGAAGCTCC  
 5201 CTCGTGGCTCTCCTGTTCCGACCTGCCGTTACCGGATACCTGTCGCTTTCTCCCTTCGGGAAGCGTGGCGCTTCTCATAGCTCAGCTG  
 TAGGT  
**ApaLI (5341)**  
 5301 ATCTCAGTTCGGTGTAGGCTGTTCCGCTCCAAGCTGGGCTGTGTCACGAACCCCCGTTCAAGCCGACCGCTGCGCTTATCCGGTAACT  
 ATCGTCTTGA  
 5401 GTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGTACAGAG  
 TTTGAAG

5501 TGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCG

5601 GCAAACAAACCACCGCTGGTAGCGGTGGTTTTTTTTGTTTGCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTCTAC

5701 GGGGTCTGACGCTCAGTGGAAACGAAACTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATC AGCGGCCGCAATAAAATATCTTTAT

PacI (5757)

EagI (5777)

NotI (5776)

5801 TTTCATTACATCTGTGTGTTGGTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAACAAAACGAAACAAAACAACTAGCAAATAGGCTGT

5901 CCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA