



**PvuI (7)**  
**SgfI (6)**
**MfeI (82)** **EcoNI (96)**

1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGCAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA

101 GAGAAGGTGGCGCGGGTAAACTGGAAAGTGATGTCGTGTAAGTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

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

201 GTGAACGTTCTTTTTCGCAACGGGTTTCCGCCAGAACACAGCTGAAGCTTCAGAGGGCTCGCATCTCTCTTACCGCCGCCGCCCTACCTGAGGCC

301 GCCATCCACGCCGGTTGAGTGCCTGTTCTGCCGCTCCCGCCTGTGGTGCCTCTGAAGTGCCTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

**NgoMI (441)** **NaeI (441)**

401 GGGCCTTTGTCCGGCGCTCCCTTGGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCTCAACTCTACGTCTTTGTTTCGTTT

**NcoI (560)** **BstEII (555)**

501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGCGCCCTACCTGAGATCACCGGTACCATGGGAAAAAATAACAAGAACATTGTTCTACTAAAAGG

601 ATTAGAGGTCATCAATGATTATCATTGTTAGAAATGGTTAAGTCTTACTGAGCAACGATTTAAACTTAATTTAAAAATGAGAGAAGAGTATGACAAAATT

13▶ L E V I N D Y H F R M V K S L L S N D L K L N L K M R E E Y D K I

**BstBI (766)** **AsuII (766)**

701 CAGATTGCTGACTTGATGGAAGAAAAGTCCGAGGTGATGCTGGTTTGGGCAACTAATAAAAAATTTTCAAGATATACCAACGCTTGAAGACCTGGCTG

47▶ Q I A D L M E E K F R G D A G L G K L I K I F E D I P T L E D L A

801 AAAGCCTTTAAAAAGAAAAGTAAAAAGTAAAAGGACCGCCTATCAAGAAAAGAGGAAGAAGGAGTGGATGCTACTTACCTGCACCCTCCACAAGCAG

80▶ E T L K K E K L K V K G P A L S R K R K K E V D A T S P A P S T S S

901 CACTGTCAAAACTGAAGGAGCAGAGGCAACTCCTGGAGCTCAGAAAAGAAAATAACCAACAAAAGGCTGGACCCAAAAGGAGTAAAGTGTCCGAG

113▶ T V K T E G A E A T P G A Q K R K K S T K E K A G P K G S K V S E

**PstI (1022)** **NgoMI (1030)** **NcoI (1046)**
**SdaI (1021)** **NaeI (1030)** **BstXI (1040)**

1001 GAACAGACTCAGCCTCCCTCCTGCAGGAGCCGGCATGTCCACAGCCATGGGCCGTTCCCATCTCCAAGACCTCATTGTGAGCTCCACCCAAACACTT

147▶ E Q T Q P P S P A G A G M S T A M G R S P S P K T S L S A P P N T

**MscI (1124)**

1101 CTTCAACTGAGAACCAGAAAACAGTGGCCAAATGTCAGGTAACCTCCAGAAAGAAATGTTCTCCAAAAACGCCAGTGATAGTGAAGGTAAGTACTGAGTACAAC

180▶ S S T E N P K T V A K C Q V T P R R N V L Q K R P V I V K V L S T T

1201 AAAGCCTTTGAATATGAGACCCAGAAAATGGAGAAAATAATGTTTCATGCTACAGTGGCTACACAGACAGATTTCCATGTGAAGTTTAAAC

213▶ K P F E Y E T P E M E K K I M F H A T V A T Q T Q F F H V K V L N

1301 ACCAGCTTGAAGGAGAAATCAATGGAAGAAAATCATCATCATATCAGATTATTTGGAATATGATAGTCTCCTAGAGGTCAATGAAGAATCTACTGTAT

247▶ T S L K E K F N G K K I I I I S D Y L E Y D S L L E V N E E S T V

**Psp1406I (1419)**
**HindIII (1490)**

1401 CTGAAGCTGGTCCTAACCAAGCTTTGAGGTTCCAAAATAAATCATCAACAGAGCAAAGGAAACTCTGAAGATTGATATTCTTCAAAAACAAGCTTCAGG

280▶ S E A G P N Q T F E V P N K I I N R A K E T L K I D I L H K Q A S G

1501 AAATATTGATATGGGGTATTTATGCTACATAAGAAAACAGTAAATCAGAAGACCACAATCTACGAAATTCAGGATGATAGAGAAAAATGGATGATGTG

313▶ N I V Y G V F M L H K K T V N Q K T T I Y E I Q D D R G K M D V V

**Tth111I (1607)**

1601 GGGACAGGACAATGTCAAAATATCCCTGTGAAGAAGGAGATAAGCTCCAACCTTTCTGCTTTGACTTAGAAAAAGAACAGATGTCAAAACTGATTT

347▶ G T G Q C H N I P C E E G D K L Q L F C F R L R K K N Q M S K L I

**Ppu10I (1705)** **NsiI (1705)**

1701 CAGAAATGCATAGTTTTATCCAGATAAAGAAAAAACAACCCGAGAAACAATGACCCCAAGAGCATGAAGCTACCCAGGAACAGAGTGCAGCTTCCAAG

380▶ S E M H S F I Q I K K K T N P R N N D P K S M K L P Q E Q S Q L P N

1801 TCCTTCAGAGGCCAGCACACCTTCCCTGAGAGCCATCTCGACTCCTCAGATGCCACCAACAACCTCCAGCAGTTTCTTCAACGAAAAAGTGA

413▶ P S E A S T T F P E S H L R T P Q M P P T T P S S S F F T K K S E

**XmnI (1917)**
**PvuII (1991)**

1901 GACACAATCTCCAAAATGAATGACTTCTAGGATGACAGATACTGAAGGAAGGGAGTCATTTTCCAGGACCGTTCATGACCAGCATAGGCCCCAGCTGAGA

447▶ D T I S K M N D F M R M Q I L K E G S H F P G P F M T S I G P A E

2001 GCCATCCACACTCCTCAGATGCCTCCATCAACACCAAGCAGCAGTTTCTTAAACACGTTGAAACCAAGACTGAAGACTGAACCTGAAGAAGTTTCCAT

480▶ S H P H T P Q M P P S T P S S S F L T T L K P R L K T E P E E V S I

2101 AGAAGACAGTGCCAGAGTGACCTCAAAGAAGTGTGTGCTGAACGCAACAGAATCATTGTATATGAGCCAAAGAGCAGAAGAAAATGTTTCAAGC

513▶ E D S A Q Q S D L K E V M V L N A T E S F V Y E P K E Q K K M F H A

2201 ACAGTGGCAACTGAGAATGAAGTCTCCGAGTGAAGGTTTTAATATTGACCTAAAGGAGAAGTTACCCCAAGAAGATCATTGCCATAGCAAATTATG

547▶ T V A T E N E V F R V K V F N I D L K E K F T P K K I I A I A N Y

2301 TTTGCCGAATGGGTTCTCGAGGTATATCCTTTCACACTTGTGGCTGATGTGAATGTGACCGAAACATGGAGATCCAAAAGGATTGATTAGAAGTGC

580▶ V C R N G F L E V Y P F T L V A D V N A D R N M E I P K G L I R S A

**EcoRI (2494)**

2401 CAGCGTAACCTCTAAAATCAATCAGCTTTGCTCACAACCTAAAGGAAGTTTTGTGAATGGGGTGGTTGAGGTACATAAGAAAAATGTAAGGGGTGAATTC

613▶ S V T P K I N Q L C S Q T K G S F V N G V F E V H K K N V R G E F

2501 ACTTATTATGAAATACAAGATAACAGGGAAGATGGAAGTGGTGGTGCATGACGACTGACCACAATCAACTGTGAGGAAGGAGATAAACTGAAACTCA

647▶ T Y Y E I Q D N T G K M E V V V H G R L T T I N C E E G D K L K L

**BglIII (2644)**

2601 CCTGCTTTGAATTGGCACCGAAAAGTGGGAATACCGGGGAGTTGAGATCTGTAATTCATAGTCACATCAAGGTCATCAAGACCAGAAAAACAAGAAAGA

680▶ T C F E L A P K S G N T G E L R S V I H S H I K V I K T R K N K K D

MscI (2786)

NheI (2780)

2701 CATACTCAATCCTGATTCAAGTATGAAACTTCACCAGACTTTTTCTTCTAAAATCTGGATGTCATTGACGATAATGTTTCTAGCTGGCCAGACATGAT  
713▶ I L N P D S S M E T S P D F F F •  
2801 AAGATACATTGATGAGTTTGACAAACCACAAC TAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATT

HpaI (2918) MfeI (2929)

2901 ATAAGCTGCAATAAACAAGTTAAACAACAACAATTGCATTCATTTATGTTTCAGGTTTCAGGGGAGGTGTGGGAGTTTTTTAAAGCAAGTAAACCTCT

EcoRI (3014)

3001 ACAAATGTGGTATGGAATTCTAAAATACAGCATAGCAAACCTTAACTCCAAATCAAGCCTCTACTTGAATCCTTTCTGAGGGATGAATAAGGCATAG  
3101 GCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTTCAGCCTCACCTTCTTTTCATGGAGTTTAAAGTATAGTGTATTTCCCAAGTTTGAAGTAGCTC

SwaI (3267)

3201 TTCATTTCTTTATGTTTTAAATGCACTGACCTCCACATTCCCTTTTAGTAAAATATTCAGAAAATAATTTAAATACATCATTGCAATGAAAATAAATGT

EcoO109I (3328)

3301 TTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTTAATAGAATTGGAC

3401 AGCAAGAAAGCGAGCTTCTAGCTTTAGTTCCTGGTGTACTTGGAGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCATTCTCTCAATGAGCA  
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

BstXI (3557)

3501 CAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTCTGCATGCCACAGGGGCTGACCACCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCT  
115▶ 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 D S Y P H R

StuI (3692)

Eco147I (3692)

3601 GACAGCCACAATGGTGTCAAAGTCTTCTGCCGTTGCTCACAGCAGACCCAATGGCAATGGCTTCAGCACAGACAGTGACCCTGCCAATGTAGGCCCTCA  
82▶ 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 G I Y A E

3701 ATGTGGACAGCAGAGATGATCTCCCCAGTCTTGGTCTGATGGCCGCCCGACATGGTCTTGTTCCTCATAGAGCATGGTATCTTCTCAGTGGCGA  
48▶ 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 I K E T A V

XmnI (3834)

3801 CCTCACCAGCTCCAGATCTGCTGAGAGATGTTGAAGTCTTCATGATGGCCCTCTATAGTGAGTCGTATTATACTATGCCGATATACTATGCCGATG  
15▶ E V L E L D Q Q S I N F T K M

VspI (3900)

AseI (3900)

3901 ATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTATCTGACGGTCTACTAAACGAGCTCTGCTTATATAGACCTCCACCGTACACGCTACCGC

SpeI (4055)

4000 CCATTTGCGTCAATGGGCGGAGTTGTTACGACATTTTGAAAGTCCCGTTGATTTACTAGTCAAACAAACTCCATTGACGTCAATGGGGTGGAGAC

SnaBI (4183)

Eco105I (4183)

4099 TTGGAAATCCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTACTG

NdeI (4288)

4199 CCAAGTAGGAAAGTCCCATAAGGTCATGTACTGGGCATAATGCCAGGCGGGCCATTTACCGTCATTGACGTCAATAGGGGGCGTACTTGGCATATGATAC

4299 ACTTGATGTACTGCCAAGTGGCAGTTTACCGTAAATACTCCACCCATTGACGTCAATGGAAAGTCCCTATTGGCGTTACTATGGGAACATACGTCATTA

PstI (4467)

SdaI (4466)

PaeI (4474)

PciI (4484)

BspLU11I (4484)

4399 TTGACGTCAATGGGCGGGGTCGTTGGCGGTCAGCCAGGCGGGCCATTTACCGTAAGTTATGTAACGCCCTG C A G G T T A A T T A A G A A C A T G T G A C A A  
CCTG C A G G T T A A T T A A G A A C A T G T G A C A A A A A T C G A C G T C A A

4497 AAGCCAGCAAAGGCCAGGAACCGTAAAAAGCCGCTTGTGGCGTTTTTCCATAGGCTCCGCCCTGACGAGCATCACAAAATC G A C G T C A A G

4597 TCAGAGGTGGCGAAACCCGACAGGACTATAAGATACCAGCGTTTTCCCTGGAAAGTCCCTCGTGGCTCTCTGTTCCGACCCTGCCGTTACCGGA

4697 TACCTGTCCGCTTTCTCCCTTCGGAAGCGTGGCGTTTTCTCATAGCTACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCAAGCTGGGCT

ApaLI (4798)

4797 GTGTGCACGAACCCCGTTCAGCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTTGAGTCCAACCCGTAAGACACGACTTATCGCCACTGGCAGC

4897 AGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGCGGTGTACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTT

4997 GGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGA AAAAGATTTGGTAGCTCTTGATCCGGCAAACAAACCCGCTGGTAGCGGTGTTTTTTGTTT

5097 GCAAGCAGCAGATTACGCGCAGAAAAAAGATCTCAAGAAGATCCTTTGATCTTTCTACGGGTCTGACGCTCAGTGAACGAAAACCTCACGTTAAGG

EagI (5234)

PaeI (5214) SwaI (5223)

NotI (5233)

5197 GATTTTGGTCATGGCTAGTTAAATTAACATTTAAATC AGCGGCCGCAATAAAATATCTTTATTTTATTACATCTGTGTGGTTTTTTGTGTAATCGT

5297 AACTAACATACGCTCTCCATCAAACAAACGAAACAAACAAACTAGCAAATAGGCTGCCCCAGTCAAGTGCAGGTGCCAGAACATTTCTCTATCG  
5397 AA