



PvuI (7) SgfI (6) MfeI (82)  
1 GGATCTGCGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCCGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA  
101 GAGAAAGTGGCGCGGGTAAACTGGAAAAGTATGTCGTGTACTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

Psp1406I (203) HindIII (245) Bsu36I (291)  
201 GTGAACGTTCTTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCCTTACCGCGCCCGCCCTACCTGAGGCC  
301 GCCATCCACGCCGGTTGAGTCGCGTTCTGCCGCTCCCGCTGTGGTGCCTCCTGAACTGCGTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMIV (441)  
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCGCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCTCAACTCTACGCTTTTGTTCGTTT

AgeI (552) EcoRI (585)  
501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGCGCCTACCTGAGATCACCGGTCATCATGGAATGCCAGAATCTTAGTGAGAAATTCATGTCCACC  
1 M E C Q N L S E N S C P P

BsrGI (623)  
601 TTCAGAAGTGTCTGATACAACTTGACAGCCATTTAAACCAAGAAATTACCAATTAGAGCTTGCTTTGCCTGCTATGAAAGGAAAAACACAATAATA  
13 S E V S D T N L Y S P F K P R N Y Q L E L A L P A M K G K N T I I  
701 TGTGCTCTACAGTTGTGAAAAACCTTTGTTTCACTGCTTATATGTGAACATCATCTTAAAAAATCCACAAGGACAAAAAGGGAAAGTTGTCTTTT  
47 C A P T G C G K T F V S L L I C E H H L K K F P Q G Q K G K V V F  
801 TTGCGAATCAGATCCCAGTGTATGAACAGCAGAAATCTGTATTCTCAAATACTTTGAAAGACATGGGTATAGAGTTACAGGCATTCTTGAGCAACAGC  
80 F A N Q I P V Y E Q Q K S V F S K Y F E R H G Y R V T G I S G A T A  
901 TGGAATGTCCAGTGGAAACAGATTGTTGAGAACATGACATCATTTTTAACTCCACAGATTCTTGTGAACAACCTTAAAAAGGGAACGATTCCATCA  
113 E N V P V E Q I V E N N D I I I L T P Q I L V N N L K K G T I P S

XbaI (1083)  
1001 CTATCCATCTTTACTTTGATGATATTTGATGAATGCCACAACACTAGTAAACAACACCCGTACAATATGATCATGTTTAATTATCTAGATCAGAAACTTG  
147 L S I F T L M I F D E C H N T S K Q H P Y N M I M F N Y L D Q K L

BstXI (1122)  
1101 GAGGATCTTCAGGCCACTGCCAGGTCATTGGGCTGACTGCCTCGTTGGTGTGGGGATGCCAAAAACACAGATGAAGCCTTGGATTATATCTGCAA  
180 G G S S G P L P Q V I G L T A S V G V G D A K N T D E A L D Y I C K  
1201 GCTGTGTGCTTCTCTTGTGCGTCAGTATAGCAACAGTCAAACACAATCTGGAGAACTGGAGCAAGTTGTTTATAAGCCCCAGAAGTTTTTCAGGAAA  
213 L C A S L D A S V I A T V K H N L E E L E Q V V Y K P Q K F F R K  
1301 GTGGAATCAGGATTAGCGACAAATTTAAATACATCATAGCTCAGCTGATGAGGGACACAGAGAGTCTGGCAAAGAGAATCTGCAAAGACCTCGAAAAC  
247 V E S R I S D K F K Y I I A Q L M R D T E S L A K R I C K D L E N

NsiI (1470)  
1401 TATCTCAAATTCAAAATAGGAAATTTGGAACACAGAAATATGAACAATGGATTGTTACAGTTCAGAAAAGCATGGTGTCCAGATGCCAGACAAAAGA  
280 L S Q I Q N R E F G T Q K Y E Q W I V T V Q K A C M V F Q M P D K D  
1501 TGAAGAGAGCAGGATTTGTAAGCCCTGTTTTTATACACTTACATTTGCGGAAATATAATGATGCCCTCATTATCAGTGAGCATGCACGAATGAAAGAT  
313 E E S R I C K A L F L Y T S H L R K Y N D A L I I S E H A R M K D

BglII (1665)  
1601 GCTCTGGATTACTTAAAAGACTTCTTCAGCAATGTCCGAGCAGCAGGATTCGATGAGATTGAGCAAGATCTTACTCAGAGATTTGAAGAAAAGCTGCAGG  
347 A L D Y L K D F F S N V R A A G F D E I E Q D L T Q R F E E K L Q

BamHI (1719) BbsI (1747)  
1701 AACTAGAAAGTGTTCAGGATCCAGCAATGAGAATCCTAAACTTGAAGACCTCTGCTTATCTTACAAGAAGAGTACCACTTAAACCCAGAGACAAT  
380 E L E S V S R D P S N E N P K L E D L C F I L Q E E Y H L N P E T I

XcmI (1820)  
1801 AACAAATCTCTTTGTGAAAACAGAGCACTTGTGGACGCTTTAAAAAATGGATTGAAAGAAATCCTAAACTCAGTTTTCTAAAACCTGGCATATTGACT  
413 T I L F V K T R A L V D A L K N W I E G N P K L S F L K P G I L T

NsiI (1961) SspI (1987)  
1901 GGACGTGGCAAAACAAATCAGAACACAGGAATGACCCTCCCGCACAGAAGTGTATATTGGATGCATTCAAAGCCAGTGGAGATCACAATATTCTGATTG  
447 G R G K T N Q N T G M T L P A Q K C I L D A F K A S G D H N I L I  
2001 CCACCTCAGTTGCTGATGAAGGCATTGACATTGCACAGTGAATCTTGTATCCTTTATGAGTATGTGGGCAATGTCATCAAATGATCCAAACAGAGG  
480 A T S V A D E G I D I A Q C N L V I L Y E Y V G N V I K M I Q T R G

SapI (2105) BsrGI (2177) BspLU11I (2174)  
2101 CAGAGGAAGAGCAAGAGTAGCAAGTGCTTCTCTGACTAGTAATGCTGGTGAATTTGAAAAAGAACAAATAAACATGTACAAAAGAAAAATGATGAAT  
513 R G R A R G S K C F L L T S N A G V I E K E Q I N M Y K E K M M N

BspHI (2268)  
2201 GACTCTATTTTACGCCTTACAGATGGGACGAAGCAGTATTTAGGGAAAAGATTCTGCATATACAGACTCATGAAAAATTCATCAGAGATAGTCAAGAAA  
547 D S I L R L Q T W D E A V F R E K I L H I Q T H E K F I R D S Q E

BstAPI (2342)  
2301 AACCAAACTGTACTGATAAGGAAAAATAAAAACTGCTCGAGAAAGTCAAAGCCTTGGCATGTTACACAGCTGACGTAAGAGTGATAGAGGAATG  
580 K P K P V P D K E N K K L L C R K C K A L A C Y T A D V R V I E E C  
2401 CCATTACACTGTGCTTGGAGATGCTTTTAAAGGAATGCTTTGTGAGTAGACCACATCCCAAGCCAAAGCAGTTTTCAAGTTTTGAAAAAGAGCAAAGATA  
613 H Y T V L G D A F K E C F V S R P H P K P K Q F S S F E K R A K I  
2501 TTCTGTGCCCCAGAACTGCAGCCATGACTGGGAATCCATGTGAAGTACAAGACATTTGAGATTCCAGTTAAAAAATGAAAGTTTTGTGGTGGAGG  
647 F C A R Q N C S H D W G I H V K Y K T F E I P V I K I E S F V V E

2601 ATATTGCAACTGGAGTTCAGACACTGTACTCGAAGTGGAAAGGACTTTTCATTTTGAGAAGATACCATTGATCCAGCAGAAATGTCCAAATAAAGCTAGCT  
 680▶ D I A T G V Q T L Y S K W K D F H F E K I P F D P A E M S K •  
 2701 GGCCAGACATGATAAGATACATTGATGAGTTTGACAAACCACAAC TAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTT

HpaI (2831) MfeI (2842)

2801 ATTTGTAACCATTATAAGCTGCAATAAAACAAGTTAACACAACAATTGCATTCAATTTATGTTTCAGGTTTCAGGGGAGGTGTGGAGGTTTTTAAAGC

EcoRI (2927)

2901 AAGTAAAACTCTACAAATGTGGTATGGAATTCTAAAATACAGCATAGCAAACTTTAACCTCAAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGAT

3001 GAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTTGACGCTCACCTCTTTTCATGGAGTTAAGATATAGTGATTTTCCCAAGG

SapI (3109)

SspI (3166)

3101 TTTGAAGTACGCTCTTCATTTCTTTATGTTTTAAATGCACTGACCTCCACATTCCTTTTATAGTAAATATTCAGAAATAATTTAAATACATCATTGCAA

EcoO109I (3241)

3201 TGAAAATAAATGTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTTA

3301 ATAGAAATGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCCTGGTACTTGAGGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGTTGCCATTCC

141 ◀ • N R T Y K L P I L E E I T T K V L K G N

SacI (3441)

BstXI (3470)

3401 ATCTCAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGTAGCTCTGCACATGCCACAGGGGCTGACCACCTGATGGATCTGCCACCTCATCAG

119◀ 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 D S

3501 AGTAGGGGTCCCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCCGTTGCTCACAGCAGACCAATGGCAATGGCTTCAGCACAGACAGTACCCTGCC

86◀ 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 G

StuI (3605)

3601 AATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCGAGTCTGGTCTGATGGCCGCCCGACATGGTGTGTTGTCCTCATAGAGCATGGTGATC

53◀ 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 I

BbsI (3751)

3701 TTCTCAGTGGCGACTCCACCAGCTCCAGATCTGCTGAGAGATGTTGAAGGTTTCATGGTGGCCCTCTATAGTGAGTCGTATTATACTATGCCGATA

19◀ K E T A V E V L E L D Q Q S I N F T K M

AseI (3813)

SacI (3870)

3801 TACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTCTACTAAACGAGCTCTGCTTATATAGACCTCCACCCTA

3901 CACGCCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTTACGACATTTTGGAAAGTCCCGTTGATTTACTAGTCAAACAAACTCCATTGACGTCAAT

SnaBI (4096)

4001 GGGGTGGAGACTTGAAATCCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTAAGTCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACG

4101 TAGATGTAAGTCCAAAGTAGGAAAGTCCATAAGGTCATGTAAGTCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACG

NdeI (4201)

4201 GCATATGATACACTTGTACTGCAAGTGGGCGAGTTTACCGTAAATACTCCACCCATTGACGTCAATGAAAGTCCCTATTGGCGTACTATGGGAAC

PacI (4387)

SdaI (4379)

BspLU11I (4397)

4301 ATACGTCATTATTGACGTCAATGGGCGGGGCTGTTGGGCGGTGAGCCAGGCGGGCCATTTACCGTAAGTTATGTAACGCTGAGGTTAATAAGAAACA

4401 TGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGCCGCGTTGCTGGCGTTTTTTCATAGGCTCCGCCCCCTGACGAGCATCACAAAAATCG

4501 ACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCGTGGAAAGTCCCTCGTGGCTCTCTGTTCCGACCTGCCG

4601 CTTACCGGATACCTGTCCGCTTTCTCCCTTCCGGAAGCGTGGCGTTTCTCATAGCTCAGCTGTAGGTATCTCAGTTCGGTGTAGGTGCTTCGCTCCA

ApaLI (4711)

4701 AGCTGGGCTGTGTGCACGAACCCCGTTCAGCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTTGAGTCCAACCCGTAAGACAGACTTATCGCC

4801 ACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGA

4901 ACAGTATTTGGTATCTGCGCTCTGCTGAAGCAGTTACCTTCGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAAACAAACCACCGCTGGTAGCGGTGTT

5001 TTTTTGTTTGAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGGAACGAAACTC

EagI (5147)

PacI (5127)

NotI (5146)

5101 ACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATCAGCGGCCGCAATAAAATATCTTTATTTTTCATTACATCTGTGTGTTGGTTTTTGT

5201 GTGAATCGTAACTAACATACGCTCTCCATCAAAACAAAACGAAACAAAACAACTAGCAAAATAGGCTGTCCCAGTGCAAGTGCAGGTGCCAGAACATT

5301 TCTCTATCGAA