



100

PvuI (7)
SgfI (6) 1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCCGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA
MfeI (82)
101 GAGAAAGTGGCGCGGGTAAACTGGGAAAGTGATGTCGTGTAAGTGGTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

Psp1406I (203) 201 GTGAACGTTCTTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGGCTCGCATCTCTCCTTACGCGCCCGCCGCTACCTGAGGCC
HindIII (245)
Bsu36I (291)
301 GCCATCCACGCGGGTTGAGTCGCGTTTCTGCCGCTCCCGCTGTGGTGCCTCCTGAAGTGCCTCCGCGCTAGGTAAGTTTAAAGCTCAGGTCGAGACC
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTGGCTGACCCTGCTTCAACTCTACGCTTTTGTTCGTTT

KasI (535) 501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGGGCGCTACCTGAGATCACCGGTATCATGAGTTCCAAGAAGATGGTGAATTCTGTGGAAGGGT
AgeI (552) 1▶ M S S K K M V N S V E G C
BspHI (560)
EcoRI (582)
601 TGCTGATGATGCCCTTGCTGGGTTAGTAGCCTTAACCTGACTTGCAGCTCCTGCAAGGGCACCGTGTGGCCCTACGTTCTGACCTGGACACCCCTCAAG
13▶ A D D A L A G L V A S N P D L Q L L Q G H R V A L R S D L D T L K
701 GGCCGGTAGCACTTCTGTCAGTGGAGGCTCAGGCCATGACCTGCCGTTTATCGGGAAAGGGATGCTAACAGGTGTCATCGCAGGATCTG
47▶ G R V A L L S G G G S G H E P A H A G F I G K G M L T G V I A G S
801 TGTTTGCCTCTCCTGTGGGAGCAGTCTGGCAGCCATTAGAGCTGTGGCCAGGCAGGCACAGTGGGCACCTCCTCATTGTGAAGAAGTACACTGG
80▶ V F A S P P V G S I L A A I R A V A Q A G T V G T L L I V K N Y T G
901 GGATCGGCTCAACTTTGGACTTGCATGGAGCAGGCCAAGGCCAGGGCATCTCTGTGGAGATGGTGAAGTGGAGTACAGTGCCTTCCCGTCCCT
113▶ D R L N F G L A M E Q A K A E G I S V E M V I V E D D S A F T V L

SfiI (1009) 1001 AAGAAGGCAGGCCGGCTGGCTGTGTGGCACAGTACTTATCCACAAGGTGGCAGGTGCTCTGGCTGAGGAAGGAATGGGGCTGGAGGAGATCACAAGA
147▶ K K A G R R G L C G T V L I H K V A G A L A E E G M G L E E I T K
ScaI (1032) 1042
DraIII (661)
1101 GGGTGAAGCGTATCGCAAGACCATGGGTACCTAGGGGTGAGCTTGTATCCTGAGTGTCCCTGGCGCCACACACCTTTGAGCTTGCAGCTGATGA
180▶ R V S V I A K T M G T L G V S L S S C S V P G A T H T F E L A A D E
Asp718I (1126)
Acc65I (1126)
KasI (1165)
1201 AATAGAGCTAGGCCTGGGATCCATGGGAAGCTGGTGTTCGTCGGATAAAGATAGCACCTGTTGATCAGATTGTCACCTTTATGCTTGACCACATGACA
213▶ I E L G L G I H G E A G V R R I K I A P V D Q I V T L M L D H M T
1301 AACACCTCCAATATATTTTATGTCCTGTACGGTACAGGCTCTTCAAGTGGTGTGATAGTCAACAATCTGGGTGGCCTGCTTTCTGGAAGTGGGCATCA
247▶ N T S N I F H V P V R S G S S V V L I V N N L G G L S F L E L G I

Eco47III (1476)
AfeI (1476)
1401 TAGCTGATGCTGCCATACGCTTGTGGAGGGCCGTGGAGTGAAGGTGCGCCGTGCCCTGGTGGGCACCTTCATGTCAGCGCTGGAGATGCCTGGTGTGTC
280▶ I A D A A I R L L E G R G V K V A R A L V G T F M S A L E M P G V S
MscI (1577)
Ball (1577)
1501 TCTTACTTTGATGCTTGTGGATGAACCCGTGCTGAAGCTAATAGATGCTGAACTACTGCAAAAGCCTGGCCTCACATGGCCAAAGTCTCTGTGACTGGG
313▶ L T L M L V D E P V L K L I D A E T T A K A W P H M A K V S V T G
1601 AGGAAGCGGATTCGGGACGCTCCACAGAGCCTCCAGAAGCCCTGAAGCCACTGCAGCAGGAGGTGTAACATCAAAGCAGATGGCACTTGTGCTGGATC
347▶ R K R I R A A P T E P P E A P E A T A A G G V T S K Q M A L V L D
1701 GGATATGACCACCTCATCGGACTGGAGGAGCAGTGAATGCCTGGACAGGGCTGCTGGTGTGAGGATTGTGTTTACCCATAGCCGTGCTGCCAA
380▶ R I C T T L I G L E E H L N A L D R A A G D G D C G S T H S R A A K
1801 AGCCATTCAGGGCTGGCTAAAGGAAGGCCATCTAACCAGCCTGCCAGTACTCTCCAGATTGCTGCTGCTGCTGGAGAGGATGGGAGGCTCA
413▶ A I Q G W L K E G P S L T C S P A Q V L S R L S V L S V L E R M G G S
1901 TCTGGGGCGCTATGGCCTGTTCTGACTGCAGCTGCCAGCCTCTCAAGGCCAAGACTGACCTCCCAACCTGGTCTGCTGCCATGGATGCCGGCTTAG
447▶ S G A L Y G L F L T A A A Q P L K A K T D L P T W S A A M D A G L
2001 AGTCCATGCAGAAGTATGGAAAGCTGCACCAGGAGACAGGACAATGTGATTCTCTGTGGGAGCAGCAGCAGGAGTCCAAGCCTGGAAGAGCCAGG
480▶ E S M Q K Y G K A A P G D R T M L D S L W A A A Q E F Q A W K S P G
2101 GGCCAGTCTCCTCCAGTCTGACTAAAGCAGTCAAGAGTGTGAAGCTGCAGCCGAGCCACCAAGAATATGGAAGCTGGTGTGCTGGGAGAGCTAGTTAT
513▶ A S L L P V L T K A V K S A E A A A E A T K N M E A G A G R A S Y
2201 ATCAGCTTCGCAACTAGATCAGCCAGACCCTGGAGCAGTCCGAGCTGCTGCCATCTCCGTGCCATCTGGAGGTCTTGCAGACGCAGGGAGCATGAC
547▶ I S S A Q L D Q P D P G A V A A A A I F R A I L E V L Q T Q G A •

MscI (2330)
Ball (2330)
NheI (2324)
2301 TGCTTTTCTCCTCCTCAGCTCATTGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGGACAAACCACAAGTGAATGCAGTGAAAAAATGCT

HpaI (2462) 2401 TTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGTGCATAAACAAGTTAACAACAACAATTGCATTATTATGTTTCAGGT
MfeI (2473)
2501 TCAGGGGAGGTGTGGGAGTTTTTTAAAGCAAGTAAACCTCTACAAATGTGGTATGGAATTTAAAATACAGCATAGCAAACTTTAACCTCCAAATC
EcoRI (2558)
2601 AAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTTGCAGCCTCACCTTCTTCAT

2701 GGAGTTTAAAGATATAGTGTATTTTCCCAAGTTTGAAGTAGCTCTTCATTTCTTTATGTTTTAAATGCACTGACCTCCACATTCCCTTTTTAGTAAAAAT

2801 ATTCAGAAATAATTTAAATACATCATTGCAATGAAATAAATGTTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAG

2901 TAGTTGGACTTAGGGAACAAAGGAACCTTTAATAGAAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCTGGTACTTGAGGGGATGAGTTC

141 • N R T Y K L P I L E

3001 CTCAATGGTGGTTTTGACCAGCTTGCCATTCATCTCAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTGCACATGCCACAGGGGCTG

130 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 G C P S

3101 ACCACCCTGATGGATCTGTCCACCTCATCAGAGTAGGGTGCCTGACAGCCACAATGGTGTCAAAGTCCTTCTGCCGTTGCTCACAGCAGACCCAATGG

96 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 S G I A

StuI (3236)
Eco147I (3236)

3201 CAATGGCTTCAGCACAGACAGTGACCCTGCCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCAGTCTTGGTCTGATGGCCGCCCGACATG

63 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 A G V H

BspHI (3386)

3301 GTGCTTGTTCCTCATAGAGCATGGTGTCTTCTCAGTGGCGACCTCCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGTCTTCATGATGGCCCTC

30 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 M

XmnI (3378)

3401 CTATAGTGAGTCGTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTTCCTAA

VspI (3444)
AseI (3444)

3500 ACGAGCTCTGCTTATATAGACCTCCACCGTACACGCCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTTACGACATTTTGAAAGTCCCGTTGATTT

SnaI (3501)

3600 ACTAGTCAAACAAACTCCCATTTGACGTCAATGGGGTGGAGACTTGAAATCCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTACTGCCAAAAC

SpeI (3599)

3699 CGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTACTGCCAAGTAGGAAAGTCCATAAGGTCACTGACTGGGCATAATGCCAGGCGGGCCATT

SnaBI (3727)
Eco105I (3727)

3799 TACCGTCATTGACGTCAATAGGGGCGTACTTGGCATATGATACACTTGATGTACTGCCAAGTGGCAGTTTACCGTAAATACTCCACCATTGACGTCA

NdeI (3832)

3899 ATGGAAAGTCCCTATTGGCGTACTATGGGAACATACGTATTATTGACGTCAATGGGCGGGGTCGTTGGCGGTGAGCCAGGCGGGCCATTTACCGTA

3999 AGTTATGTAACGCC T G C A G T T A A T T A A G A A C A T G T G A G C A A A G G C C A G C A A A A G G C C A G G A A C C G T A A A A A G G C C G T T G C T G G C G T T T T C C A T

SdaI (4010) PacI (4018) BspLU11I (4028)

4097 AGGCTCCGCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCCCTGGAA

4197 GCTCCCTCGTGCGCTCTCCTGTTCCGACCCTGCCGTTACCGGATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTGGCGCTTCTCATAGCTACGCTG

4297 TAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCCAAGCTGGGCTGTGTGCACGAACCCCGTTCAGCCCGACCCTGCGCTTATCCGGTAACTATCGT

ApaLI (4342)

4397 CTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGATTCT

4497 TGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTG

4597 ATCCGGCAAACAAACCACCGCTGGTAGCGGTGGTTTTTTTTGTTTGAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTT

4697 TCTACGGGCTGACGCTCAGTGAACGAAAACTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATC AGCGGCCGCAATAAAATATC

EagI (4778)
NotI (4777)
PacI (4758) SwaI (4767)

4797 TTTATTTTCATTACATCTGTGTGTTGGTTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAACAAAACGAAACAAAACAACTAGCAAATAG

4897 GCTGTCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA