



150

PvuI (7)
SgfI (6)
MfeI (82)

1 GGATCTGCGATCGCTCCGGTGCCCGTCAGTGGGCAGAGCGCACATCGCCACAGTCCCCGAGAAGTTGGGGGAGGGGTCGGCAATTGAACGGGTGCCTA
 101 GAGAAGGTGGCGGGGTAACGGGAAAGTGATGTCGTACTGGCTCCGCCCTTTTCCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

Psp1406I (203)
HindIII (245)
Bsu36I (291)

201 GTGAACGTTCTTTTTTCGAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCTTCACGCGCCCGCCCTACCTGAGGCC
 301 GCCATCCACGCGGTTGAGTCGCGTTCGCGCCCTCCCGCTGTGGTGCTCCTGAAGTCCGCTCCGCTTCTAGGTAAGTTAAAGCTCAGGTCGAGACC

NgoMI (441)
NaeI (441)

401 GGGCCTTTGTCCGGCGCTCCCTTGAGGCTACCTAGACTCAGCCGGCTCTCCAGCTTTGCTGACCTGCTTGTCAACTCTACGCTTTTGTTTCTGTTT

AgeI (552)
SphI (568)

501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGCGCTACCTGAGATCACCGGTAGGAGGGCCAGCATGCTACGAGCTTTGGCTCTTCTGGATC
1▶ M L R A L W L F W I

BsrBI (683)

601 TTGGTGGCCATAACAGTCTCTCAGCAAACGCTGTCTGCTCAGGAGTCTCTGTATGTATGCTTCTGGGGTGTGTATGGCCGCTCCAGGCTTTTCA
11▶ L V A I T V L F S K R C S A Q E S L S C D A S G V C D G R S R S F

BstEII (777)
NcoI (773)

701 CCTCTATTCCTCCGGACTCACAGCAGCCATGAAAAGCCTTGACCTGTCTTCAACAAGATCACCTACATTGGCCATGGTACCTCCGAGCGTGTGCGAA
44▶ T S I P S G L T A A M K S L D L S F N K I T Y I G H G D L R A C A N
 801 CCTCCAGGTTCTGATTTTGAAGTCCAGCAGAATCAATAAATAGAGGGAGACGCTTTTATTCTCTGGCAGTCTTGAACATTTGGATTTGCTGATAAT
77▶ L Q V L I L K S S R I N T I E G D A F Y S L G S L E H L D L S D N

Bsp120I (930)
EcoO109I (930)

901 CACCTATCTAGTTTATCTCTCTGTTCCGGCCCTTTCTCTTAAATACTTAACTAATGGGAAATCCTTACCAGACTGGGGTAACATCGC
111▶ H L S S L S S S W F G P L S S L K Y L N L M G N P Y Q T L G V T S

Bsu36I (1028)

1001 TTTTTCCAATCTCACAATTTACAACCTCAGGATAGGAAATGTAGAGACTTTCAGTGAATAAGGAGAATAGATTTTGTGGGCTGACTTCTCTCAA
144▶ L F P N L T N L Q T L R I G N V E T F S E I R R I D F A G L T S L N

AflII (1187)

1101 TGAACCTGAAATTAAGGCATTAAGTCTCCGGAATTATCAGTCCCAAAGTCTAAAGTCGATCCGCGACATCCATCACCTGACTCTTCACTTAAGCGAGTCT
177▶ E L E I K A L S L R N Y Q S Q S L K S I R D I H H L T L H L S E S
 1201 GCTTTCCTGCTGGAGATTTTGCAGATATCTGAGTCTGTGAGATATTTAGAATAAGAGATACTAATTGGCCAGGTTCCAGTTTTACCAGTCCGCC
211▶ A F L L E I F A D I L S S V R Y L E L R D T N L A R F Q F S P L P

HindIII (1361)

1301 TAGATGAAGTCAGCTCACCGATGAAGAAGCTGGCATTCCGAGGCTCGGTTCTACTGATGAAAGCTTTAACGAGCTCCTGAAGCTGTTGCTTACATCTT
244▶ V D E V S S P M K K L A F R G S V L T D E S F N E L L K L L R Y I L
 1401 GGAAGTGTCCGAGGTAGAGTTCGACGACTGTACCCCTCAATGGGCTCGGCGATTCAACCCCTCGGAGTCAGACGTAGTGAAGTAAAGTAGAA
277▶ E L S E V E F D D C T L N G L G D F N P S E S D V V S E L G K V E

Scal (1554)

1501 ACAGTCACTATCCGGAGGTTGCATATCCCCAGTTCATTTGTTTATGACCTGAGTACTGTCTATTCCTCCTGGAGAAGGTGAAGCAATCACAGTAG
311▶ T V T I R R L H I P Q F Y L F Y D L S T V Y S L L E K V K R I T V

EcoRI (1656)
SspI (1693)

1601 AGAACAGCAAGGTTCTCTGGTCCCTGCTCGTTCTCCAGCATTTAAATCATTAGAATTCTTAGACCTCAGCGAAAATCTGATGGTTGAAGAAATTTT
344▶ E N S K V F L V P C S F S Q H L K S L E F L D L S E N L M V E E Y L
 1701 GAAGAACTCAGCCTGTAAGGGAGCCTGGCCTTCTACAAACCTTAGTTTTGAGCCAGAATCATTGAGATCAATGCAAAAAACAGGAGAGATTTTGTG
377▶ K N S A C K G A W P S L Q T L V L S Q N H L R S M Q K T G E I L L

PshAI (1857)

1801 ACTCTGAAAACTGACCTCCCTGACATCAGCAGAACACTTTTTCATCCGATGCCGACAGCTGTGAGTGGCCAGAAAAGATGCGCTTCTGAAATTTGT
411▶ T L K N L T S L D I S R N T F H P M P D S C Q W P E K M R F L N L

BamHI (1909)

1901 CCACTCAGGGATCCGGTGGTAAAAACGTCATTCTCAGACGCTGGAGGTGTGGATGTTAGTAAACAATCTTGACTCATTTTCTTTGTTCTTCC
444▶ S S T G I R V V K T C I P Q T L E V L D V S N N N L D S F S L F L P

BspHI (2077)

2001 TCGGCTGCAAGAGCTCTATATTTCCAGAAATAAGCTGAAAACACTCCAGATGCTTCTGTTCCCTGTGTTGCTGGTTCATGAAAATCAGAGAGAATGCA
477▶ R L Q E L Y I S R N K L K T L P D A S L F P V L L V M K I R E N A

Scal (2103)

2101 GTAAGTACTTCTCTAAAGACCAACTGGTCTTTTCCAAACTGGAGACTCTGGAAGCAGGCACAACACTTTGTTTCTGCTCGCAACTCCTATCTCT
511▶ V S T F S K D Q L G S F P K L E T L E A G D N H F V C S C E L L S
 2201 TTACTATGGAGACCCAGCTCTGGCTCAAACTGGTGTGACTGGCCAGACGACTACCTGTGACTCTCCGCTCGCTGCACGGCCACAGGCTTCAGGA
544▶ F T M E T P A L A Q I L V D V P D S Y L C D S P P R L H G H R L Q D
 2301 TGCCCCGCCCTCCGTTTGAATGTCACAGGCTGCACTGGTGTGAGTCTGCTGTCCTTCTCCTGTTGATCTTCTGCTGAGTGGCCTGTGCCAC
577▶ A R P S V L E C H Q A A L V S G V C C A L L L I L L V G A L C H

PstI (2474)
SdaI (2473)
SbfI (2473)

Acc65I (2416)

2401 CATTCCACGGACTGGTACCTGAGAATGATGTGGCGTGGCTCCAGCCAAAGAGGAAGCCAAAGAAAGCTCCCTGCAGGGACGTTTGTATGATGCCT
611▶ H F H G L W Y L R M M W A W L Q A K R K P K K A P C R D V C Y D A
 2501 TTGTTTCTACAGTGAAGGATTCCTGGTGGGAGAACCTCATGGTCCAGCAGCTGGAGAATCTGACCCGCCCTTTAAGCTGTGTCTCCACAAGCG
644▶ F V S Y S E Q D S H W V E N L M V Q Q L E N S D P P F K L C L H K R

ClaI (2637)
BsiWI (2690)

2601 GGACTTCGTTCCGGCAAAATGGATCATTGACAACATCATCGATTCATCGAAAAGAGCCACAAAATGTGTTCTGCTGTTTCTGAGAATCTGACGGAGC
677▶ D F V P G K W I I D N I I D S I E K S H K T V F V L S E N F V R S
 2701 GAGTGGTGAAGTACGAAGTGAAGTCTCCACTTCAGGCTCTTTCAGCAGAACACGACGCGCCATCCTGTTTCTGAGAGCCATTGAGAGGAAAG
711▶ E W C K Y E L D F S H F R L F D E N N D A A I L V L L E P I E R K

Eco47III (2809) FspI (2824)
 2801 CCATCCCCAGCGCTTCTGCAAACGCGCAAGATAATGAACACCAAGACCTACCTGGAGTGGCCCTTGGATGAAGGCCAGCAGGAAGTGTTTTGGGTAAA
 744 ▶ A I P Q R F C K L R K I M N T K T Y L E W P L D E G Q Q E V F W V N

NheI (2959)
 2901 TCTGAGAACTGCAATAAAGTCCAGATCCTACCCCTATGATGTGCCAGACTACGCTAAAGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTGG
 777 ▶ L R T A I K S R S Y P Y D V P D Y A •

HpaI (3097)
 3001 ACAAACCACAAC TAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTGTAACCATTATAAGCTGCAATAAACAAGTT

MfeI (3108) EcoRI (3193)
 3101 AACAAACAACAATTGCATTCATTTTATGTTTCAGGTTTCAGGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAACCTCTACAAATGTGGTATGGAAATCT

3201 AAAATACAGCATAGCAAAACTTTAACTCCAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAAT

3301 GTGCATTAGCTGTTTGCAGCCTCACCTTTTCATGGAGTTAAGATATAGTGTATTTCCCAAGGTTTGAAGTACTGCTTCATTTCTTTATGTTTTAAA

SspI (3432) SmaI (3446)
 3401 TGCAGTACCTCCACATTCCTTTTAGTAAAATATTAGAAAATAATTTAAATACATCATTGCAATGAAAAATAATGTTTTTTATTAGGCAGAATCCAG

EcoO109I (3507)
 3501 ATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAGGAACCTTTAATAGAAATGGACAGCAAGAAAGCGAGCTTCTAG

3601 CTTTAGTTCCTGGTGTACTTGAGGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTCCATTCTCAATGAGCACAAGCAGTCAGGAGCATAGT
 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 D P A Y D

BstXI (3736)
 3701 CAGAGATGAGCTCTGCACATGCCACAGGGGCTGACCACCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCTGACAGCCACAATGGTGTCAAA
 108 ◀ 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 I T D F

StuI (3871)
 3801 GTCCTTCTGCCCGTGTCTCAGCAGACCAATGGCAATGGCTTTCAGCACAGACAGTACCCTGCCAATGTAGGCCTCAATGTGGACAGCAGAGATGATC
 75 ◀ 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 A S I I

3901 TCCCCAGCTTGGTCTGATGGCCGCCCGCCGACATGGTCTGTGTCTCATAGACATGGTGTCTTCTCAGTGGCGACCTCCACAGCTCCAGATCCT
 41 ◀ 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 E L D Q

BspHI (4021)
XmnI (4013) AseI (4079)
 4001 GCTGAGAGATGTTGAAGTCTTCATGATGGCCCTCTATAGTGAGTCGATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACAGCGTG
 8 ◀ Q S I N F T K M

4101 GATGGCGTCTCAGCTTATCTGACGGTCTACTAAACGAGCTCTGCTTATATAGACCTCCACCGTACACGCCTACCGCCATTGCGTCAATGGGGCGGA

SpeI (4234)
 4201 GTTGTACGACATTTTGGAAAGTCCCGTGTGATTTACTAGTCAAAACAACTCCCAATTGACGTCAATGGGTGGAGACTTGGAAATCCCGTGTGAGTCAAAC

SnaBI (4362)
 4301 CGCTATCCACGCCATTGATGTAAGTCCCAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGACTGCCAAGTAGGAAAGTCCCATAAAG

NdeI (4467)
 4401 TCATGTAAGTGGCATAATGCCAGGCGGCCATTTACCGTATTGACGTCAATAGGGGCGTACTTGGCATATGATACACTTGTACTGCCAAGTGGGG
 4501 AGTTTACCGTAAATACTCCACCCATTGACGTCAATGAAAGTCCCTATTGGCGTACTATGGGAACATACGTATTATTGACGTCAATGGGCGGGGGTGG

PaeI (4653)
PstI (4646)
SdaI (4645)
SbfI (4645)
PciI (4663)
BspLUIII (4663)
 4601 TTGGGCGGTGAGCCAGGCGGGCCATTTACCGTAAAGTTATGTAACGCTGCAGGTTAATTAAGAACATGTGAGCAAAGGCCAGCAAAGGCCAGGAACCG
 4701 TAAAAAGGCCGCGTGTGCGGTTTTTCCATAGGCTCCGCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAAGGTGGCGAAACCCGACAGGA
 4801 CTATAAAGATACCAGGCGTTTTCCCTGGAAGCTCCCTCGTGGCTCTCTGTCCGACCTGCCGCTTACCGGATACCTGTCCGCTTTCTCCCTTCGG

ApaLI (4977)
 4901 GAAGCGTGGCGCTTCTCATAGCTCAGCTGTAGGTATCTCAGTTCGGTGTAGGTGTTTCGCTCAAGCTGGGCTGTGTGCACGAACCCCGTTCAGCC
 5001 CGACCGTGGCGCTTATCCGTAACACTGCTTGTAGTCCAACCCGTAAGACAGCACTTATCGCACTGGCAGCAGCACTGGTAACAGGATTAGCAGA
 5101 GCGAGGTATGTAGGCGGTGTACAGAGTCTTGAAGTGGTGGCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAG
 5201 TTACCTTCGAAAAAGAGTTGGTAGCTCTTGTATCCGCAAAACAAACCACCGCTGGTAGCGGTGGTTTTTTGTTTGAAGCAGCAGATTACGCCAGAAA

PaeI (5393)
 5301 AAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGTCTGACGCTCAGTGAACGAAAACCTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTA

EagI (5413)
SwaI (5402) NotI (5412)
 5401 ACATTTAAATCAGCGGCCGCAATAAAAATATCTTTATTTTATTACATCTGTGTGTTGTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAAA
 5501 CAAAACGAAACAAAACAACTAGCAAAATAGGCTGTCCCGTGAAGTGCAGGTGCCAGAACATTTCTCTATCGAA