



125

PvuI (7)
SgfI (6) 1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA
MfeI (82)
101 GAGAAGGTGGCGGGGTAAGTGGAAAGTGATGTCGTGACTGGTCCGCCTTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

HindIII (245)
Psp1406I (203) 201 GTGAACGTTCTTTTTTCGCAACGGGTTTCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCTTACAGCGCCCGCCGCCCTACCTGAGGCC
PvuII (239)
Bsu36I (291)
301 GCCATCCACGCGGTTGAGTGCAGTCTGCCGCTCCCGCCTGTGGTGCCTCTGAAGTGCCTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMIV (441)
NgoMI (441)
NaeI (441)
401 GGGCCTTTGTCCGGCGCTCCCTTGGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCCTGACCCTGCTTGTCAACTCTACGCTTTTGTTCGTTT

KasI (535) 501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGCGCCTACCTGAGATCACCGGTCATGACATCGCGGAGATGGTTTACCCCAATATCACTGG
AgeI (552) 1► M T S R R W F H P N I T G
BspHI (560)
StuI (655)
Eco147I (655)
601 TGTGGAGGCAGAAAACCTACTGTTGACAAGAGGAGTTGATGGCAGTTTTTTGGCAAGGCCTAGTAAAAGTAACCTGGAGACTTCACACTTTCCGTTAGA
13► V E A E N L L L T R G V D G S F L A R P S K S N P G D F T L S V R
701 AGAAATGGAGCTGTCAACCATCAAGATTGAGAACTGGTACTATGACCTGTATGGAGGGGAGAAATTTGCCACTTTGGCTGAGTTGGTCCAGT
47► R N G A V T H I K I Q N T G D Y Y D L Y G G E K F A T L A E L V Q
801 ATTACATGGAACATCACGGGCAATTAAGAGAGAAGTGGAGATGTCATTGAGCTTAAATATCCTCTGAACTGTGAGATCCTACCTGTAAAGGTGGTT
80► Y Y M E H H G Q L K E K N G D V I E L K Y P L N C A D P T S E R W F

XcmI (981)
901 TCATGGACATCTCTGGAAGAAGCAGAGAAATTATTAAGTAAAAAGGAAAAATGGTAGTTTTTCTGTACGAGAGAGCCAGAGCCACCCTGGAGAT
113► H G H L S G K E A E K L L T E K G K H G S F L V R E S Q S H P G D

FspI (1013)
1001 TTTGTTCTTTCTGTGCGCACTGGTGATGACAAAAGGGGAGAGCAATGACGGCAAGTCTAAAGTGAACCATGTTATGATTGCTGTGAGAACTGAAATACG
147► F V L S V R T G D D K G E S N D G K S K V T H V M I R C Q E L K Y

BglIII (1134) 1101 ACGTTGGTGGAGGAGAACGGTTTGATTCTTTGACAGATCTTGTGGAACATTATAAGAAGAATCCTATGGTGGAAACATTGGGTACAGTACTACAACTCAA
180► D V G G G E R F D S L T D L V E H Y K K N P M V E T L G T V L Q L K
1201 GCAGCCCTTAACACGACTCGTATAAATGCTGCTGAAATAGAAAGCAGAGTTGAGAACTAAGCAAATAGCTGAGACCAGATAAAGTCAAAACAGGC
213► Q P L N T T R I N A A E I E S R V R E L S K L A E T T D K V K Q G
1301 TTTTGGAAAGAATTTGAGACACTACAACAACAGGAGTCAAACCTCTCTACAGCCGAAAAGAGGGTCAAAGGCAAGAAAAACAAAAATAGATATA
247► F W E E F E T L Q Q Q E C K L L Y S R K E G Q R Q E N K N K N R Y

BsiBI (1441)
BsaBI (1441)
1401 AAAACATCCTGCCCTTTGATCATACCAGGGTTGCTCTACAGATGGTGTATCCCAATGAGCCTGTTTCAGATTACATCAATGCAAAATATCATCATGCTGA
280► K N I L P F D H T R V V L H D G D P N E P V S D Y I N A N I I M P E
1501 ATTTGAAACCAAGTGCAACAATCAAGCCAAAAAGAGTTACATTGCCACACAAGGCTGCCTGCAAAACACGGTGAATGACTTTTGGCGGATGGTGTTC
313► F E T K C N N S K P K K S Y I A T Q G C L Q N T V N D F W R M V F

BspHI (1622)
1601 CAAGAAAACCTCCCGAGTGATTGTGATGACAACGAAAGAAGTGGAGAGAGGAAAGAGTAAATGTGTCAAATACTGGCCTGATGAGTATGCTCTAAAAGAAT
347► Q E N S R V I V M T T K E V E R G K S K C V K Y W P D E Y A L K E

BspHI (1740)
BsrBI (1736)
1701 ATGGCGTCATGCGTGTAGGAACGTCAAAGAAAGCGCGCTCATGACTATACGCTAAGAGAACCTAACTTTCAAAGGTTGGACAAGGGAATACGGAGAG
380► Y G V M R V R N V K E S A A H D Y T L R E L K L S K V G Q G N T E R

DraIII (1837)
1801 AACGGTCTGGCAATACCCTTTCCGACCTGGCCGACCGCGTCCAGCAGCCTGGGGCGTGCTGGACTTCTGGAGGAGGTGCCACATAAGCAG
413► T V W Q Y H F R T W P D H G G V P S D P G G V L D F L E E V H H K Q

PstI (1935)
1901 GAGAGCATCATGGATGCAGGGCCGGTCTGGTGCAGTGCAGTGTGAATTGGCCGACAGGGACGTTTCATTGTGATTGATATTCTTATTGACATCATCA
447► E S I M D A G P V V V H C S A G I G R T G T F I V I D I L I D I I
2001 GAGAGAAAAGTGTGACTGCGATATTGACGTTCCCAAAACATCCAGATGGTGCAGTCTCAGAGGTGAGGGATGGTCCAGACAGAAGCACAGTACCGATT
480► R E K G V D C D I D V P K T I Q M V R S Q R S G M V Q T E A Q Y R F

SspI (2191)
2101 TATCTATATGGCGGTCCAGCATTATATTGAAACTACAGCGCAGGATTGAAGAAGAGCAGAAAAAGCAAGAGGAAAGGGCACGAATATACAAATATTAAG
513► I Y M A V Q H Y I E T L Q R R I E E E Q K S K R K G H E Y T N I K

DraIII (2261)
2201 TATTCTAGCGGACCAGACGAGTGGAGATCAGAGCCCTCTCCGCTTGTACTCCAACGCCACCTGTGCAGAAATGAGAGAAGACAGTGTAGAGTCT
547► Y S L A D Q T S G D Q S P L P P C T P T P P C A E M R E D S A R V

MscI (2377)
XmnI (2328) 2301 ATGAAAACGTGGGCTGATGCAACAGCAGAAAAGTTTTCAGATGAGAAAACCTGCCAAAACCTCAGCACAGAGCTAGCTGGCCAGACATGATAAGATACAT
580► Y E N V G L M Q Q Q K S F R •
NheI (2371)
2401 TGATGAGTTTGGACAAACCAACTAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGC

HpaI (2509) MfeI (2520)
 2501 AATAAAACAAGTTAAACAACAACAATTGCATTCAATTTATGTTTCAGGTTTCAGGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAAACCTCTACAAATGTG

EcoRI (2605)
 2601 GTATGGAATTCTAAAATACAGCATAGCAAAACTTTAACCTCCAATCAAGCCTCTACTGAACTCTTTCTGAGGGATGAATAAGGCATAGGCATCAGGG

2701 GCTGTTGCCAATGTGCATTAGCTGTTTGACGCTCACCTTCTTTCATGGAGTTAAGATATAGTGATTTTCCAAGGTTTGAAGTAGCTCTTCATTTCT

SspI (2844) SwaI (2858)
 2801 TTATGTTTTAAATGCACTGACCTCCACATTCCCTTTTGTAGAAAATATTCAGAAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTTATTA

EcoO109I (2919)
 2901 GGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTTAATAGAAATTGGACAGCAAGAAA

3001 GCGAGCTTCTAGCTTTAGTTCCTGGTGTACTTGGAGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCCATTCATCTCAATGAGCACAAAGCAGT

1+1 • 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 D
 SacI (3119)
 3101 CAGGAGCATAGTCAGAGATGAGCTCTCTGCACATGCCACAGGGGCTGACCACCCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCTGACAGCCAC

112 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 V
 StuI (3283)
 Eco147I (3283)
 3201 AATGGTGTCAAAGTCTTCTGCCGTTGCTCACAGCAGACCCAATGGCAATGGCTTCAGCACAGACAGTGACCCTGCCAATGTAGGCCTCAATGTGGACA

79 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
 3301 GCAGAGATGATCTCCCAGTCTGGTCTGATGGCCGCCCGACATGGTGTCTGTTGCTCATAGAGCATGGTGATCTTCTCAGTGGCGACCTCCACCA

45 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 L
 BspHI (3433) VspI (3491)
 AseI (3491)
 3401 GCTCCAGATCCTGCTGAGAGATGTTGAAGTCTTCATGATGGCCCTCCTATAGTGAGTGTATTATACTATGCCGATATACTATGCCGATGATTAATTGT

12 E L D Q Q S I N F T K M
 SacI (3548)
 3501 CAAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTTCACTAAACGAGCTCTGCTTATATAGACCTCCACCGTACACGCCTACCGCCATTTCGCT

SpeI (3646)
 3601 CAATGGGGCGGAGTTGTTACGACATTTTGAAAGTCCCGTTGATTTACTAGTCAAAAACAACTCCATTGACGTCAATGGGGTGGAGACTTGAAATCC

SnaBI (3774)
 Eco105I (3774)
 3700 CCGTGAGTCAAACCCTATCCACGCCATTGATGTACTGCCAAAACCGCATCATCATGTAATAGCGATGACTAATACGTAGATGTACTGCCAAGTAGGA

NdeI (3879)
 3800 AAGTCCATAAGGTCATGTACTGGGCATAATGCCAGGCGGGCCATTTACCGTCATTGACGTCAATAGGGGGCGTACTTGGCATATGATACACTTGATGTA

3900 CTGCCAAGTGGGCAGTTTACCGTAAATACTCCACCCATTGACGTCAATGGAAAGTCCCTATTGGCGTTACTATGGGAACATACGTCAATTATTGACGTCAA

PstI (4058)
 SdaI (4057) PacI (4065) BspLU11I (4075)
 4000 TGGGCGGGGTCGTTGGGCGTACGCCAGGCGGGCCATTTACCGTAAGTTATGTAACGCTG C A G G T T A A T T A A G A A C A T G T G A G C A A A A G G C C A G C A

4098 AAAGGCCAGGAACCGTAAAAAGCCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGGTGG

4198 CGAAACCCGACAGACTATAAGATACCAGGCGTTTTCCCTGGAAGCTCCCTGTCGCTCTCTGTTCCGACCTGCCGTTACCGGATACCTGTCCG

4298 CTTTTCTCCCTTCGGAAGCGTGGCGCTTTCTCATAGCTACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCCAAGCTGGGCTGTGTGCACGA

4398 ACCCCCGTTTACGCCGACCGCTGCGCTTATCCGTAACATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGT

4498 AACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCG

4598 CTCTGCTGAAGCCAGTTACCTTCGAAAAAGATTGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGTTTTTTTTGTTTGAAGCAGCA

4698 GATTACGCGCAGAAAAAAGGATCTCAAGAAGATCTTTGATCTTTTCTACGGGCTGACGCTCAGTGAACGAAAACCTCACGTTAAGGGATTTTGGTC

EagI (4825)
 PacI (4805) SwaI (4814) NotI (4824)
 4798 ATGGCTAGTTAATTAACATTTAAATC AGCGGCCGAATAAAATATCTTTATTTTTCATTACATCTGTGTGGTTTTTTTGTGTAATCGTAACTAACATA

4898 CGCTCTCCATCAAACAAAACGAAACAAAACAACTAGCAAATAGGCTGTCCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA