



PvuI (7) SgfI (6) MfeI (82)
 1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGTGCCTA
 101 GAGAAGGTGGCGCGGGTAAACTGGAAAGTGATGTCGTGACTGGTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

HindIII (245) Psp1406I (203) PvuII (239) Bsu36I (291)
 201 GTGAACGTTCTTTTTTCGCAACGGGTTTGGCCGAGAACACAGCTGAAGCTTCGAGGGGCTCGCATCTCTCTTACACGCCGCCGCCCTACCTGAGGCC
 301 GCCATCCACGCCGGTTGAGTGCAGTCTGCCGCCTCCCGCCTGTGGTGCTCTGAACTGCGTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMIV (441)
 401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCAACTCTACGCTTTTGTTCGTTT

MluI (558)
 501 TCTGTTTCTGCGCCGTTACAGATCCAAGCTGTGACCGGCGCCTACCTGAGATCACCGGGACGCGTCAACATGTGCTCCTCAGAAGCTAACCATCTCTGTGT
 601 TGCCATCGTTTTGCTGGTGTCTCCACTCATGGCCATGTGGGAGCTGGAGAAAGACGTTTATGTTGAGAGGTGGACTGGACTCCCGATGCCCTGGAGAA
 11▶ A I V L L V S P L M A M W E L E K D V Y V V E V D W T P D A P G E
 701 ACAGTGAACCTCACCTGTGACACGCCTGAAGAAGTATGACATCACCTGGACCTCAGACCAGAGACATGGAGTATAGGCTCTGAAAGACCTGACCATCA
 45▶ T V N L T C D T P E E D D I T W T S D Q R H G V I G S G K T L T I

XbaI (813)
 801 CTGTCAAAGATTTCTAGATGCTGGCCAGTACACCTGCCACAAAGGAGGCGAGACTCTGAGCCACTCACATCTGCTGCCACAAGAAGAAAATGGAAT
 78▶ T V K E F L D A G Q Y T C H K G G E T L S H S H L L L H K K E N G I

BspEI (967) BbrPI (978)
 901 TTGGTCCACTGAAATTTTAAAAATTTCAAAAAAAGACTTTCTGAAGTGTGAAGCACAAATTAAGTCCGGACGGTTCACGTGCTCATGGCTGGTGCAA
 111▶ W S T E I L K N F K N K T F L K C E A P N Y S G R F T C S W L V Q
 1001 AGAAACATGGACTTGAAGTTCAACATCAAGAGCAGTAGCAGTTCCTGACTCTCGGGCAGTGACATGTGAATGGCGTCTCTGTCTGCAGAGAAGGTCA
 145▶ R N M D L K F N I K S S S S S P D S R A V T C G M A S L S A E K V
 1101 CACTGGACCAAAGGACTATGAGAAGTATCAGTGTCTGCCAGGAGGATGTACCTGCCAACTGCCGAGGAGACCCCTGCCATTGAACCTGGCGTTGGA
 178▶ T L D Q R D Y E K Y S V S C Q E D V T C P T A E E T L P I E L A L E
 1201 AGCACGGCAGCAGAATAAATATGAGAACTACAGACCAGCTTCTTTCATCAGGGACATCATCAACCAGACCCGCCAAGAAGTTCAGATGAAGCCTTTG
 211▶ A R Q Q N K Y E N Y S T S F F I R D I I K P D P P K N L Q M K P L

PvuII (1320) BstBI (1382) Bsp119I (1382)
 1301 AAGAACTCACAGGTGGAGGTGAGTGGGAGTACCTGACTCCTGGAGCACTCCCACTTCTACTTCTCCCTCAAGTCTTTGTTGCAATCCAGCGCAAGA
 245▶ K N S Q V E V S W E Y P D S W S T P H S Y F S L K F F V R I Q R K
 1401 AAGAAAAGATGAAGGAGACAGAGGAGGGGTGTAACCAGAAAGTGCCTCCTCGTAGAGAAGACATCTACCGAAGTCCAAATGCAAAGCGGGAATGTCTG
 278▶ K E K M K E T E E G C N Q K G A F L V E K T S T E V Q C K G N V C

PvuI (1567) Acc65I (1587)
 1501 CGTGCAAGCTCAGGATCGCTATTACAATCCTCATGCAGCAAGTGGGCATGTGTTCCCTGCAGAGTCCGATCGGTTCTGGAGTAGGGGTACCTGGAGTG
 311▶ V Q A Q D R Y Y N S S C S K W A C V P C R V R S V P G V G V P G V

AgeI (1611)
 1601 GGCAGGGTCAATCCGGTCTCTGGACCTGCCAGGTGCTTAGCCAGTCCCGAAACCTGCTGAAGACCACAGATGACATGGTGAAGACGCCAGAGAAAAG
 345▶ G R V I P V S G P A R C L S Q S R N L L K T T D D M V K T A R E K

BspHI [m] (1732) ClaI (1729)
 1700 CTGAAACATTATTCTGCACTGCTGAAGACATCATGAAGACATCACACGGGACCAACCAGCACATTGAAGACCTGTTTACCCTGGAACCTACACA
 378▶ L K H Y S C T A E D I D H E D I T R D Q T S T L K T C L P L E L H
 1800 AGAACGAGAGTTGCTGGCTACTAGAGACTTCTTCCACAACAAGAGGGAGTGCCTGCCCCACAGAAGACGCTTTTATGATGACCTGTGCCTTGG
 411▶ K N E S C L A T R E T S S T T R G S C L P P Q K T S L M M T L C L G

XbaI (1986) SphI (1997)
 1900 TAGCATCTATGAGACTTGAAGATGTACAGACAGAGTTCAGGCCATCAACGCAGCACTTCAAGATCACAACCATCAGCAGATCATTCTAGACAAGGGC
 444▶ S I Y E D L K M Y Q T E F Q A I N A A L Q N H N H Q Q I I L D K G

ClaI (2011)
 2000 ATGCTGGTGGCCATCGATGAGCTGATGCAGTCTCTGAATCATAATGGCGAGACTCTGCGCCAGAAACCTCCTGTGGGAGAAGCAGACCCTTACAGAGTGA
 478▶ M L V A I D E L M Q S L N H N G E T L R Q K P P V G E A D P Y R V

NheI (2186)
 2100 AAATGAAGCTCTGCATCCTGCTTACGCCCTTACGACCCGCTGTGACCATCAACAGGGTGTGGGCTATCTGAGCTCCGCCTAAAGCTAGCTGGCCAG
 511▶ K M K L C I L L H A F S T R V V T I N R V M G Y L S S A •

HpaI (2324) MfeI (2335)
 2300 AACCATTAAGCTGCAATAAACAAGTTAAACAACAACAATTGCATTCATTTTATGTTTCAGGTTACAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAA

EcoRI (2420)
 2400 AACCTCTACAAATGTGGTATGGAATTCTAAAAATACAGCATAGCAAACCTTAACTCCAAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAA
 2500 GGCATAGGCATCAGGGGCTTGCCTAATGTGCATTAGCTGTTGCAGCCTCACCTTCTTTCATGGAGTTAAGATATAGTGTATTTTCCCAAGGTTTGAA

SapI (2602) SspI (2659) SmaI (2673)
 2600 CTAGCTCTTCATTCTTTATGTTTTAAATGCACTGACCTCCACATTCCTTTTATGATAAAATATTCAGAAATAATTTAAATACATCATTGCAATGAAAA

EcoO109I (2734)

2700 TAAATGTTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTTAATAGAA

2800 ATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTTCTGGTGTACTTGAGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCCATTTCATCTCA
 141 • N R T Y K L P I L E E I T T K V L K G N M E

2900 ATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTGACATGCCACAGGGGCTGACCACCTGATGGATCTGTCCACCTCATCAGAGTAGG
 117 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 D S Y P

StuI (3098)

3000 GGTGCCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCGTTGCTCACAGCAGACCAATGGCAATGGCTTCAGCACAGACAGTGACCTGCCAATGTA
 84 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 R G I Y

3100 GGCCTCAATGTGGACAGCAGAGATGATCTCCCCAGTCTTGGTCTGATGGCCGCCGACATGGTGTGTTGCTCCTATAGAGCATGGTGATCTTCTCA
 51 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 I K E

XmnI (3240)

3200 GTGGCGACTCCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGTCTTCATGGTGGCCCTCTATAGTGAGTCGTATTATACTATGCCGATATACTAT
 17 T A V E V L E L D Q Q S I N F T K M

AseI (3306)

3300 GCCGATGATTAATTGTCAAACACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTTCCTAAACGAGCTCTGCTTATATAGACCTCCACCGTACACGCC

SpeI (3461)

3400 TACGCCCATTTGCGTCAATGGGCGGAGTTGTTACGACATTTTGAAAGTCCCCTGTTGATTTACTAGTCAAAAACAACTCCCATTGACGTCAATGGGGTG

SnaBI (3589)

3500 GAGACTTGAAATCCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATG

NdeI (3694)

3600 TACTGCCAAGTAGGAAAGTCCATAAGGTCATGTACTGGGCATAATGCCAGGCGGGCCATTTACCGTCATTGACGTCAATAGGGGGCGTACTTGGCATAT

3700 GATACACTTGATGTACTGCCAAGTGGGCAGTTTACCGTAAATACTCCACCATTGACGTCAATGGAAAGTCCCTATTGGCGTTACTATGGGAACATACGT

PacI (3880)

SdaI (3872)

3800 CATTATTGACGTCAATGGGCGGGGTCGTTGGCGGTGAGCCAGGCGGGCCATTTACCGTAAGTTATGTAACGCTGCAGGTTAAATTAAGAACATGTGAG
 141

3900 CAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGGCCGCTTGTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCAAAAAATCGACGCTC

4000 AAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTTCCCTGGAAGCTCCCTCGTGCCTCTCCTGTTCCGACCTGCCGTTACC

4100 GGATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTGGCGTTTTCTCATAGCTCACGCTGATAGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCCAAGCTGG

ApaLI (4204)

4200 GCTGTGTGCACGAACCCCGTTGACGCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGC

4300 AGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTA

4400 TTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAACACCGCTGGTAGCGGTGTTTTTTTG

4500 TTTGCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGGAAACGAAAACCTCACGTTA

EagI (4640)

NotI (4639)

PacI (4620) SwaI (4629)

4600 AGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATCAGCGCCGCAATAAAATATCTTTATTTTCATTACATCTGTGTGGTTTTTTGTGTGAAT

4700 CGTAACTAACATACGCTCTCCATCAAAACAAAACGAAACAAAACAACTAGCAAAATAGGCTGTCCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTA

4800 TCGAA