



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

HindIII (245)
Psp1406I (203) 201 GTGAACGTTCTTTTTTCGCAACGGGTTTGGCCGACAGTGAAGCTTCAGGGGCTCGCATCTCTCTTACAGCGCCCGCCGCTACCTGAGGCC
PvuII (239)
301 GCCATCCACGCGGTTGAGTGCAGTCTGCCGCTCCCGCCTGTGGTGCCTCTGAAGTGCCTCCGCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC
Bsu36I (291)

NgoMIV (441)
401 GGGCCTTTGTCCGGCGCTCCCTTGGAGCCTACCTAGACTCAGCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCTCAACTCTACGCTTTTGTTCGTTT

KasI (535) 501 TCTGTTTGTCCGCGCTTACAGATCCAAGCTGTGACCGGCGCTACCTGAGATCACCGGTAGGAGGCCATCATGACTTTTAAACAGTTTTGAAGGATCTAAA
AgeI (552) 1 M T F N S F E G S K
BspHI (568)

PstI (610) 601 ACTTGTGTACCTGCAGACATCAATAAGGAAGAAGAATTTGTAGAAGAGTTAATAGATTAAAACTTTTGCTAATTTTCCAAGTGGTAGTCTCTGTTTCAG
11 T C V P A D I N K E E E F V E E F N R L K T F A N F P S G S P V S

PvuII (772) 701 CATCAACTGGCAGCAGAGCGGTTTCTTTATACTGGTGAAGGAGATACCGTGGGCTGCTTTAGTTGTATGCAGCTGTAGATAGATGGCAATATGGAGA
44 A S T L A R A G F L Y T G E G D T V R C F S C H A A V D R W Q Y G D
801 CTCAGCAGTTGGAAGACAGGAAAGTATCCCCAAATTCAGATTTATCAACGGCTTTTATCTTGAAAATAGTGCCACGCAGTCTACAAATTCGGTATC
77 S A V G R H R K V S P N C Y F I N G Y L E N S A T Q S T N S G I
901 CAGAATGGTCAGTACAAAGTTGAAAATCTCTGGAAGCAGAGATCATTTTGCCTTAGACAGGCCATCTGAGACACATGCAGACTATCTTTGAGAACTG
111 Q N G Q Y K V E N Y L G S R D H F A L D R P S E T H A D Y L L R T

MscI (1086) 1001 GGCAGTTGTAGATATATCAGACACCATATACCCGAGGAACCCTGCCATGTATAGTGAAGAAGCTAGATTAAGTCTTTTCCAGAACTGGCCAGACTATGC
144 G Q V V D I S D T I Y P R N P A M Y S E E A R L K S F Q N W P D Y A

BstEII (1152) 1101 TCACCTAACCCCAAGAGAGTTAGCAAGTCTGGACTCTACTACACAGGTATTGGTGACCAAGTGCAGTCTTTTGTGTTGGTGGAAAACCTGAAAATTTGG
177 H L T P R E L A S A G L Y Y T G I G D Q V Q C F C C G G K L K N W

BstBI (1279) 1201 GAACCTTGTGATCGTGCCTGGTCCAGAACACAGGCGACACTTTCTAATTTGCTTCTTTGTTTTGGGCCGAATCTTAATATTCGAAGTGAATCTGATGCTG
211 E P C D R A W S E H R R H F P N C F F V L G R N L N I R S E S D A

NcoI (1351) 1301 TGAGTTCTGATAGGAATTTCCAAATTCACAAATCTTCCAAGAAATCCATCCATGGCAGATTATGAAGCACGGATCTTTACTTTTGGGACATGGATATA
244 V S S D R N F P N S T N L P R N P S M A D Y E A R I F T F G T W I Y

HpaI (1404) 1401 CTCAGTTAACAAGGAGCAGCTTGAAGAGCTGGATTTTATGCTTTAGTTGAAGGTGATAAAGTAAAGTCTTTCACTGTGGAGGAGGGCTAACTGATTGG
277 S V N K E Q L A R A G F Y A L G E G D K V K C F H C G G G L T D W
1501 AAGCCAGTGAAGACCCTTGGGAACAACATGCTAAATGGTATCCAGGCTGCAATATCTGTTAGAACAGAAGGGACAAGAATATATAAACAATATTCATT
311 K P S E D P W E Q H A K W Y P G C K Y L L E Q K G Q E Y I N N I H
1601 TAACTCATTCACTTGAGGAGTGTCTGGTAAGAATACTGAGAAAACACCATCACTAAGTGAAGAATTGATGATACCATCTTCCAAAATCCTATGGTACA
344 L T H S L E E C L V R T T E K T P S L T R R I D D T I F Q N P M V Q

XmnI (1752) 1701 AGAAGCTATACGAATGGGGTTCAGTTTCAAGGACATTAAGAAAATAATGGAGGAAAAAATTCAGATATCTGGGAGCAACTATAAATCACTTGAGTTCTG
377 E A I R M G F S F K D I K K I M E E K I Q I S G S N Y K S L E V L
EcoRV (1763)

BglIII (1805) 1801 GTTGACAGTCTAGTGAATGCTCAGAAAGACAGTATGCAAGATGAGTCAAGTGCAGACTTATTACAGAAAGAGATTAGTACTGAAGAGCAGCTAAGGCCCC
411 V A D L V N A Q K D S M Q D E S S Q T S L Q K E I S T E E Q L R R
ScaI (1875) **KasI (1894)**

HindIII (1911) 1901 TGCAAGAGGAGAAGCTTTGCAAAATCTGTATGGATAGAAATATTGCTATCGTTTTTGTCTTGTGGACATCTAGTCACTTGTAAACAATGTGCTGAAGC
444 L Q E E K L C K I C M D R N I A I V F V P C G H L V T C K Q C A E A

PshAI (2004) 2001 AGTTGACAAGTGTCCCATGTGCTACACAGTCTTACTTTCAAGCAAAAAATTTTATGTCTTAATCTAACTCTATAGTGGCATGTTATGTTGTTCTTAT
477 V D K C P M C Y T V I T F K Q K I F M S •

MscI (2126) 2101 TACCCTGATTGAATGTGTGAGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGGACAAACCACAACCTAGAATGCAGTGAAAAAATGCTTTAT
NheI (2120)

HpaI (2258) 2201 TTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAAGTTAAACAACAACAATTGCATTCAATTTATGTTTCAGGTTCCAG
MfeI (2269)

EcoRI (2354) 2301 GGGGAGGTGTGGGAGTTTTTTAAAGCAAGTAAACCTCTACAAATGTGGTATGGAATTCTAAATACAGCATAGCAAACTTTAACCTCAAATCAAGC
EcoRI (2354)
2401 CTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTTGCAGCCTCACCTTCTTTTCATGGAG
2501 TTTAAGATATAGTATTTTCCCAAGTTTGAAGTACTGCTCTTCAATTTCTTTATGTTTTAAATGCACTGACCTCCACATTCCCTTTTATGAAAAATTC

Swal (2607) EcoO109I (2668)

2601 AGAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGT

2701 TGGACTTAGGGAACAAAGGAACCTTAATAGAAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCTCTGGTGTACTTGAGGGGGATGAGTTCCTCA
 141 • N R T Y K L P I L E E

SacI (2868) BstXI (2897)

2801 ATGGTGGTTTTGACCAGCTTCCATTCTCAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTCTGCACATGCCACAGGGGCTGACCA
 128 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 R C M G C P S V V

2901 CCCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCCGTTGCTCACAGCAGACCCAATGGCAAT
 95 R I S R D V E 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

StuI (3032)

3001 GGCTTCAGCACAGACAGTGACCCTGCCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCAGTCTTGGTCTGTATGGCCGCCCGACATGGTGC
 62 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 R I A A G V H H

BspHI (3182) XmnI (3174)

3101 TTGTTGCTCATAGAGCATGGTGTCTTCTCAGTGGCGACCTCCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGGTCTTCATGATGGCCCTCTAT
 28 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 F T K M

AseI (3240) SacI (3297)

3201 AGTGAGTCGTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACACAGCGTGGATGGCGTCTCCAGCTATCTGACGGTTCACTAAACGA

SpeI (3395)

3300 GCTCTGTTATATAGACCTCCACCGTACACGCCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTTACGACATTTTGAAAGTCCCCTTGATTTA C T

3399 A G T C A A A A C A A A C T C C A T T G A C G T C A A T G G G G T G G A G A C T T G G A A A T C C C C G T G A G T C A A A C C G T A T C C A C G C C A T T G A T G T A C T G C C A A A A C C G C

SnaBI (3523)

3498 ATCATCATGGTAATAGCGATGACTAATACGTAGATGTACTGCCAAGTAGGAAAGTCCCATAAGGTCATGTACTGGGCATAATGCCAGGCGGGCCATTAC

NdeI (3628)

3598 CGTCATTGACGTCAATAGGGGGCGTACTTGGCATATGATACACTTGATGTACTGCCAAGTGGGCAGTTTACCGTAAATACTCCACCCATTGACGTCAATG

3698 GAAAGTCCCTATTGGCGTACTATGGGAACATACGTCATTATTGACGTCAATGGGCGGGGTCGTTGGCGGTCAGCCAGGCGGGCCATTTACCGTAAGT

PstI (3807) SdaI (3806) PacI (3814) BspLU11I (3824)

3798 TATGTAACGCCTGCAGGTTAA TTAAGAACATGTGAGCAAAAGGCCAGCAAAGGCCAGGAACCGTAAAAAGGCCGCTTGGTGGCGTTTTTCCATAGG
 CTCCGCCCCCTGACGAGCATCAGCAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTTCCCTGGAAGCT

3896

3996 CCTCGTGGCTCTCTGTTCGACCCTGCCGTTACCGGATACCTGTCCGCCTTTCTCCCTTCGGAAGCGTGGCGCTTTCTCATAGCTCACGCTGTAG

ApaLI (4138)

4096 GTATCTCAGTTCGGTGTAGGTCGTTGCTCCAAGCTGGGCTGTGTGCACGAACCCCCGTTTCAGCCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTT

4196 GAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTCTTGGA

4296 AGTGGTGGCTAACTACGGCTACACTAGAAGAACGATTTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGAAAAAGAGTTGGTAGCTCTTGATC

4396 CGGCAACAAACCACCGCTGGTAGCGGTGGTTTTTTTTGTTTGAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCT

EagI (4574) PacI (4554) Swal (4563) NotI (4573)

4496 ACGGGTCTGACGCTCAGTGAACGAAAACCTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATC AGCGGCCGCAATAAAATATCTTT

4596 ATTTTCATTACATCTGTGTGTTGGTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAAACAAAACGAAACAAAACAACTAGCAAATAGGCT

4696 GTCCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA