



PvuI (7) SgfI (6) MfeI (82)  
1 GGATCTGCGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA  
101 GAGAAGGTGGCGCGGGGTAACCTGGGAAAGTGTGCTGTACTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

Psp1406I (203) Bsu36I (291)  
201 GTGAACGTTCTTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCTTTCACGGCCCGCCGCCCTACCTGAGGGCC  
301 GCCATCCACGCCGGTTGAGTCGCGTTTCTGCCGCCTCCCGCCTGTGGTGCTCCTGAAGTGCCTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMIV (441)  
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCGCTTGTCTCAACTCTACGCTTTTGTTCGTTT

KasI (535) AgeI (552) NcoI (560)  
501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGGGCCTA CCTGAGATCACCGGTCAACATGGGACAGTACTGGTGTGCCAGGTCTCCTCCTTTC  
601 CCTGCCTCTGGTAACTGGGTGGAGCACTTCCAAGTGCCTGGTACCGAAGGCTCCCGACTGCCCTGGTCTCCCGCTATTTACATTCTGCCGCCATTCC  
13> L P L V T G W S T S N C L V T E G S R L P L V S R Y F T F C R H S  
1 M G R Y W L L P G L L L S

SphI (718)  
701 AAGCTATCCTTTCTGCTGCATGCCTCCTCGTGGAGCAACCTGCACAGACCTTGAAGTTGTACTCCTGGACTGTGGAGGGGCTCTGCCTCGGTGGTACTG  
47> K L S F L A A C L S V S N L T Q T L E V V P R T V E G L C L G G T  
801 TGCTACTCTGCTCCAGATGCTTTCTGCTTTTCTGGTCTCAAGTCTGGCACTGAGTCTGCACCTACCAACTTCTGCCAGGAGCTCCTCCGGG  
80> V S T L L P D A F S A F P G L K V L A L S L H L T Q L L P G A L R G

BglII (946)  
901 TCTGGACAGTTGCAGAGCCTCTCTTTTTTACTCTCCTCTTGGAGTCTCTCTTTTCTACCTCCTGATGCCTTCAAGTGCCTGATTTCCCTCCAGAGA  
113> L G Q L Q S L S F F D S P L R R S L F L P P D A F S D L I S L Q R  
1001 CTCCATATCTTGCCCTTGGCTGGATAAGAAGGCAGGATCCGCCTGCCCTCCCGGTCTGCAATGGCTGGGTGTCACGCTCAGTTGCATTGAGGACGTTG  
147> L H I S G P C L D K K A G I R L P P G L Q W L G V T L S C I Q D V

BglII (1122)  
1101 GAGAGCTGGCTGGTATGTTCCAGACTGCTGCAAGGTTCTCCTCCAGGTTTCTGGGACCTGCAGAAAGTTGGATCTGTCATCCAACCGGAAGCTGAA  
180> G E L A G M F P D L V Q G S S S R V S W T L Q K L D L S S N R K L K

SandI (1213)  
1201 GATGGCTAGTCTGGGTCCCTCAGGGTCTCCAGTGGAGATTCTGGACTGACAAGAACCCTGGATGCTGTGGCTGAAGGGCCTGGACTTCAG  
213> M A S P G S L Q G L Q V E I L D L T R T P L D A V W L K G L G L Q

BstAPI (1318)  
1301 AAAGCTGATGCTTGTATGCACAGACTGCCACGGCCGAGCTGGCTGCTGAGGCTGTTGCCACTTTGAGCTGCAGGGCTTATTGTGAAAGAAAGCAAGA  
247> K L D V L Y A Q T A T A E L A A E A V A H F E L Q G L I V K E S K

BsaBI (1403)  
1401 TAGGATCTATATCTCAGGAGGCTCTGGCTTCTGCCACAGCCTGAAGACCTTGGGTCTTTCAAGCACTGGCCTAACCAAGCTTCCACCAGGCTTCTGAC  
280> I G S I S Q E A L A S C H S L K T L G L S S T G L T K L P P G F L T

AvrII (1507) BspEI (1531)  
1501 TGCCATGCTAGGCTTCAGCGACTGGAGCTGTCCGGAACCAACTGCAGAGCGCGTGTGTGCATGAATGAGACGGGAGATGTGTCAGGACTCACA  
313> A M P R L Q R L E L S G N Q L Q S A V L C M N E T G D V S G L T T

FspI (1622)  
1601 CTGGATGCTCAGGCAACAGGTTGCGCATCCTGCTCCAGCCGCTTCTCTGCTTACCCACTTGCAGAGCTGCTGCTTCGGTACAACAGCTGCTT  
347> L D L S G N R L R I L P P A A F S C L P H L R E L L L R Y N Q L L  
1701 CCCTGGAGGATACCTTCCAGGAGCTCCAGCAACTAGAGACTTGAAGCTGGATGGAACCCCTGCTTCACTGGTAAGAAGCTTGGCGGCTCT  
380> S L E G Y L F Q E L Q Q L E T L K L D G N P L L H L G K N W L A A L  
1801 GCCTGATTGACCACCTTACTGCTAGATACCAAATACGGATGAGCCAGAGCCTGGCTTCTGGGAGCAAGAATCTGCATACCTTGGAGCTGAAG  
413> P A L T T L S L L D T Q I R M S P E P G F W G A K N L H T L S L K

BsrBI (1904) Bsu36I (1970) Tth111I (1992)  
1901 CTCCCGCTCTCCCTGCTCCGGCAGTATTGTTCTGCCATGTATCTGACCAGCTTAGAGCTTCAATAGCCTCAGGCACAGCAGGACTGGAGCTGT  
447> L P A L P A P A V L F L P M Y L T S L E L H I A S G T T E H W T L

SandI (2065)  
2001 CCCAGCGATCTTTCCTTCTTGGAGACCTTACTATAAGCGGCGGGGACTGAAGCTGAAGCTGGGGTCCCAGAATGCTTCTGGGGTCTTCCCTGCTCT  
480> S P A I F P S L E T L T I S G G L K L G S Q N A S G V F P A L

Acc65I (2149)  
2101 CCAGAAGCTCTCCCTGCTCAAGAACAGCTTGGATGCCTTCTGCTCCAGGGTACTCCAACCTTCTCCTGTCGACGCTCCCCAACTTCACTCCTTGGAG  
513> Q K L S L L K N S L D A F C S Q G T S N L F L W Q L P K L Q S L R  
2201 GTATGGGGTGTGGAAACAGCTCCAGACCTTACTGGCTGCCCAGCTACGGGACTGAAGCTGGCGTTCAGTCCATAACCCAGCC  
547> V W G A G A N S R P C L I T G L P S L R E L K L A S L Q S I T Q P  
2301 GTTCGGTGCAGCTGGAGGAGCTGGTGGTGACCTTCCACAGCTCCAGGCTTAGTGTATCCAGCACAGGCTCAAGTCACTGTGCGCGCTGCTTTCCA  
580> R S V Q L E E L V G D L P Q L Q A L V L S S T G L K S L S A A A F Q  
2401 GCGCTGCACAGTCTCCAGGCTTAGTGTAGAATACGAGAAGGACTTGTATGCTGAGGACAGTCTGAGGGAGTACAGCCCTCAGATGCCCCACTATATA  
613> R L H S L Q V L V L E Y E K D L M L Q D S L R E Y S P Q M P H Y I

NcoI (2551)  
2501 TACATTCTGGAGTCAAACCTGGCCTGCCACTGTGCCAATGCGTGGATGGAGCCATGGGTTAAGCGGTCCACTAAAACGTACATATACATAAGAGACAATC  
647> Y I L E S N L A C H C A N A W M E P W V K R S T K T Y I Y I R D N  
2601 GCTTATGTCAGGACAAGACAGGCTCTGCTAGGGGTTCCCTTCCCTCTTCTCTGGGACCACTGCCCCAGAGCTTGGAGCTGAAACTCTTTTGGC  
680> R L C P G Q D R L S A R G S L P S F L W D H C P Q T L E L K L F L A

BamHI (2762) SdaI (2772)  
2701 TAGTCTGCCTGGTGTTCATGCTAATGCTTGCCTCTCCTCAAGAAGCCAGGAACCTTGGATCCCTACCTGCAGGCTTGTTCAGGGTTTGGCTC  
713> S S A L V F M L I A L P L L Q E A R N S W I P Y L Q A L F R V W L

XmnI (2829)  
2801 CAGGGTCTGAGGGTAAGGGAGACAAGGGGAAGAGGTTCTTTTCGATGTATTCTGTGCCACTGCAGGCAAGACCAGGGCTGGGTGATAGAGGAACTTC  
747▶ Q G L R G K G D K G K R F L F D V F V S H C R Q D Q G W V I E E L  
2901 TGCCTGCTCTGGAGGGCTTCTTCCAGCTGGCCTGGGCTGCGCTCTGTCTCCCGAGCGTGACTTTGAGCCTGGTAAGGATGTAGTTGATAATGTGGT  
780▶ L P A L E G F L P A G L G L R L C L P E R D F E P G K D V V D N V V  
MscI (3086)  
3001 AGATAGCATGTTGAGCAGCCGTACCACACTCTGCGTGTGAGTGGCAGGCCCTGTGTAACCCCGATGCCGCTGGAGCTCCGCTTGGCCACCTCTCTC  
813▶ D S M L S S R T T L C V L S G Q A L C N P R C R L E L R L A T S L  
BstBI (3197)  
3101 CTCCTGGCTGCCCGTCCCCCAGTGTGCTGCTAGTCTTCTTGAACCCATTTCTCGGCACCAGCTTCCGGTTACCACAGACTGGCTCGGCTGCTTC  
847▶ L L A A P S P P V L L L V F L E P I S R H Q L P G Y H R L A R L L  
PshAI (3208) BamHI (3277)  
3201 GAAGAGGAGACTACTGTCTGTGGCCGAGGAAGAGGAGAGAAAGAGTGGGTTCTGGACTTGGCTGAGGAGCAGGCTAGGATCCTATCCCTATGATGTGCC  
880▶ R R G D Y C L W P E E E E R K S G F W T W L R S R L G S Y P Y D V P  
MscI (3380)  
3301 AGACTATGCTGGCTATCCATATGATGTTCTGATTATGCTGGATACCCCTATGATGTCCAGACTATGCCTAAAGCTAGCTGGCCAGACATGATAAGATA  
913▶ D Y A G Y P Y D V P D Y A G Y P Y D V P D Y A •  
NheI (3374)  
3401 CATTGATGAGTTTGGACAAACCACTAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGC  
HpaI (3512) MfeI (3523)  
3501 TGCAATAAACAAGTTAAACAACAATTGCATTCATTTATGTTTCAGGTTCCAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAACCTCTACAAAT  
EcoRI (3608)  
3601 GTGGTATGGAAATCTAAATACAGCATAGCAAACTTTAACTCCAAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCA  
3701 GGGCTGTTGCCAATGTGCATTAGCTGTTTGCAGCCTCACCTCTTTTCATGGAGTTTAAGATATAGTGTATTTTCCCAAGGTTTGAAGTACTCTTCATT  
SspI (3847) SmaI (3861)  
3801 TCTTTATGTTTTAAATGCACTGACCTCCACATTCCTTTTTAGTAAAATATTTCAGAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTTA  
3901 TTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTAAATAGAAATTGGACAGCAAG  
4001 AAAGCGAGCTTCTAGCTTTGATTCTGTTGACTTGGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCATTATCTCAATGAGCACAAAGC  
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  
4101 AGTCAGGAGCATAGTCAGAGATGAGCTCTGTGCACATGCCACAGGGGCTGACCACCCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCTGACAGC  
113▶ 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 V A  
4201 CACAATGGTGTCAAAGTCTTCTGCCGTTGCTCACAGCAGCAATGGCAATGGCTTCCAGCAGACAGTACCCTGCCAATGTAGGCTCAATGTGG  
80▶ 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 I H  
4301 ACAGCAGAGATGATCTCCCAGTCTTGGTCTGATGGCCGCCGACATGGTCTTGTGCTCATAGAGCATGGTATCTTCTCAGTGGCGACCTCCA  
46▶ 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 E V  
BspHI (4436)  
4401 CCAGCTCCAGATCCTGCTGAGAGATGTTGAAGGTTCTCATGATGGCCCTCTATAGTGAGTCTATTATACTATGCCGATATACTATGCCGATGATTAAT  
13▶ L E L D Q Q S I N F T K M  
XmnI (4428) AseI (4494)  
4501 TGTCAAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTTCACTAAACGAGCTCTGCTTATATAGACCTCCACCGTACACGCCTACCGCCATTG  
SpeI (4649)  
4601 CGTCAATGGGGCGGAGTTGTTACGACATTTTGGAAAGTCCCGTTGATTTACTAGTCAAACAAACTCCATTGACGTCAATGGGGTGGAGACTTGGAAAT  
SnaBI (4777)  
4701 CCCCCTGAGTCAAACCGCTATCCACGCCATTGATGTACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTACTGCCAAGTAG  
NdeI (4882)  
4801 GAAAGTCCATAAGGTCACTGTACTGGGCATAATGCCAGCGGGCCATTACCCTGATTGACGTCAATAGGGGGCTACTTGGCATATGATACACTTGATG  
4901 TACTGCCAAGTGGCAGTTTACCGTAAATACTCCACCCATTGACGTCAATGAAAGTCCCTATTGGCGTTACTATGGGAACATACGTCAATTATTGACGTC  
SdaI (5060) PacI (5068) BspLU11I (5078)  
5001 AATGGGCGGGGTCGTTGGGCGGTACGCCAGGCGGGCCATTTACCCTAAGTTATGTAACGCTGACGTTAAATTAAGAACATGTGAGCAAAAGGCCAGCA  
5101 AAAGGCCAGGAACCGTAAAAGCCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGGTGG  
5201 CGAAACCCGACAGGACTATAAGATACCAGGCGTTTCCCCTGGAAGCTCCCTCGTGGCTCTCTGTTCCGACCTGCCGTTACCGGATACCTGTCCG  
ApaLI (5392)  
5301 CCTTTCTCCCTTCGGAAGCGTGGCGCTTTCTCATAGCTACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCAAGCTGGGCTGTGTGCACGA  
5401 ACCCCCCGTTCCAGCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACAGACTTATGCCACTGGCAGCAGCCACTGGT  
5501 AACAGGATTAGCAGAGCGAGGTATGTAGGCGGTCTACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCG  
5601 CTCTGCTGAAGCCAGTTACCTTCGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAAACCCGCTGGTAGCGGTGGTTTTTTTGGTTGCAAGCAGCA  
5701 GATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGCTGACGCTCAGTGGAACGAAAACCTCACGTTAAGGGATTTTGGTC  
PacI (5808) SmaI (5817) NotI (5827)  
5801 ATGGCTAGTTAATTAACATTTAAATC AGCGGCCGCAATAAAATATCTTTATTTTATTACATCTGTGTGGTTTTTTGTGTAATCGTAACTAACATA  
5901 CGCTCTCCATCAAAACAAAACGAAACAAAACAACTAGCAAATAGGCTGTCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA