



PvuI (7)
SgfI (6)
EcoNI (96)

1 GGATCTGCATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA
101 GAGAAGGTGGCGGGGTAAACTGGAAAGTGATGTCGTGACTGGTCCGCCTTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

Bsu36I (291)
Psp1406I (203)
EcoNI (287)

201 GTGAACGTTCTTTTTTCGCAACGGGTTTGGCCGAGAACACAGCTGAAGCTTCAGAGGGCTCGCATCTCTCTTACCGCGCCCGCCGCTACCTGAGGGCC
301 GCCATCCACGCGGTTGAGTGCAGTCTGCCGCTCCCGCCTGTGGTGCCTCTGAAGTGCCTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMIV (441)

401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCTAACTCTACGTCTTTGTTTCGTTT

BspHI (560)
AgeI (552)
BamHI (578)

501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGCGGCTACCTGAGATCACCGGTCATCATGAGTGGGCTCTACAGGATCCTGGTCCAGCTGGAACA
130 M S G L Y R I L V Q L E Q
601 AAGTCCATATGTGAAGACCGTGCCTTTGAACATGAGAAGGGATTTTTTTTCTGGTGTAACTGGATGCCTAAGACAGTCAAGATGAATGGGAGCAGC
130 S P Y V K T V P L N M R D F F F L V V T W M P K T V K M N G S S
701 TTTGTCCATCTCTACAGCTCCTGCTCATGTTAGTAGGATTTTCTGCGCCTGTGGCAGAGACATATGGGTTCAACAAGTGCACACAGTATGAATTTG
470 F V P S L Q L L L M L V G F S L P P V A E T Y G F N K C T Q Y E F
801 ATATTCACCATGTGCTCTGCATTAGGAAGAAGATCACCAACTGACAGAGGCCATTAGTGCATACCTAGATATACTACTCACCTAACCTCACACACAA
80 D I H H V L C I R K K I T N L T E A I S D I P R Y T T H L N L T H N
901 CGAAATTCAGTCCCTCCCTCCCTGGAGTTTACCAATCTGTCTGCTGCTGGTGGACTTGAGACTAGAGTGAAGTCAATTTGGAAGATCGACGAAAGGTGCC
113 E I Q V L P P W S F T N L S A L V D L R L E W N S I W K I D E G A
1001 TTTAGGGGACTTGAAAATTTGACTCTGCTGAATTTAGTGGAAAATAAGATTCAAAGTGTGAATAACTCCTTTGAGGGCCTGTCCAGCCTGAAGACCCTGC
147 F R G L E N L T L L N L V E N K I Q S V N N S F E G L S S L K T L
1101 TCCTGAGCCATAATCAGATTACCATATTCACAAAGACGCTTCACTCCTAAATCAAATTTGAGCCTATCTCGAAACAACATAGCGATT
180 L L S H N Q I T H I H K D A C F T P L I K L K Y L S L S R N N I S D F

AvrII (1288)

1201 TTCTGGTATTCTTGAAGCAGTCCAGCATCTTCCATGCCTGGAGCGCCTTGATCTAACTAACACAGCATCATGTAAGTGGACCACAGCCCTAGGTCAGT
213 S G I L E A V Q H L P C L E R L D L T N N S I M Y L D H S P R S L
1301 GTTTCTCTGACCCACCTGAGTTTTGAGGGGAACAACTAAGGGAGTTAAACTCTCTGCTTTGTCTTACCTAACCTAACCAATCTAAGTGCTTCCCGGA
247 V S L T H L S F E G N K L R E L N F S A L S L P N L T N L S A S R
1401 ATGGCAATAAAGTCAATCAGAATGTGTATCTTAAACTCTGCCCAACTTAAAGCTTGAATCTGAGTGAACGGTGATAAAATTTGAAAATCTTTCCGC
280 N G N K V I Q N V Y L K T L P Q L K S L N L S G T V I K L E N L S A

PstI (1507)
Tth111I (1550)

1501 CAAACACCTGCAGAACTAAGAGCTATGGATCTCAGTAATTGGGAGCTTAGACATGGTCACTTAGATATGAAAAGTGTGTCACCTGCTCGGAAACCTA
313 K H L Q N L R A M D L S N W E L R H G H L D M K T V C H L L G N L

PshAI (1690)

1601 CCAAGTTAGAGACTGGTTTTTTCAGAAAAATGTCACCAATGCAGAGGGCATTAAAGCAGCTGGCAAAGTGCACCAGGCTCTTGTCTTGCACCTGGGTC
347 P K L E T L V F Q K N V T N A E G I K Q L A K C T R L L F L D L G
1701 AAAACAGTGAATGATTTATCTCAATGACAGCGAGTTCAATGCTCTGCCAGTCTCCAAAACTGAATTTGAACAAGTGCAGCTCTCCTTATCAACAA
380 Q N S D L I Y L N D S E F N A L P S L Q K L N L N K C Q L S F I N N

BglII (1836)

1801 CAGGACCTGGAGTTCCTTGCAGAACTTGACCAGCCTAGACTGAGCCACAAACAGTTTAAAAGCTTTCCAGATTTTGCATTTTCCCCTTGAAGCACTTG
413 R T W S S L Q N L T S L D L S H N K F K S F P D F A F S P L K H L
1901 GAGTTTCTCTCTTTCAAGAAACCCATCACAGAACTCAATAATCTGGCCTTTAGTGGGCTATTGCACTGAAGGAGCTCAACTGGCTGCATGTTGGA
447 E F L S L S R N P I T E L N N L A F S G L F A L K E L N L A A C W

BglIII (2052)

2001 TTGTAACAATTGACAGGTATTCCTTTACTCAGTTTCCAAACTTAGAGGTCTTAGAGTGGAGACAACAATATTCGGACTCTCAACCACGGAACCTTCG
480 I V T I D R Y S F T Q F P N L E V L D L G D N N I R T L N H G T F R
2101 ACCTCTGAAAAAATCCAGTCTTTGATTCTTTCCACAACCTGCCTAAAAATCTGGAGCCAAATTCGTTTTCTGGTCTCACTAACCTACGTTCCCTTGAC
513 P L K K L Q S L I L S H N C L K I L E P N S F S G L T N L R S L D

BsrGI (2204)
BspHI (2224)

2201 CTGATGTACAACAGCTTGTGCATATTTTCATGAACACCTTTTCTCGGGCCTTGAAAAGCTTCTGATTTTAAAAGTGGTTTTAATAAGATCACATATGAAA
547 L M Y N S L S Y F H E H L F S G L E K L L I L K L G F N K I T Y E
2301 CTAAGTACCCTTCAAGTATCTCCATTTATAAGCTCAAGTCTTTGAAACAGCTTAACCTAGAAGGACAAAGACACGGGATTCAGGTTGTTCCGAGCAA
580 T T R T L Q Y P P F I K L K S L K Q L N L E G Q R H G I Q V V P S N
2401 CTTTTTCAAGGATTTGGGTAGTTTGCAGGAGTACTCTTAGGAAAAATCCCTCTGTATTCTGGACCACCACCAATTTGACCCTCTGATTAACCTCACA
613 F F Q G L G S L Q E L L L G K N P S V F L D H H Q F D P L I N L T

EcoRV (2506)
BsaBI (2524)

2501 AAGTTGGATATCTCAGGAACAAAAGATGGAGATCGAAGCTCTATTTAAATGCTTCTTATTCCAAAACCTCAAAGGCTAAAGATCCTCCGCTTGAAA
647 K L D I S G T K D G D R S L Y L N A S L F Q N L K R L K I L R L E

BspLU11I (2627)
AseI (2689)

2601 ATAACAACCTAGAGTCACTGGTTCCTGACATGTTCTCCAGCTTACAGAGCCTCCAGGTCCTTTCTTTAAGATTCAACAACCTGAAAGTCATTAATCAAAG
680 N N N L E S L V P D M F S S L Q S L Q V F S L R F N N L K V I N Q S
2701 TCATCTGAAGAATCTGAAATCACTGATGTTTTTGTATGCTATGGGAACAACTTCAGTGCACCTGTGACAATTTGTGGTTCAAGAAGTGGTCAATGAAC
713 H L K N L K S L M F F D V Y G N K L Q C T C D N L W F K N W S M N

BspEI (2825)

2801 ACAGAGGAGGTCCACATCCCTTCTCCGAGCTATCCCTGTCAGCAGCCAGGAGGAGTTACTTATAGATTTTGTATGATGCCATGTGTAATTTTGT
747 T E E V H I P F L R S Y P C O O P G S O S L L I D F D D A M C N F

NotI (2948)

2901 ACTTGGGAAAGGCTACTTCTTATGTTCCCTTCCAGTATGGTCCCTCAGCACCATGGTTTTCTTGGTTCCAGTACCAAGATGATTGCATCTCTGTGGTATGG
780▶ D L G K V Y F L C S F S M V L S T M V F S W F S T K M I A S L W Y G

BsrGI (3002) Acc65I (3020)

3001 TTTGTACATATGTAGGGCCTGGTACCTCACTAAATGGCACAAAACGGAGAAGAAGTTCTTATATGATGCGTTTTGTCTTTCTCGGCCACTGATGAGGCA
813▶ L Y I C R A W Y L T K W H K T E K K F L Y D A F V S F S A T D E A

Bst1107I (3103) EcoRV (3193)

3101 TGGGTATACAAAAGAGCTTGTCCAGCCCTAGAACAAGGAGCCAGACCCTTTAAACTCTGTCTTCCACCAACGGGATTTGAACCAGGCATTGATATCT
847▶ W V Y K E L V P A L E Q G S Q T T F K L C L H Q R D F E P G I D I

3201 TCGAGAACATCCAGAATGCTATTAACACAAGCAGGAAAACCTTGTGCGTAGTCAGTAACCACTACCTACACAGTGAATGGTGCCGACTGAAGTCCAGCT
880▶ F E N I Q N A I N T S R K T L C V V S N H Y L H S E W C R L E V Q L

NheI (3301)

3301 GGCTAGCATGAAGATGTTTTATGAGCACAAAGGATGTCATTATCTTGATCTTCCCTGAAGAGATCCGAACTATAAGCTGTCCAGCTACCACCGACTCAGG
913▶ A S M K M F Y E H K D V I I L I F L E E I P N Y K L S S Y H R L R

BstXI (3454)

3401 AAACCTATAAAACAAACAGACGTTTATCACTTGGCCGGACAGTGTTCACCAGCAGCCACTTTTCTGGGCTCGCATCAGAAATGCGTTGGCAAGGAGACTG
947▶ K L I N K Q T F I T W P D S V H Q Q P L F W A R I R N A L G K E T

XhoI (3538) PshAI (3536) EcoRI (3567) NheI (3573)

3501 TGGAGAAAAGAAAATACACATCTAATTGTTGTTGAGTGACTCGAGTCTTAAACAATCCCAAACCCGGCTGAATTGCGTCTAGCTCGACATGATAAGATACATTG
980▶ V E K E N T H L I V V E •

3601 ATGAGTTTGGACAAACCACTAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTGAAATTTGTGATGCTATT

HpaI (3736)

3701 GCTTTATTTGTAACCATTATAAGCTGCAATAAAACAAGTTAAACAACAACAATTGCATTCATTTTATGTTTCAGGTTCCAGGGGAGGTGTGGGAGGTTTTTT

EcoRI (3832)

3801 AAAGCAAGTAAAACCTCTACAAAATGTGGTATGGAAATTCAAAATACAGCATAGCAAACTTTAACCTCCAATCAAGCCTCTACTTGAATCCTTTTCTGA
3901 GGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTTGAGCCTCACCTTCTTTCATGGAGTTAAGATATAGTGTATTTTCC

SapI (4014)

4001 CAAGGTTTGAAGTAGCTCTTCATTTCTTTATGTTTAAATGCAGTGCCTCCACATTCCTTTTATGAAAATATTCAGAAAATAATTTAAATACATCAT
4101 TGCAATGAAAATAAATGTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGAAC
4201 CTTAATAGAAATTTGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCCTGGTACTTGAGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGC
141▶ • N R T Y K L P I L E E I T T K V L K G

BstXI (4375)

4301 CATTCATCTCAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAGTCTCTGCACATGCCACAGGGGCTGACCCTGATGGATCTGTCCACCTC
121▶ 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 E

4401 ATCAGAGTAGGGGTGCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCGTTGCTCACAGCAGACCAATGGCAATGGCTTCAGCAGACAGCTGACC
88▶ 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 V

StuI (4510)

4501 CTGCCAATGTAGGCTCAATGTGGACAGCAGAGATGATCTCCCAAGTCTTGGTCTGATGGCCGCCCCGACATGGTGCTTGTGTCTCATAGAGCATGG
54▶ 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 T

4601 TGATCTTCTCAGTGGCGACTCCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGTCTTCATGGTGGCCCTCTATAGTGAGTCGTATTATACTATGC
21▶ I K E T A V E V L E L D Q Q S I N F T K M

AseI (4718)

4701 CGATATACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTTCACTAAACGAGCTCTGCTTATATAGACCTCCCA

SpeI (4873)

4801 CCGTACACGCCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTTACGACATTTTGGAAAGTCCCGTTGATTTACTAGTCAAAAACAACTCCCATTGACG
4901 TCAATGGGGTGGAGACTTGAAATCCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTAAGTCCAAAACCGCATCATCATGGTAATAGCGATGACTA

SnaBI (5001)

5001 ATACGTAGATGTAAGTCCCAAGTAGGAAAGTCCCATAGGTCATGTAAGTGGCATAATGCCAGGCGGGCCATTTACCGTCAATGACGTCAATAGGGGGCGT
5101 ACTTGGCATATGATACACTTGTACTGCAAGTGGGCGGTTTACCCTAAATACTCCACCCATTGACGTCAATGAAAGTCCCTATTGGCGTACTATG

PaeI (5292) PstI (5285) SdaI (5284)

5201 GGAACATACGTCATTATTGACGTCAATGGGGGGGCTGTTGGCGGTGACCCAGGCGGGCCATTTACCGTAAGTTATGTAACCGCTGCAGGTTAATTA

BspLU11I (5302)

5301 GAACATGTGAGCAAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGGCCGCTTGTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAA
5401 AATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTTCCCTGGAAGCTCCCTCGTGGCTCTCTGTCCGACCC
5501 TGCCGTTACCGGATACCTGTCCGCCTTCTCCCTTCCGGAAGCGTGGCGTTTTCTCATAGCTCAGCTGTAGGTATCTCAGTTCGGTGTAGGTGCTTCG
5601 CTCCAAGTGGGCTGTGTGCACGAACCCCGTTCAGCCGACCGCTGCGCTTATCCGGTAACTATCGTCTTGAAGTCCAAACCGGTAAGACACGACTTA

5701 TCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTA

5801 GAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGG

5901 TGGTTTTTTTGGTTGCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGGAAACGAA

6001 PacI (6032) EagI (6052)
AACTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATC NotI (6051) AGCGGCCGCAATAAAATATCTTTATTTTTCATTACATCTGTGTGGTTGGTTT

6101 TTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAAACAAAACGAAACAAAACAACTAGCAAATAGGCTGTCCCCAGTGAAGTGCAGGTGCCAGA

6201 ACATTTCTCTATCGAA