



**PvuI (7)**  
**SgfI (6)**  
1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA  
101 GAGAAGGTGGCGCGGGTAAACTGGAAAGTGATGTCGTGACTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCGTATATAAGTGCAGTAGTCGCC

**HindIII (245)**  
**Psp1406I (203)** **PvuII (239)** **Bsu36I (291)**  
201 GTGAACGTTCTTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGGCTCGCATCTCTCTTACCGCGCCCGCCGCTACCTGAGGCC  
301 GCCATCCACGCGGTTGAGTGCAGTCTGCCGCTCCCGCCTGTGGTGCCTCTGAACTGCGTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

**NgoMIV (441)**  
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCTAACTCTACGCTTTTGTTCGTTT

**BstEII (555)**  
**AgeI (552)** **NcoI (560)**  
501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGCGGCTACCTGAGATCACCGGTACCATTGGAGGTGGCGGTGGAGAAGGCGGTGGCGGCGCGGC  
1▶ M E V A V E K A V A A A A

**BsrBI (642)**  
601 AGCGGCCTCGGCTGCGGCCTCCGGGGGGCCCTCGCGCGCCGAGCGGGGAGAACGAGGCCGAGAGTGGCAGGGCCCGACTCGGAGCGCGGCGCGAG  
13▶ A A S A A A S G G P S A A P S G E N E A E S R Q G P D S E R G G E

**Eco47III (797)**  
701 GCGGCCCGGCTCAACCTGTTGGACACTTGCGCCGTGTGCCACCAGAACATCCAGAGCCGGGCGCCCAAGCTGCTGCCCTGCCTGCACTCTTTCTGCCAGC  
47▶ A A R L N L L D T C A V C H Q N I Q S R A P K L L P C L H S F C Q

**Eco47III (818)** **EagI (854)**  
801 GCTGCCTGCCCGCGCCAGCGTACCTCATGCTGCCCGCCATGCTGGGCTCGGCCGAGACCCCGCCACCCGTCCTGCCCGGCTCGCCGGTCTCAG  
80▶ R C L P A P Q R Y L M L P A P M L G S A E T P P P V P A P G S P V S  
901 CGGCTCGTCCGCTTCCGACCCAAAGTTGGAGTCATTCGTTGCCAGTTTCAGCCAAAGAATGTGAGAGAGACACATCATAGATAACTTTTTTGTGAAG  
113▶ G S S P F A T Q V G V I R C P V C S Q E C A E R H I I D N F F V K  
1001 GACACTACTGAGGTTCCAGCAGTACAGTAGAAAAGTCAAATCAGGTATGTACAAGCTGTGAGGACAACGCAGAAAGCCAAATGGGTTTTGTGAGAGTGTG  
147▶ D T T E V P S S T V E K S N Q V C T S C E D N A E A N G F C V E C  
1101 TTGAATGGCTCTGCAAGACGTGTATCAGAGCTCATCAGAGGTTAAAGTTCACAAAAGACCACACTGTGACAGACAGAAAGAGGAAGTATCTCCAGAGGCAGT  
180▶ V E W L C K T C I R A H Q R V K F T K D H T V R Q K E E V S P E A V

**PvuII (1249)**  
1201 TGGTGTACCAGCCAGCGACCAGTGTGTTTGTCTTTTTATAAAAAGGACAGCTGAAGCTGTACTGTGAGACATGTGACAAAAGTACATGTCGAGACTGT  
213▶ G V T S Q R P V F C P F H K K E Q L K L Y C E T C D K L T C R D C

**HindIII (1343)**  
1301 CAGTTGTTAGAACATAAAGAGCATAGATACCAATTTATAGAAGAGCTTTTCAGAATCAGAAAGTATCATAGATACACTAATCACAAAAGTATGGAAA  
247▶ Q L L E H K E H R Y Q F I E E A F Q N Q K V I I D T L I T K L M E  
1401 AAACAAAATACATAAAATTCACAGGAAATCAGATCCAAAACAGAAATTTGAAGTAAATCAAATCAAAGCAGGTGGAACAGGATATTAAGTTGCTAT  
280▶ K T K Y I K F T G N Q I Q N R I I E V N Q N Q K Q V E Q D I K V A I  
1501 ATTTACACTGATGGTAGAAAATAAAAAAGGAAAAGCTCTACTGCATCAGTTAGAGAGCCTTGCAAAGGACCATCGCATGAAACTTATGCAACAACAA  
313▶ F T L M V E I N K K G K A L L H Q L E S L A K D H R M K L M Q Q Q

**NsiI (1639)**  
1601 CAGGAAGTGGCTGGACTCTCTAAACAATTGGAGCATGTGCATTTTTCTAAATGGGCAGTTTCCAGTGGCAGCAGTACAGCATTACTTTATAGCAAC  
347▶ Q E V A G L S K Q L E H V M H F S K W A V S S G S S T A L L Y S K

**AgeI (1712)** **NsiI (1745)**  
1701 GACTGATTACATACCGGTTACGGCACCTCCTTCGTGCAAGGTGTGATGCATCCCCAGTACCACAAACACCATCAATTTCACTGTGATCCTAGTTTCTG  
380▶ R L I T Y R L R H L L R A R C D A S P V T N N T I Q F H C D P S F W  
1801 GGCTCAAATATCATCAACTTAGTTCTTTAGTAAATCGAGGATAAAGAGAGCCAGCCACAAATGCCTAAGCAGAATCCTGTGCTGGAACAGAATTACAG  
413▶ A Q N I I N L G S L V I E D K E S Q P Q M P K Q N P V V E Q N S Q

**DraIII (1901)** **NdeI (1975)**  
1901 CCACCAAGTGGTTTATCATCAAACAGTTATCCAAGTTCCCAACAGATCAGCCTAGCTCAATTACGGCTCCAGCATATGCAGCAACAGGTAATGGCTC  
447▶ P P S G L S S N Q L S K F P T Q I S L A Q L R L Q H M Q Q Q V M A  
2001 AGAGGCAACAGGTGCAACGGAGGCCAGCACCTGTGGGTTTACCAAACCTAGAATGCAGGGGCCATCCAGCAACCTTCCATCTCTCATCAGCAACCGCC  
480▶ Q R Q Q V Q R R P A P V G L P N P R M Q G P I Q Q P S I S H Q Q P P

**EcoRV (2177)**  
2101 TCCACGTTTGATAAACTTTCAGAATCACAGCCCAACCAATGGACCAGTTCTTCTCCTCATCCTCAACAAGTACAGATATCCACCAACAGGAAACATA  
513▶ P R L I N F Q N H S P K P N G P V L P P H P Q Q L R Y P P N Q N I  
2201 CCACGACAAGCAATAAAGCCAAACCCCTACAGATGGCTTTCTTGGCTCAACAAGCCATAAAAAGTGGCAGATCAGCAGTGGACAGGGAACCCCATCAA  
547▶ P R Q A I K P N P L Q M A F L A Q Q A I K Q W Q I S S G Q G T P S

**ClaI (2386)**  
2301 CTACCAACAGCACATCCTCTACTCCTCCAGCCCCACGATTACTAGTGCAGCAGGATATGATGAAAAGGCTTTTGGTTACCTATGATCGATTTGAGCTC  
580▶ T T N S T S S T P S S P T I T S A A G Y D G K A F G S P M I D L S S

**BspEI (2433)** **ScaI (2452)** **SspI (2470)**  
2401 ACCAGTGGGAGGGTCTTATAATCTTCCCTCTCTCCGGATATTGACTGTTCAAGTACTATTATGCTGGACAATATTGTGAGGAAAGATACTAATATAGAT  
613▶ P V G G S Y N L P S L P D I D C S S T I M L D N I V R K D T N I D

**MscI (2502)**  
2501 CATGGCCAGCCAAGACCACCTCAAACAGAACGGTCCAGTCCACAAATTCATCAGTGCATCTCCAGGCTTGCAGGACCTGTTACTATGACTAGTGTAC  
647▶ H G Q P R P P S N R T V Q S P N S S V P S P G L A G P V T M T S V

**DraIII (2615)** **SapI (2654)**  
2601 ACCCCCCAATACGTTTCACTAGTCCCTCCAGCGTTGGAAGCCGAGGAAGCTCTGGCTTCCAGCAAACAGCAGGAGCTGACTCTACACAAAAGTCCC  
680▶ H P P I R S P S A S S V G S R G S S G S S S K P A G A D S T H K V P

**BstBI (2720)**

2701 AGTGGTCATGCTGGAGCCAATTCGAATAAAAACAAGAAAACAGTGGACCACCGGAAAATTATGATTTCCCTGTTGTTATAGTGAAGCAAGAATCAGATGAA  
713▶ V V M L E P I R I K Q E N S G P P E N Y D F P V V I V K Q E S D E  
2801 GAATCTAGGCCTCAAATGCCAATTATCCAAGAAGCATACTACCTCCCTGCTCTTAAATAGCAGTCAGAGCTCTACTTCTGAGGAGACTGTGCTAAGAT  
747▶ E S R P Q N A N Y P R S I L T S L L L N S S Q S S T S E E T V L R

**BamHI (2976)**

2901 CAGATGCCCTGATAGTACAGGAGATCAACCTGGACTTCACCAGGACAATTCCTCAAATGAAAAGTCTGAATGGTTGGATCCTTCCCAGAAGTCACTCT  
780▶ S D A P D S T G D Q P G L H Q D N S S N G K S E W L D P S Q K S P L  
3001 TCATGTTGGAGAGACAAGGAAAGAGGATGACCCCAATGAGGACTGGTGTGCAAGTTTGTCAAACGGAGGGAACTCCTCTGCTGTGAAAAGTGCSCAAA  
813▶ H V G E T R K E D D P N E D W C A V C Q N G G E L L C C E K C P K

**XcmI (3142)**

3101 GTATTCCATCTTTCTTGTGATGTGCCACATTGACAAATTTTCCAAGTGGAGAGTGGATTTGCACCTTCTGCCGAGACTTATCTAAACCAGAAGTTGAAT  
847▶ V F H L S C H V P T L T N F P S G E W I C T F C R D L S K P E V E

**HpaI (3258)**

3201 ATGATTGTGATGCTCCCAGTCACAACCTCAGAAAAAAGAAAACGAAGGCCTTGTAAAGTTAACACCTATAGATAAAAAGGAAGTGTGAGCGCCTACTTTT  
880▶ Y D C D A P S H N S E K K K T E G L V K L T P I D K R K C E R L L L L  
3301 ATTTCTTTACTGCATGAAATGAGCCTGGCTTTTCAAGACCCTGTTCTCTAACTGTGCCTGATTATTACAAAATAATAAAAATCCAATGGATTTGTCA  
913▶ F L Y C H E M S L A F Q D P V P L T V P D Y Y K I I K N P M D L S  
3401 ACCATCAAGAAAAGACTACAAGAAGATTATCCATGTACTCAAAACCTGAAGATTTTGTAGCTGATTTAGATTGATCTTTCAAAACTGTGCTGAATTCA  
947▶ T I K K R L Q E D Y S M Y S K P E D F V A D F R L I F Q N C A E F  
3501 ATGAGCCTGATTCAGAAGTAGCCAAATGCTGGTATAAAAACCTGAAAATTTTGAAGAAGTCTTAAAGAACCTCTATCCAGAAAAAAGGTTTCCCAAACC  
980▶ N E P D S E V A N A G I K L E N Y F E E L L K N L Y P E K K R F P K P  
3601 AGAATTACGGAATGAATCAGAAGATAATAAATTAGTGATGATTCAGATGACTTTGTACAGCCCGAAGAAACGCTCAAAGCATTGAAGAACGC  
1013▶ E F R N E S E D N K F S D D S D D D F V Q P R K K R L K S I E E R

**MscI (3742)**

3701 CAGTTGCTTAAATAATATGCAGCACCCTAGCTTGTGCTAGCTGGCCAGACATGATAAGATCATTGATGAGTTTGGACAACCCACAACCTAGAATGCAGT  
1047▶ Q L L K •

**HpaI (3874)**

3801 GAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAAGTTAAACAACAATTGCATTCAATT  
3901 TATGTTTCAGGTTTCAAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAACCTCTACAAATGTGGTATGGAATTCTAAAATACAGCATAGCAAACTTT  
4001 AACCTCCAATCAAGCCTCTACTTGAATCCTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGCTGTTGCCAATGTGCATTAGCTGTTTGCAGCCTC

**SapI (4152)**

4101 ACCTTCTTTCATGGAGTTAAGATATAGTGATTTTCCCAAGGTTTGAAGTACTGCTCTTCAATTTCTTTATGTTTTAAATGCACTGACCTCCACATTCCCT

**SspI (4209)**

**Swal (4223)**

4201 TTTTAGTAAAATATTCAGAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATAT

4301 CCCCCAGTTTAGTGTGGACTTAGGGAACAAAGAACCTTTAATAGAAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCTCGGTGACTTTGAG  
1414 • N R T Y K L

4401 GGGGATGAGTTTCTCAATGGTGGTTTTGACCAGCTTGCCATTCTCAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTCTGCACATG  
134▶ 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 R C M

4501 CCACAGGGCTGACCCTGATGGATCTGTCCACCTCATCAGAGTAGGGTGCCTGACAGCCACAATGGTGTCAAAGCTTCTGCCCCTTCTGCCCCTGACAG  
100▶ 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 S V A

4601 CAGACCAATGGCAATGGCTTCAGCACAGACAGTGACCCTGCCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCAGTCTTGGTCTGATGGC  
67▶ 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 R I A

**BbsI (4794)**

4701 CGCCCCACATGGTGCTTGTGCTCATAGAGCATGGTATCTTCTCAGTGGCGACCTCCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGGCTCTTC  
34▶ 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 F T K

**AseI (4856)**

4801 ATGGTGGCCCTCTATAGTGAGTCGATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGA  
0M ▶

4901 CGTTTCACTAAACGAGCTCTGCTTATATAGACCTCCACCCTACACGCTACCGCCATTTGGCTCAATGGGCGGAGTTGTTACGACATTTTGGAAAGT

5001 CCCGTTGATTTACTAGTCAAACAAACTCCATTGACGTCAATGGGGTGGAGACTTGGAAATCCCGTGAGTCAAACCGCTATCCAGCCATTGATGTA

**SnaBI (5139)**

5101 CTGCCAAAACCGCATCATCATGGAATAGCGATGACTAATACGTAGATGTACTGCCAAGTAGGAAAGTCCATAAAGTCACTGACTGGGCATAATGCCAG

**NdeI (5244)**

5201 GCGGGCATTACCGTCATTGACGTCAATAGGGGGCTACTTGGCATATGATACACTTGATGACTGCCAAGTGGGAGTTTACCGTAAATACTCCACCC

5301 ATTGACGTCAATGAAAAGTCCCTATTGGCGTACTATGGGAACATACGTATTATTGACGTCAATGGGCGGGGTCGTTGGGCGGTACGACAGCGGGCC

**PacI (5430)**

**PstI (5423)**

**SdaI (5422)**

5401 ATTTACCGTAAGTTATGTAACGCCTGCAGGTTAATTAAGAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGAACCGTAAAAAGCGCGTGTGCGCT  
0M ▶

5501 TTTTCCATAGGCTCCGCCCTGACGAGCATCAGAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAGATACCAGGCGTTTCC

5601 CCCTGGAAGCTCCCTCGTGCCTCTCTGTTCCGACCTGCCGTTACCGGATACCTGTCCGCTTTCTCCCTCGGGAAGCGTGGCGCTTTCTCATAGC

**ApaI (5754)**

5701 TCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCCAAGCTGGGCTGTGTGCACGAACCCCGTTCCAGCCCGACCGCTGCGCCTTATCCGGTA  
5801 ACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGCGGTGCTAC  
5901 AGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGT  
6001 AGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGGTTTTTTTGGTTTGAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTT

**EagI (6190)**

**PacI (6170) SwaI (6179) NotI (6189)**

6101 TGATCTTTTCTACGGGTCTGACGCTCAGTGAACGAAAACCTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATC AGCGGCCGAAT  
6201 AAAATATCTTTATTTTCATTACATCTGTGTGTTGGTTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAAACAAAACGAAACAAAACAACTAG  
6301 CAAAATAGGCTGTCCCAGTGAAGTGCAGGTGCCAGAACATTTCTCTATCGAA