



**PvuI (7)**  
**SgfI (6)** 1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA **MfeI (82)**

101 GAGAAGGTGGCGCGGGTAAACTGGAAAGTGATGTCGTGACTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

**HindIII (245)**  
**Psp1406I (203)** 201 GTGAACGTTCTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCTTACCGCGCCGCCCTACCTGAGGCC **PvuII (239)** **Bsu36I (291)**

301 GCCATCCACGCGGTTGAGTCGCGTTCTGCCGCTCCCGCCTGTGGTGCCTCTGAAGTGCCTCCGCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

**NgoMIV (441)**  
**NaeI (441)** 401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCAACTCTACGTCTTTGTTTCGTTT

**KasI (535)** **AgeI (552)** **BspHI (560)**  
501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGGGCGCTACCTGAGATCACCGGTCATCATGAGGTTTCTGTAGCAGTTCCTGGCGGCAGCGCCGC 1 M R F R E Q F L G G S A A

601 GATGCCGGGCGGACCTGCAGCGGGCTGCCGCTGCTGTGGCGTCTGCGGCTGCACCTCGGCGTACCCTCGTCTATTACCTCTCTGGCCGGAT **BssHII (650)**  
13 M P G A T L Q R A C R L L V A V C A L H L G V T L V Y Y L S G R D

701 CTGAGCCGCTGCCCAAGTTGGTGGAGTCTCCTCTACTGCAGGGCGCAGAACGGCGCCGAGCCAGCAAGCAGCCCCAGGAGAGCAGCGGCCG **KasI (757)** **SacII (796)**  
47 L S R L P Q L V G V S S T L Q G G T N G A A S K Q P P G E Q R P

801 GGGGTGCGCGCCGCCGCTCCTTAGGCGTCTCCCCGAAGCCTCGCCCGGGTCTGACTCCAGCCCTGGTGCAGCTTCTGGCCCCGGCTTGAAGAGCAA **XmaI (846)**  
80 R G A R P P P L G V S S P K P R P G L D S S P G A A S G P G L K S N

901 CTTGTCTTGTGCCAGTCCCACCACCTGGACTGTGTGCTGCCAGTTCGCTGAGGAGTCCCCTGCTCGTTGGCCCCATGCTGATTGACTTT **PshAI (932)** **Bsu36I (955)**  
113 L S S L P V P T T T G L L S L P A C P E E S P L L V G P M L I D F

**MscI (1097)**  
1001 AATATTGCTGTGGATCTGGAGCTTTTGGCAAAGAAGAACCCAGAGATAAAGACGGGCGCGTACTCCCCAAGGACTGTGTCTCTCCTCACAAAGGTGG **Tth11I (1075)** **DraIII (1090)**  
147 N I A V D L E L L A K K N P E I K T G G R Y S P K D C V S P H K V

1101 CCATCATCATCCATTCCGTAACCGGACGAGCATCTCAAATACTGGCTGATTATTTGCATCCCATCCTTACGCGCCAGCAACTCGACTATGGCATCTA **StuI (1265)**  
180 A I I I P F R N R Q E H L K Y W L Y Y L H P I L Q R Q Q L D Y G I Y

1201 CGTCATCAATCAGGCTGGAGACACCATGTTCAATCGAGCTAAGCTGCTCAATATTGGCTTTCAAGAGGCTTGAAGGACTATGATTACAACCTGCTTTGTG **StuI (1265)**  
213 V I N Q A G D T M F N R A K L L N I G F Q E A L K D Y D Y N C F V

1301 TTCAGTGTATGGACCTCATTCCGATGGACGACCGTAATGCCTACAGTGTTTTTTGCAGCCACGGCACATTTCTGTTGCAATGGACAAGTTCGGGTTTA **NdeI (1406)**  
247 F S D V D L I P M D D R N A Y R C F S Q P R H I S V A M D K F G F

1401 GCCTGCCATATGTTCAAGTATTTTGGAGGTGCTCTGCTCTCAGTAAACAACAGTTTCTTCCATCAATGGATTCCCTAATAATTATGGGGTTGGGGAGG **NdeI (1406)**  
280 S L P Y V Q Y F G G V S A L S K Q C F L A I N G F P N N Y W G W G G

1501 AGAAGATGACGACATTTTAAACAGATTAGTTTCAAAAGGCATGCTATATCAGTCCAAATGCTGTAGTAGGGAGGTGTCGAATGATCCGGCATCAAGA **BsrGI (1704)** **NheI (1797)**  
313 E D D D I F N R L V H K G M S I S R P N A V V G R C R M I R H S R

1601 GACAAGAAAAATGAGCCCAATCCTCAGAGTTTGGCCGATCGCATACAAAGGAAAGATGCGCTTCGATGGTTTGAACCTACCTACCTACAAGGTG **NheI (1797)**  
347 D K K N E P N P Q R F D R I A H T K E T M R F D G L N S L T Y K V

1701 TGGATGTACAGAGATACCGTTATATACCAAATCACAGTGGACATCGGGACCCGAGATAGCATTTTTAGTACCAATAAGAGACCTGAGAATGGCCGCT **NheI (1797)**  
380 L D V Q R Y P L Y T Q I T V D I G T P R •

**MscI (1803)**  
1801 AGCTGGCCAGACATGATAAGATACATTGATGAGTTTGGACAAACCACAACCTAGAATGCAGTGAATAAATGCTTTATTTGTGAATTTGTGATGCTATTG

**HpaI (1935)** **MfeI (1946)**  
1901 CTTTATTTGTAACCATTATAAGCTGCAATAAACAGTTAAACAACAACATTGCATTCTTTTATGTTTCAGGTTACAGGGGAGGTGTGGGAGTTTTTTA

**EcoRI (2031)**  
2001 AAGCAAGTAAACCTCTACAAATGTGGTATGGAATCTAAATACAGCATAGCAAACTTTAACCTCCAAATCAAGCCTCTACTTGAATCCTTTTCTGAG **EcoRI (2031)**

2101 GGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTTGCAGCCTCACCTTCTTTCATGGAGTTAAGATATAGTGTATTTCC

**SwaI (2284)**  
2201 AAGTTTGAAGTCTCTCATTCTTTATGTTTTAAATGCACTGACCTCCACATTCCTTTTTAGTAAATATTCAGAAATAATTTAAATACATCATT **SwaI (2284)**

**EcoO109I (2345)**  
2301 GCAATGAAAAATAATGTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGACC **EcoO109I (2345)**

2401 TTTAATAGAAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCTGGTGTACTTGAGGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCC **EcoO109I (2345)**  
141 • N R T Y K L P I L E E I T T K V L K G

**SacI (2545)** **BstXI (2574)**  
2501 ATTCATCTCAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTGACATGCCACAGGGGCTGACCACCTGATGGATCTGTCCACCTCA **SacI (2545)** **BstXI (2574)**  
121 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 R I S R D V E

2601 TCAGAGTAGGGTGCCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCGTTGCTCACAGCAGACCAATGGCAATGGCTTCAGCACAGACAGTGACCC  
87 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 E A C V T V R  
StuI (2709)

2701 TGCCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCCAGTCTTGGTCTGATGGCCGCCCGACATGGTGCTTGTTCCTCATAGAGCATGGT  
54 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 N D E Y L M T  
BspHI (2859)

2801 GATCTTCTCAGTGGCGACCTCCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGGTCTTCATGATGGCCCTCTATAGTGAGTCGTATTATACTATGCC  
21 I K E T A V E V L E L D Q Q S I N F T K M  
XmnI (2851)

2901 GATATACTATGCCGATGATTAATTGTCAAACACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTCACTAAACGAGCTCTGCTTATATAGACCTCCAC  
AseI (2917) SacI (2974)

3001 CGTACACGCCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTTACGACATTTTGAAAGTCCCGTTGATTTACTAGTCAAACAAACTCCCATTGACG  
SpeI (3072)

3100 TCAATGGGGTGGAGACTTGAAATCCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTAAGTCCAAAACCGCATCATCATGGTAATAGCGATGACTA  
SnaBI (3200)

3200 ATACGTAGATGTACTGCCAAGTAGGAAAGTCCATAAGGTCATGTACTGGCATAATGCCAGGCGGGCCATTTACCGTCATTGACGTCAATAGGGGGCGT  
NdeI (3305)

3300 ACTTGGCATATGATACACTTGATGTACTGCCAAGTGGGCGATTTACCGTAAATACTCCACCCATTGACGTCAATGGAAAGTCCCTATTGGCGTACTATG  
SdaI (3483) PacI (3491)

3400 GGAACATACGTCATTATTGACGTCAATGGGCGGGGTCGTTGGGCGGTACAGCCAGGCGGGCCATTTACCGTAAGTTATGTAACCGCTGCAGGTTAAAT  
BspLU11I (3501)

3498 AAGAACATGTGAGCAAAGGCCAGCAAAGGCCAGGAACCGTAAAAGGCCGCTTGTGGCGTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACA  
3598 AAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTTCCCCCTGGAAGCTCCCTCGTGCCTCTCCTGTTCCGAC  
3698 CCTGCCGTTACCGGATACCTGTCCGCTTTCTCCCTTCGGAAGCGTGGCGCTTTCATAGCTCACGCTGTAGGTATCTCAGTTCCGGTGTAGGTCGTT

3798 CGCTCCAAGCTGGGCTGTGTGCACGAACCCCCGTTACGCCCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGACT  
ApaLI (3815)

3898 TATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTTCCTGAAGTGGTGGCTAACTACGGCTACAC  
3998 TAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGC  
4098 GGTGGTTTTTTTTGTTTGAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGTCTGACGCTCAGTGAACG

4198 AAAACTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATCAGCGGCCCAATAAAATATCTTTATTTTCATTACATCTGTGTGTTGGT  
PacI (4231) SmaI (4240)

4298 TTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAAACAAAACGAAACAAAACAACTAGCAAATAGGCTGTCCCAGTGCAAGTGCAGGTGCCA  
4398 GAACATTTCTCTATCGAA