



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

Psp1406I (203) 201 GTGAACGTTCTTTTTTCGAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCTTCACGGCCCGCCCTACCTGAGGCC
HindIII (245)
Bsu36I (291)
301 GCCATCCACGCCGGTTGAGTCGGTTCGCCGCTCCCGCTGTGGTGCTCCTGAACTGCGTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMIV (441)
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCTCAACTCTACGCTTTTGTTCGTTT

AgeI (552) **SphI (560)**
501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGCGCCTACCTGAGATCACCGGTGAGCATGCGTCCGGAGGGCGGGGAATGGATCTTGGCGGCGG
1 M R P E G A G M D L G G G
601 CGATGGGAGCGTCTGCTAGAGAAGAGCAGGAGGGAGCACTGGCAGCTGCTGGTAATTTGAAGACGACTGTGGAAGTTTGGTGTACGCCAACTGCCCC
13 D G E R L L E K S R R E H W Q L L G N L K T T V E G L V S A N C P
701 AATGTCTGGTCCAAGTATGGTGGCCTGGAGCGGCTGTGACGGGACATGCAGAACATCCTGTATCATGGGCTCATCCATGACCAGGTGTGTTGCCGCCAGG
47 N V W S K Y G G L E R L C R D M Q N I L Y H G L I H D Q V C C R Q

BbrPI (856)
801 CTGATTACTGGCAGTTTGTGAAAGACATTCCGTTGGCTCAGCCCGCACTCAGCCCTTACGTTGGAGAAGTTCATCAGTTTGCATGAGAGCGACCAGAGCGA
80 A D Y W Q F V K D I R W L S P H S A L H V E K F I S L H E S D Q S D

BstAPI (945)
901 CACTGACAGCGTGAGTGAGCGTGCTGTTGCAGAGCTGTGGTGCAGCATAGCCTGCAGTGCCACTGCCTCTCAGCCAGCTCCGGCCTGCTCGGGGAC
113 T D S V S E R A V A E L W L Q H S L Q C H C L S A Q L R P L L G D
1001 AGACAGTACATCAGAAAATTCTACACAGAACTGCCTTCTGCTGAGTGACGCCACGTACAGCCATGCTCCAGTGCCTGGAAGCAGTGGAACAGAAACA
147 R Q Y I R K F Y T E T A F L L S D A H V T A M L Q C L E A V E Q N

NsiI (1124)
ClaI (1120)
1101 ACCCCCGTCTTCTGGCTCAGATCGATGCATCCATGTTTCCAGAAAGCAGGAGAGCCCGTGTGGTCAAAAGAGCCAGAGTCTGACCGCTCTGCCTGG
180 N P R L L A Q I D A S M F A R K Q E S P L L V T K S Q S L T A L P G

NheI (1219)
1201 TTCCACATACACCCCTCCAGCTAGCTATGCTCAGCATTCTACTTTGGGTCTCTCCAGCCTTCACTATGCCACAGTCCAGCCACAGCTCAGAGAGA
213 S T Y T P P A S Y A Q H S Y F G S S S S L Q S M P Q S S H S S E R

BglII (1300)
1301 AGATCTACTTCTTTTACTCTCTGGCCCTTCTGGCAACCTCAAGAAGACAGAGAATGCCTCTCACCAGCAGAGACTCAAACCACCCAGCTCCGCTGC
247 R S T S F S L S G P S W Q P Q E D R E C L S P A E T Q T T P A P L
1401 CTTCAGACTCTACTCTAGCCAGGATCCCCACTGACAGCACAGGAGATGAGCGACAGCACTCTGACTAGCCCCCTAGAGGCATCTGGGTGACGAGCCA
280 P S D S T L A Q D S P L T A Q E M S D S T L T S P L E A S W V S S Q

Bsp120I (1528)
1501 GAATGACTCCCCAAGTGATGTGCTGAGGGGCGGACCTGACCTGGCCATTGGCAACCCAGCCCTCATGGCCGGACTGCCAGTTGTGAGAGTCACAGCAGC
313 N D S P S D V S E G P E Y L A I G N P A P H G R T A S C E S H S S
1601 AACGGCGAGAGCAGCAGCTCTCACTTGTCTCTCCAGCAGCTCTCAAAGCTGGAGTCTGCTGCCTTCTCTAGGGGACCAAGAGGAAGGCAGGCAGA
347 N G E S S S S H L F S S S S S Q K L E S A A S S L G D Q E E G R Q
1701 GTCAGGCAGGCAGCGTCTTCGAGGTCAGCTTCTCAGAAGGGCAGACAGCCCTGTCGCCAGCGGACAAAGAAGGCCATATTCGCTCCCACTCGGA
380 S Q A G S V L R R S S F S E G Q T A P V A S G T K K S H I R S H S D
1801 CACCAACATTGCCTCCAGAGGAGCCGACAGGAGCCCAAGAAATATCACCATTATAGTTGAAGATCCCATTGCAGAGGGTGGTCACTCTGCTCAGGA
413 T N I A S R G A A G G P R N I T I I V E D P I A E G G Q Y L C S G
1901 GAAGGCATGTTTGAAGACCATCAGAAGGACAGTCCCTCATCAGTTACCTCTCTGAGCAAGACTTTGGCAGCTGTGCAGACCTGAAAAGGAAAACGCC
447 E G M F R R P S E G Q S L I S Y L S E Q D F G S C A D L E K E N A

XbaI (2067)
2001 ACTTCAGCATCTCCGAGTCTTGATTGCCGCCATTGAGCTGATGAAGTGAACATGATGAGCCAGTGTCTAGAAGAGGAGGAAGTAGAGGAGGAAGATAG
480 H F S I S E S L I A A I E L M K C N M M S Q C L E E E E V E E E D S

HindIII (2199)
2101 TGACCGAGAGATCCAGGAACTGAAGCAGAAGATCCGCCTTCGGCGCCAGCAGATCCGCACCAAAAACCTGCTCCCTGCGTACCGGGAGACTGAGAATGGA
513 D R E I Q E L K Q K I R L R R Q Q I R T K N L L P A Y R E T E N G

BstEII (2208)
2201 AGCTTCCGGGTACCTCCAGCAGCTCCAGTTCAGTTCACGGGATTCGACGCAGCTCTGAGTCCGGCTCTGCTGAGGATGCTGACGACTTGAAATCC
547 S F R V T S S S S Q F S S R D S T Q L S E S G S A E D A D D L E I
2301 AAGACGCTGACATCCGGAGGAGTGCAGTCTCAAACGGCAAATCATCTTCTCCAGAATCTCTCGACTGCTTCTGCACTCCACATCGGCTGAGGCAGT
580 Q D A D I R R S A V S N G K S S F S Q N L S H C F L H S T S A E A V

NcoI (2402) 2401 GCCATGGGGCTTCTGAAGCAGTTTGGGGATGCAGCTTCCAGCTGCCTCGGAGCTCGATGGCTAGTCCCAGAGCATGATGCTCCACAGAAGCTCCTA
613 A M G L L K Q F E G M Q L P A A S E L E W L V P E H D A P Q K L L
2501 CCCATCCCGACTCCCTGCCATCTCACCAGATGACGGGCAGCAGCGGACATCTACAAGCTGCGAATCCGCGTCCGTGGCAACTGGAGTGGGCTCCGC
647 P I P D S L P I S P D D G Q H A D I Y K L R I R V R G N L E W A P

EagI (2602)
2601 CCCGGCCG CAGATCATTTTAAATGTTTCATCCAGCCCCACGAGGAAGATTGCCGTGGCCAAGCAGAATTACCCTGTGCGGGATGTGGCATCCGGACGGA
680▶ P R P Q I I F N V H P A P T R K I A V A K Q N Y R C A G C G I R T D

AvrII (2736)
2701 CCCGACTATATCAAGCGGCTGCGGTACTGTGAGTACCTAGGCAAGTACTTCTGCCAGTGCTGCCACGAGAACGCCAGATGGTCGTCGCCAGCCGATT
713▶ P D Y I K R L R Y C E Y L G K Y F C Q C C H E N A Q M V V P S R I

FspI (2801) BglII (2861)
2801 CTGCGCAATGGGACTTCAGCAAGTACTATGTCAGCAACTTCTCCAAGGACCTGCTCCTGAAGATCTGGAATGATCCTCTTCAATGTGCGAGACATCA
747▶ L R K W D F S K Y Y V S N F S K D L L L K I W N D P L F N V Q D I

BspLU11I (2975)
2901 ATAGCGCACTCTACAGGAAGGTCAAGCTGCTTAACCAAGTCCGGCTGCTGCGGGTTACAGTGTACCACATGAAGAACATGTTAAGACATGCCGACTGGC
780▶ N S A L Y R K V K L L N Q V R L L R V Q L Y H M K N M F K T C R L A
3001 CAAAGAGCTCCTGGATTCTTTGACGTGGTCCAGGCCACCTGACAGAGGACCTCCATCTGTACTCGCTGAGTGACCTGACTGCAACCAAGAAGGGAGAA
813▶ K E L L D S F D V V P G H L T E D L H L Y S L S D L T A T K K G E

SphI (3155)
3101 CTGGGCCCCGGCTGGCGGAGCTCACTAGAGCGGGAGCCGCCACGTGGAGAGATGCATGCTGTGTCAGGCCAAGGGCTTCATCTGTGAATTCTGTGAGA
847▶ L G P R L A E L T R A G A A H V E R C M L C Q A K G F I C E F C Q
3201 ATGAGGAGGATGTCATCTTCTTTGAGCTGCATAAGTGCCGGACTGTGAAAGAGTAAAGCGTGTACCATAAACTTGCTTCAAGTCTGGACGCTG
880▶ N E E D V I F P F E L H K C R T C E E C K A C Y H K T C F K S G R C
3301 CCCCCGTGTGAGCGGCTGCAGGCCGACGGAGCTGCTGGCAAGCAGAGCCTGGAGTCTACCTGTCTGACTATGAGGAGGAGCCACAGAAGCCTTG
913▶ P R C E R L Q A R R E L L A K Q S L E S Y L S D Y E E E P T E A L

XbaI (3402) Bsu36I (3428) SpeI (3445)
3401 GCTCTAGAGGCCACCGTCTAGAGACCACCTGAGGAATGCACTAACTAGTCTAGCTCGACATGATAAGATACATTGATGAGTTTGGACAAACCACAAC
947▶ A L E A T V L E T T •
3501 TAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAA

HpaI (3614) MfeI (3625)
3601 GCTGCAATAAACAAAGTTAAACAACAACAATTGCATTCATTTTTATGTTTCAGGTTTCAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAAACCTCTACAA

EcoRI (3710)
3701 ATGTGGTATGGAATTCTAAATACAGCATAGCAAACTTTAACCTCCAAATCAAGCCTCTACTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCAT
3801 CAGGGGCTGTTGCCAATGTGCATTAGCTGTTTGAGCCTCACCTTCTTTCATGGAGTTAAGATATAGTGATTTTTCCCAAGGTTTGAAGTACTCTTCA

SspI (3949) SmaI (3963)
3901 TTTCTTTATGTTTTAAATGACTGACCTCCACATTCCTTTTTAGTAAAATATTCAGAAAATATTTAAATACATCATTGCAATGAAAATAAATGTTTTT
4001 TATTAGGCAGAATCCAGATGCTCAAGGCCCTCATAATATCCCCAGTTAGTAGTTGGACTTAGGGAACAAAGAACCTTTAATAGAAATTGGACAGCA
4101 AGAAAGCGAGCTTCTAGCTTTAGTTCCTGGTGTACTTGAGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCCATTCATCTCAATGAGCACAAA
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

BstXI (4253)
4201 GCAGTCAGGAGCATAGTCAGAGATGAGCTCTCTGCACATGCCACAGGGGCTGACCACCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCTGACA
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 (4388)
4301 GCCACAATGGTGTCAAAGTCTTCTGCCGTTGCTCACAGCAGACCAATGGCAATGGCTTCAGCACAGACAGTGACCCTGCCAATGTAGGCCTCAATGT
80▶ 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 H
4401 GGACAGCAGAGATGATCTCCCCAGTCTGGTCTGATGGCCGCCCGACATGGTGCTTGTGCTCATAGAGCATGGTGATCTTCTAGTGGCGACCTC
47▶ 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

XmnI (4530) AseI (4596)
4501 CACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGTCTTCATGGTGGCCCTCTATAGTGAGTCGATTATACTATGCCGATATACTATGCCGATGATTA
14▶ V L E L D Q Q S I N F T K M
4601 ATGTGCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTCACTAAACGAGCTCTGCTTATATAGACCTCCACCCTACACGCTACCGCCATT

SpeI (4751)
4701 TCGTCAATGGGGCGGAGTTGTTACGACATTTTGAAAGTCCCGTTGATTTACTAGTCAAAACAAACTCCATTGACGTCAATGGGGTGGAGACTTGGAA

SnaBI (4879)
4801 ATCCCCGTGAGTCAAACCCTATCCACGCCATTGATGTAAGTCCAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGACTGCCAAGT

NdeI (4984)
4901 AGGAAAGTCCCATAAGGTGATGACTGGGCATAATGCCAGGCGGGCCATTTACCGTATTGACGTCAATAGGGGGCTACTTGGCATATGATACACTTGA
5001 TGTAAGTCCAAGTGGGAGTTTACCCTAAATACTCCACCCATTGACGTCAATGAAAGTCCCTATTGGCGTACTATGGGAACATACGTCAATTATTGACG

PaeI (5170) SdaI (5162) BspLU11I (5180)
5101 TCAATGGGCGGGGTCGTTGGGCGGTCAGCCAGGCGGGCCATTTACCGTAAGTTATGTAACGCTGCAAGTTAATAAGAACATGTGAGCAAAAGGCCAG

5201 CAAAAGGCCAGGAACCGTAAAAAGGCCGCTTGTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAATCGACGCTCAAGTCAGAGGT

5301 GGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCCCTGGAAGCTCCCTCGTGCGCTCTCTGTTCCGACCCTGCCGTTACCGGATACCTGTC

5401 CGCCTTTCTCCCTTCGGGAAGCGTGGCGCTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTGTTCCGCTCCAAGCTGGGCTGTGTGCAC **ApaI (5494)**

5501 GAACCCCGTTCCAGCCGACCGCTGCGCTTATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTG

5601 GTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTG

5701 CGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGGTTTTTTGTTTGAAGCAG

5801 CAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGTCTGACGCTCAGTGGAAACGAAAACTCACGTTAAGGGATTTTGG

EagI (5930)

PacI (5910) SmaI (5919) **NotI (5929)**

5901 TCATGGCTAGTTAATTAACATTTAAATCAGCGGCCGCAATAAAATATCTTTATTTTCATTACATCTGTGTGTTGGTTTTTTGTGTGAATCGTAACTAACA

6001 TACGCTCTCCATCAAACAAAACGAAACAAAACAACTAGCAAATAGGCTGTCCCCAGTGCAAGTGCAAGTGCCAGAACATTTCTCTATCGAA