



**PvuI (7)**  
**SgfI (6)**
**EcoNI (96)**

1 GGATCTGCGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTCGGCAATTGAACGGGTGCCTA  
101 GAGAAAGTGGCGCGGGTAAACTGGAAAGTGATGTCGTGACTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

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**Psp1406I (203)**
**HindIII (245)**
**EcoNI (287)**

201 GTGAACGTTCTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCCTTACGCGCCCGCCCTACCTGAGGCC  
301 GCCATCCACGCCGGTTGAGTCGCGTTTCTGCCGCCTCCCGCCTGTGGTGCCTCCTGAAGTGCCTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

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**NgoMIV (441)**  
**NaeI (441)**

401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCAACTCTACGTCTTTGTTTCGTTT

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**KasI (535)**
**AgeI (552)**
**BspHI (560)**

501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGCGCCTACCTGAGATCACCGGTCATCATGAGCAAAGACAAAGAACCTACTGTCATAAGCCTTCA  
1▶ M S K D K E P T V I S L H

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**BspHI (611)**
**StuI (684)**

601 TTCTGTGTATGTCATGACCTTAGATGGGGAACCTAATCCAGTTCTCTGAAGAAAGTGAATTTGGTGTAGACAAGTCAAAAATAGGCCTTACTCGTGT  
13▶ S V Y V M T L V W G T L I Q F S E E S E F V V D K S K I G L T R V  
701 CAAAAGACTGCCACCCCAAACAAAGCTTAGATGTGTCTCAAACCTCATAACTGAGCTTACCTCTCTGACATCAGCTTCTCTCGCAGCTGACGG  
47▶ P K D L P P Q T K V L D V S Q N F I T E L H L S D I S F L S Q L T

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**EcoRV (835)**

801 TTTTGAGACTTTCCAGAATAGGATGCAGTGCCTTGATCAGTGTCTTCAAGTTCAATCAGGATTTGGAATATTTGGATTTATCTCACAATCAGTTGCA  
80▶ V L R L S Q N R M Q C L D I S V F K F N Q D L E Y L D L S H N Q L Q

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**NdeI (972)**

901 GACAATCTGTGCCATCCATCACCAGCCTCAAGCATTGGACCTCTCATTCAATGACTTTGAAGCCCTGCCATATGTAAGGAGTTTGGCAACTTGACA  
113▶ T I L C H P I T S L K H L D L S F N D F E A L P I C K E F G N L T

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**BglII (1044)**
**Psp1406I (1097)**

1001 CAACTGAATTTCTGGGATTAAGTGCTACAAAAGTTACAGCAATTAGATCTACTACCAATTGCTCACTTGCATCTAAGTTGCATCCTTCTGGATTTGGAAC  
147▶ Q L N F L G L S A T K L Q Q L D L L P I A H L H L S C I L L D L E

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**XmnI (1126)**

1101 GTTATTACATGAAAGAAAATGAGAAAGAAAGTCTTCAAATCTGAACACAAAGAACTTCACCTGGTCTTTTATCCAAATAGCTTCTTCTGTCCAAGT  
180▶ R Y Y M K E N E K E S L Q I L N T K K L H L V F H P N S F F S V Q V

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**PshAI (1258)**

1201 AAACATATCGGTTAAGAGTGTAGGGTGTTTACAACCTGGCTAATATTAACCTGAGTGATGACAACTGTCAGGTTTTTATTGGAACCTCACT  
213▶ N I S V K S V G C L Q L A N I K L S D D N C Q V F I T F L L E L T  
1301 CAAGGGCCAACTTACTAAATTTTACGCTCAACCATGTGGAACAACCTTGAAATGTTGGTTGGAATTTTCAATTCCTTTGGCCCAAACCTGTAGAAT  
247▶ Q G P T L L N F T L N H V E T T W K C L V G I F Q F L W P K P V E  
1401 ATCTCAGTATTTACAATTAACAATAGTTGAAAGCATTGATGAAGAAGATTTTATTATGAAACAACATTGAAAGGAGTAAAATAGAACATATTAC  
280▶ Y L S I Y N L T I V E S I D E E D F I Y Y E T T L K G V K I E H I T

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**HpaI (1566)**

1501 AAAGAGAGTTTTTATTTTTTACAGACAGCATTATACAGAGTGTTCGATATGAATATCAGGATGTTAACCATAGCAGACACACATTTTATACACATG  
313▶ K R V F I F S Q T A L Y R V F S D M N I R M L T I A D T H F I H M

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**Acc65I (1611)**

1601 CTTTGCCTCAGGTACCAAGCACATTTAACTTTTTGAACCTTACCAGAATGTTTTTACAGATAGTGTTCCTTCAAATGCAAAAACCTTAGCTAGATTAG  
347▶ L C P Q V P S T F N F L N F T Q N V F T D S V F Q N C K T L A R L

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**BspHI (1751)**
**EcoRI (1797)**

1701 AGACACTCATCTTACAAAAGAATAAATTAGAAGACCTTTTCAAATAAGCCTCATGACTAAGGATATGCTATCTTTGAAATACTGGATGTTAGCTCGAA  
380▶ E T L I L Q K N K L E D L F K I S L M T K D M L S L E I L D V S S N  
1801 TTCTTTGAGTATGATAGACATGGTGAAGATTTGCACTTGGGTTGGGAGTATAGTGGTAAATTTATCTTCAAATATACTCACTGACTCTGTTTTGAGA  
413▶ S L E Y D R H G E N C T W V G S I V V L N L S S N I L T D S V F R  
1901 TGTTTACCTCCAGGATCAAGGTTCTTGATCTTACAGTAACAGAATAAGGAGCATCCCTAAGGATGTCGCCCCTGGAAGCTCTGCAAGAACCTCAATG  
447▶ C L P P R I K V L D L H S N R I R S I P K D V A H L E A L Q E L N  
2001 TTGCTTCAATCTTTAGCTCACCTGCCTGGATGTGGTTCCTTTAGCAGCCTTTCCATTCTGACCATTGACTATAATTCATTTCAAACCCATCAGCTGA  
480▶ V A S N S L A H L P G C G S F S S L S I L T I D Y N S I S N P S A D

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**EcoO109I (2125)**
**BsrGI (2158)**
**BspLUI1I (2161)**

2101 CTTCTCCAGAGCTGCCAGAAGATTAGTCCCTCAAAGCAGGGAACAATCCATTCATGACATGTGAGCTAAGAGACTTCATCCAAAGCTAGGTCAA  
513▶ F F Q S C Q K I R S L K A G N N P F Q C T C E L R D F I Q S L G Q  
2201 GTATCGAGTGACGTGGTAGAGAGTTGGCCTGATTTACGAGTGTGATATCCAGAAAGTTATAAGGGGACTCTGCTCAAGGACTTCCGTGTATCTGAAT  
547▶ V S S D V V E S W P D S Y E C E Y P E S Y K G T L L K D F R V S E  
2301 TATCTGCAACACAGCTCTGCTGATTGTACCATCGGAGTCACTGGGCTGGCATTGGCTCTTACCATGACCGGCTCTGTGTCTACTTTGATCTGCCCTG  
580▶ L S C N T A L L I V T I G V T G L A L A L T M T G L C V Y F D L P W  
2401 GTATCTCAGGATGCTGTGTCAGTGGACCCAGACTCGGCGCAGGGCTAGGAATGTACCCTAGAAGAAGTCCAAAGAAGTCTCCAGTCCATGCCTTCATT  
613▶ Y L R M L C Q W T Q T R R R A R N V P L E E L Q R T L Q F H A F I

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**Acc65I (2541)**
**XbaI (2550)**

2501 TCATATAGTGAACACGATTCTGCCTGGGTAATAAATGAACCTGTCTAGAAAAAGGATATAAGATTTGTCTCCATGAGAGAACTTTGTTC  
647▶ S Y S E H D S A W V K N E L V P C L E K E G I K I C L H E R N F V  
2601 CTGGCAAGAGCATCATGAAAAATATCATAAACTGCATTGAGAAAAAGTACAAGTCCATCTTTGTTTTGTCTCCCAACTTTGTCCAGAGCGAGTGGTGCCA  
680▶ P G K S I M E N I I N C I E K S Y K S I F V L S P N F V Q S E W C H

**BamHI (2769)**  
 2701 CTATGAACCTACTTTGCCACCAACCTCTTCCATGAAGGGTCTGATAACTTAATCCTGATCTTGGATCCATCCACAGAACAGCATTCTGGC  
 713▶ Y E L Y F A H H N L F H E G S D N L I L I L L D P I P Q N S I P G  
 2801 AAGTATCACAACTCAAAGCTCTCATGGCACAGCGAAGCTTATTTGGAATGGCCAAAGGAGAAGAGCAAACATGGACTTTTTGGGCTAATATTAGAGCTG  
 747▶ K Y H K L K A L M A Q R T Y L E W P K E K S K H G L F W A N I R A

**MscI (2959)**  
**SpeI (2919)** **NheI (2953)**  
 2901 CTTCAATATTAATAAACTAGTCGCTGAAGAGGATGATGTGAAAACCTAAGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGGACAAAC  
 780▶ A F N I K L K L V A E E D D V K T •

**HpaI (3091)**  
 3001 CACAAC TAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAACAAGTTAAACAAC

**EcoRI (3187)**  
 3101 AACAATTGCATTCATTTTATGTTTCAGTTTCAGGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAAACCTCTACAAATGTGGTATGGAATTCATAAATA  
 3201 CAGCATAGCAAACCTTTAACCTCAAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCAT  
 3301 TAGCTGTTTGACGCTCACCTTCTTTCATGAGGTTAAGATATAGTGATTTTCCAAGGTTTGAAGTCTCTTCATTTCTTTATGTTTAAATGCACT

**SwaI (3440)**  
 3401 GACCTCCCACATTCCTTTTTAGTAAAATATTCAGAAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTTATTAGGCAGAATCCAGATGCTC

**EcoO109I (3501)**  
 3501 AAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTTAATAGAAATGGACAGCAAGAAAGCGAGCTTCTAGCTTTAG  
 141▶ •

3601 TTCCTGGTACTTGGAGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCATTCTCAATGAGCACAAGCAGTCAGGAGCATAGTCAGAGA  
 139▶ 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 F C D P A Y D S I

**SacI (3701)** **BstXI (3730)**  
 3701 TGAGCTCTCTGCACATGCCACAGGGGCTGACCACCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCTGACAGCCACAATGGTGTCAAAGTCCTT  
 106▶ 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 A V I T D F D K

**StuI (3865)**  
 3801 CTGCCGTTGCTCACAGCAGACCAATGGCAATGGCTTCCAGCAGACAGTGACCCTGCAATGTAGGCTCAATGTGGACAGCAGAGATGATCTCCCA  
 73▶ 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 H V A S I I E G  
 3901 GTCTTGGTCTGATGGCCGCCGACATGGTGTGTTGTCTCATAGAGCATGGTGTCTTCTCAGTGGCGACCTCCACCAGCTCCAGATCTGTGCTGAG  
 39▶ 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 E V L E L D Q Q S

**XmnI (4007)** **AseI (4073)**  
 4001 AGATGTTGAAGTCTTCATGATGGCCCTCTATAGTGAGTCGTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGC  
 6▶ I N F T K M

**SacI (4130)**  
 4101 GTCTCCAGCTTATCTGACGGTTCACATAACGAGCTCTGCTTATATAGACCTCCACCGTACACGCCCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTT

**SpeI (4228)**  
 4201 ACGACATTTTGGAAAGTCCCGTTGATTTACTAGTCAAAAACAACTCCATTGACGTCAATGGGGTGGAGACTTGAAATCCCGTGAGTCAAACCGCTA

**SnaBI (4356)**  
 4300 TCCACGCCATTGATGTAAGTCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGACTGCCAAGTAGGAAAGTCCATAAGGTCATG

**NdeI (4461)**  
 4400 TACTGGGCATAATGCCAGCGGGCCATTTACCGTCATTGACGTCAATAGGGGGCTACTTGGCATATGATACACTTGATGTAAGTCCCAAGTGGGCGAGTTT  
 4500 ACCGTAATACTCCACCCATTGACGTCAATGAAAGTCCCTATTGGCGTTACTATGGGAACATACGTCAATTATTGACGTCAATGGGGGGGGTCTGTTGGG

**PstI (4640)** **SdaI (4639)** **PacI (4647)** **BspLU11I (4657)**  
 4600 CGGTCAGCCAGGCGGGCCATTTACCCTAAGTTATGTAACCGCTG 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 G A A C C G T A A  
 4698 A A G G C C G C G T T G C T G G C G T T T T C C A T A G G C T C C G C C C C T G A C G A G C A T C A C A A A A T C G A C G C T C A A G T C A G A G G T G G C G A A C C C G A C A G G A C T A  
 4798 T A A G A T A C C A G G C G T T T C C C C T G G A A G C T C C C T C G T G C G C T C C T G T T C C G A C C C T C C G C T T A C C G G A T A C C T G T C C G C T T T C T C C C T T C G G G A A

**ApaLI (4971)**  
 4898 GCGTGGCGCTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTTCGCTCAAGCTGGGCTGTGTGCACGAACCCCCGTTCCAGCCGA  
 4998 CCGCTGCGCTTATCCGGTAACTATCGTCTTGTAGTCCAAACCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCG  
 5098 AGGTATGTAGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGTGAAGCCAGTTA  
 5198 CCTTCGAAAAAGAGTTGGTAGCTCTTGTATCCGGCAAACAAACCACCGCTGGTAGCGGTGTTTTTTTTGTTTGAAGCAGCAGATTACGCGCAGAAAAAA

**PacI (5387)** **SwaI (5396)**  
 5298 AGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGTCTGACGCTCAGTGGAACGAAAACCTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACA

**EagI (5407)** **NotI (5406)**  
 5398 TTTAAATC AGCGCCGCAATAAAATATCTTTATTTTATTACATCTGTGTGTTGTTTTTTTGTGTGAATCGTAACATAACATACGCTCTCCATCAAAAACAA  
 5498 AACGAAACAAAACAACTAGCAAATAGGCTGTCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA