



150

PvuI (7)
SgfI (6) 1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA
MfeI (82) EcoNI (96)

101 GAGAAGGTGGCGCGGGTAAACTGGAAAGTGATGTCGTGTAAGTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

Bsu36I (291)
Psp1406I (203) **PvuII (239)** EcoNI (287)
201 GTGAACGTTCTTTTTTCGCAACGGGTTTGGCCGAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCTTACAGCGCCCGCCGCTACCTGAGGCC
301 GCCATCCACGCGGTTGAGTCGCGTTCTGCCGCTCCCGCCTGTGGTGCCTCTGAACTGCGTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMIV (441)
NgoMI (441)
NaeI (441)
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCGTGACCCTGCTTGGCTCAACTCTACGCTTTTGTTCGTTT

KasI (535) **AgeI (552)** **BspHI (560)**
501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGCGCCTACCTGAGATCACCGGTCATCATGAGGGTCTGTGGGTGTTGGGCCTCTGCTGTGCCT
1 M R V L W V L G L C C V L

Sall (634)
601 GCTGACCTTCGGGTTTCGTGAGAGCTGATGATGAAGTCGACGTGGATGGCACAGTGAAGAGGACCTGGGTAAGCCGAGAAAGGCTCAAGGACAGATGAT
13 L T F G F V R A D D E V D V D G T V E E D L G K S R E G S R T D D
701 GAAGTTGTGACAGAGAGGAAGAAGCTATTCAGTTGGATGGGTTAAACGCATCACAGATAAGAGAAGCTTAGAGAAAACTGAAAAAGTTCCGCTTCCAAG
47 E V V Q R E E E A I Q L D G L N A S Q I R E L R E K S E K F A F Q
801 CTGAAGTGAACAGGATGATGAACTTATCATCAATTCTTTGTATAAAAAATAAGAGATTTTCTGAGAGAAGCTGATTTCAAATGCTTCTGATGCTTTAGA
80 A E V N R M M K L I I N S L Y K N K E I F L R E L I S N A S D A L D

HpaI (954)
901 CAAGATAAGGCTCATCTCCCTAACTGATGAAAAATGCACTCGCTGGAAATGAGGAGTTAACGGTCAAGATTAAGTGTGACAAAGAGAAAAACCTGCTGCAT
113 K I R L I S L T D E N A L A G N E E L T V K I K C D K E K N L L H
1001 GTCACAGACACGGGTGTAGGAATGACTAGAGAGAGTTGGTAAAAATCTCGGCACCATAGCCAAATCTGGAACAAGCGAGTTTTTAAACAAAATGACAG
147 V T D T G V G M T R E E L V K N L G T I A K S G T S E F L N K M T
1101 AAGCTCAAGAAGATGGTCAGTCAACCTCTGAACTGATTGGCCAGTTTGGTGTCCGGTTTTATTCTGCCTTCTTGTAGCAGATAAGGTCATTGTCACATC
180 E A Q E D G Q S T S E L I G Q F G V F Y S A F L V A D K V I V T S

EcoRI (1246)
1201 GAAACACAACAATGATACCCAGCACATCTGGGAATCAGACTCCAATGAATTCTCTGTAATTGCTGACCAAGAGGAAACACACTAGGTCGTGGAACAACA
213 K H N N D T Q H I W E S D S N E F S V I A D P R G N T L G R G T T

ScaI (1370)
1301 ATTACTCTGTCTTAAAAAGAAGAAGCATCTGATTACCTTGAATTGGACACAATAAAAATCTTGTGAGAAAGTACTCTCAGTTCATCAACTTTCCCATCT
247 I T L V L K E E A S D Y L E L D T I K N L V R K Y S Q F I N F P I
1401 ACGTGTGGAGTAGCAAGACAGAGACTGTTGAGGAGCCCTTGAAGAAGATGAAGCAGCAAAAAGAGAAAGAAGAATCTGATGATGAAGCTGCAGTAGA
280 Y V W S S K T E T V E E P L E E D E A A K E E K E E S D D E A A V E

EcoRV (1573)
1501 GGAGGAAGAAGAAGAAAAGAAAACAAAACTAAGAAAGTTGAAAAAATGTGTGGGATTGGAACTTATGAATGATATCAAAACCAATATGGCAGAGACCA
313 E E E E E K K P K T K K V E K T V W D W E L M N D I K P I W Q R P

NcoI (1667)
1601 TCCAAAGAAGTAGAAGAAGACGAATACAAAGCTTTCTACAAATCATTTCAAAGGAAAGTGATGACCCATGGCTTATATCCACTTCACTGCAGAAGGGG
347 S K E V E E D E Y K A F Y K S F S K E S D D P M A Y I H F T A E G

BstEII (1701) **XhoI (1742)**
1701 AGTACCTTCAAGTCGATTTTGTGTACCCACATCTGCACCTCGAGGCTGTGTTGATGAATATGGATCAAGAAGAGTGATTATATTAAGCTGATGT
380 E V T F K S I L F V P T S A P R G L F D E Y G S K K S D Y I K L Y V
1801 ACGCCGCTATTCACAGATGACTTCCATGATGATGACCCAAATACCTTAAATTTGTCAAAGGTGTTGGATTCGATGATCTCCCTCCATGTT
413 R R V F I T D D F H D M M P K A Y L N F V K G V V D S D D L P L N V
1901 TCCCGTGAGACTTTCAGCAACATAAATGCTCAAGGTGATTAGGAAGAAGCTTGTCCGAAAACTCTGGACATGATCAAGAAGATTGCTGATGAGAAGT
447 S R E T L Q Q H K L L K V I R K K L V R K T L D M I K K I A D E K
2001 ATAACGACACTTTCTGGAAGGAGTTCGGCACGAATATCAAGCTTGGTGTGATTGAAGACCACTCAAATCGAACCGGCTTGTAAACTTCTTAGGTTCCA
480 Y N D T F W K E F G T N I K L G V I E D H S N R T R L A K L L R F Q

SpeI (2125)
2101 GTCTTCTCACCATTCAACTGACATTACTAGTTTAGACCAGTATGTGGAAGAATGAAGAAAAACAGGACAAAATCTACTTCATGGCTGGGTCAAGCAGA
513 S S H H S T D I T S L D Q Y V E R M K E K Q D K I Y F M A G S S R
2201 AAGGAGGCGGAATCTCTCCATTTGTTGAGAGACTTCTGAAGAAGGCTATGAAGTCAATTTATCTCACAGAGCCTGTGGATGAATCTCAGCTCAGGCTC
547 K E A E A E S S P F V E R L L K K G Y E V I Y L T E P V D E A Y C I Q A
2301 TTCCCGAGTTTGTGGAAGAGGTTTTCAGAATGTTGCCAAAGAAGGGGTGAAGTTTGTGAGAGTGAGAAAACAAAAGAAAGTCCGGAAGCAACAGAGAA
580 L P E F D G K R F Q N V A K E G V K F D E S E K T K E S R E A T E K
2401 GGAGTTTGAACCTCTGCTCAACTGGATGAAGATAAGGCCCTCAAGGACAAGATGAAAAAGGCTGTGGTGTCCGAGCGCCTCACAGAGTCTCCCTGTGCT
613 E F E P L L N W M K D K A L K D K I E K A V V S Q R L T E S P C A

BspHI (2543)
2501 CTTGTGGCCAGTCAAGTATGGATGGTCTGGCAACATGGAGAGGATCATGAAGGCACAAGCATAACAGACGGGCAAGGACATCTTACAAATTAATATGCCA
647 L V A S Q Y G W S G N M E R I M K A Q A Y Q T G K D I S T N Y Y A

BstBI (2614)
AsuII (2614)
Psp1406I (2610) **BspLU1I (2648)**
2601 GTCAAAAGAAAACGTTTCAAATCAATCCTAGACACCCACTGATCAGAGACATGTTGCGGCGGATTAAGGAAGATGAAGATGACAAGACAGTCATGGATCT
680 S Q K K T F E I N P R H P L I R D M L R R I K E D E D D K T V M D L

2701 TGCTGTAGTTTTGTTTGAACCGGCAACACTTCGGTCAGGATATCTTCTACCAGACACCAAGGCGTATGGAGATAGAATAGAAAGAATGCTTCGCCCTCAGT
 713▶ A V V L F E T A T L R S G Y L L P D T K A Y G D R I E R M L R L S
 2801 TTAACATTGACCTGAAGCACAGGTGGAGGAAGAACCAGAAGAAGAGCCTGAAGACACCTCAGAAGACGCAGAAAGACTCAGAGCAGGATGAGGGAGAAG
 747▶ L N I D P E A Q V E E E P E E E P E D T S E D A E D S E Q D E G E

PmeI (2798)

2901 AGATGGATGCAGGGACAGAAGAAGAAGAGGAGGAAACAGAAAAGGAATCTACAGAGAAGGATGAATTGTAATTATACTCTCGCTATGAATCCCGTGTGG
 780▶ E M D A G T E E E E E E T E K E S T E K D E L •

3001 CTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGGACAAACCACAACACTAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTAT

HpaI (3137) MfeI (3148)

3101 TGCTTTATTTGTAACCATTATAAGCTGCAATAAACAAGTTAACAACAACAATTGCATTCATTTATGTTTCAGGTTTCAGGGGGAGGTGTGGGAGGTTTTT

EcoRI (3233)

3201 TAAAGCAAGTAAACCTCTACAAATGTGGTATGGAAATCTAAAATACAGCATAGCAAACTTTAACCTCAAATCAAGCCTCTACTTGAATCCTTTTCTG

3301 AGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTTGCAGCCTCACCTTCTTTCATGGAGTTAAGATATAGTGATTTTC

SspI (3472) SmaI (3486)

3401 CCAAGTTTGAAC TAGCTCTTCATTTCTTTATGTTTTAAATGCACTGACCTCCACATTCCTTTTTAGTAAAATATT CAGAAAATAATTTAAATACATCA

3501 TTGCAATGAAAATAAATGTTTTTTATTAGGCAGAAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGAA

3601 CCTTTAATAGAAATGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCTGGTGTACTTGGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTG

1441 • N R T Y K L P I L E E I T T K V L K

SacI (3747) BstXI (3776)

3701 CCATTCATCTCAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTCTGCACATGCCACAGGGGCTGACCACCTGATGGATCTGTCCACCT

121▶ 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 E

3801 CATCAGATAGGGGTGCAGCAGCACAAATGGTGTCAAAGTCTTCTGCCGTTGCTCACAGCAGACCAATGGCAATGGCTTCAGCACAGACAGTGAC

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 (3911) Eco147I (3911)

3901 CCTGCCAATGTAGCCTCAATGTGGACAGCAGATGATCTCCCACTTGGTCTGATGGCCGCCGACATGGTCTTGTGCTCATAGAGCATG

55▶ 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

BspHI (4061)

4001 GTGATCTTCTCAGTGGCGACCTCCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGTCTTTCATGATGGCCCTCTATAGTGAGTCGTATTATACTATG

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

VspI (4119) AseI (4119) SacI (4176)

4101 CCGATATACTATGCCGATGATTAATTGTCAAACAGCGTGATGGCGTCTCCAGCTTATCTGACGGTTCCTAAACGAGCTCTGCTTATATAGACCTCCC

SpeI (4274)

4201 ACCGTACACGCCTACCGCCATTTCGCTCAATGGGGCGGAGTTGTACGACATTTTGGAAAGTCCCGTTGATTTACTAGTCAAAAACAACTCCCATTGA

4300 CGTCAATGGGGTGGAGACTTGAAAATCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTACTGCCAAAACCGCATCATCATGGTAATAGCGATGAC

SnaBI (4402) Eco105I (4402)

4400 TAATACGTAGATGACTGCCAAGTAGGAAAGTCCATAAGGTCATGACTGGGCATAATGCCAGGCGGGCCATTTACCGTCATTGACGTCAATAGGGGGC

NdeI (4507)

4500 GTACTTGGCATATGATACACTTGATGACTGCCAAGTGGGCGAGTTTACCGTAAATACTCCACCATTGACGTCAATGGAAAGTCCCTATTGGCGTTACTA

SdaI (4685) PacI (4693)

4600 TGGGAACATACGTATTATTGACGTCAATGGGCGGGGTCGTTGGGCGGTCAGCCAGGCGGGCCATTTACCGTAAGTTATGTAACGCCCTGCAGGTTAA

BspLU111 (4703)

4698 TTAAGAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGGCCGCTTGTGGCGTTTTTCCATAGGCTCCGCCCTGACGAGCATCA

4798 CAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGCGTTTTCCCTGGAAGCTCCCTCGTGGCTCTCCTGTTCCG

4898 ACCCTGCCGTTACCGGATACCTGTCCGCTTTCTCCCTTGGGAAGCGTGGCGCTTTCTCATAGCTCAGCTGTAGGTATCTCAGTTCGGTGTAGGTGCG

ApaLI (5017)

4998 TTCGCTCAAAGCTGGGCTGTGTGCACGAACCCCGTTACGCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTTGAAGTGGTGGCTAACTACGGCTAC

5098 CTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGCGGTGCTACAGAGTCTTGAAGTGGTGGCTAACTACGGCTAC

5198 ACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTATCGGCAACAAACCACCGCTGGTA

5298 GCGGTGGTTTTTTTGTGTTGCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGCTGACGCTCAGTGAA

EagI (5453) NotI (5452)

5398 CGAAAACCTACGTTAAGGGATTTTGGTCTAGTTAATTAACATTTAAATC AGCGGCCGCAATAAAAATATCTTTATTTTATTACATCTGTGTGTTG

5498 GTTTTTTGTGTAATCGTAACTAACATACGCTCTCCATCAAAACAAAACGAAACAAAACAACTAGCAAAATAGGCTGTCCCGTGGCAAGTGCAGGTGC

5598 CAGAACATTTCTCTATCGAA