



PvuI (7)
SgfI (6) MfeI (82)
1 GGATCTGCATCGCTCCGGTGCCCGTCAGTGGCAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA
101 GAGAAGTGGCGCGGGTAAACTGGAAAGTGTATGTCGTACTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

HindIII (245)
Psp1406I (203) PvuII (239) Bsu36I (291)
201 GTGAACGTTCTTTTTTCGCAACGGGTTTCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCTTACCGCCGCCGCCCTACCTGAGGCC
301 GCCATCCACGCCGGTTGAGTCGCGTTTCTGCCGCTCCCGCCTGTGGTGCCTCTGAACTGCGTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMIV (441)
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGTTGCTCAACTCTACGCTTTTGTTCGTTT

BstEII (555)
AgeI (552) NcoI (560) SacII (594)
501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGCGCCCTACCTGAGATCACCGGTACCATTGGAGCGGACGGCTGCGCGGGGGGGCGGGAGCCGCGG
1 M E R D G C A G G G S R G

Bsp120I (627) PvuI (648) SandI (683) NotI (694)
601 CGGCGAGGCGGGCGCGCTCCCGGGAGGGCCCGGGGAACGGCCGCGATCGGGCCGAGCCACGCTGCCGAGGCGCCCGGGACCCGAGCGGCC
13 G E G G R A P R E G P A G N G R D R G R S H A A E A P G D P Q A A

ScaI (789)
701 GCGTCTTGTGGCCCTATGGACGTGGGGGAGGAGCCGCTGGAGAAGCGGGCGCGCCGCACTGCCAAGGACCCCAACACCTATAAAGTACTCTCGC
47 A S L L A P M D V G E E P L E K A A R A R T A K D P N T Y K V L S

HpaI (819)
801 TGGTATTGTCAGTATGTGTGTTAACAACAATACTTGGTTGTATATTTGGTTGAAACCAAGCTGTGCCAAGAAGTTAAAGTTGCAAAGGTCGCTGTTT
80 L V L S V C V L T T I L G C I F G L K P S C A K E V K S C K G R C F

XcmI (988)
901 CGAGAGAACATTTGGAACTGTCGCTGTGATGTCGCTGTGTTGAGCTTGAAACTGCTGTTAGATTACCAGGAGACGTGCATAGAAACAGAACATATA
113 E R T F G N C R C D A A C V E L G N C C L D Y Q E T C I E P E H I
1001 TGGACTTGCAACAAATTCAGGTGTGGTGAAGAAAGTTGACCAGAAGCCTCTGTGCTGTTTACAGTACTGCAAGGACAAGGGGACTGCTGCATCAACT
147 W T C N K F R C G E K R L T R S L C A C S D D C K D K G D C C I N

AseI (1153)
1101 ACAGTTCTGTGTGCAAGGTGAGAAAAGTTGGGTAGAAGAACCATGTGAGAGCATTAATGAGCCACAGTCCCGAGCAGGGTTTAAACGCCTCTACCT
180 Y S S V C Q G E K S W V E E P C E S I N E P Q C P A G F E T P P T L
1201 CTTATTTCTTTGGATGGATTACAGGCAGAAATTTACACACTTGGGGTGGACTTCTTCTGTTATTAGCAAATAAAAAATGTGGAACATATACTAAA
213 L F S L D G F R A E Y L H T W G G L L P V I S K L K K C G T Y T K

AgeI (1308)
1301 AACATGAGACCGGTATATCAACAACAAAACCTTTCCCAATCACTACAGCATTGTACCGGATTGTATCCAGAATCTCATGGCATAATCGACAATAAAATGT
247 N M R P V Y P T K T F P N H Y S I V T G L Y P E S H G I I D N K M
1401 ATGATCCCAAAATGAATGCTTCTTTTCACTTAAAGTAAAGAGAAAATTAATCCTGAGTGGTACAAAGGAGAACCAATTTGGGTACAGCTAAGTATCA
280 Y D P K M N A S F S L K S K E K F N P E W Y K G E P I W V T A K Y Q

StuI (1500) MscI (1525)
1501 AGGCCTCAAGTCTGGCACATTTTCTGGCCAGGATCAGATGTGAAAATTAACGGAATTTCCAGACATCTATAAAATGTATAATGGTTTCAGTACCATT
313 G L K S G T F F W P G S D V E I N G I F P D I Y K M Y N G S V P F
1601 GAAGAAAGGATTTAGCTGTTCTTCAAGTGGCTACAGCTTCTTAAAGTAAAGACCACTTTTACACTCTGATTTAGAAAGAACAGATTCTTCAAGTTC
347 E E R I L A V L Q W L Q L P K D E R P H F Y T L Y L E E P D S S G

NdeI (1703)
1701 ATTCATATGGACCAGTACAGCAGTGAAGTCATCAAAGCCTTGCAGAGGGTTGATGGTATGGTTGGTATGCTGATGGATGGTCTGAAAGAGCTGAACCTGCA
380 H S Y G P V S S E V I K A L Q R V D G M V G M L M D G L K E L N L H
1801 CAGATGCCTGAACCTCATCCTTATTTAGATCATGGCATGGAACAAGGAGTGTAAAGAAATACATATATCTGAATAAATATTTGGGGATGTAAAAAT
413 R C L N L I L I S D H G M E Q G S C K K Y I Y L N K Y L G D V K N

PstI (1919)
1901 ATTAAGTTATCTATGGACCTGCAGCTCGATTGAGACCCTCTGATGTCCAGATAAACTATTCACTTAACTATGAAGGCATTGCCGAAATCTTTCTT
447 I K V I Y G P A A R L R P S D V P D K Y Y S F N Y E G I A R N L S
2001 GCCGGAAACCAACAGCACTTCAAACCTTACCTGAAACATTTCTTACCTAAGCGTTTGCACCTTGTCTAAGAGTGATAGAATTGAGCCCTTGACATTCTA
480 C R E P N Q H F K P Y L K H F L P K R L H F A K S D R I E P L T F Y
2101 TTTGACCCTCAGTGGCAACTTGCATTGAATCCCTCAGAAAGGAAATATTGTGGAAGTGGATTTCATGGCTCTGACAATGATTTTCAAATATGCAAGCC
513 L D P Q W Q L A L N P S E R K Y C G S G F H G S D N V F S N M Q A
2201 CTCTTTGTTGGCTATGGACCTGGATTCAAGCATGGCATTGAGGCTGACACCTTTGAAAACATTGAAGTCTATAACTTAATGTGTGATTTACTGAATTTGA
547 L F V G Y G P G F K H G I E A D T F E N I E V Y N L M C D L L N L

ApaLI (2383)
2301 CACCGGCTCCTAATAACGGAACCTCATGGAAGTCTTAAACACCTTCTAAAGAATCCTGTTTATACGCCAAAGCATCCCAAGAAAGTGCACCCCTGGTACA
580 T P A P N N G T H G S L N H L L K N P V Y T P K H P K E V H P L V Q
2401 GTGCCCTTACAAAGAAACCCAGAGATAACCTTGGCTGCTCATGTAACCTTTCGATTTTGGCGATTGAGGATTTTCAAACACAGTTCATCTGACTGTG
613 C P F T R N P R D N L G C S C N P S I L P I E D F Q T Q F N L T V

XcmI (2592)
2501 GCAGAAGAGAAGATTATTAAGCATGAAACTTTACCCTATGGAAGACCTAGAGTCTCCAGAAGGAAAACACCATCTGTCTTTTCCAGCACCAGTTTA
647 A E E K I I K H E T L P Y G R P R V L Q K E N T I C L L S Q H Q F
2601 TGAGTGGATACAGCAAGACATCTTAATGCCCTTTGGACATCTATACCGTGGACAGAAATGACAGTTTCTCTACGGAAGACTTCTCCAACCTGTCTGTA
680 M S G Y S Q D I L M P L W T S Y T V D R N D S F S T E D F S N C L Y

EcoRI (2711)
2701 CCAGGACTTTAGAATTCCTTCTTAGTCTGTCCATAAATGTTTCATTTTAAAAATAACACCAAAGTGAGTTACGGGTTCTCTCCCCACCACAACATAAT
713 Q D F R I P L S P V H K C S F Y K N N T K V S Y G F L S P P Q L N

HindIII (2825) BspHI (2889)

2801 AAAAATTC AAGTGAATATATTCTGAAGCTTTGCTTACTACAAATATAGTGCCAATGTACCAGAGTTTTCAAGTTATATGGCGCTACTTTCATGACACCC
747▶ K N S S G I Y S E A L L T T N I V P M Y Q S F Q V I W R Y F H D T

2901 TACTGCGAAAAGTATGCTGAAGAAAAGAAATGGTGTCAATGTCAGTGGTCTGTGTTGACTTTGATTATGATGGACGTTGTGATTCCTTAGAGAAATCT
780▶ L L R K Y A E E R N G V N V V S G P V F D F D Y D G R C D S L E N L

3001 GAGGCAAAAAAGAAGAGTCATCCGTAACCAAGAAATTTTATTGTTCAACTCACTCTTTTATTGTGCTAACCAAGCTGTAAGATACTCTCAGACGCTTTG
813▶ R Q K R R V I R N Q E I L I P T H F F I V L T S C K D T S Q T P L

3101 CACTGTGAAAACCTAGACACCTTAGCTTTTCATTTTGCCTCACAGGACTGATAACAGCGAGAGCTGTGTGCATGGGAAGCATGACTCCTCATGGTTGAAG
847▶ H C E N L D T L A F I L P H R T D N S E S C V H G K H D S S W V E

3201 AATTGTTAATGTTACACAGAGCAGCGATCACAGATGTTGAGCACATCACTGGACTCAGCTTCTATCAACAAAAGAAAAGAGCCAGTTTCAGACATTTTAAA
880▶ E L L M L H R A R I T D V E H I T G L S F Y Q Q R K E P V S D I L K

MscI (3383)

3301 GTTGAAAACACATTTGCCAACCTTAGCCAAAGAAGACTGATATGTTTTTATCCCAAACACCATGAATCTTTTTGAGCTAGCTGGCCAGACATGATAAG
913▶ L K T H L P T F S Q E D •

NheI (3377)

3401 ATACATTGATGAGTTTGACAAAACCACAACCTAGAAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATA

HpaI (3515) MfeI (3526)

3501 AGTGCATAAACAAGTTAAACAACAACATTCATTCTTTATGTTTCAGGTTCAAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAACCTCTACA

EcoRI (3611)

3601 AATGTGGTATGGAATCTAAAATACAGCATAGCAAACCTTAACTCCAATCAAGCCTCTACTTGAATCCTTTCTGAGGGATGAATAAGGCATAGGCA

SapI (3793)

3701 TCAGGGGCTGTTGCCAATGTGCATTAGCTGTTGCAGCCTCACCTTCTTCATGGAGTTAAGATATAGTGATTTTTCCCAAGTTTTGAAGTACTGCTCTTC

SwaI (3864)

3801 ATTTCTTTATGTTTTAAATGCAGCTGACCTCCACATTCCTTTTTAGTAAATATTCAGAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTT

3901 TTATTAGGCAGAATCCAGATGCTCAAGGCCCTTATAATATCCCCAGTTAGTAGTTGGACTTAGGGAACAAAGAACCTTTAATAGAAATTGGACAGC

4001 AAGAAAGCGAGCTTCTAGCTTTAGTTCTGGTGTACTTGAGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCCATTCATCTCAATGAGCACAA
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

SacI (4125) BstXI (4154)

4101 AGCAGTCAGGAGCATAGTCAGAGATGAGCTCTGACATGCCACAGGGGCTGACCACCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCTGAC
114▶ 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 Y P H R V

StuI (4289)

4201 AGCCACAATGGTGTCAAAGTCTTCTGCCGTTGCTCACAGCAGACCAATGGCAATGGCTTCAGCACAGACAGTGACCTGCCAATGTAGGCCTCAATG
81▶ 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 I Y A E I

4301 TGGACAGCAGAGATGATCTCCCAAGTCTTGGTCTGATGGCCGCCGACATGGTGCTTGTTCCTCATAGAGCATGGTGATCTTCTCAGTGGCGACCT
47▶ 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 K E T A V E

AseI (4497)

4401 CCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGGTCTTCATGGTGGCCCTCTATAGTGAGTCTGATTATACTATGCCGATATACTATGCCGATGATT
14▶ V L E L D Q Q S I N F T K M

SacI (4554)

4501 AATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTCACTAAACGAGCTCTGCTTATATAGACCTCCCACCGTACAGCCTACCGCCCAT

SpeI (4652)

4601 TTGCGTCAATGGGGCGGAGTTGTTACGACATTTTGAAAGTCCCGTTGATTTACTAGTCAAAAACAACTCCATTGACGTCAATGGGGTGGAGACTTGGAA

SnaBI (4780)

4701 AATCCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTACTGCCAAG

NdeI (4885)

4801 TAGGAAAGTCCATAAGGTCATGTACTGGGCATAATGCCAGGCGGCCATTTACCGTCATTGACGTCAATAGGGGGCGTACTTGGCATATGATACACTTG

4901 ATGTAAGTCCAAGTGGGAGTTTACCGTAAATACTCCACCCATTGACGTCAATGAAAGTCCCTATTGGCGTTACTATGGGAACATACGTCAATTATTGAC

PacI (5071)

PstI (5064) BspLU11I (5081)

SdaI (5063)

5001 GTCAATGGGCGGGGTCGTTGGGCGGTGAGCCAGGCGGGCCATTTACCGTAAGTTATGTAACGCTGCAAGGTTAAATTAAGAACCATTGTGAGCAAAAGGCCA
5001 GCAAAAGGCCAGGAACCGTAAAAAGGCCGCTTGTGGCGTTTTTCCATAGGCTCCGCCCTGACGAGCATCAAAAAATCGACGCTCAAGTCAGAGG

5101 TGGCGAAACCCGACAGGACTATAAGATACCAGGCTTTCCCTGGAAGCTCCCTCGTGCCTCTCCTGTTCCGACCTGCCGTTACCGGATACCTGT

5201

ApaLI (5395)

5301 CCGCTTTCTCCCTTCGGGAAGCGTGGCGCTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCCAAGCTGGGCTGTGTGCA

5401 CGAACCCCGCTTCCAGCCGACCGCTGCGCCTTATCCGTAACATATCGTCTTGTAGTCCAAACCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACT

5501 GGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCT

5601 CGCCTCTGCTGAAGCCAGTTACCTTCGAAAAAGAGTTGGTAGCTCTTGTATCCGCAACAAACCCCGTGGTAGCGGTGGTTTTTTGTTTGAAGCA

5701 GCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTCTACGGGTCTGACGCTCAGTGGAACGAAACTCACGTTAAGGGATTTG

PacI (5811) SmaI (5820) NotI (5830)

5801 GTCATGGCTAGTTAATTAACATTTAAATC AGCGGCCGCAATAAAATATCTTTATTTTCATTACATCTGTGTGTTGGTTTTTGTGTGAATCGTAACTAAC

5901 ATACGCTCTCCATCAAAACAAAACGAAACAAAACAACTAGCAAATAGGCTGTCCCGAGTGAAGTGCAGGTGCCAGAACATTTCTCTATCGAA