



PvuI (7)
SgfI (6)
1 GGATCTGCGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCCGAGAAGTTGGGGGAGGGGTCGGCAATTGAACGGGTGCCTA

101 GAGAAAGTGGCGCGGGTAAACTGGAAAAGTGTGCTGTACTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

Psp1406I (203) **PvuII (239)** **Bsu36I (291)**
201 GTGAACGTTCTTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCCTTCACGGCCGCCCTACCTGAGGCC

301 GCCATCCACGCCGGTTGAGTCGCGTTCTGCCGCTCCCGCTGTGGTGCTCCTGAACTGCGTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMIV (441)
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCTCAACTCTACGCTTTTGTTCGTTT

BstEII (555)
AgeI (552) **NcoI (560)**
501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGGCGCTACCTGAGATCACCGTCACCATGGGGGAAGCAGAGAAGTTTCACTACATCTATAGTTG

EcoRV (607) **BbsI (679)**
601 TGACCTGGATATCAACGTCCAGCTTAAGATAGGAAGCTTGGAAAGGGAAGAGAGAACAAAAGAGTTATAAAGCTGTCTGGAAGACCAATGTTGAAGTTC

13▶ D L D I N V Q L K I G S L E G K R E Q K S Y K A V L E D P M L K F

701 TCAGGACTATATCAAGAGACATGCTCTGATCTTTATGTTACTTGTCAAGTTTTTGAGAAGGGAAGCCTTTGGCCTTGCCAGTGAGAACATCTACAAAG

47▶ S G L Y Q E T C S D L Y V T C Q V F A E G K P L A L P V R T S Y K

801 CATTTAGTACAAGATGGAAGTGAATGAATGGCTGAACTACCAGTAAAATACCCTGACCTGCCAGGAATGCCAAGTGGCCCTCACCATATGGGATGT

80▶ A F S T R W N W N E W L K L P V K Y P D L P R N A Q V A L T I W D V

NsiI (979)
901 GTATGGTCCGGAAAAGCAGTGCCTGTAGGAGGAACAACGGTTTCGCTCTTTGAAAAATACGGCATGTTTCGCAAGGGATGCATGACTTGAAAGTCTGG

113▶ Y G P G K A V P V G G T T V S L F G K Y G M F R Q G M H D L K V W

1001 CCTAATGTAGAAGCAGATGGATCAGAACCCACAAAACTCCTGGCAGAACAAGTAGCACTCTCTCAGAAGATCAGATGAGCCGCTTTGCCAAGCTCACCA

147▶ P N V E A D G S E P T K T P G R T S S T L S E D Q M S R L A K L T

1101 AAGCTCATCGACAAGGACACATGGTAAAAGTAGATTGGCTGGATAGATTGACATTTAGAGAAATAGAAATGATAAATGAGAGTGAAAAACGAAAGTTCTAA

180▶ K A H R Q G H M V K V D W L D R L T F R E I E M I N E S E K R S S N

1201 TTTTCATGTACCTGATGGTTGAATTTTCGATGTGTCAAGTGTGATGATAAGGAATATGGTATTGTTTATTATGAAAAGGACGGTGTGAATCATCTCCAATT

213▶ F M Y L M V E F R C V K C D D K E Y G I V Y Y E K D G D E S S P I

1301 TTAACAAGTTTTGAATTAGTGAAGTTCCTGACCCCAAGATGTCTATGGAGAAATTTAGTTGAGAGCAACACCACAAGCTTGCCCGGAGTTTAAAGAAGTG

247▶ L T S F E L V K V P D P Q M S M E N L V E S K H H K L A R S L R S

SspI (1450)
1401 GACCTTCTGACCAGATCTGAAACCCAATGCTGCCACGAGAGATCAGTTAAATATTATTGTGAGTTATCCACCAACCAAGCAACTTACATATGAAGAACA

280▶ G P S D H D L K P N A A T R D Q L N I I V S Y P P T K Q L T Y E E Q

BglII (1500) **XcmI (1595)**
1501 AGATCTTGTGGAAAGTTTGTAGATATTATCTTACGAATCAAGAAAAAGCCTTGACAAAAATCTTGAATGTGTTAATTGGGATCTACCTCAAGAGGCCAAA

313▶ D L V W K F R Y Y L T N Q E K A L T K F L K C V N W D L P Q E A K

StuI (1601) **SfiI (1593)**
1601 CAGGCCTTGAACCTTCTGGGAAAATGGAAGCCGATGGATGTAGAGACTCCTTGGAGCTGTTATCCTCTCATTACCAACCAACTGTGAGGCGTTATG

347▶ Q A L E L L G K W K P M D V E D S L E L L S S H Y T N P T V R R Y

1701 CTGTTGCCCGTTGCGACAGGCCGATGATGAGGATTTGTTGATGTACCTATTACAATTTGGTCCAGGCTCTCAAATATGAAAATTTTGTGATATAAAGAA

380▶ A V A R L R Q A D D E D L L M Y L L Q L V Q A L K Y E N F D D I K N

1801 TGATTGGAACCTACCAAGAAGGATAGTCAGAGTTCAGTGTGACAAAAATGTGCAAAATCTGGAATAAATCTGCAGAAATAGATAGCTCCAAAATTATA

413▶ G L E P T K K D S Q S S V S E N V S N S G I N S A E I D S S Q I I

BglII (1980) **EcoRV (1998)**
1901 ACCAGCCCCCTTCTTACAGTCTTTCACCTCCTCTGCATCAAAAACAAAAGAAGTTCAGATGGCGAAAATCTGGAACAAGATCTCTGTACCTTCTTGA

447▶ T S P L P S V S S P P P A S K T K E V P D G E N L E Q D L C T F L

2001 TATCGAGAGCCTGCAAAAACCAACTGGCTAATTATTTACTGGTATGTGATAGTGAAGTGTGAAGATCAAGATACTCAGCAGAGAGATCCAAAGAC

480▶ I S R A C K N S T L A N Y L Y W Y V I V E C E D Q D T Q Q R D P K T

2101 CCATGAGATGACTTGAACGTAATGAGAAGATTCAGCCAAGCATTGTTGAAGGGTATAAGTCTGTCAGAGTTATGCGTTCTTTGCTGGCTGCACAACAG

513▶ H E M Y L N V M R R F S Q A L L K G D K S V R V M R S L L A A Q Q

2201 ACATTTGTAGATCGGTTGGTGCATCTAATGAAGGCAGTACAACGCGAAAGTGGAAATCGTAAGAAAAAGAATGAGAGACTACAGGCATTGCTTGGAGATA

547▶ T F V D R L V H L M K A V Q R E S G N R K K K N E R L Q A L L G D

BspEI (2376)
2301 ATGAAAAGATGAATTTGTGAGATGTGGAACCTATCCCCTTGCCTTTAGAACCCCAAGTAAAATAGAGGAATAATCCGGAACAGCTACACTGTTTAA

580▶ N E K M N L S D V E L I P L P L E P Q V K I R G I I P E T A T L F K

2401 AAGTGCCCTTATGCCTGCACAGTTGTTTTTAAAGCAGGAAGATGGAGGCAAAATATCCAGTTATATTTAAGCATGGAGATGATTTACGTCAGATCAACTT

613▶ S A L M P A Q L F F K T E D G G K Y P V I F K H G D D L R Q D Q L

2501 ATCTTCAAATCATTTCACTCATGGACAAGCTGTTACGGAAAGAAAATCTGGACTTGAATTTGACACCTTATAAGGTGTTAGCCACCAGTACAAAACATG

647▶ I L Q I I S L M D K L L R K E N L D L K L T P Y K V L A T S T K H

2601 GCTTCATGCAGTTTATCCAGTCAAGTTCCTGTGGCTGAAAGTCTTGTATACAGAGGGAAGCATTGAGAACTTTTTAGAAAATATGCACCAAGTGAAGTGG

680▶ G F M Q F I Q S V P V A E V L D T E G S I Q N F F R K Y A P S E N G

2701 GCCAAATGGGATTAGTGTGCTGAGGTCATGGACACTTACGTTAAAAGCTGTGCTGGATATTGCGTGATCACCTATATACTTGGAGTTGGAGACAGGCACCTG
713▶ P N G I S A E V M D T Y V K S C A G Y C V I T Y I L G V G D R H L

XcmI (2835) BamHI (2865)

2801 GATAACCTTTTGTCTAACAAAAACAGGCAAACTCTCCACATAGACTTTGGATATATTTTGGTCCGATCCAAAGCCTTCTCCACCAATGAAGCTGA
747▶ D N L L L T K T G K L F H I D F G Y I L G R D P K P L P P P M K L

2901 ATAAAGAAATGGTAGAAGGAATGGGGGACACAGAGTGAGCAGTACCAAGAGTTCCGTAAACAGTTACACGGCTTCTCCACCTGCGAAGGTATTC
780▶ N K E M V E G M G G T Q S E Q Y Q E F R K Q C Y T A F L H L R R Y S

3001 TAATCTGATTTTGAACCTGTTTCTTGTGTTGATGCAAACATTCCAGATATTGCACCTGAACCAGATAAACTGTAAAAAGGTTCCAGGATAAATTC
813▶ N L I L N L F S L M V D A N I P D I A L E P D K T V K K V Q D K F

BstAPI (3129)

3101 CGCTTAGACCTGTCCGATGAAGAGGCTGTGCATTACATGCAGAGTCTGATTGATGAGAGTGTCCATGCTCTTTTTGCTGCAGTGGTGAACAGATTACA
847▶ R L D L S D E E A V H Y M Q S L I D E S V H A L F A A V V E Q I H

ScaI (3209) NheI (3246) MscI (3252)

3201 AGTTTGCCAGTACTGGAGAAAAATGAACTGGGATTGACCCATCAAGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGGACAAACCACAAC
880▶ K F A Q Y W R K •

HpaI (3384)

3301 AGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACCAAGTTAACAAACAACAA
T

EcoRI (3480)

3401 GCATTCATTTTATGTTTCAGGTTTCAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAACCTCTACAAATGTGGTATGGAATCTAAAATACAGCATA
T

3501 GCAAACTTTAACCTCCAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGT
T

SapI (3662)

3601 TTGCAGCCTCACCTTCTTTTCATGGAGTTAAGATATAGTGTATTTTCCAAGTTTGAAGTCTCTTCATTTCTTTATGTTTTAAATGCACTGACCTCC
T

SspI (3719) SwaI (3733) EcoO109I (3794)

3701 CACATTCCTTTTTAGTAAAATATTCAGAAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTTATTAGGCAGAATCCAGATGCTCAAGGCC
C

3801 TTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGAACCTTTAATAGAAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCCTGG
141◀ • N R T

SacI (3994)

3901 TGTACTTGAGGGGATGAGTTTCTCAATGGTGGTTTTGACCAGCTTGCATTCTCAATGAGCACAAGCAGTCAGGAGCATAGTCAGAGATGAGCTC
137◀ 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 P A Y D S I L E

BstXI (4023)

4001 TCTGCACATGCCACAGGGGCTGACCACCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCG
104◀ R C M G C P S V V R I S R D V E D S Y P H R V A V I T D F D K Q G

StuI (4158)

4101 TTGCTCACAGCAGACCAATGGCAATGGCTTCAACAGACAGAGTACCCTGCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCAGTCTTGG
70◀ 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 S I I E G T K T

4201 TCCTGATGGCCGCCCCGACATGGTGCTTGTTCCTCATAGAGCATGGTATCTTCTCAGTGGCGACCTCCACCAGCTCCAGATCCTGCTGAGAGATGT
37◀ 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 E L D Q Q S I N

BbsI (4304) AseI (4366)

4301 GAAGTCTTCATGGTGGCCCTCTATAGTGAGTCGTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCA
4◀ F T K M

SacI (4423)

4401 GCTTATCTGACGGTTCACTAAACGAGCTCTGCTTATATAGACCTCCACCCTACACGCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTTACGACAT
T

SpeI (4521)

4501 TTTGAAAGTCCCCTGTTGATTTACTAGTCAAAAACAACTCCCATGACGTCAATGGGGTGGAGACTTGGAAATCCCCTGAGTCAAACCGCTATCCACGCC
T

SnaBI (4649)

4601 CATTGATGTAAGTCCAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTAAGTCCCAAGTAGGAAAGTCCCATAGGTCATGTAAGTGGC
T

4701 ATAATGCCAGGCGGGCCATTTACCGTCAATGACGTCAATAGGGGGCTACTTGGCATATGATACACTTGTACTGCAAGTGGGAGTTTACCGTAAA
T

4801 TACTCCACCCATTGACGTCAATGAAAGTCCCTATTGGCGTACTATGGGAACATACGTCAATTATTGACGTCAATGGGGGGGGTCTTGGGCGGTGAGC
T

PacI (4940) SdaI (4932) BspLU11I (4950)

4901 CAGGCGGGCCATTTACCGTAAGTTATGTAACGCTGCAGGTTAAATAAGAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGGCCGG
T

5001 TTGCTGGCGTTTTTCCATAGGCTCCGCCCTGACGAGCATCAGCAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACC
T

5101 AGGCGTTTTCCCTGGAAGTCCCTCGTGCCTCTCTGTTCCGACCTGCCGCTTACCGGATACCTGTCGCTTTCTCCCTTCGGGAAGCGTGGCGCT
T

ApaLI (5264)

5201 TTCTCATAGCTCAGCTGTAGGTATCTCAGTTCGGTGTAGGTGTTGCTCCAAGCTGGGCTGTGTGCACGAACCCCGTTCCAGCCGACCGCTGCGCC
T

5301 TTATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAG

5401 GCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAA

5501 AAGAGTTGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGGTTTTTTGTTTGAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAA

5601 GAAGATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGGAAACGAAACTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATCAG

PacI (5680) SwaI (5689) NotI (5699)

EagI (5700)

5701 CGGCCGCAATAAAATATCTTTATTTTCATTACATCTGTGTGTTGGTTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAACAAAACGAAACAA

5801 AACAACTAGCAAATAGGCTGTCCCCAGTGAAGTGCAGGTGCCAGAACATTTCTCTATCGAA