



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

Psp1406I (203) **PvuII (239)** **Bsu36I (291)**
201 GTGAACGTTCTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCTTACGCGCCCGCCCTACCTGAGGCC
301 GCCATCCACGCGGGTTGAGTCGCGTTTCTGCCGCCTCCCGCCTGTGGTGCCTCCTGAAGCTCGTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMIV (441)
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCCTGCTTCTCAACTCTACGCTTTTGTTCGTTT

KasI (535) **AgeI (552)** **BspHI (568)**
501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGCGCGCTACCTGAGATCACCGGTAGGAGGGCCATCATGATGCCTCCCTGGCTCCTGGCTAGGACT
1▶ M M P P W L L A R T

SspI (669) **Ppu10I (683)** **NsiI (683)**
601 CTGATCATGGCACTGTTCTTCTCCTGCCTGACACCAGGAAGCTTGAATCCCTGCATAGAGGTAGTTCCTAATATTACCTACCAATGCATGGATCAGAAAC
11▶ L I M A L F F S C L T P G S L N P C I E V V P N I T Y Q C M D Q K
701 TCAGCAAAGTCCCTGATGACATTCTTCTTCAACCAAGAACATAGATCTGAGCTTCAACCCCTTGAAGATCTTAAAAAGCTATAGCTTCCCAATTTTTTC
44▶ L S K V P D D I P S S T K N I D L S F N P L K I L K S Y S F S N F S
801 AGAAGTTCAGTGGCTGGATTATCCAGGTGTGAAATTGAAACAATTGAAGACAAGGCATGGCATGGCTTACACACCTCTCAAATTGATACTGACAGGA
77▶ E L Q W L D L S R C E I E T I E D K A W H G L H H L S N L I L T G
901 AACCTATCCAGAGTTTTCCCGAGGAAGTTCTGGACTCAACAGTTAGAGAATCTGGTGGCTGTGGAGACAAAATGGCCTCTCTAGAAAGCTTC
111▶ N P I Q S F S P G S F S G L T S L E N L V A V E T K L A S T L E S F
1001 CTATTGGACAGCTTATAACCTTAAAGAACTCAATGTGGCTCACAATTTTATACATTCCTGTAAGTTACCTGCATATTTTTCAATCTGACGAACCTAGT
144▶ P I G Q L I T L K K L N V A H N F I H S C K L P A Y F S N L T N L V
1101 ACATGTGGATCTTTCTTATAACTATATTCAAATCTACTGTCAACGACTTACAGTTTCTACGTGAAAATCCACAAGTCAATCTCTTTAGACATACT
177▶ H V D L S Y N Y I Q T I T V N D L Q F L R E N P Q V N L S L D I S
1201 TTGAACCAATTGACTTCATTCAAGACCAAGCCTTTCAGGGAATTAAGCTCCATGAAGTACTGACTCTAAGAGGTAATTTTAAAGTCAAAATATAATGAAAA
211▶ L N P I D F I Q D Q A F Q G I K L H E L T L R G N F N S S N I M K
1301 CTTGCCTTCAAAACCTGGCTGGTTTACACA TCCATCGGTTGATCTTGGGAGAATTTAAAGATGAAAGGAATCTGGAAATTTTTGAACCTCTATCATGGA
244▶ T C L Q N L A G L H I H R L I L G E F K D E R N L E I F E P S I M E

HpaI (1433)
1401 AGGACTATGTGATGTGACCATTGATGAGTTCAGGTTAACATATACAAATGATTTTTAGATGATATTGTTAAGTTCATTGCTTGCGCAATGTTTCTGCA
277▶ G L C D V T I D E F R L T Y T N D F S D D I V K F H C L A N V S A
1501 ATGCTCTGGCAGGTGTATCTATAAAATATCTAGAAGATGTTCCCTAAACATTTCAAATGGCAATCCTTATCAATCATTAGATGCAACCTAAGCAGTTTC
311▶ M S L A G V S I K Y L E D V P K H F K W Q S L S I I R C Q L K Q F
1601 CAACCTGGATCTACCCCTTTCTTAAAGTTTACTTTAACTATGAACAAAGGGTCTATCAGTTTTAAAAAGTGGCCCTACCAAGTCTCAGCTACTAGA
344▶ P T L D L P F L K S L T L A T M N K G S I S F K K V A L P S L S Y L D
1701 TCTTAGTAGAAATGCACTGAGCTTTAGTGGTGTCTTATTCTGATTTGGGAACAAACAGCCTGAGACACTTAGACCTCAGCTTCAATGGTGCATC
377▶ L S R N A L S F S G C C S Y S D L G T N S L R H L D L S F N G A I

BstXI (1810) **EcoRI (1878)**
1801 ATTATGAGTGCCAAATTTTATGGGCTAGAGAGCTGCAGCACCTGGATTTTTAGCACTCTACTTTAAAAAGGGTACAGAAATTCAGCGTTCTTATCCC
411▶ I M S A N F M G L E E L Q H L D F Q H S T L K R V T E F S A F L S
1901 TTGAAAAGCTACTTTACCTTGACATCTTATACTAACACAAAATTTGACTTCGATGGTATATTTCTTGGCTTGACCAGTCTCAACACATTTAAATGGC
444▶ L E K L L Y L D I S Y T N T K I D F D G I F L G L T S L N T L K M A
2001 TGGCAATCTTTCAAAGACAACACCTTTCAAATGTCTTTGCAACACAACAACTTGACATTCCTGGATCTTTCAAATGTCAATTGGAACAATATCT
477▶ G N S F K D N T L S N V F A N T T N L T F L D L S K C Q L E Q I S

PvuII (2187)
2101 TGGGGGTATTTGACACCCTCCATAGACTTCAATTATTAATATGAGTCAACAATCTATTGTTTTGGATTCAATCCATTATAACAGCTGTATTCCC
511▶ W G V F D T L H R L Q L L N M S H N N L L F L D S S H Y N Q L Y S
2201 TCAGCACTCTTGATTGAGTTTCAATCGCATAGAGACATCTAAAGGAATCTGCAACATTTTCAAAGAGTCTAGCCTTCTCAATCTTACTAATAATTC
544▶ L S T L D C S F N R I E T S K G I L Q H F P K S L A F F N L T N N S
2301 TGTGCTTGTATATGTAACATCAGAAATTCCTGCAGTGGTCAAGGACAGAAGCAGTTCTTGGTGAATGTTGAACAATGACATGTGCAACACCTGTA
577▶ V A C I C E H Q K F L Q W V K D Q K Q F L V N V E Q M T C A T P V

BsrGI (2449)
2401 GAGATGAATACCTCCTTAGTGTGGATTTAATAATTCTACCTGTTATATGTACAAGACAATCATCAGTGTGTGAGTGGTGTGATTGTGGTATCCA
611▶ E M N T S L V L D F N N S T C Y M Y K T I I S V S V V S V I V V S

Ppu10I (2587) **NsiI (2587)**
2501 CTGTAGCATTCTGATATACCATTCTATTTTACCTGATACTTATTGCTGGCTGTA AAAAGTACAGCAGAGGAGAAAGCATCTATGATGCATTTGTGAT
644▶ T V A F L I Y H F Y F H L I L I A G C K K Y S R G E S I Y D A F V I

XhoI (2603)
2601 CTACTCGAGTCAGAAATGAGGACTGGGTGAGAAATGAGCTGGTAAAGAATTTAGAAGAAGGAGTGCCCGCTTTTACCTCTGCCTTCACTACAGAGACTTT
677▶ Y S S Q N E D W V R N E L V K N L E E G V P R F H L C L H Y R D F
2701 ATTCCTGGTGTAGCAATTGCTGCCAATATCATCAGGAAGVCTTCCACAAGAGCCGGAAGGTTATTGTGGTAGTGTCTAGACACTTTATTTCAGAGCCGTT
711▶ I P G V A I A A N I I Q E G F H K S R K V I V V S R H F I Q S R
2801 GGTGATCTTTGAATATGAGATTGCTCAACATGGCAGTTTCTGAGCAGCACTCTGGCATCATCTTCTTGTCTTGTGAGAAGGTTGAGAAGTCCCTGC
744▶ W C I F E Y E I A Q T W Q F L S S H S G I I F I V L E K V E K S L
2900 TGAGGCAGCAGGTGGAATTGATCGCCTTCTAGCAGAAACACCTACCTGGAATGGGAGGACAATCCTCTGGGAGGCACATCTTCTGGAGAAGACTTAA
777▶ L R Q Q V E L Y R L L S R N T Y L E W E D N P L G R H I F W R R L K

3000 AAATGCCCTATTGGATGAAAAAGCCTCGAATCCTGAGCAAACAGCAGAGGAAGAACAAGAAACGGCAACTTGGACCGGATCCTATCCCTATGATGTGCCA
810▶ N A L L D G K A S N P E Q T A E E E Q E T A T W T G S Y P Y D V P

BamHI (3075)

NdeI (3115) MscI (3178)

3100 GACTATGCTGGCTATCCATATGATGTTCTGATTATGCTGGATACCCTTATGATGTGCCAGACTATGCCTAAAGCTAGCTGGCCAGACATGATAAGATAC
844▶ D Y A G Y P Y D V P D Y A G Y P Y D V P D Y A •

NheI (3172)

3200 ATTGATGAGTTTGGACAAACCACAACCTAGAATGCAGTGAATAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCT

HpaI (3310)

3300 GCAATAAACAAAGTTAACAAACAATTGCATTCATTTTATGTTTCAGGTTTCAGGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAAACCTCTACAAATG

EcoRI (3406)

3400 TGGTATGGAATTCATAAATACAGCATAGCAAACCTTTAACCTCCAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAG
▶ ◀

3500 GGGCTGTTGCCAATGTGCATTAGCTGTTGCAGCCTCACCTTCTTTATGAGGTTAAGATATAGTGTATTTTCCAAGGTTTGAAGTACTAGCTCTTCATTT

SspI (3645) SwaI (3659)

3600 CTTTATGTTTTAAATGCACTGACCTCCACATTCCTTTTATGAAAATATTCAGAAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTTAT

EcoO109I (3720)

3700 TAGGCAGAATCCAGATGCTCAAGGCCCTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGAACCTTTAATAGAAATTGGACAGCAAGA

3800 AAGCGAGCTTCTAGCTTTAGTTCCTGGTACTTGAGGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCCATTCATCTCAATGAGCACAAGCA
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

SacI (3920) BstXI (3949)

3900 GTCAGGAGCATAGTCAGAGATGAGCTCTGACATGCCACAGGGGCTGACCACCCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCTGACAGCC
113▶ 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 A

StuI (4084)

4000 ACAATGGTGTCAAAGTCTTCTGCCCCTGGTCTCACAGCAGACCCAATGGCAATGGCTTCCAGCACAGACAGTGACCCTGCCAATGTAGGCCTCAATGTGGA
79▶ 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 H V

4100 CAGCAGAGATGATCTCCAGTCTTGGTCTGATGGCCGCCGACATGGTGTCTGTTGCTCATAGAGCATGGTGTCTTCTCAGTGGCGACCTCCAC
46▶ 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 V

BspHI (4234) AseI (4292)

4200 CAGCTCCAGATCCTGCTGAGAGATGTTGAAGTCTTCATGATGGCCCTCTATAGTGAGTCGTATTATACTATGCCGATATACTATGCCGATGATTAAT
13▶ L E L D Q Q S I N F T K M ◀

SacI (4349)

4300 GTCAAACAGCGTGGATGGCGTCTCCAGC T TATCTGACGGTTCATAAACGAGCTCTGCTTATATAGACCTCCACCCTACACGCCCTACCGCCATTGG

SpeI (4447)

4399 CGTCAATGGGGCGGAGTTGTTACGACATTTTGGAAAGTCCCGTTGATTTACTAGTCAAAACAAACTCCATTGACGTCAATGGGGTGGAGACTTGAAAA

SnaBI (4575)

4498 TCCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTACTGCCAAGTA

NdeI (4680)

4598 GGAAAGTCCATAAGGTCATGTACTGGGCATAATGCCAGCGGGCCATTTACCGTCATTGACGTCAATAGGGGGCTACTTGGCATATGATACACTTGAT
4698 GTACTGCCAAGTGGGCAGTTTACCGTAAATACTCCACCATTGACGTCAATGGAAAGTCCCTATTGGCGTTACTATGGAAACATACGTCAATTATTGACGT

SdaI (4858) PaeI (4866)

4798 CAATGGGCGGGGTCTGTTGGGCGGTGAGCCAGGCGGGCCATTTACCGTAAAGTTATGTAACGCTTGCAGGTTAA TTAAGAACATGTGAGCAAAAGGCCA
4896 GCAAAAGGCCAGGAACCGTAAAAAGCCGCTTGGTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGG
4996 TGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTTCCCTGGAAGCTCCCTCGTGGCTCTCTGTTCCGACCCTGCCGTTACCGGATACCTGT

ApaLI (5190)

5096 CCGCCTTTCTCCCTCGGGAAGCGTGGCGCTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCCAAGCTGGGCTGTGTGCA
5196 CGAACCCCCGTTGACGCCGACCCTGCGCTTATCCGGTAACTATCGTCTTGTAGTCCAAACCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACT
5296 GGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTCTTGAAGTGGTGGCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCT
5396 CGGCTCTGCTGAAGCCAGTTACCTTCGAAAAAGAGTTGGTAGCTCTTGTATCCGGCAAACAAACCACCCTGGTAGCGGTGGTTTTTTTGTGTTGCAAGCA
5496 GCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGGAAACGAAAACCTCACGTTAAGGGATTTTG

EagI (5626)

PaeI (5606) SwaI (5615) NotI (5625)

5596 GTCATGGCTAGTTAATTAACATTTAAATC AGCGGCCGCAATAAAATATCTTTATTTTATTACATCTGTGTGTTGTTTTTGTGTGAATCGTAACTAA
5695 CATACGCTCTCCATCAAAACAAAACGAAACAAAACAAACTAGCAAAATAGGCTGTCCCAGTGAAGTGCAGGTGCCAGAACATTTCTCTATCGAA