



PvuI (7)
SgfI (6)
1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTCGGCAATTGAACGGGTGCCTA
101 GAGAAGGTGGCGCGGGTAAACTGGAAAGTGATGTCGTGACTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

HindIII (245)
Psp1406I (203) PvuII (239) Bsu36I (291)
201 GTGAACGTTCTTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGGCTCGCATCTCTCTTACAGCGCCCGCCGCCCTACCTGAGGCC
301 GCCATCCACGCGGTTGAGTGCAGTTCTGCCGCTCCCGCCTGTGGTGCCTCTGAAGTGCCTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMIV (441)
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCTAACTCTACGCTTTTGTTCGTTT

NcoI (560)
BstEII (555)
AgeI (552)
501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGGCCCTACCTGAGATCACCGGTCACCATGGAGAATATGAAAGTGTACTGGGGCTCATTGTCT
1 M E N M K V L L G L I C L

BsrGI (634)
601 CATGGTGCCTCTGCTGTCGCTGGAGATTGACGTATGTACAGAATATCCAAATCAGATCGTTTTGTTTTATCTGTAATGAAATTGATATTCGCAAGTGT
13 M V P L L S L E I D V C T E Y P N Q I V L F L S V N E I D I R K C

RsrII (773)
701 CCTCTTACTCCAATAAAATGCACGGGACACCATAATTTGGTACAAGAATGACAGCAAGACCCCATATCAGCGGACCGGGACTCCAGGATTCATCAGC
47 P L T P N K M H G D T I I W Y K N D S K T P I S A D R D S R I H Q
801 AGAATGAACATCTTTGGTTGTACTGCGCAAGTGGAGGACTCAGGATATTACTATTGTATAGTAAGAACTCAACTTACTGCCTCAAACTAAAGTAAC
80 Q N E H L W F V P A K V E D S G Y Y Y C I V R N S T Y C L K T K V T
901 CGTAACTGTGTAGAGAATGACCTGGCTTGTGTTACAGCACACAGGCCACCTCCACAGCGGCTCCACATTGCCGGGGATGGAAGTCTTGTGTGCCPT
113 V T V L E N D P G L C Y S T Q A T F P Q R L H I A G D G S L V C G
1001 TATGTGAGTTATTTAAAGATGAAAATAATGAGTTACCCGAGGTCAGTGGTATAAAGAACTGTAACCTCTGTTCTTGACAACGTGAGCTTCTTCGGAG
147 Y V S Y F K D E N N E L P E V Q W Y K N C K P L L L D N V S F F G
1101 TAAAAGATAAACTGTTGGTGAAGAAATGTGGCTGAAGAGCACAGAGGGGACTATATATGCCGTATGTCTATACGTTCCGGGGGAAAGCAATATCCGGTAC
180 V K D K L L V R N V A E E H R G D Y I C R M S Y T F R G K Q Y P V T

PvuI (1274)
1201 ACGAGTAATAACAATTTATCACAATAGATGAAAAAAGAGGGACAGACCTGTTATCCTGAGCCCTCGGAATGAGACGATCGAAGCTGACCCAGGATCAATG
213 R V I Q F I T I D E N K R D R P V I L S P R N E T I E A D P G S M

Tth111I (1336)
1301 ATACAACCTGATCTGCAACGTGACGGGCCAGTTCTCAGACCTGTCTAGCTGGAAGTGAATGGATCAGAAATTGAATGGAATGATCCATTTCTAGCTGAAG
247 I Q L I C N V T G Q F S D L V Y W K W N G S E I E W N D P F L A E
1401 ACTATCAATTTGTGGAACATCCTTCAACCAAAAAGAAAATACACACTCATTACAACACTTAACATTTGAGAAGTAAAAGCCAGTTTTATCGCTATCCGTT
280 D Y Q F V E H P S T K R K Y T L I T T L N I S E V K S Q F Y R Y P F

Spl (1522)
1501 TATCTGTGTTGTTAAGAACAATAATTTTTGAGTCCGGCGCATGTGCAGTTAATATACCCAGTCCCTGACTTCAAGAATTACCTCATCGGGGGCTTTATC
313 I C V V K N T N I F E S A H V Q L I Y P V P D F K N Y L I G G F I
1601 ATCCTCACGGCTACAATTGTATGCTGTGTGCATCTATAAGTCTTCAAGGTTGACATAGTCTTTGGTACAGGGACTCCTGCTCTGGTTTTCTTCCTT
347 I L T A T I V C C V C I Y K V F K V D I V L W Y R D S C S G F L P

HindIII (1703) BstXI (1745) EcoO109I (1762)
1701 CAAAAGCTTCAGATGAAAAGACATACGATGCCTATATTCTTTATCCCAAGACCTGGGAGAGGGGCTTCTCAGACTTAGATACTTTTTGTTTTAAACT
380 S K A S D G K T Y D A Y I L Y P K T L G E G S F S D L D T F V F K L

Bsu36I (1804)
1801 GTTGCCCTGAGGCTTTGGAGGGACAGTTTGGATAACAAGCTGTTCAATTTATGGAAGGGATGACTATGTTGGAGAAGATACCATCGAGGTTACTAATGAAAAT
413 L P E V L E G Q F G Y K L F I Y G R D D Y V G E D T I E V T N E N

PvuII (1953)
1901 GTAAGAAAAGCAGGAGGCTGATTATCATTCTAGTGAGAGATATGGGAGGCTCAGCTGGCTGGCCAGTCTGAAAGAGCAATAGCCATATAACAATG
447 V K K S R R L I I I L V R D M G G F S W L G Q S S E E Q I A I Y N
2001 CTCTCATCCAGGAAGGAATTAATCGTCTGCTGAGTTGGAGAAAATCCAAGACTATGAGAAAATGCCAGATTCTATTGATTCATTAAGCAGAAAACA
480 A L I Q E G I K I V L L E L E K I Q D Y E K M P D S I Q F I K Q K H

PshAI (2135)
2101 CGGAGTCATTTGCTGGTCCAGGAGACTTTCAAGAAAAGACCACAGCTGCAAGACCAGGTTCTGAAAAACTTAAGATACCAGATGCCAGCCCAACGGAGA
513 G V I C W S G D F Q E R P Q S A K T R F W K N L R Y Q M P A Q R R

BamHI (2232) NgoMIV (2262) MscI (2299)
2201 TCACCATTGTCTAAACACCGCTTACTAACCTGGATCCTGTGCGGGACACTAAGGAGAACTGCCGGCAGCAACACACTTACCCTCGGCTAGGCTAGCT
547 S P L S K H R L L T L D P V R D T K E K L P A A T H L P L G •
2301 GGCCAGACATGATAAGATACATTGATGAGTTTGACAAACCACAACCTAGAATGCAGTGAAGAAAATGCTTTATTTGTGAATTTGTGATGCTATTGCTTT

HpaI (2431)
2401 ATTTGTAACCATTATAAGCTGCAATAAACAAGTAAACAACAACATTGCATTCTTTATGTTTCAGGTTTCAGGGGGAGGTGGGAGGTTTTTAAAGC

EcoRI (2527)
2501 AAGTAAAACCTCTACAAATGTGGTATGGAATCTAAAATACAGCATAGCAAACCTTTAACCTCCAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGAT
2601 GAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTTGACGCTCACCTTCTTCATGGAGTTAAGATATAGTGATTTTCCAAGG

2701 TTTGAACTAGCTCTTCATTTCTTTATGTTTTAAATGCACTGACCTCCACATTCCCTTTTATAGTAAAATATTCAGAAATAATTTAAATACATCATTGCAA
SspI (2766) SwaI (2780)

2801 TGAAAATAAATGTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGAACCTTTA
EcoO109I (2841)

2901 ATAGAAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCCTGGTACTTGAGGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCCATTC
141 • N R T Y K L P I L E E I T T K V L K G N

3001 ATCTCAATGAGCACAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTCTGCACATGCCACAGGGGCTGACCACCTGATGGATCTGTCCACCTCATCAG
 119 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 D S
 3101 AGTAGGGGTGCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCCGTTGCTCACAGCAGACCAATGGCAATGGCTTCAGCAGACAGTGGACCTGCC
 86 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 R G

SacI (3041) BstXI (3070)

3201 AATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCGAGTCTTGGTCTGATGGCCGCCCGACATGGTGTCTGTTGTCTCATAGAGCATGGTGATC
 53 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 T I

XmnI (3347)

3301 TTCTCAGTGGCGACCTCCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGGCTTCATGGTGGCCCTCTATAGTGAGTCGTATTATACTATGCCGATA
 19 K E T A V E V L E L D Q Q S I N F T K M

AseI (3413) SacI (3470)

3401 TACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTTCATAAACGAGCTCTGCTTATATAGACCTCCACCCTGA

SpeI (3568)

3501 CACGCCTACCGCCCATTTGCGTCAATGGGGCGGAGTTGTTACGACATTTTGAAAGTCCCGTTGATTTACTAGTCAAAACAAACTCCATTGACGTCAAT

SnaBI (3696)

3601 GGGGTGGAGACTTGAAATCCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTAAGTCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACG

3701 TAGATGTAAGTCCCAAGTAGAAAGTCCATAAGGTCATGTAAGTGGCATAATGCCAGGCGGGCCATTTACCGTCAATTGACGTCAATAGGGGGCTACTTG

NdeI (3801)

3801 GCATATGATACACTTGATGTAAGTGGCAGTTTACCGTAAATACTCCACCCATTGACGTCAATGAAAGTCCCTATTGGCGTACTATGGGAAC

PacI (3987) PstI (3980) SdaI (3979) BspLU11I

3901 ATACGTCATTATTGACGTCAATGGGCGGGGTCGTTGGGCGGTAGCCAGGCGGGCCATTTACCGTAAGTTATGTAACGCTGCAGGTTAATTAAGAACA
←

4001 TGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGGCCGCTTGGTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAATCG

4101 ACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCCCTGGAAGCTCCCTCGTGCGCTCTCTGTCCGACCTGCCG

4201 CTTACCGGATACCTGTCCGCTTTCTCCCTTCGGAAGCGTGGCGCTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCCA

ApaLI (4311)

4301 AGCTGGGCTGTGTGCACGAACCCCCGTTAGCCCGACCGCTGCGCTTATCCGGTAACTATCGTCTTGAGTCCAACCCGTAAGACACGACTTATCGCC

4401 ACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGCGGTGCTACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGA

4501 ACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAAACAAACCACCGCTGGTAGCGGTGGTT

4601 TTTTTGTTTGAAGCAGCAGATTACGCGCAGAAAAAAGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGTCTGACGCTCAGTGAACGAAAACTC

EagI (4747)

PacI (4727) SwaI (4736) NotI (4746)

4701 ACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATC AGCGGCCGCAATAAAATATCTTTATTTTTCATTACATCTGTGTGTTGGTTTTTGT

4801 GTGAATCGTAACTAACATACGCTCTCCATCAAACAAAACGAAACAAAACAACTAGCAAAATAGGCTGTCCCCAGTGCAAGTGCAGGTGCCAGAACATT

4901 TCTCTATCGAA