



**PvuI (7)**  
**SgfI (6)** 1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGCAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA EcoNI (96)

101 GAGAAGTGGCGCGGGTAAACTGGAAAGTGATGTCGTGTAAGTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

**HindIII (245)** **Bsu36I (291)**  
**Psp1406I (203)** 201 GTGAACGTTCTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCTTACACGCCGCCGCCCTACCTGAGGCC EcoNI (287)

301 GCCATCCACGCCGTTGAGTCGCGTTTCTGCCGCTCCCGCCTGTGGTGCTCTGAACTGCGTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

**NgoMIV (441)** 401 GGGCCTTTGTCGGCGCTCCCTTGAGCCTACCTAGACTCAGCGGCTCTCCACGCTTGGCTGACCCTGCTTGTCTAACTCTACGCTTTTGTTCGTTT

**NcoI (560)**  
**BstEII (555)**  
**AgeI (552)** 501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGGCCCTACCTGAGATCACCGGTCACCATGGCTCTCTCTTTCTCTACCCCTTGTGCATGCAGGG  
1▶ M A L L F L L P L V M Q G

**SacII (623)** 601 TGTGAGCAGGGCTGAGATGGGCACCGGATCTGGGGCGTCTCAGTGCCTACCACTAATGTTACAATTGAATCCTATAACATGAACCTATCGTA  
13▶ V S R A E M G T A D L G P S S V P T P T N V T I E S Y N M N P I V

**EcoO109I (725)** 701 TATTGGGAGTACCAGATCATGCCACAGGTCCTGTTTTACCGTAGAGGTAAGAAGTATGGTGTAAAGAATTCAGAATGGATTGATGCCTGCATCAATA  
47▶ Y W E Y Q I M P Q V P V F T V E V K N Y G V K N S E W I D A C I N

801 TTTCTCATATTGTAATATTCTGATCATGTTGGTATCCATCAAATCTCTTTGGGTCAGAGTTAAAGCCAGGTTGGACAAAAAGAATCTGCCTA  
80▶ I S H H Y C N I S D H V G D P S N S L W V R V K A R V G Q K E S A Y

**EcoRV (958)** **BspHI (983)** 901 TGCAAAGTCAAAGAATTTGCTGTATGCCGAGATGGAAAAATTGGACCACCTAACTGGATATCAGAAAAGGAGAGAAGCAAATCATGATTGACATATTT  
113▶ A K S E E F A V C R D G K I G P P K L D I R K E E K Q I M I D I F

**BsaBI (1039)** **BsrGI (1073)** 1001 CACCCTTCAGTTTTGTAATGGAGACGAGCAGGAAGTCGATTATGATCCCGAAACTACCTGTTACATTAGGGTGTACAATGTGTATGTGAGAATGAACG  
147▶ H P S V F V N G D E Q E V D Y D P E T T C Y I R V Y N V Y V R M N

**ScaI (1196)** 1101 GAAGTGAGATCCAGTATAAAATACTCACGCAGAAGGAAGATGATTGTGACGAGATTGAGTCCAGTATCCAGTATCCTCACTGAATTCTCAGTA  
180▶ G S E I Q Y K I L T Q K E D D C D E I Q C Q L A I P V S S L N S Q Y

1201 CTGTGTTTCAGCAGAAGGAGTCTTACATGTGTGGGGTGTACAAGTCAAAGAAAGTTGTATTACCATTTTCAATAGCAGTATAAAAGTTCT  
213▶ C V S A E G V L H V W G V T T E K S K E V C I T I F N S S I K G S

**AseI (1378)** 1301 CTTTGATTCCAGTTGTTGCTGCTTACTACTCTTTCTAGTGCTTAGCCTGGTATTTCATCTGTTTTTATATTAAGAAAATTAATCCATTGAAGGAAAAA  
247▶ L W I P V V A A L L L F L V L S L V F I C F Y I K K I N P L K E K

1401 GCATAATATTACCAAGTCTTGTCTGTGGTAAGAAGTGTACTTTAGAGACAAAACCTGAATCAAATATGTATCACTCATCACGTCATACCAGCC  
280▶ S I I L P K S L I S V V R S A T L E T K P E S K Y V S L I T S Y Q P

**Ppu10I (1561)**  
**SapI (1528)** **SphI (1559)** **BbsI (1570)** 1501 ATTTTCCTTAGAAAAGGAGGTGGTCTGTGAAGAGCGGTTGCTCCAGCAACAGTTCAGGCGATGCATACCAGAACAAATCCAGGAAAAGTGAACATACA  
313▶ F S L E K E V V C E E P L S P A T V P G M H T E D N P G K V E H T

**XmaI (1659)**  
**Tth11I (1651)** 1601 GAAGAAGTTCTAGTATAACAGAAGTGGTACTGACTGAAGAAAATATTCTGACGTGGTCCCGGCGAGCCATCTGACTCCAATAGAGAGAGAGTTCTT  
347▶ E E L S S I T E V V T T E E N I P D V V P G S H L T P I E R E S S

**XcmI (1716)** 1701 CACCTTTAAGTAGTAACAGTCTGAACCTGGCAGCATCGCTTTAAACTCGTATCACTCCAGAAATGTTCTGAGAGTGATCACTCCAGAAATGGTTTTGA  
380▶ S P L S S N Q S E P G S I A L N S Y H S R N C S E S D H S R N G F D

**PvuII (1809)**  
**BstXI (1808)** 1801 TACTGATTCAGCTGTCTGGAATCACATAGCTCCTTATCTGACTCAGAATTTCCCAAAATAATAAGGTGAAATAAAAAACAGAAGGACAAGAGCTCATA  
413▶ T D S S C L E S H S S L S D S E F P P N N K G E I K T E G Q E L I

1901 ACCGTAATAAAAGCCCCACCTCCTTTGGTTATGATAAACACATGTGCTAGTGGATCTACTTGTGGATGATAGCGGTAAGAGTCTTTGATTGGTTATA  
447▶ T V I K A P T S F G Y D K P H V L V D L L V D D S G K E S L I G Y

**BspHI (2026)** **NheI (2068)** **MscI (2074)** 2001 GACCAACAGAAGATTCCAAAGAATTTTCATGAGATCAGCTAAGTGCACCAACTTTGAAGTCTGATTTGCTAGCTGGCCAGACATGATAAGATACATTGA  
480▶ R P T E D S K E F S •

2101 TGAGTTTGACAAAACCAACTAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAAT

**HpaI (2206)** 2201 AAACAAGTTAACAACAACAATTGCATTCATTTTATGTTTCAGGTTTCAGGGGAGGTGGGGAGGTTTTTAAAGCAAGTAAAACCTCTACAAATGTGGTA

2301 TGGAATTCAAAATACAGCATAGCAAACCTTTAACCTCCAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGCT  
▶ ▶

**SapI (2484)** 2401 GTTGCCAATGTGCATTAGCTGTTTGAGCCTCACCTTCTTTTCATGGAGTTAAGATATAGTGTATTTCCCAAGGTTTGAAGTACTCTTTCATTTCTTTA

2501 TGTTTTAAATGCACTGACCTCCACATTCCCTTTTAGTAAAAATTCAGAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTTATTAGGC  
SwaI (2555)

2601 AGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGAACCTTAAATAGAAATGGACAGCAAGAAAGCG  
EcoO109I (2616)

2701 AGCTTCTAGCTTTAGTTCCTGGTACTTGGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGTTGCCATTATCTCAATGAGCACAAGCAGTCAG  
141 • 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

2801 GAGCATAGTCAGAGATGAGCTCTCTGCACATGCCACAGGGGCTGACCACCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCTGACAGCCACAAT  
111 A Y D S I 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  
BstXI (2845)

2901 GGTGTCAAAGTCTTCTGCCGTTGCTCACAGCAGACCCAATGGCAATGGCTTCAGCAGACAGTACCCTGCCAATGTAGGCCTCAATGTGGACAGCA  
78 T D F D K 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  
StuI (2980)

3001 GAGATGATCTCCCGAGTCTTGGTCTGATGGCCGCCGACATGGTGTCTGTTGCTCATAGAGCATGGTGATCTTCTCAGTGGCGACCTCCACCAGCT  
44 S I I E G 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  
AseI (3188)

3101 CCAGATCCTGCTGAGAGATGTTGAAGTCTTCATGGTGGCCCTCTATAGTGAGTCGTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAA  
11 L D Q Q S I N F T K M  
BbsI (3126)

3201 AACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTTCCTACTAAACGAGCTCTGCTTATATAGACCTCCCACCGTACACGCCTACCGCCATTTGCGTCAA  
SpeI (3343)

3301 TGGGGCGGAGTTGTTACGACATTTTGAAAGTCCCGTTGATTTACTAGICAAAACAACTCCCATTGACGTCAATGGGGTGGAGACTTGGAAATCCCCGT  
SnaBI (3471)

3401 GAGTCAAACCGCTATCCACGCCATTGATGTACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGACTGCCAAGTAGGAAAGT  
NdeI (3576)

3501 CCCATAAGGTCATGTACTGGCATAATGCCAGGCGGGCCATTTACCGTATTGACGTCAATAGGGGGCTACTTGGCATATGATACACTTGATGTACTGC  
3601 CAAGTGGGAGTTTACCCTAAATACTCCACCCATTGACGTCAATGGAAAGTCCCTATTGGCGTTACTATGGGAACATACGTCATTATTGACGTCAATGGG  
PacI (3762)

3701 CGGGGGTCTGTTGGCGGTGAGCCAGGCGGGCCATTTACCGTAAGTTATGTAACGCTGCAGGTTAATTAAGAACATGTGAGCAAAAAGGCCAGCAAAAGGC  
PstI (3755)  
SdaI (3754)

3801 CAGGAACCGTAAAAAGGCCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAATCGACGCTCAAGTCAGAGGTGGCGAAAC  
3901 CCGACAGGACTATAAAGATACCAGGCGTTTCCCCTGGAAGCTCCCTCGTGGCTCTCTGTTCCGACCCTGCCGTTACCGGATACCTGTCCGCTTTCC  
ApaLI (4086)

4001 TCCCTTCGGGAAGCGTGGCGTTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCCAAGCTGGGCTGTGTGCACGAACCCCC  
4101 CGTTCAGCCCGACCGCTGCGCTTATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGG  
4201 ATTAGCAGAGCGAGGTATGTAGGCGGTGTACAGAGTCTTGAAGTGGTGGCCTAACTACGGTACACTAGAGAACAGTATTTGGTATCTGCGCTCTGC  
4301 TGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAAACAAACCACCGTGGTAGCGGTGGTTTTTTTGTGGAAGCAGCAGATTAC  
4401 CGGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGTCTGACGCTCAGTGGAACGAAAACCTCACGTTAAGGGATTTTGGTCATGGCT  
EagI (4522)

4501 AGTTAATTAACATTTAAATC AGCGCCGCAATAAAAATATCTTTATTTTATTACATCTGTGTGTTGGTTTTTTGTGGAATCGTAACTAACATACGCTCT  
PacI (4502) SwaI (4511) NotI (4521)

4601 CCATCAAAAACAAAACGAAACAAAACAACTAGCAAATAGGCTGTCCCAGTGAAGTGCAGGTGCCAGAACATTTCTCTATCGAA