



PvuI (7)
SgfI (6)
1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTCGGCAATTGAACGGGTGCCTA
101 GAGAAAGTGGCGCGGGTAAACTGGAAAGTGATGTCGTGACTGGCTCCGCCTTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

HindIII (245)
Psp1406I (203) **PvuII (239)** **Bsu36I (291)**
201 GTGAACGTTCTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGGCTCGCATCTCTCTTACCGCGCCCGCCGCCCTACCTGAGGCC
301 GCCATCCACGCGGTTGAGTCGCGTCTGCCGCCTCCCGCCTGTGGTGCTCTGAACTGCGTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMIV (441)
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCTCAACTCTACGCTTTTGTTCGTTT

AgeI (552) **BspHI (568)** **PvuII (588)**
501 TCTGTTTGTCCGCCGTTACAGATCCAAGCTGTGACCGGCGCCTACCTGAGATCACCGGTAGGAGGGCCATCATGAGTCACCTCACACTTCAGTCGATGTG
1 M S H L T L Q L H V

SapI (617)
601 GTGATAGCCCTTTATGTGCTCTTTCAGATGGTGTACGGAGGAATCACAAGTATAAACTGCTCTGGTGACATGTGGGTTGAGCCTGGTAAAATTTTTTCAGA
11 V I A L Y V L F R W C H G G I T S I N C S G D M W V E P G E I F Q

EcoRV (795)
701 TGGGCATGAATGTTTCTATATATTGCCAAGAAGCCCTTAAGCACTGCCGACCAAGGAATCTTTACTTTTTATAAAAATGGCTTCAAAGAAGAATTTGATAT
44 M G M N V S I Y C Q E A L K H C R P R N L Y F Y K N G F K E E F D I

NsiI (864)
801 CACAAGGATTAATAGAACAACAGCTCGGATTTGGTATAAAGGCTTTTCGGAACCTCATGCCTATATGCATTGCCTGCTGAATGTCCTGGTCATTTTTCAA
77 T R I N R T T A R I W Y K G F S E P H A Y M H C T A E C P G H F Q

PshAI (962)
901 GAGACACTGATTTGTGGAAAGACATTTCTCTGGACATCCACCGGATGCCCCAGCAATCTGACATGTGTCATTTATGAATACTCAGGCAACATGACAT
111 E T L I C G K D I S S G H P P D A P S N L T C V I Y E Y S G N M T

BglII (1108) **AvrII (1172)**
101 GCACCTGGAACACTGGGAAGCCTACCTACATAGATACCAAGTATATTGTGCATGTGAAGAGTTTGGAGACAGAAGAACAACAATATCTTGCCCTCAAG
144 C T W N T G K P T Y I D T K Y I V H V K S L E T E E E Q Q Y L A S S

1101 CTATGTTAAGATCTCCACTGACTCACTGCAAGGCAGCAGGAAGTATTTGGTATGGGTCCAAGCTGTCAATTCCTAGGCGAGAGAACTCACAACAATA
177 Y V K I S T D S L Q G S R K Y L V W V Q A V N S L G M E N S Q Q L

1201 CACGTCCATCTGGATGATATAGTGATACCTTCTGCGTCCATCATTTCAGGGCTGAGACTACAAACGATACTGTACCCAAGACCATAGTTTACTGGAAAA
211 H V H L D D I V I P S A S I I S R A E T T N D T V P K T I V Y W K

BsrGI (1397)
1301 GCAAACTATGATTGAGAAAGTATTCTGTGAGATGAGATACAAAAACAACAACAAACAACTGGAGTGTTAAAGAATTTGACGCCAATTTTCACATATGT
244 S K T M I E K V F C E M R Y K T T T N Q T W S V K E F D A N F T Y V

NdeI (1393)
1401 ACAGCAGTCAGAATCTACTGGAGCCAGACAGCAAGTATGATTTCAAGTGCATGTCAAGAACTGGTAAAAGAACTGGCAGCCTTGAGATTCCCCC
277 Q Q S E F Y L E P D S K Y V F Q V R C Q E T G K R N W Q P W S S P

BstXI (1517)
1501 TTTGTCCACCAAACCTCCCAAGAACTGGTAAAAGAACTGGCAGCCTTGAGATTCCCCCTTTGTCCACCAAACCTCCAGACAGTTTCCAGGTTACAG
311 F V H Q T S Q E T G K R N W Q P W S S P F V H Q T S Q T V S Q V T

PshAI (1690)
1601 CAAAATCATCCACGAACCTCAGAAGATGGAGATGCTCAGTGCTACAATCTTCAGAGGACATCCTGCTTCAGGTAATCATCAAGACATTGGACTTTTGT
344 A K S S H E P Q K M E M L S A T I F R G H P A S G N H Q D I G L L S

MscI (1714) **BstBI (1765)** **Bsp119I (1765)**
1701 GGGAAATGGTCTTGGCCATCATGTTGCCGATTTTTTCTGATTGGGATATTTAACAGATCACTTCGAATGGAATTTAAAGAAAAGTTTACTGATG
377 G M V F L A I M L P I F S L I G I F N R S L R I G I K R K V L L M

1801 ATCCCAAAGTGGCTTTATGAAGATATTCTAATATGAAAAATAGCAATGTTGCAAAATATTACAGGAAAAAAGTGTATTTGAGAATGATAATGCCAGTG
411 I P K W L Y E D I P N M E N S N V A K L L Q E K S V F E N D N A S

EcoO109I (1903) **BamHI (1916)**
1901 AGCAGGCCCTGTATGTGGATCCTGTCTTACAGAGATAAGTAAATCTCTCCCTGGAACACAAACCCACAGATTACAAAGAAGAAAGGCTCACAGGACT
444 E Q A L Y V D P V L T E I S E I S P L E H K P T D Y K E E R L T G L

2001 CCTTGAGACAAGAGACTGTCCTCTAGGAATGTTGTCTACCAGTCTTCTGTTGTGATATTTCTGACCTCAACACTGGATACAAACCCAGGTTTCAAAT
477 L E T R D C P L G M L S T S S S V V Y I P D L N T G Y K P Q V S N

2101 GTTCTCCTGGAGAAACCTTTTCATTAACAGAGATGAAAGAGACCTACATCCCTTGAGACCACAGATGACCACTTTGCCAGATTGAAAACATATCCCA
511 V P P G G N L F I N R D E R D P T T S L E T T D D H F A R L K T Y P

2201 ACTTCCAATTTCTGCTTCAAGTATGGCTTACTAAACAAAACACTAATCTTGTGATTTGTCCTGTTTTAAATCAAGGAGAATCAATTCCTTGA
544 N F Q F S A S S M A L L N K T L I L D E L C L V L N Q G E F N S L D

DraIII (2350)
2301 CATAAAAACTCAAGACAGGAGGAAACAGCATCGTTTTGCAAAGTACTCACCCAGTGAAACTATCCAGCGCAGACTCTGTTGTCTGATGAATTTGTC
577 I K N S R Q E E T S I V L Q S D S P S E T I P A Q T L L S D E F V

Psp1406I (2457)
2401 TCCTGTTTGGCAATTTGGAAATGAAGACTTGCCTATTAATTTCTTACTTTCCACAGAACGTTTTGGAAAGCCATTTTCAGTAGAATTTCACTCTTCCAAA
611 S C L A I G N E D L P S I N S Y F P Q N V L E S H F S R I S L F Q

MseI (2535)
2501 AGTAGACTATGCCATCAAAGTCAAGGTGAGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGGACAAACCAACTAGAAATGCAGTGAAAAAA
644 K •

HpaI (2667)

2601 ATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAAGTTAACAAACAATTGCATTCAATTTATGTTT

2701 CAGGTTCCAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAACCTCTACAAATGTGGTATGGAATTCTAAAATACAGCATAGCAAACTTTAACCTCC

2801 AAATCAAGCCTCTACTTGAATCCTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTTGCAGCCTCACCTTCT

SapI (2945)

2901 TTCATGGAGTTTAAAGATATAGTGTATTTTCCCAAGTTTGAAC TAGCTCTTCATTTCTTTATGTTTTAAATGCACTGACCTCCACATCCCTTTTTAGT

SspI (3002) SwaI (3016) EcoO109I (3077)

3001 AAAATATTCAGAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAG

3101 TTTAGTAGTTGGACTTAGGGAACAAAGAACCTTTAATAGAAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCTGGTGTACTTGAGGGGGATG

141 • N R T Y K L P I

SacI (3277)

3201 AGTTCCTCAATGGTGGTTTTGACCAGCTTGCATTCTCAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTCTGCACATGCCACAGG

131 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 P

BstXI (3306)

3301 GGCTGACCACCCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCTGACAGCCACAATGGTGTCAAAGTCCCTTCTGCCCGTTGCTCACAGCAGACCC

98 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

StuI (3441)

3401 AATGGCAATGGCTTCAGCACAGACAGTGACCCTGCCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCCAGTCTTGGTCTGATGGCCGCCCGG

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

3501 ACATGGTGCTTGTGTCCTCATAGAGCATGGTGTCTTCTCAGTGGCGACCTCCACCAGCTCCAGATCCCTGCTGAGAGATGTTGAAGTCTTTCATGGTGG

31 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

3601 CCCTCCTATAGTGAGTCGATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAA AACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTTCA

SacI (3706)

3701 CTAACGAGCTCTGCTTATATAGACCTCCACCGTACACGCCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTTACGACATTTTGGAAAGTCCCGTTG

SpeI (3804)

3801 ATTTACTAGTCAAACAAACTCCCATTGACGTCAATGGGGTGGAGACTGGAAATCCCCGTGAGTCAAACCGTATCCACGCCATTGATGTA CTGCCAA

SnaBI (3932)

3901 AACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTACTGCCAAGTAGGAAAGTCCATAAGGTCATGTACTGGGCATAATGCCAGGCGGGCC

NdeI (4037)

4001 ATTTACCGTCATTGACGTCAATAGGGGCGTACTTGGCATATGATACACTTGATGTACTGCCAAGTGGGCAGTTTACCCTAAATACTCCACCCATTGACG

4101 TCAATGAAAAGTCCCTATTGGCGTTACTATGGGAACATACGTCATTATTGACGTCAATGGGCGGGGTGTTGGCGGTGTCAGCCAGGCGGGCCATTTACC

PacI (4223)

PstI (4216)

SdaI (4215)

4201 GTAAGTTATGTAACGCCTGCAGGTTAATTAAGAACATGTGAGCAAAGGCCAGCAAAGGCCAGGAACCGTAAAAAGGCCGTTGCTGGCGTTTTTCCA

4301 TAGGCTCCGCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCCTGGA

4401 AGCTCCCTCGTGCCTCTCTGTTCCGACCCTGCCGTTACCGGATACCTGTCCGCTTTCTCCCTTCGGAAGCGTGGCGTTTCTCATAGCTCAGCT

ApaLI (4547)

4501 GTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCAAGCTGGGCTGTGTGCACGAACCCCGTTCCAGCCGACCGCTGCGCCTTATCCGGTAACTATCG

4601 TCTTGAGTCCAACCCGGTAAACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGCGGTGCTACAGAGTTC

4701 TTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGAAAAAGAGTTGGTAGCTCTT

4801 GATCCGGCAAACAAACCACCGCTGGTAGCGGTGGTTTTTTGTTTGAAGCAGCAGATTACGGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTT

EagI (4983)

PacI (4963) SwaI (4972) NotI (4982)

4901 TTCTACGGGCTGACGCTCAGTGAACGAAAACCTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATC AGCGGCCGCAATAAAATAT

5001 CTTTATTTTTCATTACATCTGTGTGTTGTTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAAAACAAAACGAAAACAAAACAACTAGCAAATA

5101 GGCTGTCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA