



PvuI (7)
SgfI (6)
MfeI (82)

1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGCAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA

101 GAGAAAGTGGCGCGGGTAAACTGGAAAGTGTGTCTGTACTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

HindIII (245)

Psp1406I (203)
PvuII (239)

201 GTGAACGTTCTTTTTTCGCAACGGGTTTGGCCGACAGTGAAGCTTCGAGGGGCTCGCATCTCTCTTACCGCGCCGCCGCCCTACCTGAGGCC

301 GCCATCCACGCGGTTGAGTCGCGTTCTGCCGCTCCCGCCTGTGGTGCCTCTGAAGTGCCTCCGCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMI (441)
NaeI (441)

401 GGGCCTTTGTCCGGCGCTCCCTTGGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCAACTCTACGTCTTTGTTTCGTTT

NcoI (560)
BstEII (555)

KasI (535)
AgeI (552)

501 TCTGTTCTGCGCGGTTACAGATCCAAGCTGTGACCGCGGCTACTCTGAGATCACGGTCCACCATGGCAGAAGCTCCTGTTGACTTGAGCACAGGAGACAA

1▶ M A E A P V D L S T G D N

PstI (616)
SdaI (615)

PvuII (658)

601 TCTGGAGCAAAGATCCTGCAGGTGTTGAGCGATGACGGCGGCCCTGTGAAGATTGGCCAGCTGGTGAAGAAATGCCAAGTGCCCAAGAAAACCTCAAT

13▶ L E Q K I L Q V L S D D G G P V K I G Q L V K K C Q V P K K T L N

701 CAAGTCTTTACCGCCTGAAGAAGGAGGACAGAGTGTCTCCAGAGCCTGCAACATGGAGCATAGGCGGGGCTGCTTCTGGAGATGGGGCTCTGCAA

47▶ Q V L Y R L K K E D R V S S P E P A T W S I G G A A S G D G A P A

801 TCCCTGAGAAGTCCAGTGCACGCTAGCCTTGATGAAAGAATATTAAGATTCTGGAAGCCAATGGGCCTCACAGGGCCCTGCACATCGCCAAGGCTCT

80▶ I P E N S S A Q P S L D E R I L R F L E A N G P H R A L H I A K A L

BglII (986)

901 GGGAAATGACGACGCCAAAGAAGTGAACCCACTCTGTATTCCATGAGAAATAAGCACCTTCTGAGCTATGACGGACAGACGTGGAAGATCTACCACTCA

113▶ G M T T A K E V N P L L Y S M R N K H L L S Y D G Q T W K I Y H S

1001 CGTCAGGAAGGCCAAGACATAGCTCATTCTGGAGTCACACAAGATCCCTGCTATTGTCAGCAACATCCGGTCAACATGATCTGCCAACAAGGAG

147▶ R Q E G Q D I A H S G V T Q E S P A I I C Q H N P V N M I C Q Q G

1101 CCAACAGCCACATCTCCATTGCCAATTCAAACGCCATCCAGATTGGTACGGGAATGTCATAGTAAGAGAGAAAGCCTGTGGTGGCCAGGTCACAGGAC

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

1201 CTCTCACCTCTACCTTGGCATGGGACGCTCTGCTCAGGACATGCCCTGTTGCCACGGAGTCAAGTACATCTACATGGACAAGTCTTGTCTCAA

213▶ S H P L P L A W D A S A Q D M P P V A H G A Q Y I Y M D K S L L Q

1301 CAAGTGCAGCTTGGCCACCAACGAGATGAGCCTCGTGGGGATGCAGGGAAGCACCTTCTATAGCTTTTCTGACAGCCCCCAGAAAGTGTCAACCA

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

Tth111I (1465)

1401 CCACTGCTGACCCAGGAGCTTCATTCAACATGCAAAACATCTGAGCCAGGCCCTCACCTGAGGGAGACACAGTCCAGACAGTCCACATCAAATCCTGCTT

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

BsiBI (1533)
BsaBI (1533)

XbaI (1500)

1501 TCTAGAGGACGCCACCATTGGTAACGGCAACAAGATGACCATCCACCTTAGGTCAAAGGGTGAAGTCATGGAGTCTGGAGACAGTGAAGAGCCGAAGAAG

313▶ L E D A T I G N G N K M T I H L R S K G E V M E S G D S E E P K K

1601 GAAGACACAGGTACAAGCTCTGAAGCCACTCCACCCAGAAGCTGCCAGCACACGCCAGTACTGCTGCCCACCTCTGAGCTGAGAGCTATGGCTC

347▶ E D T G T S S E A T P P R S C Q H T P S D S M L P T S E L R A M A

1701 TGGGAGACAGTAGCCCCAGACCACAGAACCTGTGCTTAGAGAGCATGAAGTCCAGGACATAGAAAGCTCTCAAGACACAGGACTGAGCAAGCAATGAAG

380▶ L G D S S P Q T T E P V L R E H E V Q D I E S S Q D T G L S K Q • S

NheI (1836)

1801 CTGTGGGACCATAGGCTGACCCCTCTGCCACTATAAGCTAGCTGGCGCAGACATGATAAGATACATTGATGAGTTTGGACAACCACAACCTAGAATGCAGT

413▶ C G T I G •

HpaI (1974) **MfeI (1985)**

1901 GAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAACAAGTTAAACAACAATTGCATTCATTT

EcoRI (2070)

2001 TATGTTTCAGGTTGAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAACCTCTACAAATGTGGTATGGAATCTAAAATACAGCATAGCAAACTTT

2101 AACCTCAAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTTGCAGCCTC

2201 ACCTTCTTTTATGAGTTAAGATATAGTGATTTTCCCAAGGTTTGAAGTACTCTTCAATTTCTTTATGTTTAAATGCACTGACCTCCACATTCCCT

SspI (2309) **Swal (2323)**

2301 TTTTAGTAAAATATTCAGAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATAT

2401 CCCCCAGTTTAGTGTGACTTAGGGAACAAAGAACCTTTAATAGAAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCCTGGGTACTTGGAG

141▶ • N R T Y K L

2501 GGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCCATTCTCAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTCTGCACATG

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

BstXI (2613)

2601 CCACAGGGGCTGACCACCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCGTTGCTCACAG

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

StuI (2748)
Eco147I (2748)

2701 CAGACCCAATGGCAATGGCTTCAGCACAGACAGTGACCCTGCCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCCAGTCTTGGTCCTGATGGC
674 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

BspHI (2898)

XmnI (2890)

2801 CGCCCCGACATGGTGTCTTGTCTCATAGAGCATGGTGATCTTCTCAGTGGCGACCTCCACCAGTCCAGATCTGCTGAGAGATGTTGAAGTCTTC
344 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

VspI (2956)
AseI (2956)

2901 ATGATGGCCCTCCTATAGTGAGTCGTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGA
04M ←

3001 CGGTTCACTAAACGAGCTCTGCTTATATAGACCTCCACCCTACACGCCTACCGCCATTGCGTCAATGGGCGGAGTTGTTACGACATTTGGAAAGT

SpeI (3111)

3101 CCCGTTGATTTACTAGTCAAAAACAACTCCATTGACGTCAATGGGGTGGAGACTTGAAATCCCCGTGAGTCAAACCGCTATCCACGCCATTGATGT

SnaBI (3239)
Eco105I (3239)

3200 ACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTAAGTCCCAAGTAGGAAAGTCCATAAGGTCATGTACTGGGCATAATGCCA

NdeI (3344)

3300 GCGGGCCATTTACCGTCATTGACGTCAATAGGGGGCGTACTTGGCATATGATACACTTGATGTACTGCCAAGTGGGCGAGTTACCGTAAATACTCCACC

3400 CATTGACGTCAATGGAAAGTCCCTATTGGCGTTACTATGGGAACATACGTCATTATTGACGTCAATGGGCGGGGTCGTTGGGCGGTGAGCCAGGCGGGC

PstI (3523)
SdaI (3522) PacI (3530) BspLU11I (3540)

3500 CATTACCCTAAGTTATGTAACGCCTGCAGGTTAA TTAAGAATGTGAGCAAAGGCCAGGAAACCGTAAAAAGGCCGCTTGTGG
←

3598 CGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAGATACCAGGCGTT

3698 TCCCCCTGGAAGCTCCCTCGTGCTCTCTGTCCGACCCTGCGCTTACCGGATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTGGCGCTTTCTCAT

ApaLI (3854)

3798 AGCTCAGCTGTAGGTATCTCAGTTCGGTGTAGGTGTTCCGCTCCAAGCTGGGCTGTGTGCACGAACCCCCGTTAGCCCGACCGCTGCGCCTTATCCG

3898 GTAACATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGC

3998 TACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGAAAAAGAGTT

4098 GGTAGCTCTTGATCCGGCAAACAACCCGCTGGTAGCGGTGTTTTTTTTGTTTGAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATC

EagI (4290)
PacI (4270) SmaI (4279) NotI (4289)

4198 CTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGAACGAAAACCTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATCAGCGGCCG

4298 AATAAAATATCTTTATTTTACATTACATCTGTGTGTTGGTTTTTTTGTGTGAATCGTAACATAACGCTCTCCATCAAAACAAAACGAAACAAAACAAC

4398 TAGCAAAATAGGCTGTCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTATCGAA