



PvuI (7) SgfI (6) EcoNI (96)
 1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA
 101 GAGAAAGTGGCGGGGTAACCTGGAAAGTGATGTCGTACTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

Psp1406I (203) HindIII (245) EcoNI (287)
 201 GTGAACGTTCTTTTTTCGCAACGGGTTTCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCCTTACGCGCCCGCGCCCTACCTGAGGCC
 301 GCCATCCACGCGGGTTGAGTCGCGTTTCTGCCGCCTCCCGCCTGTGGTGCCTCCTGAAGTGCCTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMIV (441)
 401 GGGCCTTTGTCCGGCGCTCCCTTGGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTCTCAACTCTACGTCTTTGTTTCGTTT

KasI (535) AgeI (552) BspHI (560) SacII (569)
 501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGGGCGCTACCTGAGATCACCGGTTCATCATGAAGCCCGCGCGGGAGACGCGGACACCCCGCG
 1 M K P A A R E T R T P P R

XmaI (604) SrfI (603) FspI (664)
 601 CTCGCCCGGGCTCCGCTGGGCGCTGCTGCCGCTGCTGCTGTTGCTACGCCAGGGCCAGGTCTGTGCGCAGGTGCGCGGGACCGAATCCTATATTTGACATT
 13 S P G L R W A L L P L L L L L R Q G Q V L C A G A A P N P I F D I

SpeI (718)
 701 GAAGCTGTCGTCAGCCCACTAGTGTATTAAACATGGAAGCACAATGACTCAGGCGCTTCAAGATGTAGAATAGAGAATAAGATGGAGAGCAATCTGA
 47 E A V V S P T S V L L T W K H N D S G A S E C R I E N K M E S N L

Bst1107I (858)
 801 CGTTTCCTGTTAAAAACAGACATCATGTAACATTACAGGCTTAAGCCAGGCACTTCGTATACATTCTCCATCATCTCTGTAACAACCAATGAGACCTT
 80 T F P V K N Q T S C N I T G L S P G T S Y T F S I I S V T T N E T L
 901 GAACAAAATATACAACAGAGCCCTGGCCAGTGTCTGATCTCCATGTCACTCTGTGGGTGTGACACAGGCTCGTCTCACCTGGAGCAATGCAAATGGC
 113 N K T I T T E P W P V S D L H V T S V G V T Q A R L T W S N A N G
 1001 ACTGCCTCCTACCGGATGCTGATTGAAGAGTTGACCACACATTCTCAGTCAATATTTCAAGTCTGAAGCCGGGGACCAATAAGCTTCGCTTTCCAG
 147 T A S Y R M L I E E L T T H S S V N I S G L K P G T N N S F A F P
 1101 AATCAAATGAGACACAGGCTGACTTTGCAAGTTCGAGAGGAGTCCCGGATGCCAATGGTACCAAGAGAATCCAGTGACCAACCTATCCAACTACACAA
 180 E S N E T Q A D F A V A E E V P D A N G T K R I P V T N L S Q L H K

EcoRI (1200) BamHI (1236) BglII (1253)
 1201 GAATTCTCTTGTCTCTGTGGACCCCTCTGGCCAGGATCCCTCCCTCACAGAGATCTTGCTACTGACCTAAAGCCTGATACTCAGTACAATGCCACC
 213 N S L V S V D P P S G Q D P S L T E I L L T D L K P D T Q Y N A T
 1301 ATCTATTCTCAAGCAGCAAATGGCACTGAAGGACAGCCAGGAACAAAGTGTAAAAACAAATCCACCCAGGTTTCTGACGTCGAGCTATGAACATCA
 247 I Y S Q A A N G T E G Q P R N K V F K T N S T Q V S D V R A M N I

SmaI (1441) BbrPI (1471) SmaI (1483)
 1401 GTGCCTCAAGCATGACCTGACCTGGAAAAGCAATTACGATGGGTCCCGTACTTCAATTGTCTACAAAATACAGTGGCTGGGGGACCCACTCCGTCAA
 280 S A S S M T L T W K S N Y D G S R T S I V Y K I H V A G G T H S V N
 1501 CCAAATGTCAATAAGACTGAGGCCATCATCTCGGACTCAGCTCCAGCACCTGTACAACATCACAGTTCATCTTTCTGGGTGACACGGAGGGCACA
 313 Q T V N K T E A I I L G L S S S T L Y N I T V H P F L G Q T E G T

PshAI (1653)
 1601 CCAGGCTTCTCCAAGTGTACACTTCCCCGATCAGGTCTCTGACTTCCGAGTGACAAATGTCAGCACAAGGGCAATTGGTTTGGCTTGGAGGAGCAATG
 347 P G F L Q V Y T S P D Q V S D F R V T N V S T R A I G L A W R S N

BsaBI (1716)
 1701 ACTCCAAGTCTTTCGAGATTTTCAAGCAGGACGGAGGTGAGAAGCATCGAAATGCTTCGACGGGAAACCAGAGCTATATGGTTGAAGATTTAAAGCC
 380 D S K S F E I F I K Q D G G E K H R N A S T G N Q S Y M V E D L K P
 1801 TGAACCAAGTACCATTTTGAATAATCCACGAGGACAGACGGGACAGAAGGGCTGTCAGTACAGTGAATGGGAGCACTGACCCAGTGTGTGACT
 413 G T S Y H F E I I P R G P D G T E G L S S T V N G S T D P S A V T

XbaI (1989)
 1901 GACATCCGGGTGGTCAACATTAGCACCCTGAAATGCAGTTGGAGTGGCAGAATACGGACGATGCCTCTGGATACACTTACCATTTAGTTCTAGAGTCA
 447 D I R V V N I S T T E M Q L E W Q N T D D A S G Y T Y H L V L E S
 2001 AAAGTGGCTCCATCATCAGGACCAACAGTCTCAGAAGTGGATCACAGTAGGGAGCCTACCCAGGCACCTTATACAATGTCACAATCTTTCCAGAAGT
 480 K S G S I I R T N S S Q K W I T V G S L T P G T L Y N V T I F P E V
 2101 GGACCAGATCCAGGAATCTCCAATCCATTACCCAGTACACAGGCCAGCAGTGTGCCACATTGAAGTAAACACCACCACCACCCAGCCATC
 513 D Q I Q G I S N S I T Q Y T R P S S V S H I E V N T T T T T A A I

BstAPI (2218) BbsI (2256)
 2201 CGATGGAAGAACGAGGACGAGCCTCTGCTTCCATATGCCTACTCCGTCCTTATCTTGAAGACTGGAGATGGCAGCAATGTAACAGCAACTTCAAAAAG
 547 R W K N E D A A S A S Y A Y S V L I L K T G D G S N V T S N F T K
 2301 ACCCTTCTATTCTAATCCCTGAGTTAATCCCTGGTCTTACACAGTGAAGATCCTTACACAAGTTGGGATGGTACAATCACTGGTACCTGGTTG
 580 D P S I L I P E L I P G V S Y T V K I L T Q V G D G T T V G D G T V P G W
 2401 GAATCTGTTCTGTACGGAACCTGAACAGTACCTCCTCCACTGTGAAGTGGTCCCTAAGGAGCCAGCATTGGTTCTCAAGTGGGCTGCCCTTTGGC
 613 N L F C T E P E P V T S F H C E V V P K E P A L V L K W A C P F G

DraIII (2583) PshAI (2595)
 2501 ATGTACACAGGCTTCGAGCTGGGGTCCAGGAGTATTCTGGGACAATATGACACGCCTAGAGAAGTGCACCTTCGGATGATGACACAGAGTGCAGGACGG
 647 M Y T G F E L G V R S D S W D N M T R L E N C T S D D D T E C R T
 2601 AAGTCGCCTATTTGAATTTTCTACCTCGTACAACATCAGCATCGCCACCTTGTATGTGGGAAGATGGCGCTTCCCGCCAGAACATCTGCACCACTGG
 680 E V A Y L N F S T S Y N I S I A T L S C G K M A L P A Q N I C T T G

BamHI (2725) BspEI (2718)
 2701 CATCACAGACCCCACTACTCCGGATGGATCCCTAATATTACATCGGTGAGTCAAAATTCAGTAAAGTTAAGTTGAGCGGGTTTGAAGCCAGCCACGGA
 713 I T D P P T P D G S P N I T S V S H N S V K V K F S G F E A S H G

PstI (2852)

2801 CCTATCAAAGCCTATGCTGTCATCCTACCACCGGGAAGCTGCCCAACCTTCTGCAGATGTTTTGAAGTACACGTATGAGGATTTCAAAGGGGAGCCT
747▶ P I K A Y A V I L T T G E A A Q P S A D V L K Y T Y E D F K R G A
2901 CGGATACTTATGTACATACTCATAAGAAATAGAGAAGGGACAGTCTCAGGGCTTGTCTGAAGTCTTGAACATATGAAATTGATGTGGGGAACCAATC
780▶ S D T Y V T Y L I R I E E K G Q S Q G L S E V L N Y E I D V G N Q S
3001 CACTACCCTCGGCTACTACAACGGGAGGCTGGAGCCTCTGGGCTCCTACCGGGCTTGTGTTGCTGGCTTTACCAATATTACCTACAACCTTCAGAATGAC
813▶ T T L G Y Y N G R L E P L G S Y R A C V A G F T N I T Y N L Q N D
3101 GGCCTCATCAATGGGATGAGAGCTATGTCTTTTCAGTCCATATTCAGAGCCGTGTTCTTGCCTCCAGGACCCAGGTGTCATCTGCGGAGCAGTGTGTTG
847▶ G L I N G D E S Y V S F S P Y S E A V F L P Q D P G V I C G A V F

XcmI (3221)

3201 GATGTATCTTTGGTGCCTCGCCATCACAGCTGTGGGAGGCTTCATCTTCTGGAGAAAAGAAAGGACAGATGCCAAGAATAATGAAGTGTCTTTTCTCA
880▶ G C I F G A L A I T A V G G F I F W R K K R T D A K N N E V S F S Q
3301 AATTAACCTAAAAATCCAAGTTAATCCGAGTGGAGAAATTTGAGGCCTACTTTAAGAACGCAAGCTGACTCTAAGTGTGGGTTGCGAGAAATAT
913▶ I K P K K S K L I R V E N F E A Y F K K Q Q A D S N C G F A E E Y
3401 GAGGACCTGAAGCTGATTGGGATAAGTTTACCTAAATACACAGCTGAGATAGCCGAGAACAGAGGGAAGAACCCTACAACAATGTTCTGCCCTATGATA
947▶ E D L K L I G I S L P K Y T A E I A E N R G K N R Y N N V L P Y D

XhoI (3503)

3501 TTTCTCGAGTCAAACCTTTCAGTCCAGACCCATTGACAGATGACTACATCAATGCCAATATATGCCTGGCTACCATTCCAAGAAAGATTTTCATTGCCAC
980▶ I S R V K L S V Q T H S T D D Y I N A N Y M P G Y H S K K D F I A T

BstXI (3680)

3601 ACAAGGACCTTTACCCAACCTTTGAAAGATTTCTGGCGTATGGTTTGGGAGAAAAACGTATATGCCATTGTTATGTTGACCAATGCGTGGAGCAGGGA
1013▶ Q G P L P N T L K D F W R M V W E K N V Y A I V M L T K C V E Q G

ScaI (3716)

3701 AGGACCAATGTGAGGAGTACTGGCCTTCCAAGCAGGCTCAGGACTACGGGGACATAACTGTGGCGATGACATCAGAAGTCGTTCTTCCAGAATGGACCA
1047▶ R T K C E E Y W P S K Q A Q D Y G D I T V A M T S E V V L P E W T
3801 TCAGAGATTTTGTGGTAAAAATATGCAGAATAGCGAGAGCCATCCTCTGCGGCGATTCACCTCCTGGCCTGACCCAGGTTGCTTGCACCCAC
1080▶ I R D F V V K N M Q N S E S H P L R Q Q A D S N C G F A E E Y
3901 TGACCTGCTCATCAACTTTCGGTACCTGGTCCGGATTACGATGAAGCAGATACCCCGAGTACCAATTCTGGTGCATTGCAAGTGTGGGTTGGAAGG
1113▶ D L L I N F R Y L V R D Y M K Q I P P E S P I L V H C S A G V G R

PvuI (4020)

ClaI (4018)

4001 ACGGGCACCTTTCATCGCCATCGATCGCTGATCTATCAGATAGAGAATGAGAACCCTGGACGTGTATGGGATTGTCTATGACCTTCGGATGCACAGGC
1147▶ T G T F I A I D R L I Y Q I E N E N T V D V Y G I V Y D L R M H R
4101 CTCTGATGGTGCAGACAGAGGACAGTATGTTTTCTCAATCAGTGTGTTTTGGATATTATCAGAGCCAGAAAGACTCAAAGTTGATCTCATCTATCA
1180▶ P L M V Q T E D Q Y V F L N Q C V L D I I R A Q K D S K V D L I Y Q

Bsp120I (4287)

XhoI (4231)

SfiI (4279)

4201 GAACACAACGGCAATGACAATCTATGAAAACCTCGAGCCAGTGAAGTGTGTTGAAAAGACTAATGTTTACATCGCCTAAGGCCTCATGGGCCAGCTTTC
1213▶ N T T A M T I Y E N L E P V S M F G K T N G Y I A •

NheI (4301)

4301 IGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGGACAAACCACTAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCT

HpaI (4439)

4401 ATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAAGTTAAACAACAATTGCATTTCATTTTATGTTTCAGGTTTCAGGGGGAGGTGTGGGAGGTTT

EcoRI (4535)

4501 TTTAAAGCAAGTAAACCTCTACAAATGTGGTATGGAATCTAAAATACAGCATAGCAAACTTTAACCTCCAATCAAGCCTCTACTGATCCTTTTC

4601 TGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTTGCAGCCTCACCTTCTTCATGGAGTTTAAAGATATAGTGATTTT

SapI (4717)

Swal (4788)

4701 TCCAAGGTTTGAAGTAGCTCTTCATTTCTTTATGTTTTAAATGCACTGACCTCCACATTCCCTTTTGTAGAAAATATTCAGAAATAATTTAAATACAT

4801 CATTGCAATGAAAATAAATGTTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGG

4901 AACCTTTAATAGAAATTTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCTGGTGTACTTGAGGGGGATGAGTTCTCAATGGTGGTTTTGACCAGCT

1414 • N R T Y K L P I L E E I T T K V L K

SacI (5049)

BstXI (5078)

5001 TGCCATTCATCTCAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTGCACATGCCACAGGGGCTGACCACCCTGATGGATCTGTCCAC

1224 G N M E 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

5101 CTCATCAGAGTAGGGGTGCCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCGTTGCTCACAGCAGACCAATGGCAATGGCTTCAGCACAGACAGTG

894 E D S Y 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

5201 ACCCTGCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCGAGTCTTGGTCTGATGGCCGCCCGACATGGTGCTTGTGCTCATAGAGCA

554 V R G I 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

BbsI (5359)

5301 TGGTGATCTTCTCAGTGGCGACCTCCACAGCTCCAGATCCTGCTGAGAGATGTTGAAGGCTTCATGGTGGCCCTCCTATAGTGAGTCGATTATACTA

224 T I K E T A V E V L E L D Q Q S I N F T K M

AseI (5421)

SacI (5478)

5401 TGCCGATATACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTTCACTAAACGAGCTCTGCTTATATAGACCTC

SpeI (5576)

5501 CCACCGTACACGCCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTTACGACATTTTGGAAAGTCCCGTTGATTTACTAGTCAAAAACAACTCCCATTG

5601 ACGTCAATGGGGTGGAGACTTGGAAATCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTACTGCCAAAACCGCATCATGTTAATAGCGATGA

5701 **SnaBI (5704)**
CTAATACGTAGATGACTGCCAAGTAGGAAAGTCCCATAAGGTCATGACTGGGCATAATGCCAGGCGGGCCATTTACCGTCATTGACGTCAATAGGGGG

5801 **NdeI (5809)**
CGTACTTGGCATATGATACACTTGATGACTGCCAAGTGGGCAGTTTACCGTAAATACTCCACCCATTGACGTCAATGGAAAGTCCCTATTGGCGTTACT

5901 **PstI (5988)** **PacI (5995)**
SdaI (5987)
ATGGGAACATACGTCATTATTGACGTCAATGGGCGGGGTCGTTGGGCGGTCAGCCAGGCGGGCCATTTACCGTAAGTTATGTAACGCCTGCAGGTTAAT

6001 **BspLU11I (6005)**
TAAGAACATGTGAGCAAAGGCCAGCAAAGGCCAGGAACCGTAAAAAGGCCGCTTGTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCAC

6101
AAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTTCCCCCTGGAAGCTCCCTCGTGCGCTCCTCTGTTCCGA

6201
CCCTGCCGCTTACCGGATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTGGCGCTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGT

6301 **ApaLI (6319)**
TCGCTCCAAGCTGGGCTGTGTGCACGAACCCCGTTCCAGCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGAC

6401
TTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACA

6501
CTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTTTGATCCGGCAAACAACCACCGCTGGTAG

6601
CGGTGGTTTTTTTTGTTTGAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGGAAC

6701 **EagI (6755)**
PacI (6735) **SwaI (6744)** **NotI (6754)**
GAAAACCTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATC AGCGGCCGCAATAAAATATCTTTATTTTCATTACATCTGTGTGTTGG

6801
TTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAACAAAACGAAACAAAACAACTAGCAAATAGGCTGTCCCCAGTGCAAGTGCAGGTGCC

6901
AGAACATTTCTCTATCGAA