



**PvuI (7)**  
**SgfI (6)**  
1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGTGCCTA

101 GAGAAAGTGGCGGGGTAAGTGGAAAGTGTGTCTGTACTGGTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

**Psp1406I (203)** **HindIII (245)** **Bsu36I (291)**  
201 GTGAACGTTCTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCTTACGCGCCCGCCCTACCTGAGGCC

301 GCCATCCACGCGGTTGAGTCGCGTTTCTGCCGCTCCCGCTGTGGTGCCTCCTGAAGTGCCTCCGCGCTCTAGGTAAGTTAAAGCTCAGGTCGAGACC

**NgoMIV (441)**  
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTCTCAACTCTACGCTTTGTTTCGTTT

**NcoI (560)**  
**BstEII (555)**  
**AgeI (552)**  
501 TCTGTTCTGCGCGGTTACAGATCCAAGCTGTGACCGCGGCTACCTGAGATCACCGGTACCATTGGTGTCTTCGGCGCAGATGGGTTCAACCTGCAGGC

601 TCTCTGGAGCAGCTCAGCCAGGATGAGTTGAGCAAGTCAAGTATCTGATCACGACCTTCTCCCTGGCACACGAGCTCAGAAGATCCCCACAAGGAG  
13▶ M V S S A Q M G F N L Q A  
13▶ L L E Q L S Q D E L S K F K Y L I T T F S L A H E L Q K I P H K E

701 GTAGACAAGGCTGATGGGAAGCAACTGGTAGAAATCCTCACCCATTGTGACAGCTACTGGGTGGAGATGGCGAGCTCCAGGTCTTTGAAAAGATGC  
47▶ V D K A D G K Q L V E I L T T H C D S Y W V E M A S L Q V F E K M

801 ACCGAATGGATCTGTCTGAGAGAGCAAAGGATGAAGTCAGAGAAGCAGCTTTGAAATCCTTAAATAAAAAGGAAACCTCTATCATTAGGGATAACCGAA  
80▶ H R M D L S E R A K D E V R E A A L K S F N K R K P L S L G I T R K

**XbaI (912)** **Eco47III (935)**  
901 AGAACGACCACCTTAGACGTGGACGAAATGCTGGAGCGCTTCAAAAACAGAAGCACAAGCGTTTACAGAAAACGAAAGGAAATGTCATCTGCCTGGGTAAA  
113▶ E R P P L D V D E M L E R F K T E A Q A F T E T K G N V I C L G K

1001 GAAGTCTTTAAAGGAAAAAGCCAGACAAGACAATAGGTGCAGGTATATATTGAAGACGAAGTTCGGGAGATGTGGAAGAGCTGGCCTGGAGATAGCA  
147▶ E V F K G K K P D K D N R C R Y I L K T K F R E M W K S W P G D S

**BsaBI (1131)** **XmaI (1165)**  
1101 AAGAGTCCAGGTTATGGCTGAGAGATACAAGTGTGATCCCATTGACGACCCAGGGTGTTCGGGCGCCTTCTCATAACCGGTGGTGTGATGG  
180▶ K E V Q V M A E R Y K M L I P F S N P R V L P G P F S Y T V V L Y G

1201 TCCTGCAGGCCTTGGGAAAACCGCTGGCCAGAAAATAATGCTAGACTGGGAGAGGACAACTCATCCACAAATCAAATATGCGTTTCTACCTCAGC  
213▶ P A G L G K T T L A Q K L M L D W A E D N L I H K F K Y A F Y L S

1301 TGCAGGGAGCTCAGCCGCTGGGCCCGTGCAGTTCAGAGCTGGTCTTCAGGGACTGGCCCTGAATTGACAGGATGACATTCACACATCCTAGCCCAAG  
247▶ C R E L S R L G P C S F A E L V F R D W P E L Q D D I P H I L A Q

1401 CACGAAAATCTTGTTCGTGATTGACGGCTTTGATGAGCTGGGAGCCGACCTGGGGCGTGTGATCGAGGACATCTGCGGGAGCTGGGAGAAGAAGAAGCC  
280▶ A R K I L F V I D G F D E L G A A P G A L I E D I C G D W E K K K P

**BstEII (1560)** **Bsu36I (1581)** **BamHI (1595)**  
1501 GGTGCCCGTCTCCTGGGGAGTTTGTGAACAGGGTGTGTTACCCAAGCGCCCTGCTGGTCAACCACGCGCCAGGGCCCTGAGGGACCTCCGGATC  
313▶ V P V L L G S L L N R V M L P K A A L L V T T R P R A L R D L R I

1601 CTGGCGGAGGAGCCGATCTACATAAGGGTGGAGGGCTTCTGGAGGAGGACAGGAGGGCTATTTCTGAGACTTTGGAGACGAGGACCAAGCCATGC  
347▶ L A E E P I Y I R V E G F L E E D R R A Y F L R H F G D E D Q A M

**SacII (1754)** **ApaLI (1773)**  
1701 GTGCCCTTGTGCTAATGAGGAGCAACGCGGCCCTGTTCCAGCTGGGCTCGGCCCGGCTGTGCTGGATCGTGTGACGACTCTGAAGCTGCAGATGGA  
380▶ R A F E L M R S N A A L F Q L G S A P A V C W I V C T T L K L Q M E

**Tth11I (1810)** **BssHII (1895)**  
1801 GAAGGGGAGGACCCGGTCCACCTGCCTCACCCGACGGGGCTGTTCTGCGTTTCTCTGCAGCCGTTCCCGAGGGCGCACAGCTGCGGGCGCG  
413▶ K G E D P V P T C L T R T G L F L R F L C S R F P Q G A Q L R G A

1901 CTGGCGAGCTGAGCCTCCTGGCCGCGCAGGTCCTGTGGGCGCAGACGTCGCTTCCACGAGAGGATCTGGAAGGCTCGGGGTGACGAGTCCGACC  
447▶ L R T L S L L A A Q V L W A Q T S V L H R E D L E R L G V Q E S D

**Tth11I (2035)**  
2001 TCCGCTGTTCTGGACGGAGACATCCTCCGCCAGGACAGTCTCCAAAGGCTGCTACTCCTCATCCACCTCAGTTCACGAGTTTCTCACTGCCCT  
480▶ L R L F L D G D I L R Q D R V S K G C Y S F I H L S F Q Q F L T A L

2101 GTTCTACACCTGGAGAAGGAGGAGGAAGAGGATAGGGACGGCCACACCTGGGACATTGGGGAGTACAGAAGCTGCTTCCGGAGTAGAAAGACTCAGG  
513▶ F Y T L E K E E E E D R D G H T W D I G D V Q K L L S G V E R L R

**BstXI (2258)**  
2201 AACCCGACCTGATCCAAGCAGGCTACTACTCCTTTGGCTCGCTAACGAGAAGAGCAAGGAGTTGGAGGCCACTTTGGCTGCCGATGTACCCGG  
547▶ N P D L I Q A G Y Y S F G L A N E K R A K E L E A T F G C R M S P

2301 ACATCAAACAGGAATTGCTGCGATGCGACATAAGTTGTAAGGGTGGACATTCAACGGTGACAGACCTGCAGGAGCTCCTCGGTGTCTGTACGAGTCTCA  
580▶ D I K Q E L L R C D I S C K G G H S T V T D L Q E L L G C L Y E S Q

2401 GGAGGAGGAGCTGGTGAAGGAGGTGAGTGGCTCAGTTCAAAGAAATATCCCTGCACTTAAATGCAGTAGACGTTGTGCCATCTTCACTTGCCTCAAGC  
613▶ E E E L V K E V M A Q F K E I S L H L N A V D V V P S F C V K H

2501 TGTCAAACCTGCAGAAAATGCTACTGCAGGTAATAAAGGAGAATCTCCCGGAGAATGCTACTGCGTCTGAATCAGACGCGGAGGTTGAGAGATCCCAGG  
647▶ C R N L Q K M S L Q V I K E N L P E N V T A S E S D A E V E R S Q

2601 ATGATCAGCACATCTTCTTTCTGGACGGACCTTTGTCCATATTTGGATCAAATAAGGATCTGATGGGTCTAGCAATCAATGATAGCTTTCTCAGTGC  
680▶ D D Q H M L P F W T D L C S I F G S N K D L M G L A I N D S F L S A

**BamHI (2711)** **BsaBI (2785)**  
2701 CTCCTAGTAAGGATCCTGTGTGAACAAATAGCCTCTGACACCTGTCTATCCAGAGAGTGGTGTCAAAAACATTTCCCGAGCTGATGCTCATCGGAAC  
713▶ S L V R I L C E Q I A S D T C H L Q R V V F K N I S P A D A H R N

2801 CTCTGCCTAGCTCTTCGAGGTCACAAGACTGTAACGTATCTGACCCCTCAAGGCAATGACCAGGATGATATGTTTCCCGCATTGTGTGAGGCTTGTGAGAC  
747▶ L C L A L R G H K T V T Y L T L Q G N D Q D D M F P A L C E V L R

**EcoRV (2918)**  
2901 ATCCAGAATGTAACCTGCGATATCTCGGTTGGTGTCTGTTCGCCCTACCACTCAGCAGTGGGCTGATCTCTCCTTGGCCCTTGAAGTCAACCAAGTCCCT  
780▶ H P E C N L R Y L G L V S C S A T T Q Q W A D L S L A L E V N Q S L

**BsrGI (3053)**  
3001 GACGTGCGTAAACCTCTCCGACAATGAGCTTCTGGATGAGGGTCTAAGTTGCTGTACACAACCTTGGAGACACCCCAAGTCTTCTGCAGAGGTTGTGC  
813▶ T C V N L S D N E L L D E G A K L L Y T T L R H P K C F L Q R L S

**MscI (3185)**  
3101 TTGAAAACGTGCACCTTACAGAAGCCAATTGCAAGGACCTTGTCTGTGTGGTTGTGAGCCGGGAGCTGACACACCTGTGCTTGGCCAAGAACCCCA  
847▶ L E N C H L T E A N C K D L A A V L V V S R E L T H L C L A K N P

**Acc65I (3239)**  
3201 TTGGGAATACAGGGGTGAAGTTTCTGTGTGAGGGCTTGAAGTACCCCGAGTGTAACTGCAGACCTTGGTGTCTTGGAACTGCGACATAACTAGCGATGG  
880▶ I G N T G V K F L C E G L R Y P E C K L Q T L V L W N C D I T S D G

**HindIII (3316)**  
3301 CTGCTGCGATCTCACAAAGCTTCTCCAAGAAAATCAAGCCTGTTGTGTTGGATCTGGGGCTGAATCACATAGGAGTTAAGGGAATGAAGTTCTGTGT  
913▶ C C D L T K L L Q E K S S L L C L D L G L N H I G V K G M K F L C

3401 GAGGCTTGTGAGGAAACCTGTGCAACTTGTGAGTGTCTGTGGTGTGGGGATGTTCCATCCCTCCGTTGAGTGTGAAGACCTGTCTGTCCCTCAGCT  
947▶ E A L R K P L C N L R C L W L W G C S I P P F S C E D L C S A L S

**BspLU11I (3580)**  
3501 GCAACCAGAGCCTCGTCACTCTGGACCTGGGTCAGAATCCCTTGGGGTCTAGTGGAGTGAAGATGCTGTTTGAACCTTGACATGTTCCAGTGGCACCT  
980▶ C N Q S L V T L D L G Q N P L G S S G V K M L F E T L T C S S G T L

3601 CCGGACACTCAGGTTGAAAATAGATGACTTTAATGATGAACCTAATAAGCTGTGAAGAAATAGAAGAAAAAACCACAACCTGATTATTGATACTGAG  
1013▶ R T L R L K I D D F N D E L N K L L E E I E E K N P Q L I I D T E

**BspHI [m] (3740)** **MscI (3757)**  
3701 AAACATCATCCCTGGGAGAAAGCCTTCTTCTCATGACTTATGATCTGAGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGGCAAACCA  
1047▶ K H H P W A E R P S S H D F M I •

**BspHI (3732)** **NheI (3751)**  
3801 CAACTAGAATGCAGTGAATAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAACAAGTTAAACAACA  
3901 CAATTGCATTCATTTTATGTTTCAGGTTGAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAAACCTTACAAATGTGGTATGGAATCTAAAATACA  
4001 GCATAGCAAAACCTTAACTCCAATCAAGCCTCTACTTGAATCCTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGCTGTGCCAATGTGCATTA  
4101 GCTGTTGCGAGCCTCACCTTCTTTCATGGAGTTAAGATATAGTGATTTTCCAAGGTTTGAAGTACTGCTCTTCATTTCTTTATGTTTTAAATGCACTGA  
4201 CCTCCACATTCCTTTTATGATAAATATTCAGAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTTATTAGGCAGAATCCAGATGCTCAA  
4301 GGCCCTTCATAATATCCCCAGTTTAGTAGTTGACTTAGGGAACAAAGAACCTTTAATAGAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTT  
4401 CCTGGTGTACTTGGGGGATGAGTTCTCAATGGTGGTTTTGACCAGCTTGCATTCTCAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATG  
139▶ 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

**SspI (4224)** **Swal (4238)**  
4501 AGCTCTCTGCACATGCCACAGGGCTGACCACCCTGATGGATCTGTCCACCTCATCAGAGTAGGGTGCCTGACAGCCACAATGGTGTCAAAGTCTTCT  
105▶ 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 Q

4601 GCCGTTGCTCACAGCAGACCAATGGCAATGGCTTCCAGCAGACAGTACCCTGCCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCAGT  
72▶ 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 T

4701 CTTGGTCTGATGGCCGCCGACATGGTGTCTGTCTCATAGAGCATGGTATCTTCTCAGTGGCGACCTCCACAGCTCCAGATCCTGCTGAGAG  
39▶ 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 (4805)** **AseI (4871)**  
4801 ATGTTGAAGTCTTTCATGGTGGCCCTCTATAGTGAGTCTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGT  
5▶ I N F T K M

4901 CTCAGCTTATCTGACGGTTCACTAAACGAGCTCTGCTTATATAGACCTCCACCGTACACGCCTACCGCCATTGCGTCAATGGGGCGGAGTTGTTAC  
5001 GACATTTTGGAAAGTCCCGTTGATTTACTAGTCAAAACAAACTCCATTGACGTCAATGGGGTGGAGACTTGGAAATCCCGTGAGTCAAACCGCTATCC  
5101 ACGCCATTGATGTACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTACTGCCAAGTAGGAAAGTCCATAAGGTATGATAC  
5201 TGGCATAATGCCAGGCGGGCATTACCCTCATTGACGTCAATAGGGGGCTACTTGGCATATGATACTTGTACTGCCAAGTGGGAGTTTACC  
5301 GTAAATACTCCACCAATTGACGTCAATGAAAGTCCCTATTGGCGTACTATGGGAACATACGTCAATATTGACGTCAATGGGCGGGGCTGTGGGCGG  
5401 TCAGCCAGGCGGGCATTACCCTAAGTTATGTAACGCTGAGGTTAATTAAGAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGG  
5501 CCGGTTGCTGGCGTTTTTCCATAGGCTCCGCCCTGACGAGCATCACAATAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAG  
5601 ATACCAGGCGTTTCCCTGGAAGTCCCTCGTGCCTCTCTGTTCCGACCTGCGGTTACCGGATACCTGTCCGCTTTCTCCTTCGGGAAGCGTG  
5701 GCGTTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCAAGCTGGGCTGTGTGCACGAACCCCGTTCCAGCCGACCGCT

5801 GCGCCTTATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTA

5901 TGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTC

6001 GGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGGTTTTTTTGTGGCAAGCAGCAGATTACGCGCAGAAAAAAGGAT

6101 CTCAAGAAGATCCTTTGATCTTTTCTACGGGTCTGACGCTCAGTGAACGAAAACCTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAA PacI (6185) SwaI (6194)

**EagI (6205)**

**NotI (6204)**

6201 ATC AGCGGCCGCAATAAAATATCTTTATTTTCATTACATCTGTGTGTTGGTTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAAACAAAACGA

6301 AACAAAACAACTAGCAAAATAGGCTGTCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA