



PvuI (7)
SgfI (6) 1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA **MfeI (82)**

101 GAGAAAGTGGCGCGGGTAAACTGGAAAGTGTGTCTGTACTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

Psp1406I (203) 201 GTGAACGTTCTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCTTACGCGCCCGCCCTACCTGAGGCC **HindIII (245)**

301 GCCATCCAGCGCGGTTGAGTCGCGTTTCTGCCGCCTCCCGCTGTGGTGCCTCCTGAAGTCCGCTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

401 GGGCCTTTGTCGGCGCTCCCTTGAGCCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTCTCAACTCTACGCTTTTGTTCGTTT **NgoMIV (441)**

501 TCTGTTTCTGCGCCGTTACAGATCCAAGCTGTGACCGCGCCCTACCTGAGATCACCGTTCATCATGACGAGTGTCCGTTGCAAGCTGGCTCAGTATCTAGA **KasI (535)** **AgeI (552)** **BspHI (560)** **XbaI (594)**
1 M T S V R C K L A Q Y L E

601 GGACCTTGAAGATGTGGACCTCAAGAAATTCAAAATGCATTTGGAAGATTACCCGCCGAGAAAGGCTGTATCCAGTCCCGAGGGCCAGATGGAGAAG **NsiI (634)** **XcmI (680)**
13 D L E D V D L K K F K M H L E D Y P P E K G C I P V P R G Q M E K

701 GCAGATCACTTGGATCTAGCCACACTCATGATTGACTTCAATGGTGGAGAGAAGGCTGGCCATGGCTGTGTGGATCTTTGCTGCGATCAACAGGCGAG **BspHI (725)** **NcoI (761)**
47 A D H L D L A T L M I D F N G E E K A W A M A V W I F A A I N R R

801 ACCTCTGGAAAAAGCTAAGAAGGACCAGCCAGAGTGGAAATGACACGTGCATCACATTCCTCTATGGTATGCCAGGAGGACAGCCTTGAAGAAGAGTG **BbrPI (843)**
80 D L W E K A K K D Q P E W N D T C T S H S S M V C Q E D S L E E E W

901 GATGGGTTTGTGGGATATCTCTCCGCATCTCCATTTGTA AAAAGAAGAAAGATTACTGTAAGATGTACAGACGACATGTGAGAAGCAGGTTCTACTCT **EcoRV (914)** **BspLU11I (975)**
113 M G L L G Y L S R I S I C K K K K D Y C K M Y R R H V R S R F Y S

1001 ATCAAGGACAGGAACCGCGCTCTAGGTGAGAGTGTGGACCTCAACAGTCGCTACACGCGCTCCAAGTGGTCAAGGAGCATCCAAGCAAGCAGGAGCGGG **BsrBI (1093)**
147 I K D R N A R L G E S V D L N S R Y T Q L Q L V K E H P S K Q E R

1101 AGCATGAACCTCTGACCATCGGCCGAGCTAAAATGCGGGACAGCCCATGAGTTCCCTTAAAGCTGGAGCTGCTGTTTGAAGCCGAGGACGGGCACTCGGA **DraIII (1207)**
180 E H E L L T I G R T K M R D S P M S S L K L E L L F E P E D G H S E

1201 GCCTGTGCACACAGTGGTGTCCAGGGAGCAGCAGGCATCGGGAAAACCATCCTAGCCAGGAAGATTATGTTGGACTGGGCACTGGGAAAGCTCTTCAA **FspI (1421)** **BamHI (1436)**
213 P V H T V V F Q G A A G I G K T I L A R K I M L D W A L G K L F K

1301 GACAAATTTGACTATTTGTTTTCCTTCCACTGCCGAGAGGTGAGCCTCAGGACGCCAAGGAGTCTAGCAGACCTGATTGTCTGCTGCTGGCCTGACCCAA **SfiI (1722)**
247 D K F D Y L F F I H C R E V S L R T P R S L A D L I V S C W P D P

1401 ACCCACCAGTGTGCAAGATCTCGCAAGCCTTCCAGGATCCTTTCCTCATGGATGGCTTTGATGAGCTACAAGGGGCTTTGACGAGCACATTGGGGA **AvrII (1659)**
280 N P P V C K I L R K P S R I L F L M D G F D E L Q G A F D E H I G E

1501 GGTCTGCACAGACTGGCAAAAGGCTGTGCGGGGAGACATTCTGTAAGCAGCCTCATCCGAAAGAAACTGCTGCCAAGGCCTCTCTGCTCATAACGACG **SfiI (1722)**
313 V C T D W Q K A V R G D I L L S S L I R K K L L P K A S L L I T T

1601 AGGCCGGTAGCCTTGAGAAAAGTGCAGCATCTCTGGACCACCCCGCCATGTGGAGATCCTAGGTTTCTCTGAGGCCAAAAGGAAGGAGTATTTCTTTA **SfiI (1722)**
347 R P V A L E K L Q H L L D H P R H V E I L G F S E A K R K E Y F F

1701 AGTATTTCTCAACGAGCTGCAGGCCGGGAGGCCTTCCAGGCTGATCCAAGAGAATGAGGTCTCTTTACCATGTGCTTCATCCCCCTGGTCTGCTGGAT **BstAPI (2022)** **XmnI (2064)**
380 K Y F S N E L Q A R E A F R L I Q E N E V L F T M C F I P L V C W I

1801 TGTGTGCACGGGGCTAAAGCAACAGATGGAGACCGGGAAGAGCCTGGCCAGACCTCCAAGACCACTACGGCCGTCTACGTCTTCTTCTTTCCAGCCTG **BglII (2208)**
413 V C T G L K Q Q M E T G K S L A Q T S K T T T A V Y V F F L S S L

1901 CTGCAATCCCGGGGCTTGAAGGAGCATCTCTTCTGACTACTACAGGCTCTGTCTACTGCGGATGGAATTTGGAACCAAGAAAATCTAT **BglII (2351)**
447 L Q S R G G I E E H L F S D Y L Q G L C S L A A D G I W N Q K I L

2001 TTGAGGAGTGTGATCTGCGGAAGCACGGCCTGCAGAAGACTGACGTCTCCGCTTTCTGAGGATGAACGTTTCCAGAAGGAAGTGGACTGCGAGAGATT **BglII (2351)**
480 F E E C D L R K H G L Q K T D V S A F L R M N V F Q K E V D C E R F

2101 CTACAGCTTCAGCCACATGACTTTCAGGAGTCTTCGCTGCTATGTACTATTTGCTGGAAGAGGAGGAGGAGGGGAGACCTGTGAGAAAGGACCAGGA **BglII (2351)**
513 Y S F S H M T F Q E F F A A M Y Y L L E E E A E G E T V R K G P G

2201 GGTGTTCCAGATCTTCTGAACCGAGACGTGAAGGTCTACTAGAAAATTACGGCAAGTTTGA AAAAGGCTATCTGATTTTTGTTGTCGGATTCTCTTTG **BglII (2351)**
547 G C S D L L N R D V K V L L E N Y G K F E K G Y L I F V V R F L F

2301 GCCTTGTA AACAGGAGAGAACCTTTATTTGGAGAAGAACTAAGTTGCAAGATCTCTCAGCAAGTCAGACTGGA ACTACTGAAGTGGATTGAAGTAA **BstXI (2429)** **NotI (2492)**
580 G L V N Q E R T S Y L E K K L S C K I S Q Q V R L E L L K W I E V K

2401 AGCCAAGGCCAAGAGCTGCAGTGGCAGCCAGCCAACTGGAAGTGTCTACTGCCTGTACGAGATGCAGGAGGAAGACTTTGTGAGAGTGCATGGAC **BbrPI (2542)**
613 A K A K K L Q W Q P S Q L E L F Y C L Y E M Q E E D F V Q S A M D

2501 CACTTTCCAAAATTGAGATCAACCTCTCTACCAGAATGGACCAGTGGTTTCTCTTTTGTATTAAGAAGTGTATAGGGTCAAACGCTTTCCCTGG **SalI (2648)**
647 H F P K I E I N L S T R M D H V V S S F C I K N C H R V K T L S L

2601 GTTTTTTTCAAACTCGCCAAGGAGGAAGAAGAAGAGAGGAGGAGGAGTTCGACCTTGGACCAGGTTTCAAGTGTGTTTTCCAGACACTCATGTTGCCTG **SalI (2648)**
680 G F F H N S P K E E E E E R R G G R P L D Q V Q C V F P D T H V A C

2701 TTCTTCCAGACTGGTGAAGCTGCTGCTCACTTCTAGCTTCTGCCGTGGTCTCTTCTCAAGTCTAAGCACCAACCGGAGCCTCACTGAACTGGACCTCAGT
713▶ S S R L V N C C L T S S F C R G L F S S L S T N R S L T E L D L S
2801 GACAATACTCTGGGAGACCCGGGCATGAGGGTGTGTGAGGCCTCCAGCACCAGGCTGTAACATTAGAGACTGTGGTTGGGGCGTCCGGACTGT
747▶ D N T L G D P G M R V L C E A L Q H P G C N I Q R L W L G R C G L
2901 CCCATCAATGCTGCTTCGACATCTCTCTGTCTGAGCAGCAGCCAGAAGCTGGTGGAGCTGGACCTCAGTGACAATGCCCTGGGGGACTTTGGAATCAG
780▶ S H Q C C F D I S S V L S S S Q K L V E L D L S D N A L G D F G I R
3001 ATTGCTGTGTGGGACTGAAGCACCTGCTCTGCAACCTCCAGAACTGTGGTTGGTGAAGCTGTCTCACATCCGCGTGTGTGAGGATCTCGCATTG
813▶ L L C V G L K H L L C N L Q K L W L V S C C L T S A C C Q D L A L
3101 GTTCTGAGCTCCAACATTCTGACCAGACTGTACATTGGAGAAAATGCCCTTGGGAGACTCAGGAGTCCAAGTTTTGTGAAAAGATGAAGGACCCAC
847▶ V L S S N H S L T R L Y I G E N A L G D S G V Q V L C E K M K D P
EcoRI (3228)
3201 AGTGTAACTTGCAGAAGCTGGGGTTGGTGAATCCGGCCTTCAATCTGTTGTTGAGCTCTGACCTCTGTGCTCAAAACCAACAGAACTTCACACA
880▶ Q C N L Q K L G L V N S G L T S I C C S A L T S V L K T N Q N F T H
3301 CCTCTATCTACGAAGCAATGCCCTTGGAGACACAGGACTCAGGCTCCTGTGAGGGGCTTCTGCACCCGACTGAAAACACAGATGCTGGAATTAGAC
913▶ L Y L R S N A L G D T G L R L L C E G L L H P D C K L Q M L E L D
3401 AACTGCAGCTCACCTCACAGCTGCTGGAATCTCTCCAAATCTGACCCACAACCCACAGCCTTCGGAAGCTGAACCTGGGCAACAATGATCTTGGCG
947▶ N C S L T S H S C W N L S T I L T H N H S L R K L N L G N N D L G
BstEII (3510)
3501 ATCTGTGCGTGGTACCCTCTGTGAGGTGCTGAAACAGCAGGGCTGCCTCCTGCAGAGCTACAGTTGGTGAATGTACTTAAATCGTGAACAAAACG
980▶ D L C V V T L C E V L K Q Q G C L L Q S L Q L G E M Y L N R E T K R
MscI (3688)
NheI (3682)
3601 TGCCTTAGAAGCGCTCCAGGAAGAAAAGCCTGAGCTGACTATAGTCTTCGAGATTTCTGGTAGCGTGAAGCAGGACCAGCTAGCTGGCCAGACATG
1013▶ A L E A L Q E E K P E L T I V F E I S W •
3701 ATAAGATACATTGATGAGTTTGGACAAACCACAACCTAGAATGCAGTGAATAAATGCTTTATTGTGAAATTTGTGATGCTATTGCTTTATTGTAAACA
HpaI (3820) MfeI (3831)
3801 TTATAAGCTGCAATAAACAAGTTAAACAACAACAATTGCATTCATTTTTATGTTTCAGGTTCAAGGGGAGGTGTGGGAGTTTTTTAAAGCAAGTAAACCT
EcoRI (3916)
3901 CTACAAATGTGGTATGGAATCTAAAATACAGCATAGCAAACTTTAACCTCCAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCAT
4001 AGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTGCAGCCTCACCTTCTTCATGGAGTTAAGATATAGTGATTTTTCCAAGGTTTGAAGTACG
SspI (4155) SmaI (4169)
4101 TCTTCATTTCTTTATGTTTTAAATGCACTGACCTCCACATTCCTTTTTAGTAAATATTCAGAAATAATTTAAATACATCATTGCAATGAAAATAAT
4201 GTTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTTAATAGAAATTGG
4301 ACAGCAAGAAAGCGAGCTTCTAGCTTTTAGTTCTGCTGACTTGGAGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCCATTCATCTCAATGAG
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
BstXI (4459)
4401 CACAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTCTGCACATGCCACAGGGGCTGACCACCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGC
116▶ 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 Y P H
4501 CTGACAGCCACAATGGTGTCAAAGTCTCTGCCCCTGCTCAGCAGACCAATGGCAATGGCTTCAAGCAGACAGTGCACCTGCCAATGTAGGCCT
82▶ 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 I Y A E
4601 CAATGTGGACAGCAGAGATGATCTCCCCAGTCTTGGTCTGATGGCCGCCAGACATGGTGCTTGTGCTCATAGACATGGTGTGATCTTCAAGTGGC
49▶ 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 K E T A
XmnI (4736)
4701 GACCTCCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGTCTTCTAGTGGCCCTCTATAGTGAGTCTGATTATACTATGCCGATATACTATGCCGA
16▶ V E V L E L D Q Q S I N F T K M
AseI (4802)
4801 TGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTTCCTAAACGAGCTCTGCTTATATAGACCTCCACCGTACACGCCTACCG
SpeI (4957)
4901 CCCATTTGCGTCAATGGGGCGGAGTTGTTACGACATTTTGAAAGTCCCCTGATTACTAGTCAAAAACAACTCCATTGACGTCAATGGGGTGGAGAC
SnaBI (5085)
5001 TTGGAAATCCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTAAGTCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTAAGT
NdeI (5190)
5101 CCAAGTAGAAAAGTCCATAAGGTCATGTAAGTGGCATAATGCCAGGCGGGCATTACCCTGATGACGTCAATAGGGGGCGTACTTGGCATATGATAC
5201 ACTTGATGTAAGTCCAAAGTGGGCAGTTTACCGTAAATACTCCACCCATTGACGTCAATGGAAAGTCCCTATTGGCGTTACTATGGGAACATACGTCATTA
PaeI (5376)
SdaI (5368) BspLU11I (5386)
5301 TTGACGTCAATGGGCGGGGCTGTTGGGCGGTGAGCCAGGCGGGCCATTACCCTAAGTTATGTAACGCTGCAGGTTAAATAAGAACATGTGAGCAAAA
5401 GGCCAGCAAAAAGGCCAGGAACCGTAAAAAGCCGCTTGTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCAAAAAATCGACGCTCAAGTC
5501 AGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGCGTTTTCCCTGGAAGTCCCTGCTGCGCTCTCTGTTCCGACCTGCCGTTACCGGATA
5601 CCTGTCCGCTTTCTCCCTCGGAAGCGTGGCGTTTTCTCATAGCTCAGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCAAGCTGGGCTGT

5701 GTGCACGAACCCCGTTTCAGCCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAG
5801 CCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGG
5901 TATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGATTGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGGTTTTTTGTTTGC
6001 AAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGGAACGAAAACTCACGTTAAGGGA
6101 TTTTGGTCATGGCTAGTTAATTAACATTTAAATC **NotI (6135)** AGCGCCGCAATAAAAATATCTTTATTTTCATTACATCTGTGTGTTGGTTTTTTGTGTGAATCGTAA
6201 CTAACATACGCTCTCCATCAAAACAAAACGAAACAAAACAAACTAGCAAATAGGCTGTCCCCAGTGCAAGTGCAAGTGCCAGGTCAGAACATTTCTCTATCGAA