



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

101 GAGAAGTGGCGCGGGTAAACTGGAAAGTGATGTCGTACTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

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

301 GCCATCCACGCGGGTTGAGTCGCGTTTCTGCCGCTCCCGCTGTGGTGCCTCCTGAAGTGCCTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCAACTCTACGCTTTTGTTCGTTT

NcoI (560)
BstEII (555)
KasI (535) 501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGGGCGCTACCTGAGATCACCGGTGACAAGGTCCGCAAAATCTGGACCTGGTACAGAGCAAGGGCG **AgeI (552)**

601 ATCAGAGTCTCACCCACATTCATTACTGAAAAGTAATCGGGAACCTTCTGGTCACTCACATCCGCAACTACTCAGTGTCTGGTGACAACCTTGTGAAG **1 M E E Q G H S E M E I I P**
13 S E S H P H I Q L L K S N R E L L V T H I R N T Q C L V D N L L K

701 AATGACTACTTCTCGCCGAAGATGCGGAGATTGTGTGCTGCCACCCAGCTGACAAGGTCCGCAAAATCTGGACCTGGTACAGAGCAAGGGCG **Tth111I (757)**
47 N D Y F S A E D A E I V C A C P T Q P D K V R K I L D L V Q S K G

801 AGGAGGTGTCGAGTTCTTCTCTACTTGTCCAGCAACTCGCAGATGCTTACGTTGACCTCAGGCTTGGCTGCTGGAGATCGGCTTCTCCCTTCCCT **80 E E V S E F F L Y L L Q Q L A D A Y V D L R P W L L E I G F S P S L**

901 GCTCACTCAGAGCAAAGTCTGGTCAACACTGACCCAGTGAAGCTATACCCAGCAGCTGCGACACCATCTGGGCCGTGACTCCAAGTTCGTGCTGTGC **Bst1107I (945)**
113 L T Q S K V V V N T D P V S R Y T Q Q L R H H L G R D S K F V L C

1001 TATGCCAGAAGGAGGAGCTGCTGCTGGAGGAGATCTACATGGACACCATCATGGAGCTGGTTGGCTTCAAGTTCAGAGCTGGCAGCCTGAACAGCC **BglII (1031)** **XcmI (1046)**
147 Y A Q K E E L L L E E I Y M D T I M E L V G F S N E S L G S L N S

1101 TGGCTGCCTCCTGGACCACACCACCGCATCCTCAATGAGCAGGGTGAAGACCATCTTCATCCTGGGTGATGCTGGGGTGGGCAAGTCCATGCTGCTACA **XcmI (1151)**
180 L A C L L D H T T G I L N E Q G E T I F I L G D A G V G K S M L L Q

1201 GCGGCTGCAGAGCCTCTGGGCCACGGCCGGCTAGACGCAGGGGTCAAATCTTCTTCCACTTTCGCTGCCGATGTTCAAGTTCAGGAAAGTGAC **213 R L Q S L W A T G R L D A G V K F F H F R C R M F S C F K E S D**

SmaI (1349)
BsrBI (1345) 1301 AGGCTGTGTCTGCAGGACCTGCTCTTCAAGCACTACTGCTACCCAGGAGCCCGGAGGAGTGTTCCTTCTGCTGCGCTTCCCCACGTGGCCC **BbrPI (1390)**
247 R L C L Q D L L F K H Y C Y P E R D P E E V F A F L L R F P H V A

1401 TCTTACCTTCGATGGCTGGACGAGCTGCACTCGGACTTGGACTGAGCCGCTGCCTGACAGCTCTGCCCTGGGAGCCTGCCACCCCTGGTCTT **280 L F T F D G L D E L H S D L D L S R V P D S S C P W E P A H P L V L**

1501 GCTGGCCAACCTGCTCAGTGGAAAGCTGCTCAAGGGGCTAGCAAGCTGCTCACAGCCGCACAGGCATCGAGTCCCAGCCTTCTGCGGAAGAAG **MscI (1502)** **NheI (1537)**
313 L A N L L S G K L L K G A S K L L T A R T G I E V P R Q F L R K K

1601 GTGCTTCTCCGGGCTTCTCCCCAGCCACCTGCGCGCTATGCCAGGAGGATGTTCCCGGAGCGGGCCTGCAGGACCGCTGCTGAGCCAGCTGGAGG **BssHIII (1632)** **BsrBI (1660)**
347 V L L R G F S P S H L R A Y A R R M F P E R A L Q D R L S Q L E

1701 CCAACCCCAACCTCTGCAGTCTGTGCTCTGTGCCCTTCTGCTGGATCACTTCCGTTGCTTCCAGCACTTCCGTTGCTGCTTGAAGGCTACCACA **380 A N P N L C S L C S V P L F C W I I F R C F Q H F R A A F E G S P Q**

1801 GCTGCCCCACTGCACGATGACCTGACAGATGCTTCTCCTGCTGCTGAGGTCATCTGAACAGGATGCAGCCAGCAGCCTGGTGCAGCGGAACACA **PshAI (1824)**
413 L P D C T M T L T D V F L L V T E V H L N R M Q P S S L V Q R N T

1901 CGCAGCCAGTGGAGACCCTCCACGCCGGCCGGACACTCTGTGCTGCTGGGCGAGGTGGCCACCGGGGATGGAGAAGAGCCTTTTGTCTTCCACC **DraIII (1935)**
447 R S P V E T L H A G R D T L C S L G Q V A H R G M E K S L F V F T

2001 AGGAGGAGGTGCAGGCTCCGGGCTGCAGGAGAGAGACATGCAGCTGGGCTTCTGCGGGCTTTGCCGGAGTGGGCCCGGGGTGACCAGCAGTCCTA **BstEII (2083)**
480 Q E E V Q A S G L Q E R D M Q L G F L R A L P E L G P G G D Q Q S Y

2101 TGAGTTTTTCCACCTCACCTCCAGGCTTCTTTACAGCTTCTTCTCGTGTGGACGACAGGGTGGGCACTCAGGAGCTGCTCAGGTTCTTCCAGGAG **XmaI (2077)**
513 E F F H L T L Q A F F T A F F L V L D D R V G T Q E L L R F F Q E

2201 TGGATCCCCCTGCGGGGCGAGCACCAGCTCTGCTATCCTCCCTTCTCCGTTCCAGTGCCTGCAGGGCAGTGGTCCGGCGGGGAAGACCTTCTCA **Tth111I (2223)**
547 W M P P A G A A T T S C Y P P F L P F Q C L Q G S G P A R E D L F

2301 AGAACAAGGATCACTTCCAGTTCACCAACCTTCTCCTGTGCGGGTGTGTGCCAAAGCCAAACAGAACTCCTGCGGCATCTGGTCCCGCGGACCCCT **SacII (2387)**
580 K N K D H F Q F T N L F L C G L L S K A K Q K L L R H L V P A A A L

2401 GAGGAGAAGCGCAAGGCCCTGTGGGCACACCTGTTTTCCAGCCTGCGGGCTACTGAAGAGCCTGCCCGGCTTCCAGTTCGAAAGCTTCAACCAAGGTG **HindIII (2484)**
613 R R K R K A L W A H L F S S L R G Y L K S L P R V Q V E S F N Q V

2501 CAGGCCATGCCACGTTTCATCTGGATGCTGCGTGCATCTACGAGACAGAGCCAGAAGGTGGGGCAGCTGGCGCCAGGGGATCTCGCCAACTACC **647 Q A M P T F I W M L R C I Y E T Q S Q K V G Q L A A R G I C A N Y**

2601 TCAAGCTGACCTACTGCAACGCCTGCTCGGCCACTGCAGCGCCCTCTCCTTCTGCTGCTGATCACTTCCCAAGCGGCTGGCCCTAGACCTAGACAACAA **680 L K L T Y C N A C S A D C S A L S F V L H H F P K R L A L D L D N N**

2701 CAATCTCAACGACTACGGCGTGCGGGAGCTGCAGCCCTGCTTCAGCCGCTCACTGTTCTCAGACTCAGCGTAAACCAGATCACTGACGGTGGGGTAAAG
713▶ N L N D Y G V R E L Q P C F S R L T V L R L S V N Q I T D G G V K
2801 GTGCTAAGCGAAGCTGACCAAATACAAAATTGTGACTTTTGGTATTATACAAACACAGATCACCGATGTCGGAGCCAGGTACGTCACCAAAATCC
747▶ V L S E E L T K Y K I V T Y L G L Y N N Q I T D V G A R Y V T K I
2901 TGGATGAATGCAAAGGCCTCACGCATCTTAACTGGGAAAAACAAAATAACAAGTGAAGGAGGGAAGTATCTCGCCCTGGCTGTGAAGAACAGCAAATC
780▶ L D E C K G L T H L K L G K N K I T S E G G K Y L A L A V K N S K S
3001 AATCTCTGAGGTTGGGATGTGGGCAATCAAGTTGGGGATGAAGGAGCAAAAGCCTTCGAGAGGCTCTGCGGAACACCCACGCTTGACCACCTGAGT
813▶ I S E V G M W G N Q V G D E G A K A F A E A L R N H P S L T T L S

XbaI (3168)

3101 CTTGCGTCCAACGGCATCTCCACAGAAGGAGGAAAGAGCCTTGCAGGGCCCTGCAGCAGAACACGTCTCTAGAAATACTGTGGCTGACCCAAAATGAAC
847▶ L A S N G I S T E G G K S L A R A L Q Q N T S L E I L W L T Q N E
3201 TCAACGATGAAGTGGCAGAGAGTTTGGCAGAAATGTTGAAAGTCAACCAGACGTTAAAGCATTATGGCTTATCCAGAATCAGATCACAGCTAAGGGGAC
880▶ L N D E V A E S L A E M L K V N Q T L K H L W L I Q N Q I T A K G T
3301 TGCCAGCTGGCAGATGCGTTACAGAGCAACACTGGCATAACAGAGATTTGCCTAAATGGAAACCTGATAAAACACAGAGGAGGCCAAAAGTCTATGAAGAT
913▶ A Q L A D A L Q S N T G I T E I C L N G N L I K P E E A K V Y E D

NheI (3430)

EcoRI (3424) MscI (3436)

3401 GAGAAGCGGATTATCTGTTTCTGAGAATTCGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGGCAAACCAACTAGAATGCAGTGAAAAA
947▶ E K R I I C F •

HpaI (3568) MfeI (3579)

3501 AATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAAACAAGTTAAACAACAACAATTGCATTCATTTTATGTT

EcoRI (3664)

3601 TCAGTTTCAGGGGAGGTGTGGGAGTTTTTAAAGCAAGTAAACCTCTACAAATGTGGTATGGAATTCTAAATACAGCATAGCAAACTTTAACCTC

3701 CAAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTTGCAGCCTCACCTTC

3801 TTTCATGGAGTTTAAAGATATAGTGATTTTTCCCAAGGTTTGAAGTACTGCTCTTCATTTCTTTATGTTTTAAATGCACTGACCTCCACATTCCCTTTTATG

SspI (3903) SmaI (3917)

3901 TAAATATTCAGAAATAATTTAAATACATCATTGCAATGAAAAATAATGTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCCA

4001 GTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTAAATAGAAATTTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCCTGGTGTACTTGAGGGGGAT

1441 • N R T Y K L P I

4101 GAGTTCCTCAATGGTGGTTTTGACCAGCTTGCATTCTCAATGAGCACAAGCAGTCAAGGAGCATAGTCAGAGTGTGACATGACCTCTGCACATGCCACAG

132▶ L E E I T T K V L K G N M E I L V F C D P A Y D S I L E R C M G C

4201 GGGCTGACCACCCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCGTTGCTCACAGCAGACC

98▶ P S V V R I S R D V E D S Y P H R V A V I T D F D K Q G N S V A S G

4301 CAATGGCAATGGCTTCAGCACAGACAGTACCCTGCCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCAAGTCTTGGTCTGATGGCCGCCCC

65▶ I A I A E A C V T V R G I Y A E I H V A S I I E G T K T R I A A G

BspHI (4492)

4401 GACATGGTCTTGTGTCTCATAGAGCATGGTGTCTCTCAGTGGCGACCTCCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGGTCTTCATGATG

32▶ V H H K N D E Y L M T I K E T A V E V L E L D Q Q S I N F T K M

AseI (4550)

4501 GCCCTCTATAGTGAGTCGTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTTC

SacI (4607)

4601 ACTAAACGAGCTCTGCTTATATAGACCTCCACCGTACACGCCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTTACGACATTTTGGAAAGTCCCGTT

SpeI (4705)

4701 GATTTACTAGTCAAAACAAACTCCATTGACGTCAATGGGGTGAGACTTGAAAAATCCCGTGAGTCAAACCGCTATCCACGCCATTGATGACTGCCA

SnaBI (4833)

4801 AAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTACTGCCAAGTAGGAAAGTCCCATAGGTCATGTACTGGGCATAATGCCAGCGGGG

NdeI (4938)

4901 CATTTACCGTCATTGACGTCAATAGGGGGCTACTTGGCATATGATACACTTGATGTACTGCCAAGTGGGCAGTTTACCGTAAATACTCCACCCATTGAC

5001 GTCAATGGAAAGTCCCTATTGGCGTTACTATGGGAACATACGTCAATTATTGACGTCAATGGGGGGGGTCTGTTGGCGGTGAGCCAGCGGGCCATTAC

PacI (5124) **BspLU111 (5134)**

5101 CGTAAGTTATGTAACGCCTGCAGGTTAAATAAGAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGGCCGCTTGGCTGGCGTTTTTCC

5201 ATAGGCTCCGCCCTGACGAGCATCACAAAATCGACGCTCAAGTCAAGGTTGGCAAACCCGACAGGACTATAAAGATACCAGCGTTTTCCCTGG

5301 AAGCTCCCTCGTGCCTCTCTGTTCCGACCCTGCCGCTTACCGGATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTGGCGCTTTCTCATAGCTCACGC

ApaLI (5448)

5401 TGTAGGTATCTCAGTTCGGTGTAGTGTCTCGCTCAAGCTGGGCTGTGTGCACGAACCCCGTTCCAGCCGACCGCTGCGCTTATCCGGTAACTATC

5501 GTCTTGAGTCCAACCCGGTAAGACAGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGCGGTGCTACAGAGTT

5601 CTTGAAGTGGTGGCTAACTACGGCTACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGAAAAAGAGTTGGTAGCTCT

5701 TGATCCGGCAAACAACCACCGCTGGTAGCGGTGGTTTTTTTTGTTTGCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCT

PacI (5864) SwaI (5873) **NotI (5883)**

5801 TTTCTACGGGGTCTGACGCTCAGTGAACGAAAACACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATC AGCGGCCGCAATAAAATA

5901 TCTTTATTTTCATTACATCTGTGTGTTGGTTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAAACAAAACGAAACAAAACAACTAGCAAAT
6001 AGGCTGTCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA