



**PvuI (7)**  
**SgfI (6)** MfeI (82) EcoNI (96)  
1 GGATCTGGGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCCGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA  
101 GAGAAGGTGGCGCGGGTAAACTGGAAAGTGATGTCGTGTAAGTGGCTCCGCCTTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

**Psp1406I (203)** **HindIII (245)** Bsu36I (291) EcoNI (287)  
201 GTGAACGTTCTTTTTTCGCAACGGGTTTGGCCGACAGACAGCTGAAGCTTCGAGGGGCTCGCATCTCTCTTACACGCCGCCGCCCTACCTGAGGGCC  
301 GCCATCCACGCGGTTGAGTGCAGTCTGCCGCTCCCGCCTGTGGTGCCTCTGAAGTGCCTCCGCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

**NgoMI (441)**  
**NaeI (441)**  
401 GGGCCTTTGTCCGGCGCTCCCTTGGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCAACTCTACGTCTTTGTTTCGTTT

**NcoI (560)**  
**BstEII (555)**  
**AgeI (552)**  
501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGCGCGCTACCTGAGATCACCGGTACCATGGGGTGGCTCCCACTCCTGCTGCTTCTGACTCAATG  
1 M G W L P L L L L L T Q C

**SmaI (605)** **XmnI (630)** **XmaI (688)** **SrfI (687)**  
601 CTTAGGGGTCCTGGGACAGCGCTCGCCATTGAATGACTTCCAAGTGTCTCCGGGACACAGAGCTACAGCACCTGCTACATGCGGTGGTCCCGGGCCTTGG  
13 L G V P G Q R S P L N D F Q V L R G T E L Q H L L H A V V P G P W  
701 CAGGAGGATGTGGCAGATGCTGAAGAGTGTGCTGGTGCCTGTGGGCCCTTAATGGACTGCCGGCCTTCCACTACAACGTGAGCAGCCATGGTTGCCAAC  
47 Q E D V A D A E E C A G R C G P L M D C R A F H Y N V S S H G C Q

**NcoI (805)** **BsiWI (879)** Eco105I (877)  
801 TGCTGCCATGGACTCAACTCGCCCCACAGAGGCTGCGGGCTTCTGGGCGCTGTGACCTCTCCAGAAGAAAGACTACGTACGGACCTGCATCATGAA  
80 L L P W T Q H S P H T R L R R S G R C D L F Q K K D Y V R T C I M N

**BstXI (929)**  
901 CAATGGGGTTGGGTACCGGGGACCATGGCCACGACCGTGGTGGCCTGCCCTGCCAGGCTTGGAGCCACAAGTCCCGAATGATCACAAGTACACGCCCC  
113 N G V G Y R G T M A T T V G G L P C Q A W S H K F P N D H K Y T P

**BspEI (1004)**  
1001 ACTCTCCGGAATGGCCTGAAGAGAAGTCTGCCGTAACCTGATGGGACCCCGGAGGTCCTTGGTGTACACAACAGACCCTGCTGTGCGCTTCCAGA  
147 T L R N G L E E N F C R N P D G D P G G P W C Y T T D P A V R F Q  
1101 GCTGCGGCATCAAATCCTGCCGGGAGGCGCGTGTGTCTGGTGAATGGCAGGAATACCGGGCGCGGTAGACCGCACGGAGTCAAGGCGCGAGTGCCA  
180 S C G I K S C R E A A C V W C N G E E Y R G A V D R T E S G R E C Q

**PshAI (1255)**  
1201 GCGCTGGGATCTTTCAGCACCCGCACCCAGCACCCCTTCGAGCCGGCAAGTTCCTCGACCAAGGCTGGACGACAATATTGCCGAATCCTGACGGCTCC  
213 R W D L Q H P H Q H P F E P G K F L D Q G L D D N Y C R N P D G S

**NcoI (1306)** **BsrBI (1300)** **BamHI (1323)**  
1301 GAGCGCCATGGTGTACTACTACGATCCGATCCGAGATCGAGCGAGAGTCTGTGACTCCCCGCTGCGGGTCCGAGGCACAGCCCCGCCAAGAGGCCACAA  
247 E R P W C Y T T D P Q I E R E F C D L P R C G S E A Q P R Q E A T  
1401 CTGTCAGTGTCTCCGCGGAAGGGTGAAGGCTACCGGGGACAGCCAATACCACCACTGCGGGCGTACCTTGCACGCTTGGGACGCGCAAATCCCTCA  
280 T V S C F R G K G E G Y R G T A N T T T A G V P C Q R W D A Q I P H

**MluI (1526)** **KasI (1578)**  
1501 TCAGCACCGATTTACGCCAGAAAAATACGCGTGCAAAGACCTTCGGGAGAAGTCTGCCGGAACCCCGACGGCTCAGAGGCGCCCTGGTCTTCACTG  
313 Q H R F T P E K Y A C K D L R E N F C R N P D G S E A P W C F T L

**BssHIII (1611)** **SphI (1607)** **BsrGI (1642)**  
1601 CGGCCCGCATGCGCGGCTTTTTGCTACCAGATCCGCGTGTGACAGACAGCTGCGGCCCGAGGACTGCTACCACGGCGCAGGGGAGCAGTACCGCG  
347 R P G M R A A F C Y Q I R R C T D D V R P Q D C Y H G A G E Q Y R

**SphI (1791)**  
1701 GCACGGTCAAGAACCCGCAAGGGTGTCCAGTCCAGCGCTGGTCCGCTGAGACGCCGCACAAGCCGAGTTACGTTTACCTCCGAACCGCATGCACA  
380 G T V S K T R K G V Q C Q R W S A E T P H K P Q F T F T S E P H A Q

**NcoI (1839)**  
1801 ACTGGAGGAGAAGTCTGCCGGAACCCAGATGGGGATAGCCATGGGCCCTGGTGTACACGATGGACCAAGGACCCATTGACTACTGTGCCCTCGCA  
413 L E E N F C R N P D G D S H G P W C Y T M D P R T P F D Y C A L R  
1901 CGTGGCTGATGACAGCCGATCAATCCTGGACCCCGAGACAGGTGACGTTTGAAGTGTGGCAAGAGGGTGGATCGGCTGGATCAGCGCGT  
447 R C A D D Q P P S I L D P P D Q V Q F E K C G K R V D R L D Q R R

**XcmI (2000)**  
2001 CCAAGCTGCGGTTGGGGGATCCGGGCAACTCACCTGGACAGTCAAGTTCGCGAATCGGAGGGCCAGCATTCTCGGGGGGTCTCTAGTGAA  
480 S K L R V V G G H P G N S P W T V S L R N R Q G Q H F C G G S L V K  
2101 GGAGCAGTGGATACTGACTGCCCGCAGTGTCTCTCTGCGATATGCCTCTCACGGGCTATGAGGTATGGTTGGGACCCCTGTTCCAGAACCACAG  
513 E Q W I L T A R Q C F S S C H M P L T G Y E V W L G T L F Q N P Q

**SmaI (2222)** **Bsu36I (2252)** **BglII (2287)**  
2201 CATGGAGAGCAAGCCTACAGCGGTTCCAGTAGCAAGATGGTGTGGGCGCTCAGGCTCCAGCTTGTCTGCTCAAGCTGGAGAGATCTGTGACCC  
547 H G E P S L Q R V P V A K M V C G P S G S Q L V L L K L E R S V T  
2301 TGAACCAGCGTGTGGCCCTGATCGCTGCCCCCTGAATGGTATGTGGTGCCTCCAGGACCAAGTGTGAGATTGACGGTGGGGTGGAGCAAAAGGTAC  
580 L N Q R V A L I C L P P E W Y V V P P G T K C E I A G W G E T K G T

**Tth111I (2407)** **ApaLI (2496)**  
2401 GGGTAATGACACAGTCTAAATGTGGCCTTGCTGAATGTCATCTCCAACCCAGGAGTGAACATCAAGCACCGAGGACGTGTGCGGGAGAGTGAGATGTGC  
613▶ G N D T V L N V A L L N V I S N Q E C N I K H R G R V R E S E M C  
2501 ACTGAGGGACTGTTGGCCCTGTGGGGCCTGTGAGGGTGACTACGGGGGCCACTTGCTGTCTTACCCACAAGTGTGGGCTCTGGAAGGAATTATAA  
647▶ T E G L L A P V G A C E G D Y G G P L A C F T H N C W V L E G I I

**FspI (2614)** **MluI (2644)**  
2601 TCCCCAACCGAGTATGCGCAAGGTCCCGCTGGCCAGCTGTCTTACCGGTGTCTCTGTGTTTGTGGACTGGATTACAAGGTCATGAGACTGGGTTAGGC  
680▶ I P N R V C A R S R W P A V F T R V S V F V D W I H K V M R L G •

**NheI (2718)**  
2701 CCAGCCTTGATGCCATATGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGGACAACCACTAGAATGCAGTGAAAAAATGCTTTATTT

**HpaI (2856)** **MfeI (2867)**  
2801 GTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAAAGTTAAACAACAACAATTGCATTCATTTTATGTTTCAGGTTTCAGGG

**EcoRI (2952)**  
2901 GGAGGTGTGGAGGTTTTTAAAGCAAGTAAAACCTCTACAAATGTGGTATGGAATTCATAAATACAGCATAGCAAACTTTAACCTCCAAATCAAGCCT  
3001 CTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTTGCAGCCTCACCTTCTTTCATGGAGTT

**SspI (3191)**  
3101 TAAGATATAGTGTATTTTCCAAGGTTTGAAGTACTAGCTCTTCATTTCTTTATGTTTTAAATGCACTGACCTCCACATTCCCTTTTATGAAAAATTACAG

**SwaI (3205)**  
3201 AAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTG

3301 GACTTAGGGAACAAAGGAACCTTAATAGAAATGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCCTGGTACTTGAGGGGGATGAGTTCCTCAAT  
141◀ • N R T Y K L P I L E E I

**SacI (3466)** **BstXI (3495)**  
3401 GGTGGTTTTGACCAGCTTGCATTTCATCTCAATGAGCACAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTCTGCACATGCCACAGGGGCTGACCACC  
128◀ 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 V  
3501 CTGATGGATCTGCCACCTCATCAGAGTAGGGGTGCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCCGTTGCTCACAGCAGACCCAATGGCAATGG  
94◀ 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 I A

**StuI (3630)**  
3601 CTTGAGCAGACAGTACCTGCAATGTAGGCTCAATGTGGACAGCAGAGATGATCTCCCAGTCTTGGTCTGATGGCCGCCGACATGGTGCTT  
61◀ 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 H K

**Eco147I (3630)** **XmnI (3772)**  
3701 GTTGCTCATAGAGCATGGTATCTTCTCAGTGGCGACTCCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGTCTTCATGATGGCCCTCTATAG  
28◀ 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 ◀

**VspI (3838)** **AseI (3838)** **SacI (3895)**  
3801 TGAGTCGTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTTCACTAAACGAGCT

**SpeI (3993)**  
3901 CTGCTTATATAGACCTCCCACCGTACACGCCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTTACGACATTTTGGAAAGTCCCGTTGATTTACTAGT  
4000 CAAAAAAGTCCCATGACGTCAATGGGGTGGAGACTTGAAATCCCGTGAGTCAAACCGCTATCCACGCCATTGATGACTGCCAAAACCGCATCA

**Eco105I (4121)**  
4100 TCATGGTAATAGCGATGACTAATACGTAGATGTACTGCCAAGTAGGAAAGTCCATAAGGTCATGTAAGTGGGCATAATGCCAGGCGGGCATTACCGTC  
4200 ATTGACGTCAATAGGGGCGTACTTGGCATATGATACACTTGTACTGCAAGTGGGCGAGTTTACCGTAAATACTCCACCCATTGACGTCAATGGAAA  
4300 GTCCTATTGGCGTTACTATGGGAACATACGTCAATTATTGACGTCAATGGGCGGGGTCGTTGGGCGGTCAGCCAGGCGGGCATTACCGTAAGTTATG

**PstI (4405)** **SdaI (4404)** **PacI (4412)** **BspLU11I (4422)**  
4400 TAACGCCTGCAGGTTAA TTAAGAACATGTGAGCAAAGGCCAGCAAAGGCCAGGAACCGTAAAAAGCCGCTTGTGGCGTTTTTCCATAGGCTCC  
4498 GCCCCCTGACGAGCATCAAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCTCGGAAGCTCCCT  
4598 CGTGCGCTCTCTGTTCCGACCCTGCCGTTACCGGATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTGGCGCTTTCTCATAGCTCACGCTGTAGGTAT

**ApaLI (4736)**  
4698 CTCAGTTCGGTGTAGGTCGTTTCGCTCCAAGCTGGGCTGTGTGCACGAACCCCGTTCAGCCGACCGCTGCGCTTATCCGGTAACTATCGTCTTGTAGT  
4798 CCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCTGGAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTTCTTGAAGTG  
4898 GTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGTGAAGCCAGTTACCTTCGAAAAAGAGTTGGTAGCTCTTGTATCCGGC  
4998 AAACAAACCACCGCTGGTAGCGGTGTTTTTTTTGTTTGAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTCTACGG

**EagI (5172)** **PacI (5152)** **SwaI (5161)** **NotI (5171)**  
5098 GGTCTGACGCTCAGTGAACGAAAACTCACGTTAAGGGATTTGGTCTAGGCTAGTTAATTAACATTTAAATC AGCGGCCCAATAAAATATCTTTATTT  
5198 TCATTACATCTGTGTGTTGGTTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAAAACAAAACGAAAAACAAAACAACTAGCAAAATAGGCTGTCC  
5298 CCAGTGCAAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA