



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

101 GAGAAAGTGGCGGGGTAAGTGGAAAGTGATGCTGTACTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

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

301 GCCATCCACGCGGGTTGAGTCGCGTTTCTGCCGCCTCCCGCTGTGGTGCCTCCTGAAGTCGCTCCGCCGTCTAGGTAAGTTAAAGCTCAGGTCGAGACC

401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTCTCAACTCTACGCTTTTGTTCGTTT **NgoMIV (441)**

501 TCTGTTTCTGCGCCGTTACAGATCCAAGCTGTGACCGCGCCCTACCTGAGATCACCGGTCCACATGGCGCCTCCGCGCGCAGCCTCGGCAGCAGCGGC **KasI (535)** **BstEII (555)** **AgeI (552)**
1 M A A S A A A A S A A A A

SrfI (623) 601 CTCGGCCGCTCTGGCAGCCCGGGCCCGGGCGAGGGCTCCGCTGGCGGCGAAAAGCGCTCCACGCCCTTCCGCGCAGCCTCGGCCTCTGCCTCAGCC **SrfI (617)** **Eco47III (653)**
13 S A A S G S P G P G E G S A G G E K R S T A P S A A A S A S A S A

701 GCGGCGTCTGCGCCCGGGGGCGGCGCGAGGCGTGGAGCTGCTGGAGCACTGCGGCGTGTGAGAGAGCGCTCGCAGCCGAGAGGGAGCCCGCC **KasI (724)**
47 A A S S P A G G G A E L L E H C G V C R E R L R P E R E P R

801 TGCTGCCCTGTTTCACTCGGCCTGTAGTGCCTTAGGGCCCGCGCCCGCCGCGCAACAGCTCGGGGACGGCGGGGCGCGGCGCAGCCGAC **XmnI (954)**
80 L L P C L H S A C S A C L G P A A P A A A N S S G D G G A A G D G T

901 CGTGGTGGACTGTCCCGTGTGCAAGCAACAGTCTTCTCAAAGACATCGTGAGAGAAATTTTTCATGCGTGATAGTGGCAGCAAGGCTGCCACCGAGCC **SapI (1374)**
113 V V D C P V C K Q Q C F S K D I V E N Y F M R D S G S K A A T D A

1001 CAGGATGCGAACCAGTGTGCACTAGCTGTGAGGATAATGCCCCAGCCACCAGCTACTGTGGAGTGTCTGGAGCCTCTGTGTGAGACCTGTGTAGAGG **BspHI [m] (1464)**
147 Q D A N Q C C T S C E D N A P A T S Y C V E C S E P L C E T C V E

1101 CGCACCAGCGGGTGAAGTACACCAAGGACCATACTGTGCGCTCTACTGGCCAGCCAAGTCTCGGGATGGTGAACGTACTGTCTATTGCAACGTACACAA **BstAPI (1590)**
180 A H Q R V K Y T K D H T V R S T G P A K S R D G E R T V Y C N V H K

1201 GCATGAACCCCTTGTGCTGTTTGTGAGAGCTGTGATACTCTACCTGCCGAGACTGCCAGCTCAATGCCACAAGGACCACAGTACCAGTCTTAGAG **BamHI (1701)**
213 H E P L V L F C E S C D T L T C R D C Q L N A H K D H Q Y Q F L E

1301 GATGCAGTGAAGAACAGCGCAAGCTCCTGGCCTCACTGGTGAAGCGCCTTGGGGACAAACATGCAACATTGCAAGAGCACCAGGAGGTTCCGAGCT **BspHI [m] (1464)**
247 D A V R N Q R K L L A S L V K R L G D K H A T L Q K S T K E V R S

1401 CAATCCGCCAGGTGTCTGACGTACAGAAGCGTGTGCAAGTGGATGTCAAGATGGCCATCCTGCAGATCATGAAGGAGCTGAATAAGCGGGGCGGTGTGCT **BstAPI (1590)**
280 S I R Q V S D V Q K R V Q V D V K M A I L Q I M K E L N K R G R V L

1501 GGCAATGATGCCAGAAGTGACTGAGGGGAGCAGGAGCGCCTGGAGCGGAGCAGTGGACCATGACCAAGATCCAGAAGCACCAGGAGCATTCTG **BamHI (1701)**
313 V N D A Q K V T E G Q Q E R L E R Q H W T M T K I Q K H Q E H I L

1601 CGCTTTGCCCTTTGGGCTCTGGAGAGTGACAACAACACAGCCCTTTTGTCTTCTAAGAAGTTGATCTACTTCCAGCTGCACCGGGCCCTCAAGATGATTG **BamHI (1701)**
347 R F A S W A L E S D N N T A L L L S K K L I Y F Q L H R A L K M I

1701 TGGATCCCGTGGAGCCATGGCGAGATGAAGTTTTCAGTGGGACTCAATGCCTGGACCAAGAGTGGCAGGCGCTTGGCAAGATTGTGGCAGAGCGTCC **BamHI (1701)**
380 V D P V E P H G E M K F Q W D L N A W T K S A E A F G K I V A E R P

1801 TGGCACTAACTCAACAGGCGCTGCACCCATGGCCCTCAAGAGCCCGAGGGCCCTGAGCAAGCAGGGCTCTGGCAGCAGCCAGCCATGGAGGTGCAG **BamHI (1701)**
413 G T N S T G P A P M A P P R A P G P L S K Q G S G S S Q P M E V Q

1901 GAAGGCTATGGCTTTGGGTCAGGAGATGATCCCTACTCAAGTGCAGAGCCCATGTGTGAGGTGTGAAACGGTCCCGCTCAGGTGAGGGGAGGTGAGCG **BamHI (1701)**
447 E G Y G F G S G D D P Y S S A E P H V S G V K R S R S G E G E V S

2001 GCCTTATGCGCAAGGTGCCACGAGTGGAGCCTTGAACGCCTGGACCTGACAGTGCAGCCAGCCACCGTCTTCAAGGTCTTCCAGGCGAGTAC **FspI (2006)**
480 G L M R K V P R V S L E R L D L D L T A D S Q P P V F K V F P G S T

2101 CACTGAGGACTACAACCTTATTGTTAAGCTGGCGCTGCCGCTGCAGTACCAGCCAGCCAGGGACTGCGCCTGCAGGAACCCCTGGTCCCCACCC **FspI (2006)**
513 T E D Y N L I V I E R G A A A A A T G Q P G T A P A G T P G A P P

2201 CTGGCTGGCATGGCATTGTCAAGGAGGAGGAGACGGAGGCTGCCATTGGAGCCCTCTACTGCCACTGAGGGCCCTGAGACCAAACCTGTGCTTATGG **FspI (2006)**
547 L A G M A I V K E E E T E A A I G A P P T A T E G P E T K P V L M

2301 CTCTTGGGAGGGTCTGGTGTGAGGGTCCCGCCTCACCTAGTGGCAGCAGCAGTCCAGGGCTGGAGTGGTGGCTCTGAGGGTACCTCAGC **SandI (2325)** **DraIII (2342)** **Acc65I (2389)**
580 A L A E G P G A E G P R L A S P S G S T S S G L E V V A P E G T S A

2401 CCCAGGTGGTGGCCCGGAAACCTGGATGACAGTGCACCATTTGCCGTGTCTGCCAGAAGCCAGGCGATCTGGTTATGTGCAACAGTGTGAGTGTGTG **SandI (2325)** **DraIII (2342)** **Acc65I (2389)**
613 P G G G P G T L D D S A T I C R V C Q K P G D L V M C N Q C E F C

2501 TTCCACCTGGACTGTACCTGCCGCGCTGCAGGATGTACCAGGGGAGGAGTGGAGTGTCTACTCTGCCATGTGCTCCCTGACCTGAAGGAGGAGGATG **NgoMIV (2520)**
647 F H L D C H L P A L Q D V P G E E W S C S L C H V L P D L K E E D

2601 GCAGCCTCAGCCTGGATGGTGCAGACAGCACTGGCGTGGTGGCAAGCTCTCACCAGCAACAGCGGAAATGTGAGCGTGTACTGCTGGCCCTATTCTG **NgoMIV (2520)**
680 G S L S L D G A D S T G V V A K L S P A N Q R K C E R V L L A L F C

2701 TCACGAACCTGCCGCCCTGCATCAGCTGGCTACCGACTCCACCTTCTCCCTGGACAGCCGCTGGCACCCTGGATCTGACCCTGATCCGTGCCCGC **BstXI (2757)**
713 H E P C R P L H Q L A T D S T F S L D Q P G G T L D L T L I R A R

HpaI (2883)

2801 CTCCAGGAGAAGTTGTCACCTCCCTACAGCTCCACAGGAGTTTGCCAGGATGTGGCCGCATGTTCAAGCAATTCACAAAGTTAACTGAGGACAAGG
747▶ L Q E K L S P P Y S S P Q E F A Q D V G R M F K Q F N K L T E D K

Eco47III (2927)

2901 CAGACGTGCAGTCCATCATCGGCCTGCAGCGCTTCTTCGAGACGCGCATGAACGAGGCCCTTCGGTGACACCAAGTTCTCTGCTGTGCTGGTGGAGCCCC
780▶ A D V Q S I I G L Q R F F E T R M N E A F G D T K F S A V L V E P P

NheI (3071)

3001 GCCGATGAGCCTGCCTGGTGTGGCCTGAGTTCACAGGAGCTGTCTGGTGGCCCTGGTATGGCCCTGAGGCTAGCTGGCCAGACATGATAAGATACAT
813▶ P M S L P G A G L S S Q E L S G G P G D G P •

3101 TGATGAGTTTGGACAAACCAACTAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGC

HpaI (3209) MfeI (3220)

3201 AATAACAAGTTAAACAACAACAATTGCATTCATTTTATGTTTCAGGTTTCAGGGGAGGTGTGGGAGGTTTTTTAAAGCAAGTAAAACCTCTACAAATGTG

EcoRI (3305)

3301 GTATGGAATTCTAAAATACAGCATAGCAAACTTTAACCTCCAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGG

SapI (3487)

3401 GCTGTTGCCAATGTGCATTAGCTGTTTGCAGCCTCACCTTCTTTCATGGAGTTAAGATATAGTGATTTTCCCAAGGTTTGAAGTACTCTTCTATTCT

SspI (3544) SwaI (3558)

3501 TTATGTTTTAAATGCACTGACCTCCACATTCCCTTTTTAGTAAAATATTCAGAAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTTATTA

3601 GGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGAACCTTTAATAGAAATTGGACAGCAAGAAA

3701 GCGAGCTTCTAGCTTTAGTTCTGGTGTACTTGAGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCCATTCATCTCAATGAGCACAAGCAGT

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 D

SacI (3819)

BstXI (3848)

3801 CAGGAGCATAGTCAGAGATGAGCTCTGCACATGCCACAGGGGTGACCACCCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCTGACAGCCAC

112▶ 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 V

3901 AATGGTGTCAAAGTCTTCTGCCGTTGCTCACAGCAGACCAATGGCAATGGCTTCAGCACAGACAGTGACCCTGCCAATGTAGGCCCTCAATGTGGACA

79▶ 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 A E I H V

4001 GCAGAGATGATCTCCAGTCTTGGTCTGATGGCCGCCCGACATGGTGCTTGTGTCTCATAGAGCATGGTGATCTTCTCAGTGGCGACCTCCACCA

45▶ 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 L

XmnI (4125)

AseI (4191)

4101 GCTCCAGATCCTGCTGAGAGATGTTGAAGTCTTCATGGTGGCCCTCCTATAGTGAGTCTATTATACTATGCCGATATACTATGCCGATGATTAATTGT

12▶ E L D Q Q S I N F T K M

SacI (4248)

4201 CAAACAGCGTGATGGCGTCTCCAGCTTATCTGACGGTTCACTAAACGAGCTCTGCTTATATAGACCTCCACCGTACACGCCTACCGCCATTGCGT

SpeI (4346)

4301 CAATGGGCGGAGTTGTTACGACATTTGGAAAGTCCCGTTGATTTACTAGTCAAACAAACTCCATTGACGTCAATGGGGTGGAGACTTGGAAATCCC

SnaBI (4474)

4401 CGTGAGTCAAACCGCTATCCACGCCATTGATGTACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGACTGCCAAGTAGGAA

NdeI (4579)

4501 AGTCCATAAGGTGATGACTGGGCATAATGCCAGGCGGGCCATTTACCGTCAATAGGGGGCGTACTTGGCATATGATACACTTGATGTAC

4601 TGCCAAGTGGCAGTTTACCCTAAATACTCCACCATTGACGTCAATGAAAAGTCCCTATTGGCGTACTATGGAACATACGTCAATTATTGACGTCAAT

PacI (4765) BspLU11I (4775)

4701 GGGCGGGGTCGTTGGGCGTACGCGAGCGGGCCATTTACCGTAAGTTATGTAACGCCTGCAGGTTAATAAGAACATGTGAGCAAAAGGCCAGCAAAA

4801 GGCCAGGAACCGTAAAAAGCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAATCGACGCTCAAGTCAGAGGTGGCGA

4901 AACCCGACAGGACTATAAAGATACCAGGCGTTTCCCCCTGGAAGTCCCTCGTGGCTCTCTGTTCCGACCCTGCCCTTACCGGATACCTGTCCGCT

ApaLI (5089)

5001 TTCTCCCTTCGGGAAGCGTGGCGCTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCCAAGCTGGGCTGTGTGCACGAACC

5101 CCCCCTTACAGCCGACCGCTGCGCTTATCCGGTAACTATCGTCTTGTAGTCCAACCCGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAAC

5201 AGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTC

5301 TGCTGAAGCCAGTTACCTTCGAAAAAGAGTTGGTAGCTTGTATCCGGCAAAACAAACCACCGCTGGTAGCGGTGTTTTTTGTTTGAAGCAGCAGAT

5401 TACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGTCTGACGCTCAGTGAACGAAAACCTCACGTTAAGGGATTTTGGTCATG

PacI (5505) SwaI (5514) NotI (5524)

5501 GCTAGTTAATTAACATTTAAATC AGCGGCCGCAATAAAAATATCTTTATTTTTCATTACATCTGTGTGTTGTTTTTTGTGTGAATCGTAACATAACATACGC

5601 TCTCCATCAAAACAAACGAAACAAACAAACTAGCAAAATAGGCTGTCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA