



PvuI (7)
SgfI (6)
1 GGATCTGCATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCGAGAAGTTGGGGGAGGGGTCGGCAATTGAACGGGTGCCTA
101 GAGAAAGTGGCGCGGGTAAACTGGAAAGTATGTCGTGTACTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

Psp1406I (203) **HindIII (245)** **Bsu36I (291)**
201 GTGAACGTTCTTTTTTCGAACGGGTTTCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCTTCACGCGCCCGCCCTACCTGAGGCC
301 GCCATCCACGCCGGTTGAGTCGCGTTCTGCCGCTCCCGCTGTGGTGCTCCTGAACTGCGTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMIV (441)
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGCTCAACTCTACGCTTTTGTTCGTTT

AgeI (552) **BspHI (568)**
501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGCGCCTACCTGAGATCACCGGTAGGAGGGCCATCATGAGTTCAGGCTTATGGAGCCAAGAAAA
1 M S S G L W S Q E K

BsrBI (621)
601 GTCACCTCACCTACTGGGAAGAGCGGATTTTTACTTGCTTCTTCAAGAATGCAGCGTTACAGACAAAACACAAAAGCTCCTTAAAGTACCGAAGG
11 V T S P Y W E E R I F Y L L L Q E C S V T D K Q T Q K L L K V P K

XbaI (791)
701 GAAGTATAGGACAGTATATTCAAGATCGTTCTGTGGGCATTCAAGGATTCCTTCTGCAAAAGGCAAGAAAAATCAGATTGGATTAATAAATCTAGAGCA
44 G S I G Q Y I Q D R S V G H S R I P S A K G K K N Q I G L K I L E Q
801 ACCTCATGCAGTTCCTTTGTTGATGAAAAGGATGTTGTAGAGATAAATGAAAAGTTCACAGAGTTACTTTTGGCAATTACCAATTGTGAGGAGAGGTTCC
77 P H A V L F V D E K D V V E I N E K F T E L L L A I T N C E E R F

BglII (975)
901 AGCCTGTTAAAAACAGAAACAGACTAAGTAAAGGCCTCCAAATAGACGTGGGCTGCTCTGTGAAAGTACAGCTGAGATCTGGGAAGAAAAATTTCTCG
111 S L F K N R N R L S K G L Q I D V G C P V K V Q L R S G E E K F P

BspEI (1044)
1001 GAGTTGTACGCTTCAGAGAGCCCTGTTAGCAGAGAGGACAGTCTCCGGAATATTTGGAGTTGAATTGCTGGAAGAAGGTCGTGGTCAAGGTTTCAC
144 G V V R F R G P L L A E R T V S G I F F G V E L L E E G R G Q G F T
1101 TGACGGGGTGTACCAAGGAAACAGCTTTTTAGTGTGATGAAGATTGCGCGTGTGTTGTCATTGGACAAGCTAGAACTCATAGAAGATGATGACACT
177 D G V Y Q G K Q L F Q C D E D C G V F V A L D K L E L I E D D D T
1201 GCATTGAAAAGTATTACGCAGTCTGGGGACACAATGCAGTTCGAACTTCTCTTTGAAATAAACTCCAGAGTTTCTTTGAAGTTGGAGAAAACAA
211 A L E S D Y A G P G D T M Q V E L P P L E I N S R V S L K V G E T

HindIII (1346)
1301 TAGAATCTGGAACAGTTATATTCTGTGATGTTTTGCCAGGAAAAGAAAGCTTAGGATATTTTGTGGTGTGGACATGGATAACCTATTGGCAACTGGGA
244 I E S G T V I F C D V L P G K E S L G Y F V G V D M D N P I G N W D

EcoRV (1470)
1401 TGGAAGATTTGATGGAGTGCAGCTTTGTAGTTTTGCGTGTGTTGAAAGTACAATTCTATTGCACATCAATGATATCATCCAGAGAGTGTGACGCAGGAA
277 G R F D G V Q L C S F A C V E S T I L L H I N D I I P E S V T Q E
1501 AGGAGGCCTCCAAAATTGCCTTTATGTCAAGAGGTTGGGGACAAAAGGTTCCAGTTCATAATAAACCAAGGCTACAGGATCTACCTCAGACCCCTG
311 R R P P K L A F M S R G V G D K G S S S H N K P K A T G S T S D P

BglII (1611)
1601 GAAATAGAAACAGATCTGAATATTTTATACCTTAAATGGGTCTTCTGTTGACTCACAAACCAATCCAAATCAAAAAATACATGGTACATTGATGAAGT
344 G N R N R S E L F Y T L N G S S V D S Q P Q S K S K N T W Y I D E V

EcoRV (1730)
1701 TGCAGAAGACCCTGCAAAATCTTACAGAGATATCTACAGACTTTGACCGTCTTACCACCACTCCAGCCTCCTCCTGTGAACTACTGACCACCGAG
377 A E D P A K S L T E I S T D F D R S S P P L Q P P P V N S L T T E
1801 AACAGATTCACCTTTACCATTAGTCTCACCAGATGCCAATACCAATGGAAGTATTGGCCACAGTCCACTTTCTGTGAGCCAGTCTGTAATGG
411 N R F H S L P F S L T K M P N T N G S I G H S P L S L S A Q S V M

XbaI (1967)
1901 AAGAGCTAAACACTGCACCCGTCGAAGAGAGTCCACCCTGGCCATGCCTCCTGGAACTCACATGGTCTAGAAGTGGGCTCATTGGCTGAAGTTAAGGA
444 E E L N T A P V Q E S P P L A M P P G N S H G L E V G S L A E V K E
2001 GAACCCTCCTTTCTATGGGGTAAATCCGTTGGATCGGTGAGCCACCAGGACTGAATGAAGTGTCTGCTGGACTGGAAGTGAAGATGAGTGTGAGGCTGT
477 N P P F Y G V I R W I G Q P P G L N E V L A G L E L E D E C A G C

PstI (2174)
2101 ACGGATGGAACCTTCAGAGGCACTCGGTATTTACCTGTGCCCTGAAGAAGGCCTGTTTGTGAAACTGAAGAGCTGCAGGCCCTGACTCTAGGTTTGCAT
511 T D G T F R G T R Y F T C A L K K A L F V K L K S C R P D S R F A

Eco47III (2227)
2201 CATTGCAGCCGGTTTCCAATCAGATTGAGCGCTGTAATCTTTAGCATTGGAGGCTACTTAAAGTGAAGTAGTAGAAGAAAATACTCCACCAAAAATGGA
544 S L Q P V S N Q I E R C N S L A F G G Y L S E V V E E N T P P K M E
2301 AAAAGAAGGCTTGAGATAATGATTGGGAAGAAGAAAGGCATCCAGGGTCATTACAATTCTTGTACTTAGACTCAACCTTATTCTGCTTATTTGCTTTT
577 K E G L E I M I G K K K G I Q G H Y N S C Y L D S T L F C L F A F
2401 AGTCTGTTCTGGACTGTGTTACTTAGACCCAAAGAAAGAACGATGTAGAAATATTAGTGAAACCAAGACTACTGAGGACAGAAATGTTAATC
611 S S V L D T V L L R P K E K N D V E Y Y S E T Q E L L R T E I V N
2501 CTCTGAGAATATATGGATATGTGTGTCACAAAAATATGAAACTGAGGAAAATACTTGAAGGTTGGAGGCTGCATCAGGATTTACCTCTGAAGAAAA
644 P L R I Y G Y V C A T K I M K L R K I L E K V E A A S G F T S E E K

EcoRI (2610)

Bsu361 (2604)

2601 AGATCCTGAGGAATCTTGAATATTCTGTTTCATCATATTTTAAAGGGTAGAACCTTTGCTAAAAATAAGATCAGCAGGTCAAAGGTACAAGATTGTTAC
677▶ D P E E F L N I L F H H I L R V E P L L K I R S A G Q K V Q D C Y
2701 TTCTATCAAATTTTATGGAAAAAATGAGAAAAGTTGGCGTTCCACAAATTCAGCAGTTGTTAGAATGGTCTTTTATCAACAGTAACTGAAATTTGCAG
711▶ F Y Q I F M E K N E K V G V P T I Q Q L L E W S F I N S N L K F A
2801 AGGCACCATCATGTCTGATTATTCAGATGCCTCGATTTGAAAAAGACTTTAAACTATTTAAAAAATTTTCTTCTCTGGAATTAATAACAGATTT
744▶ E A P S C L I I Q M P R F G K D F K L F K K I F P S L E L N I T D L

BspEI (2975)

2901 ACTTGAAGACACTCCCAGACAGTGCCGGATATGTGGAGGGCTTGAATGTATGAGGTAGAGAATGCTACGACGATCCGGACATCTCAGCTGGAAAAATC
777▶ L E D T P R Q C R I C G G L A M Y E C R E C Y D D P D I S A G K I
3001 AAGCAGTTTTGTAACCTGCAACACTCAAGTCCACCTTCATCCGAAGAGGCTGAATCATAAATAACCCAGTGTCACTTCCAAAGACTTACCCGACT
811▶ K Q F C K T C N T Q V H L H P K R L N H K Y N P V S L P K D L P D

BstAPI (3118)

3101 GGGACTGGAGACCGGCTGCATCCCTTCCAGAAATATGGAGTTATTTGCTGTTCTCTGCATAGAAACAAGCCACTATGTTGCTTTTGTGAAGTATGGGAA
844▶ W D W R H G C I P C Q N M E L F A V L C I E T S H Y V A F V K Y G K

PvuI (3236)

3201 GGACGATTCTGCCTGGCTCTTCTTTGACAGCATGGCCGATCGGGATGGTGTCAGAATGGCTTCAACATTCCTCAAGTCAACCCATGCCAGAAGTAGGA
877▶ D D S A W L F F D S M A D R D G G Q N G F N I P Q V T P C P E V G

ScaI (3301)

ApaI (3361)

NsiI (3382)

3301 GAGTACTTGAAGATGTCTCTGGAAGACCTGCATTCCTTGGACTCCAGGAGAATCCAAGGCTGTGCACGAAGACTGCTTTGTGATGCATATATGTGCATGT
911▶ E Y L K M S L E D L H S L D S R R I Q G C A R R L L C D A Y M C M

BsrGI (3421)

NheI (3470)

3401 ACCAGAGTCCAACAATGAGTTTGTACAAATACTGGGTCATCGGGAAAGGCAAAGAACTGAAGGCAGAGCTAGCTGGCCAGACATGATAAGATACATT
944▶ Y Q S P T M S L Y K •
3501 GATGAGTTTGGACAAACCACAAC TAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCA

HpaI (3608)

3601 ATAAACAAGTTAAACAACAACAATTGCATTCATTTTATGTTTCAGGTTCAAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAACCTCTACAAATGTGG

EcoRI (3704)

3701 TATGGAATCTAAATAACAGCATAGCAAACTTTAACCTCCAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGG
3801 CTGTTGCCAATGTGCATTAGCTGTTTGCAGCCTCACCTCTTTTCATGGAGTTAAGATATAGTGATTTTCCCAAGGTTTGAAGTACTGCTCTTCATTCTT

SwaI (3957)

3901 TATGTTTTAAATGCACTGACCTCCACATTCCTTTTTAGTAAATATTCAGAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTTATTAG
4001 GCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTTAATAGAAATTGGACAGCAAGAAAG
4101 CGAGCTTCTAGCTTTAGTTCTGGTGTACTTGGAGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCCATTCTCAATGAGCACAAAGCAGTC
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 (4218)

BstXI (4247)

4201 AGGAGCATAGTCAGAGATGAGCTCTCTGCACATGCCACAGGGGCTGACCACCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCTGACAGCCACA
112▶ P A Y D S I L E R C M G C P S V R I S R D V E D S Y P H R V A V
4301 ATGGTGTCAAAGTCTTCTGCCGTTGCTCACAGCAGACCCAATGGCAATGGCTTCCAGCACAGACAGTACCCTGCCAATGTAGGCCCTCAATGTGGACAG
78▶ 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 H V A
4401 CAGAGATGATCTCCCGTCTGGTCTGATGGCCGCCCGACATGGTCTTGTGCTCATAGAGCATGGTATCTTCTCAGTGGCAGCTCCACCAG
45▶ 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

AseI (4590)

4501 CTCCAGATCCTGCTGAGAGATGTTGAAGTCTTCATGGTGGCCCTCTATAGTGAGTCGATTATACTATGCCGATATACTATGCCGATGATTAATTGTC
12▶ E L D Q Q S I N F T K M

SacI (4647)

4601 AAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTCACTAAACGAGCTCTGCTTATATAGACCTCCACCGTACACGCCTACCGCCATTTGCGTC

SpeI (4745)

4701 AATGGGGCGGAGTTGTTACGACATTTTGGAAAGTCCCGTTGATTTACTAGTCAAAAACAACTCCCATGACGTCAATGGGGTGGAGACTTGGAAATCCCC

SnaBI (4873)

4801 GTGAGTCAAACCGCTATCCACGCCATTGATGTAAGTCCAAAACCGCATCATCATGTAATAGCGATGACTAATACGTAGATGTAAGTCCAAAGTAGGAAA

NdeI (4978)

4901 GTCCATAAGGTCATGTAAGTGGCATAATGCCAGGCGGGCATTACCGTCATTGACGTCAATAGGGGGCGTACTTGGCATATGATACACTTGTACT
5001 GCCAAGTGGGCGAGTTTACCGTAAATACTCCACCATTGACGTCAATGGAAAGTCCCTATTGGCGTACTATGGGAACATACGTCAATTATTGACGTCAATG

PacI (5164)
PstI (5157)
SdaI (5156)

BspLU11I (5174)

5101 GCGGGGGTCGTTGGGCGGTGAGCCAGGCGGCCATTTACCGTAAGTTATGTAACGCTGCAGGTTAATTAAAGAACATGTGAGCAAAAGGCCAGAAAAG
 5201 GCCAGGAACCGTAAAAAGGCCGCTTGTGGGTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAATCGACGCTCAAGTCAGAGGTGGCGAA
 5301 ACCCGACAGGACTATAAAGATACCAGGCGTTTCCCCCTGGAAGCTCCCTCGTGCCTCTCCTGTTCCGACCCTGCCGCTTACCGGATACCTGTCCGCCTT

ApaLI (5488)

5401 TCTCCCTTCGGAAGCGTGGCGCTTTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCCAAGCTGGGCTGTGTGCACGAACCC
 5501 CCGTTCAGCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTTGAGTCCAACCCGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACA
 5601 GGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCT
 5701 GCTGAAGCCAGTTACCTTCGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGGTTTTTTTGTGGCAAGCAGCAGATT
 5801 ACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGTCTGACGCTCAGTGAACGAAAACACTCACGTTAAGGGATTTTGGTCATGG

EagI (5924)
PacI (5904) SwaI (5913) NotI (5923)

5901 CTAGTTAATTAACATTTAAATCAGCGGCCGAATAAAATATCTTTATTTTCATTACATCTGTGTGTTGGTTTTTTGTGTGAATCGTAACTAACATACGCT
 6001 CTCCATCAAAACAAAACGAAACAAAACAACTAGCAAATAGGCTGTCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA