



PvuI (7)
SgfI (6) 1 GGATCTGCATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCCGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA
MfeI (82)
101 GAGAAGGTGGCGCGGGTAAACTGGAAAGTGTGCTGTACTGGCTCCGCTTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

Psp1406I (203) 201 GTGAACGTTCTTTTTTCGAACGGGTTTCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCCTTACCGCGCCGCCCTACCTGAGGCC
HindIII (245)
Bsu36I (291)
301 GCCATCCACGCCGGTTGAGTCGCGTTCTGCCGCTCCCGCTGTGGTGCTCCTGAACTGCGTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCAACTCTACGCTTTTGTTCGTTT

BstEII (555) 501 TCTGTTCTGCGCGGTTACAGATCCAAGCTGTGACCGCGCCTACCTGAGATCACCGGTCCATGGCTCCGGACATCAGCTGCTTCTTTTTAGTGGCCCT
AgeI (552) **NcoI (560)**
BspEI (567)
1▶ M A P D I S C F F L V A L

MscI (605) 601 CTTCTGGCCAGTTGCCGAGCCACCACATCCTCAGATCAGAAGTGCATTGAGAAAGAAGTCAACAAAACATACAAGTGTGAAAATTTAGGTCTCAATGAA
13▶ F L A S C R A T T S S D Q K C I E K E V N K T Y N C E N L G L N E
701 ATTCCTGGCATTACAAAACCAACAGAATGTTGGAGTTGAGCTTAAATGTCTTGCTACCATTCAAACACGACCTTACGACAGCTTATCAATCTCA
47▶ I P G T L P N S T E C L E F S F N V L P T I Q N T T F S R L I N L
801 CCTTCCTGATTTAACAGGTGCCAGATTTACTGGATACATGAAGATACTTTCAAAGCCAACATCGGTTAGACACACTTGTACTAACCGAAATCCCT
80▶ T F L D L T R C Q I Y W I H E D T F Q S Q H R L D T L V L T A N P L

DraIII (920) 901 GATATTTATGGCAGAGACAGCACTTAGTGGGCTAAGGCATTGAAGCATCTGTTCTTCCATCCAAACAGGAATATCCAGTATTGATTTATCCCACTGCAC
113▶ I F M A E T A L S G P K A L K H L F F I Q T G I S S I D F I P L H
Bsu36I (931)
1001 AATCAAAAACCTTGAAAGTCTCTATCTCGGAAGCAACCATATTTCTCCATTAAGCTCCCAAGGTTTCCCAACAGAGAAGCTGAAGTCTGGATT
147▶ N Q K T L E S L Y L G S N H I S S I K L P K G F P T E K L K V L D
1101 TTCAGAATAATGTATCCATTACCTGTCTAAAGAAGATATGAGCTCTCCTCAGCAAGCCACTAATCTGAGCCTAACTTAAATGGAATGACATTGCAGG
180▶ F Q N N A I H Y L S K E D M S S L Q Q A T N L S L N L N G N D I A G

PmeI (1238) 1201 AATAGAGCCGGGGCTTTGACTCAGCTGTCTTCCAAAGTTTAAACTTTGGAGGGACTCAGAAGTGTAGTTATCTTCAAGGGTTTGAAGAAGTCTACG
213▶ I E P G A F D S A V F Q S L N F G G T Q N L L V I F K G L K N S T
1301 ATCCAGTCTCTTTGGCTGGGACATTTGAGGACATGGATGACGAAGATATTAGTCTCGCGTGTGTTGAGGGTCTGTGAAATGTCTGTGGAGAGCATCA
247▶ I Q S L W L G T F E D M D D E I S P A V F E G L C E M S V E S I

XcmI (1443) 1401 ACCTACAGAAGCATTATTTCTTCAACATTTCTCCAACACATTCCATTGCTTCAGTGGCTCCAGGAAGTGGACCTAACAGCCACTCACCTGAGTGAATT
280▶ N L Q K H Y F F N I S S N T F H C F S G L Q E L D L T A T H L S E L
1501 GCCTTCTGGACTGTGGGACTAAGCACACTTAAGAAATAGTTCTCAGTGCATAAAGTTTGAAGATTTGTGCCAAATCAGTCTTCAATTTCCCTCC
313▶ P S G L V G L S T L K K L V L S A N K F E N L C Q I S A S N F P S
1601 CTTACTCACCTTCCATCAAGGGCAACCAAGAGACTGAGCTCGGTACTGGCTGTTAGAAAACCTAGAAAATCTCCGCAACTGACCTCAGCCATG
347▶ L T H L S I K G N T K R L E L G T G C L E N L E N L R E L D L S H
1701 ATGACATTGAACTTCTGATTGTTGCAACTGCAACTCCGAACTGTCTCACTTACAGAGCTGAACTTGAAGTACAAATGAACCCCTGAGCCTCAAGAC
380▶ D D I E T S D C C N L Q L R N L S H L Q S L N L S Y N E P L S L K T
1801 GGAGGCATTCAAAGAATGCCCTCAGCTAGAAGTCTAGATTTGCACTTACTGACTAAAGGTGAAAGATGCACAGAGTCCCTCCAGAACCTCCATCTT
413▶ E A F K E C P Q L E L L D L A F T R L K V K D A Q S P F Q N L H L

SapI (1950) 1901 TTGAAGGTGCTGAATCTCTCCACAGCCTCCTTGACATCAGCAGTGGAGCTTCTGATGGCCTGCCAGCACTCCAGCATTTGAACCTACAGGAAATC
447▶ L K V L N L S H S L L D I S S E Q L F D G L P A L Q H L N L Q G N
2001 ACTTTCCAAAAGGAATATCCAAAAGACCAACTCACTTCAAGCACTGGGAAGACTAGAAATCTGTTTATCCTTTTGTGATCTCTCCTCATTGACCA
480▶ H F P K G N I Q K T N S L Q T L G R L E I L V L S F C D L S S I D Q

PshAI (2137) 2101 GCACGCCTTACCAGTCTGAAGATGATGAATCATGTAGACCTGAGTCAACAACAGGCTGACATCCAGTAGCATTGAGGCTCTTAGTCATCTTAAGGGGATC
513▶ H A F T S L K M M N H V D L S H N R L T S S S I E A L S H L K G I

AseI (2275) 2201 TACCTCAATCTGGCTCCAATCACATCAGCATCATCTACCCAGTCTCTCCCATCTGTGCCAGCAGAGGACCTTAATTTAAGACAAAATCCCTTTG
547▶ Y L N L A S N H I S I I L P S L L P I L S Q Q R T I N L R Q N P L

XhoI (2356) 2301 ACTGCACTTGCTCAAACATTTACTTTTTAGAATGGTACAAAGAAAACATGCAAAAACCTGAGGACACAGAGGACACTTTTGCAAAATCCCCATTGCT
580▶ D C T C S N I Y F L E W Y K E N M Q K L E D T E D T L C E N P P L L
2401 GAGGGGAGTCAGGCTCTCCGATGTGACGCTATCCTGTAGTATGGCAGCTGTGGCATTCTTTCTTATTGTATTCTGCTCGTGTGCTATTTTGTG
613▶ R G V R L S D V T L S C S M A A V G I F F L I V F L V F A I L L

MscI (2576) 2501 ATTTTTGCAGTGAATATTTTCTCAGATGGAATACCAACACATTTAGCTCAAGGTTTCCAGAGAAGGCAGCTAGTGCCAGACATGATAAGATACATT
647▶ I F A V K Y F L R W K Y Q H I •

2601 GATGAGTTTGGACAAACCACAAC TAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCA

HpaI (2708) MfeI (2719)

2701 AATAACAAGTTAAACAACAACAAATTGCATTCATTTTATGTTTCAGGTTCCAGGGGGAGGTGTGGGAGGTTTTTTAAAGCAAGTAAACCTCTACAATGTGG

EcoRI (2804)

2801 TATGGAATTCTAAAATACAGCATAGCAAAACTTTAACCTCCAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGG

SapI (2986)

2901 CTGTTGCCAATGTGCATTAGCTGTTTGCAGCCTCACCTTCTTTCATGGAGTTAAGATATAGTGTATTTTCCAAGGTTTGAAGTCTCTTCATTCTT

SspI (3043) SwaI (3057)

3001 TATGTTTTAAATGCAGTACCTCCACATTCCTTTTATAGTAAATATTCAGAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTTATTAG

EcoO109I (3118)

3101 GCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTTAATAGAAATTGGACAGCAAGAAAG

3201 CGAGCTTCTAGCTTGTAGTTCCTGGTGTACTTGGAGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCCATTTCATCTCAATGAGCACAAAGCAGTC

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

BstXI (3347)

3301 AGGAGCATAGTCAGAGATGAGCTCTCTGCACATGCCACAGGGGCTGACCACCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCTGACAGCCACA

112 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 V A V

StuI (3482)

3401 ATGGTGTCAAAGTCTTCTGCCGTTGCTCACAGCAGACCCAAATGGCAATGGCTTTCAGCACAGACAGTACCCTGCCAATGTAGGCCCTCAATGTGGACAG

78 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 I H V A

3501 CAGAGATGATCTCCCCAGTCTTGGTCTGATGGCCGCCCGACATGGTGTCTTGTCTCATAGAGCATGGTGTCTTCTCAGTGGCAGCTCCACCAG

45 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

XmnI (3624) AseI (3690)

3601 CTCCAGATCCTGCTGAGAGATGTTGAAGGTCTTCATGGTGGCCCTCTATAGTGTGATCGTATTATACTATGCCGATATACTATGCCGATGATTAATTGTC

12 E L D Q Q S I N F T K M

3701 AAACAGCGTGGATGGCTCTCCAGCTTATCTGACGGTTCATAACGAGCTCTGCTTATATAGACCTCCACCGTACACGCCTACCGCCATTTCGCTC

SpeI (3845)

3801 AATGGGGCGGAGTTGTTACGACATTTTGAAAGTCCCGTTGATTTACTAGTCAAAACAACTCCCATGACGTCAATGGGGTGGAGACTTGAAATCCCC

SnaBI (3973)

3901 GTGAGTCAAACCGCTATCCACGCCATTGATGTACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTACTGCCAAGTAGGAAA

NdeI (4078)

4001 GTCCATAAGGTCATGTACTGGGCATAATGCCAGGCGGGCCATTTACCGTCATTGACGTCAATAGGGGGCGTACTTGGCATATGATACACTTGATGTACT

4101 GCCAAGTGGGCAGTTTACCGTAAATACTCCACCATTGACGTCAATGGAAAGTCCCTATTGGCGTTACTATGGGAACATACGTCAATTATTGACGTCAATG

PacI (4264) PstI (4257) SdaI (4256) BspLU11I (4274)

4201 GCGGGGGTCTGTTGGCGGTGAGCCAGGCGGGCCATTTACCGTAAAGTTATGTAACGCTGCAGGTTAATTAAGAACATGTGAGCAAAAGGCCAGCAAAAG

4301 GCCAGGAACCGTAAAAAGGCCGCTTGTGGCGTTTTTCCATAGGCTCCGCCCTGACGAGCATCAGAAAATCGACGCTCAAGTCAGAGGTGGCGAA

4401 ACCCGACAGGACTATAAAGATACCAGGCTTTCCCTGGAAGCTCCCTCGTGCCTCTCTGTTCCGACCCTGCCGCTTACCGGATACCTGTCCGCTT

4501 TCTCCCTCGGGAAGCGTGGCGCTTTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTTCGCTCCAAGCTGGGCTGTGTGCACGAACCC

4601 CCCGTTACGCCGACCGCTGCGCCTTATCCGTAACACTATCGTCTTGTAGTCCAACCCGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACA

4701 GGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCT

4801 GCTGAAGCCAGTTACCTTCGAAAAAGAGTTGGTAGCTCTTGTATCCGGCAACAAACCACCGCTGGTAGCGGTGGTTTTTTTGTGCAAGCAGCAGATT

4901 ACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGTCTGACGCTCAGTGAACGAAAACCTACGTTAAGGGATTTTGGTCATGG

EagI (5024) PacI (5004) SwaI (5013) NotI (5023)

5001 CTAGTTAATTAACATTTAAATCAGCGGCCGCAATAAAAATATCTTTATTTTATTACATCTGTGTGTTGGTTTTTTGTGTAATCGTAACTAACATACGCT

5101 CTCATCAAAAACAAAACGAAACAAAACAACTAGCAAAATAGGCTGTCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA