



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

HindIII (245)
Psp1406I (203) **PvuII (239)** **Bsu36I (291)**
201 GTGAACGTTCTTTTTCGCAACGGGTTTCCGCCAGAACACAGCTGAAGCTTCGAGGGGCTCGCATCTCTCTTACCGCGCCCGCCCTACCTGAGGCC
301 GCCATCCACGCGGTTGAGTGCAGTCTGCCGCTCCCGCCTGTGGTGCCTCTGAACTGCGTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMIV (441)
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCTCAACTCTACGCTTTTGTTCGTTT

KasI (535) **AgeI (552)** **BspHI (561)**
501 TCTGTTTCTGCGCCGTTACAGATCCAAGCTGTGACCGGCGCCTA CTTGAGATCACCGTCCATCATGATGTCGCTCGCGCTGGCTGGGACTCTGATCC
1 M M S A S R L A G T L I

NcoI (603) **Ppu10I (679)** **NsiI (679)**
601 CAGCCATGGCCTTCTCTCTGCGTGAGACCCGAAAGCTGGGAGCCCTGCGTGGAGGTGGTTCTAATATTACTTATCAATGCATGGAGCTGAATTTCTA
13 P A M A F L S C V R P E S W E P C V E V V P N I T Y Q C M E L N F Y

BstXI (729) **Bsu36I (757)**
701 CAAAATCCCCGACAACCTCCCCTTCTCAACCAAGAACCTGGACCTGAGCTTTAATCCCCTGAGGCATTAGGCAGCTATAGCTTCTTCAGTTTCCAGAA
46 K I P D N L P F S T K N L D L S F N P L R H L G S Y S F F S F P E
801 CTGCAGGTGCTGGATTTATCCAGGTGTGAAATCCAGACAATTGAAGATGGGCATATCAGAGCCTAAGCCACCTCTACCTTAATATTGACAGGAAACC
80 L Q V L D L S R C E I Q T I E D G A Y Q S L S H L S T L I L T G N
901 CCATCCAGAGTTTACCCCTGGGAGCCTTTCTGGACTATCAAGTTTACAGAAGCTGGTGGCTGTGGAGACAAATCTAGCATCTCTAGAGAAGTTCCCAT
113 P I Q S L A L G A F S G L S S L Q K L V A V E T N L A S L E N F P I
1001 TGGACATCTAAAACCTTTGAAAGAACTTAATGTGGCTCACAATCTTATCCAATCTTTCAAATACCTGAGTATTTTTCTAATCTGACCAATCTAGAGCAC
146 G H L K T L K E L N V A H N L I Q S F K L P E Y F S N L T N L E H
1101 TTGGACCTTTCCAGCAACAAGATTCAAAGTATTTATTGCACAGACTTGCGGTCTACATCAAATGCCCTACTCAATCTCTTTAGACCTGTCCCTGA
180 L D L S S N K I Q S I Y C T D L R V L H Q M P L L N L S L D L S L
1201 ACCCTATGAACTTTATCCAACAGGTGCATTTAAAGAAATTAGGCTTCATAAGCTGACTTTAAGAAATAATTTTGATAGTTTAAATGTAATGAAAACCTG
213 N P M N F I Q P G A F K E I R L H K L T L R N N F D S L N V M K T C

EcoO109I (1395)
1301 TATTCAAGGTCTGGCTGGTTTAGAAGTCCATCGTTTGGTTCTGGGAGAATTTAGAAATGAAGGAAACTTGAAAAGTTTGACAAATCTGCTCTAGAGGGC
246 I Q G L A G L E V H R L V L G E F R N E G N L E K F D K S A L E G

EcoRI (1421)
1401 CTGTGCAATTTGACCATTGAAGAATTCGATTAGCATACTTAGACTACTACCTCGATGATATTATTGACTTATTTAATGTTTGACAAATGTTTCTTCAT
280 L C N L T I E E F R L A Y L D Y Y L D D I I D L F N C L T N V S S

HpaI (1574)
1501 TTTCCCTGGTGAGTGTGACTATTGAAAGGGTAAAAGACTTTTCTTATAATTTTCGGATGGCAACATTTAGAATTAGTTAACTGTAATTTGGACAGTTTCC
313 F S L V S V T I E R V K D F S Y N F G W Q H L E L V N C K F G Q F P

BglII (1696)
1601 CACATTGAAACTCAAATCTCTCAAAGGCTTACTTTCACTTCCAACAAAGGTGGGAATGCTTTTTCAGAAGTTGATCTACCAAGCCTTGAGTTTCTAGAT
346 T L K L K S L K R L T F T S N K G G N A F S E V D L P S L E F L D

BglII (1774)
1701 CTCAGTAGAAATGGCTTGAGTTTCAAAGTTGCTGTTCTCAAAGTGATTTTGGGACAACCAGCCTAAAGTATTTAGATCTGAGCTTCAATGGTGTATTATTA
380 L S R N G L S F K G C C S Q S D F G T T S L K Y L D L S F N G V I
1801 CCATGAGTTCAAACCTTCTGGGCTTAGAACAAC TAGAACATCTGGATTTCCAGCATTCCAATTTGAAACAAATGAGTGAAGTTTTCAGTATTCCTATCACT
413 T M S S N F L G L E Q L E H L D F Q H S N L K Q M S E F S V F L S L
1901 CAGAAACCTCATTACCTTGACATTTCTCATACTCACACCAGAGTTGCTTTCAATGGCATCTTCAATGGCTGTCCAGTCTCGAAGTCTTGAAAATGGCT
446 R N L I Y L D I S H T H T R V A F N G I F N G L S S L E V L K M A

EcoRV (2030)
2001 GGCAATCTTTCCAGGAAAACCTCCTCCAGATATCTTACAGAGCTGAGAAAACCTTGACCTTCTGACCTCTCTCAGTGTCAACTGGAGCAGTTGTCTC
480 G N S F Q E N F L P D I F T E L R N L T F L D L S Q C Q L E Q L S
2101 CAACAGCATTAACTCACTCTCCAGTCTCAGTACTAAATATGAGCCACAACAACCTTTTTCATTGGATACGTTTCTTATAAGTCTCTGAACTCCCT
513 P T A F N S L S L Q V L N M S H N N F F S L D T F P Y K L C L N S L
2201 CCAGGTTCTTGATTACAGTCTCAATCACATAATGACTTCCAAAAAACAGGAACACAGCATTTCGAAGTAGTCTAGCTTTCTTAAATCTTACTCAGAAT
546 Q V L D Y S L N H I M T S K K Q E L Q H F P S S L A F L N L T Q N
2301 GACTTTGCTGTACTTGTGAACACCAGAGTTTCTGCAATGGATCAAGGACCAGAGGCAGCTCTTGGTGAAGTTGAACGAATGGAATGTGCGACACCTT
580 D F A C T C E H Q S F L Q W I K D Q R Q L L V E V E R M E C A T P

SphI (2412)
2401 CAGATAAGCAGGGCATGCCTGTGCTGAGTTTGAATATCACCTGTCAGATGAATAAGACCATCATTGGTGTGTCGGTCCCTCAGTGTGCTGTAGTATCTGT
613 S D K Q G M P V L S L N I T C Q M N K T I I G V S V L S V L V V S V
2501 TGTAGCAGTTCTGGTCTATAAGTTCTATTTTCACTGTGCTTCTGCTGGCTGCATAAAGTATGGTAGAGGTGAAAACATCTATGATGCCTTTGTTATC
646 V A V L V Y K F Y F H L M L L A G A C I K Y G R G E N I Y D A F V I
2601 TACTCAAGCCAGGATGAGGACTGGGTAAGGAATGAGCTAGTAAAGAATTTAGAACGAAGGGGCTCCATTTCAGCTCTGCTTCACTACAGAGACTTTA
680 Y S S Q D E D W V R N E L V K N L E E G V P P F Q L C L H Y R D F

MscI (2709)
2701 TTCCCGGTGTGGCCATTGCTGCCAACATCATCCATGAAGGTTTCCATAAAAAGCCGAAAGGTGATTGTTGGTGTCCCAGCAGCTTTCATCCAGAGCCGCTG
713 I P G V A I A A N I I H E G F H K S R K V I V V V S Q H F I Q S R W
2801 GTGTATCTTTGAATATGAGATTGCTCAGACCTGGCAGTTTCTGAGCAGTCGTGCTGGTATCATCTTATTGCTCTGCAGAAGGTGGAGAAGACCTGCTC
746 C I F E Y E I A Q T W Q F L S S R A G I I F I V L Q K V E K T L L

Tth111I (2957)

2901 AGGCAGCAGGTGGAGCTGTACCGCCTTCTCAGCAGGAACACTTACCTGGAAGTGGGAGGACAGTGTCTGGGGCGGCACATCTTCTGGAGACGACTCAGAA
780▶ R Q Q V E L Y R L L S R N T Y L E W E D S V L G R H I F W R R L R

BamHI (3080)

3001 AAGCCCTGCTGGATGGAATCATGGAATCCAGAAGGAACAGTGGGTACAGGATGCAATTGGCAGGAAGCAACATCTATCGATCCTATCCCTATGATGT
813▶ K A L L D G K S W N P E G T V G T G C N W Q E A T S I G S Y P Y D V

NdeI (3120) **MscI (3183)**

3101 GCCAGACTATGCTGGCTATCCATATGATGTTCTGATTATGCTGGATACCCTTATGATGTGCCAGACTATGCCTAAAGCTAGCTGGCCAGACATGATAAG
846▶ P D Y A G Y P Y D V P D Y A G Y P Y D V P D Y A •

3201 ATACATTGATGAGTTTGGACAAACCACAACCTAGAATGCAGTGAATAAATGCTTTATTGTGAAATTTGTGATGCTATTGCTTTATTGTAAACCATTATA

HpaI (3315)

3301 AGCTGCAATAAACCAAGTTAAACAACAACAATTGCATTCAATTTTATGTTTCAGGTTTCAGGGGAGGTGTGGGAGGTTTTTTAAAGCAAGTAAACCTCTACA

EcoRI (3411)

3401 AATGTGGTATGAATTCTAAATAACAGCATAGCAAACTTTAACCTCCAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCA
3501 TCAGGGGCTGTTGCCAATGTGCATTAGCTGTTTGACGCTCACCTTCTTTCATGGAGTTAAGATATAGTGATTTTCCCAAGTTTGAAGTACTAGCTCTTC

SwaI (3664)

3601 ATTTCTTTATGTTTTAAATGCACCTCCACATTCCTTTTTAGTAAATATTCAGAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTT

EcoO109I (3725)

3701 TTATTAGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTTAATAGAAATTGGACAGC
3801 AAGAAAGCGAGCTTCTAGCTTTAGTTCTGGTGTACTTGAGGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCCATTCTCAATGAGCACAA
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

SacI (3925) **BstXI (3954)**

3901 AGCAGTCAGGAGCATAGTCAGAGATGAGCTCTCTGCACATGCCACAGGGGCTGACCACCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCTGAC
114▶ 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 R V

StuI (4089)

4001 AGCCACAATGGTGTCAAAGTCTTCTGCCGTTGCTCACAGCAGACCAATGGCAATGGCTTCAGCACAGACAGTACCCTGCCAATGTAGGCCTCAATG
81▶ 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 I

4101 TGGACAGCAGAGATGATCTCCCCAGTCTTGGTCTGATGGCCGCCGACATGGTGCTTGTGTCTCATAGACATGGTGATCTTCTCAGTGGCGACCT
47▶ 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 V E

BspHI (4239) **AseI (4297)**

4201 CCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGGTCTTCATGATGGCCCTCTATAGTGAGTGTATTATACTATGCCGATATACTATGCCGATGATT
14▶ V L E L D Q Q S I N F T K M

SacI (4354)

4301 AATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTCACTAAACAGGCTCTGCTTATATAGACCTCCACCGTACACGCCTACCGCCAT

SpeI (4452)

4401 TTGCGTCAATGGGGCGGAGTTGTTACGACATTTTGGAAAGTCCCGTTGATTTACTAGTCAAAAACAACTCCCATTGACGTCAATGGGGTGGAGACTTGG

SnaBI (4580)

4500 AAATCCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTACTGCCAA

NdeI (4685)

4600 GTAGGAAAGTCCCATAAGGTCATGTACTGGCATAATGCCAGGCGGGCCATTTACCGTATTGACGTCAATAGGGGGCTACTTGGCATATGATACACTT
4700 GATGTACTGCCAAGTGGGAGTTTACCGTAAATACTCCACCCATTGACGTCAATGAAAGTCCCTATTGGCGTACTATGGGAACATACGTCATTATTGA

SdaI (4863) **PacI (4871)** **BspLU11I (4881)**

4800 CGTCAATGGGCGGGGCTGTTGGGCGGTGAGCCAGGCGGGCCATTTACCGTAAGTTATGTAACGCCCTGCAGGTTAA TTAAGAACATGTGAGCAAAGG
4898 CCAGCAAAGGCCAGGAACCGTAAAAAGCCGCGTGTGCGCTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAG
4998 AGGTGGCAAACCCGACAGGACTATAAAGATACCAGGCGTTTTCCCTGGAAGCTCCCTGTCGCTCTCTGTTCCGACCCTGCGCTTACCGGATACC

ApaLI (5195)

5098 TGTCCGCTTTCTCCCTTCGGAAGCGTGGCGCTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCCGGTGTAGGTGCTTCGCTCCAAGCTGGGCTGTGT
5198 GCACGAACCCCCGTTACGCCCAGCGCTGCGCTTATCCGGTAACTATCGTCTTGTAGTCAACCCGTAAGACACGACTTATCGCCACTGGCAGCAGCC
5298 ACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGCGGTGCTACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTA
5398 TCTGCGCTCTGCTGAAGCCAGTTACCTTCGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGTTTTTTGTTTGCAA
5498 GCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGTCTGACGCTCAGTGAACGAAACTCACGTTAAGGGATT

EagI (5631)

PacI (5611) **Swal (5620)** **NotI (5630)**

5598 TTGGTCATGGCTAGTTAATTAACATTTAAATCAGCGGCCGCAATAAAATATCTTTATTTTTCATTACATCTGTGTGTTGGTTTTTTGTGTGAATCGTAACT

5698 AACATACGCTCTCCATCAAAACAAAACGAAACAAAACAACTAGCAAAATAGGCTGTCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA