



175

PvuI (7)
SgfI (6)
1 GGATCTGGGATCGCTCCGGTGCCCGTCAGTGGGCAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTCGGCAATTGAACGGGTGCCTA
101 GAGAAGGTGGCGCGGGTAAACTGGGAAAGTGATGTCGTGACTGGTCCGCCTTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

Psp1406I (203) **HindIII (245)**
201 GTGAACGTTCTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCTTACGCGCCCGCCCTACCTGAGGCC
301 GCCATCCACGCGGGTTGAGTCGCGTTTCTGCCGCCTCCCGCTGTGGTGCCTCCTGAAGTGCCTCCGCGCTAGGTAAGTTAAAGCTCAGGTCGAGACC
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCAACTCTACGTCTTTGTTTCGTTT

KasI (535) **MluI (558)**
501 TCTGTTCTGCGCGTTACAGATCCAAGCTGTGACCGGGCGCTA CTTGAGATCACCGGAACGCGTACCATTGGCTGGCGGAGCCTGGGGCCGCTGGCCTGT
1 M A G G A W G R L A C

BsrBI (691)
601 TACTTGGAGTTCCTGAAGAAGGAGGAGCTGAAGGAGTTCAGTCTTCTGCTCGCCAATAAAGCGCACTCCAGGAGCTTTCGGGTGAGACACCCGCTCAGC
12 Y L E F L K K E E L K E F Q L L L A N K A H S R S S S G E T P A Q
701 CAGAGAAGACGAGTGGCATGGAGGTGGCCTCGTACCTGGTGGCTCAGTATGGGGAGCAGCGGGCTGGGACCTAGCCCTCCATACCTGGGAGCAGATGGG
45 P E K T S G M E V A S Y L V A Q Y G E Q R A W D L A L H T W E Q M G
801 GCTGAGGTCAGTGTGCGCCAAGCCAGGAAGGGCAGGCACTCCCTATTCCCTACAGCCCAAGTGAACCCCAAGTCCAGCCTCCAGCAGCAACC
78 L R S L C A Q A Q E G A G H S P S F P Y S P S E P H L G S P S Q P

BamHI (925)
901 ACCTCCACCGCAGTGTCTAATGCCCTGGATCCATGAATTGCCGGCGGGTGCACCCAGGGCTCAGAGAGAAGGGTTTTGAGACAGCTGCCTGACACATCTG
112 T S T A V L M P W I H E L P A G C T Q G S E R R V L R Q L P D T S
1001 GACGCGCTGGAGAGAAATCTCTGCTCCTCTACCTACCAAGCTTCCAAGCTCCAGACCATGAGTCTCAAGCCAGGAGTACCCAACGCCCCAC
145 G R R W R E I S A S L L Y Q A L P S S P D H E S P S Q E S P N A P T

BamHI (1125)
1101 ATCCACAGCAGTGTGGGAGCTGGGATCCCCACCTCAGCCAGCCTAGCACCCAGAGAGCAGGAGGCTCCTGGGACCCAATGGCCTCTGGATGAAACG
178 S T A V L G S W G S P P Q P S L A P R E Q E A P G T Q W P L D E T
1201 TCAGGAATTTACTACACAGAAATCAGAGAAAGAGAGAGAGAAATCAGAGAAAGGCAGGCCCCCATGGGACGCGGTGGTAGAACGCCCCACAGGGCG
212 S G I Y Y T E I R E R E R E K S E K G R P P W A A V V G T P P Q A
1301 ACACCAGCCTACAGCCACCACCCATGGGAGCCTTCTGTGAGAGAGAGCCTCTGTTCCACATGGCCCTGGAAAAATGAGGATTTAAACAAAAAATT
245 H T S L Q P H H P W E P S V R E S L L C S T W P W K N E D F N Q K F
1401 CACACAGTGTACTTCTACAAAAGCCTACCCAGAACGCAAGTCCCTGSLCAAGAGAAGCTGGCCTGATTATGTGGAGGAGAATCGAGGACATTTA
278 T Q L L L L Q R P H P R S Q D P L V K R S W P D Y V E E N R G H L
1501 ATTGAGATCAGAGACTTATTTGGCCAGGCTGGATACCAAGAACCTCGCATAGTCACTGCAAGGGGCTGCTGGAATTTGGAAAGTCAACTGGCCA
312 I E I R D L F G P G L D T Q E P R I V I L Q G A A G I G K S T L A
1601 GGCAGGTGAAGGAAGCCTGGGGGAGAGGCCAGCTGTATGGGGACCGCTTCCAGCATGTCTTCTACTTCAGCTGCAGAGAGCTGGCCAGTCCAAGGTGGT
345 R Q V K E A W G R G Q L Y G D R F Q H V F Y F S C R E L A Q S K V V

BsrBI (1773)
1701 GAGTCTCGCTGAGCTCATCGAAAAGATGGGACAGCCACTCCGGCTCCATTAGACAGATCCTGTCTAGGCCAGAGCGGCTGCTTTCATCCTCGATGGT
378 S L A E L I G K D G T A T P A P I R Q I L S R P E R L L L F I L D G
1801 GTAGATGAGCCAGGATGGGTCTTGACAGGAGCCGAGTCTGAGCTCTGCTGCATGAGGCCAGCCACAGCCGGCGGATGCACTGCTGGGAGTTTGTCTGG
412 V D E P G W V L Q E P S S E L C L H W S Q P Q P A D A L G S S L L
1901 GGAAAATACTTCCCGAGGCATCCTTCTGATCACGGCTCGGACCACAGCTCTGCAGAACCCTATTCTTCTTTGGAGCAGGCAGTTGGGTAGAGGT
445 G K T I L P E A S F L I T A R T T A L Q N L I P S L E Q A R W V E V

SspI (2029)
2001 CCTGGGGTCTCTGAGTCCAGCAGGAAGGAATTTCTACAGATATTTACAGATGAAAGCAAGCAATTAGAGCCTTTAGGTTGGTCAAATCAAACAAA
478 L G F S E S S R K E Y F Y R Y F T D E R Q A I R A F R L V K S N K
2101 GAGCTCTGGGCCCTGTGTCTTGTGCCCTGGGTGTCTGGCTGGCTGCACTTGCCTGATGCAGCAGATGAAGCGGAAGGAAAACTCACACTGACTTCCA
512 E L W A L C L V P W V S W L A C T C L M Q Q M K R K E K L T L T S
2201 AGACCACCAACCTCTGTCTACATTACCTTGGCCAGGCTCTCAAGCTCAGCCATTGGGACCCAGCTCAGAGACCTCTGCTCTGGCTGCTGAGGG
545 K T T T T L C L H Y L A Q A L Q A Q P L G P Q L R D L C S L A A E G
2301 CATCTGGCAAAAAAGACCTTTTTCAGTCCAGATGACCTCAGGAAGCATGGGTTAGATGGGGCCATCATCTCCACCTTCTTGAAGATGGGTATTTCTTCAA
578 I W Q K K T L F S P D D L R K H G L D G A I I S T F L K M G I L Q
2401 GAGCACCCATCCCTCTGAGCTACAGTTCATTACCTCTGTTTCCAAGAGTCTTTGCAGCAATGTCCTATGCTTGGAGGATGAGAAGGGGAGAGGTA
612 E H P I P L S Y S F I H L C F Q E F F A A M S Y V L E D E K G R G

NdeI (2542)
2501 AACATTCTAATTGCATCATAGATTTGAAAAAGACGCTAGAAGCATATGGAATACATGGCCTGTTTGGGCATCAACCACAGTTCCTATTGGGCTGTT
645 K H S N C I I D L E K T L E A Y G I H G L F G A S T T R F L L G L L
2601 AAGTGATGAGGGGAGAGAGAGATGGAGAACATTTTCACTGCCGGCTGTCTCAGGGGAGGAACCTGATGCAGTGGGTCCCGTCCCTGCAGCTGCTGCTG
678 S D E G E R E M E N I F H C R L S Q G R N L M Q W V P S L Q L L L

Psp1406I (2750) **BstBI (2778)**
2701 CAGCCACACTCTCTGGAGTCCCTCCACTGCTTGTACGAGACTCGGAACAAAAGCTTCTGACACAAGTATGGCCATTTTCAAGAAATGGGCATGTGTG
712 Q P H S L E S L H C L Y E T R N K T F L T Q V M A H F E E M G M C

HindIII (2862)
2801 TAGAAACAGACATGGAGCTTTAGTGTGCACTTCTGCATTAATTCAGCCGCGCAGTGAAGAAAGCTTCAAGTATGAGGGCAGGCAGCACAGATCAAC
745 V E T D M E L L V C T F C I K F S R H V K K L Q L I E G R Q H R S T

BstEII (2981)
2901 ATGGAGCCCCACCATGGTAGTCTGTTTCAGGTGGGTCCAGTCCAGATGCCTATTGGCAGATTCTTCTCCGTCCTCAAGTCCACAGAAACCTGAAG
778 W S P T M V V L F R W V P V T D A Y W Q I L F S V L K V T R N L K

3001 GAGCTGGACCTAAGTGGAACTCGCTGAGCCACTCTGCAGTGAAGAGTCTTTGTAAGACCTGAGACGCCCTCGCTGCCTCCTGGAGACCTGCGGTTGG
812▶ E L D L S G N S L S H S A V K S L C K T L R R P R C L L E T L R L
3101 CTGGCTGTGGCCTCACAGCTGAGGACTGCAAGGACCTTGCCCTTTGGGCTGAGAGCCAACCCAGACCTGACCGAGCTGGACCTGAGCTTCAATGTGCTCAC
845▶ A G C G L T A E D C K D L A F G L R A N Q T L T E L T E L D L S F N V L T
3201 GGATGCTGGAGCCAAACACCTTTGCCAGAGACTGAGACAGCCGAGCTGCAAGCTACAGCGACTGCAGCTGGTCACTGCTGCTGACTGCTGC
878▶ D A G A K H L C Q R L R Q P S C K L Q R L Q L V S C G L T S D C C
3301 CAGGACCTGGCCTCTGTGCTTAGTGCCAGCCCCAGCCTGAAGGAGCTAGACCTGCAGCAGAACAACCTGGATGACGTTGGCGTGACTGCTCTGTGAGG
912▶ Q D L A S V L S A S P S L K E L D L L Q Q N N L D D V G V R L L C E
3401 GGCTCAGGCATCCTGCCTGCAAACTCATACGCTGGGGCTGGACCAGACCACTGAGTGATGAGATGAGGCAGGAAGCTGGAGCCCTGGAGCAGGAGAA
945▶ G L R H P A C K L I R L G L D Q T T L S D E M R Q E L R A L E Q E K
3501 ACCTCAGCTGCTCATCTTACGACAGCGAAACCAAGTGTGATGACCCCTACTGAGGGCCTGGATACGGGAGAGATGAGTAATAGCACATCCTCACTCAAG
978▶ P Q L L I F S R R K P S V M T P T E G L D T G E M S N S T S S L K

BglIII (3673)

3601 CGGCAGAGACTCGGATCAGAGAGGGCGGCTTCCATGTTGCTCAGGCTAATCTCAAACCTCGGACGTGAGCAAGATCTTCCCAATTGCTGAGATTGCAG
1012▶ R Q R L G S E R A A S H V A Q A N L K L L D V S K I F P I A E I A

AgeI (3722)

3701 AGGAAAGCTCCCCAGAGGTAGTACCCTGGAACCTTGTGCGTGCCTTCTCCTGCCTCTCAAGGGGACCTGCATACGAAGCCTTTGGGGACTGACGATGA
1045▶ E E S S P E V V P V E L L C V P S P A S Q G D L H T K P L G T D D D
3801 CTTCTGGGCCCCACGGGCTGTGGCTACTGAGGTAGTTGACAAAGAAAAGAACTTGTACCGAGTTCCTTCCCTGTAGCTGGCTCCTACCGCTGGCCC
1078▶ F W G P T G P V A T E V V D K E K N L Y R V H F P V A G S Y R W P

BstEII (3932)

EcoRI (3948)

3901 AACACGGGTCTCTGCTTTGTGATGAGAGAAGCGGTGACCGTTGAGATTGAATTCTGTGTGTGGGACCAGTTCCTGGGTGAGATCAACCCACAGCACAGCT
1112▶ N T G L C F V M R E A V T V E I E F C V W D Q F L G E I N P Q H S

DraIII (4068)

4001 GGATGGTGGCAGGGCCTCTGCTGGACATCAAGGCTGAGCTGGAGCTGTGGAAGCTGTGCACCTCCCTCACTTTGTGGCTCTCCAAGGGGCCATGTGGA
1145▶ W M V A G P L L D I K A E P G A V E A V H L P H F V A L Q G G H V D
4101 CACATCCCTGTTCCAAGTGGCCCACTTTAAAGAGGAGGGGACTGCTCCTGGAGAAGCCAGCCAGGTGGAGCTGCATACATGTTCTGGAAAACCCACG
1178▶ T S L F Q V A H F K E E G M L L E K P A R V E L H H I V L E N P S
4201 TTCTCCCCTTGGGAGTCTCTGAAAATGATCCATAATGCCCTGCGCTTATTCCCGTCACTCTGTGGTGTGCTTTACCACCGCTCCATCCTGAGG
1212▶ F S P L G V L L K M I H N A L R F I P V T S V V L L Y H R V H P E

XbaI (4361)

4301 AAGTCACCTTCCACCTCTACCTGATCCCAAGTGAAGTGTCCATTGCGAAGGCCATAGATGATAGAAATGAAATTCAGTTTGTGCGAATCCACAAGCC
1245▶ E V T F H L Y L I P S D C S I R K A I D D L E M K F Q F V R I H K P
4401 ACCCCCGTACCCCACTTTATATGGGCTGTGCTTACACTGTGTCTGGGTCTGGTTCAGGGATGCTGGAATACTCCCAAGGAACTGGAGCTGCTGAT
1278▶ P P L T P L Y M G C R Y T V S G S G S G M L E I L P K E L E L C Y
4501 CGAAGCCCTGGAGAAGACAGCTGTTCTCGGAGTTCACGTTGGCCACTTGGGATCAGGGATCAGGCTGCAAGTGAAGACAAGAAAGATGAGACTCTGG
1312▶ R S P G E D Q L F S E F Y V G H L G S G I R L Q V K D K K D E T L

BglIII (4625)

4601 TGTGGGAGGCCTTGGTGAACACAGGAGATCTCATGCTGCAACTACTCTGATCCCTCCAGCCCGCATAGCCGTACCTTACCTCTGGATGCCCGCAGTT
1345▶ V W E A L V K P G D L M P A T T L I P P A R I A V P S P L D A P Q L

DraIII (4704)

4701 GCTGCACCTTTGTGGACAGTATCAGAGCAGCTGATAGCCGAGTGACATCGGTGGAGGTTGTCTTGGACAAACTGCATGGACAGGTGCTGAGCCAGGAG
1378▶ L H F V D Q Y R E Q L I A R V T S V E V V L D K L H G Q V L S Q E
4801 CAGTACGAGAGGGTGTGGCTGAGAACACGAGGCCAGCCAGATGCGGAAGCTGTTGAGCTTGGACAGTCTGGGACCGGAAGTGAAGATGGACTCT
1412▶ Q Y E R V L A E N T R P S Q M R K L F S L S Q S W D R K C K D G L

NheI (4989)

4901 ACCAAGCCCTGAAGGAGACCCATCCTCACCTCATTATGGAACCTCTGGGAGAAGGGCAGCAAAAAGGGACTCCTGCCACTCAGCAGCTGAGCTAGCTGGCC
1445▶ Y Q A L K E T H P H L I M E L W E K G S K K G L L P L S S • —
5001 AGACATGATAAGATACATTGATGAGTTTGGACAACCACTAGAATGCAGTGAATAAATGCTTTATTGTGAAATTTGTGATGCTATTGCTTTATT

HpaI (5127)

5101 GTAACATTATAAGCTGCAATAAACAAGTTAAACAACAACCAATTGCATTCATTTATGTTTCAGGTTTCAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGT

EcoRI (5223)

5201 AAAACCTCTACAAATGTGGTATGGAATTTAAATACAGCATAGCAAACTTTAACCTCAAATCAAGCCTTACTTGAATCCTTTTCTGAGGGATGAAT

5301 AAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTTGCAGCCTCACCTTCTTTCATGGAGTTTAAGATATAGTGTATTTTCCCAAGGTTTG

SspI (5462)

SwaI (5476)

5401 AACTAGCTCTTCATTTCTTTATGTTTTAAATGCACTGACCTCCACATTCCTTTTGTAGTAAAATATTCAGAAATAATTTAAATACATCATTGCAATGAA

5501 AATAAATGTTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTTAATAG

5601 AAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCTGGTGTACTTGAGGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCATTTCATCT

141

• N R T Y K L P I L E E I T T K V L K G N M E

5701 CAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTGACATGCCACAGGGGCTGACCACCCTGATGGATCTGTCCACCTCATCAGAGTA

118▶ I L 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

5801 GGGTGCCTGACAGCCCAATGGTGTCAAAGTCTTCTGCCCCTGCTCACAGCAGACCAATGGCAATGGCTTCAGCACAGACAGTACCCCTGCCAATG

85▶ P H 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

5901 TAGGCCTCAATGTGGACAGCAGATGATCTCCCAGTCTTGGTCTGATGCGCCCGCCGACATGGTGTCTTGTGCTCATAGAGCATGGTGTCTTCT

51▶ Y A E 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

BspHI (6051)

6001 CAGTGGCGACCTCCACAGCTCCAGATCCTGCTGAGAGATGTTGAAGTCTTTCATGATGGCCCTCTATAGTGAGTCGTATTATACTATGCCGATATACT
18▶ T A V E V L E L D Q Q S I N F T K M

6101 **AseI (6109)**
ATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTCACTAAACGAGCTCTGCTTATATAGACCTCCACCGTACCG

6201 **SpeI (6264)**
CCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTTACGACATTTTGAAAGTCCCGTTGATTTACTAGTCAAACAAACTCCCATTGACGTCAATGGGG

6301 **SnaBI (6392)**
TGGAGACTTGAAATCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGA

6401 **NdeI (6497)**
TGTAAGTCCCAAGTAGGAAAGTCCATAAGGTCATGTACTGGGCATAATGCCAGGCGGGCCATTACCCTGATTGACGTCAATAGGGGGCGTACTTGGCAT

6501
ATGATACACTTGATGTACTGCCAAGTGGGCAGTTTACCGTAAATACTCCACCCATTGACGTCAATGAAAGTCCCTATTGGCGTTACTATGGGAACATAC

6601 **PacI (6683)** **SdaI (6675)** **BspLU11I (6693)**
GTCATTATTGACGTCAATGGGCGGGGTCGTTGGGCGGTGAGCCAGGCGGGCCATTTACCCTAAGTTATGTAACGCTGCAGGTTAAITTAAGAACATGTG

6701
AGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGGCCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAAATCGACGC

6801
TCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAGATACCAGGCGTTTTCCCTGGAAAGCTCCCTCGTGCCTCTCTGTTCCGACCCTGCCGCTTA

6901
CCGGATACCTGTCCGCTTTCTCCCTTCGGAAGCGTGGCGCTTTCTCATAGCTACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCAAGCT

7001
GGGCTGTGTGCACGAACCCCGTTCCAGCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTG

7101
GCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGCGGTGCTACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAG

7201
TATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGGTTTTTT

7301
TGTTTGAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGTCTGACGCTCAGTGGAAACGAAAACCTCACGT

7401 **EagI (7443)** **PacI (7423)** **SwaI (7432)** **NotI (7442)**
TAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATCAGCGGCCGCAATAAAATATCTTTATTTTCATTACATCTGTGTGTTGGTTTTTTGTGTGA

7501
ATCGTAACTAACATACGCTCTCCATCAAACAAACGAAACAAACAAACTAGCAAATAGGCTGTCCCAAGTCAAGTGCAGGTGCCAGAACATTTCTC

7601
TATCGAA