



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

1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA
101 GAGAAGTGGCGCGGGTAAACTGGAAAGTGTGCTGTACTGGTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

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

201 GTGAACGTTCTTTTTCGCAACGGGTTTCCGCCAGAACACAGCTGAAGCTTCGAGGGGCTCGCATCTCTCTTACAGCGCCCGCCGCCCTACCTGAGGCC
301 GCCATCCACGCGGTTGAGTCGCGTCTGCCGCTCCCGCCTGTGGTGCCTCCTGAAGTGCCTCCGCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMIV (441)

401 GGGCCTTTGTCCGGCGCTCCCTTGGAGCCTACCTAGACTCAGCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCAACTCTACGCTTTTGTTCGTTT

KasI (535)
AgeI (552)
SphI (568)

501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGGCGCTA CCGT GAGATCACCGTAGGAGGGCCAGCATGCCACATACTTTGTGGATGGTGTGGGTC
601 TTGGGGTTCATCATCAGCCTCTCCAAGGAAGAATCCTCCAATCAGGCTTCTGTCTTGTGACCGCAATGGTATCTGCAAGGGCAGCTCAGGATCTTTAA
11▶ L G V I I S L S K E E S S N Q A S L S C D R N G I C K G S S G S L

AvrII (983)

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

NdeI (185)

901 TACTTATCTAATTTATCGTCTTCTGGTCAAGCCCTTTCTTCTTAACTTCTTAACTTACTGGGAAATCCTTACAAAACCTAGGGAAACATCTC
111▶ Y L S N L S S S W F K P L S S L T F L N L L G N P Y K T L G E T S
1001 TTTTTCTCATCTCAGAAATTCCTGAGAGTGGGAAATATGGACACCTTCACTAAGATTCAAAGAAAAGATTTTGTGGACTTACCTTCCTTGA
144▶ L F S H L T K L Q I L R V G N M D T F T K I Q R K D F A G L T F L E

BglII (1121)
Psp1406I

1101 GGAACCTGAGATTGATGCTTCAGATCTACAGAGCTATGAGCCAAAAAGTTTGAAGTCAATTCAGAATGTAAGTCACTGATCCTTCATATGAAGCAGCAT
177▶ E L E I D A S D L Q S Y E P K S L K S I Q N V S H L I L H M K Q H
1201 ATTTACTGCTGGAGATTTTGTAGATGTTACAAGTCCGTGGAATGTTTGAAGTGGGADACTGATTTGGACACTTTCCATTTTTCAGAAGTATCCA
211▶ I L L L E I F V D V T S S V E C L E R D T D L D T F H F S E L S
1301 CTGGTGAACAAATTCATTGATTAATAAGTTTACATTTAGAAATGTGAAAATCACCGATTGAAAGTTTGTTCAGGTTATGAAACTTTTGAATCAGATTTCC
244▶ T G E T N S L I K K F T F R N V K I T D E S L F Q V M K L L N Q I S

HpaI (1502) BspEI (1510)

1401 TGGATTGTTAGAATTAGAGTTTGTGACTGTACCCTTAATGGAGTTGGTAATTTTAGAGCATCTGATAATGACAGAGTTATAGATCCAGGTAAGTGGAA
277▶ G L L E L E F D D C T L N G V G N F R A S D N D R V I D P G K V E

EcoRV (1824)
SpeI (1885)

1501 ACGTTAACAAATCCGGAGGCTGCATATCCAAAGTTTTACTTATTTTATGATCTGAGCACTTTATATTCACCTACAGAAAGAGTAAAAAGAATCACAGTAG
311▶ T L T I R R L H I P R F Y L F Y D L S T L Y S L T E R V K R I T V
1601 AAAACAGTAAAGTTTTCTGGTTCCTTGTCTTACATTTTACAACATTTAAATCATTAGAATACTGGATCTCAGTGAATTTGATGGTTGAAGAATACTT
344▶ E N S K V F L V P C L L S Q H L K S L E Y L D L S E N L M V E E Y L
1701 GAAAAATTCAGCCTGTGAGGATGCCTGGCCCTCTACAACTTTAATTTTAAAGGCAAAATCATTGGCATCATTGAAAAAACCGGAGAGACTTTGCTC
377▶ K N S A C E D A W P S L Q T L I L R Q N H L A S L E K T G E T L L

SpeI (2072)

1801 ACTCTGAAAACTTGACTAACATTGATATCAGTAAGAATAGTTTTATTCTATGCCTGAAACTTGTGAGTGGCCAGAAAAGATGAAATTTTGAACCTTAT
411▶ T L K N L T N I D I S K N S F H S M P E T C Q W P E K M K Y L N L
1901 CCAGCACAGCAATACACAGTGAACAGGCTGCATTCCCAAGACTGGAATTTTAGATGTTAGCAACAACAATCTCAATTTATTTTCTTGAATTTGCC
444▶ S S T R I H S V T G C I P K T L E I L D V S N N N L N L F S L N L P

EcoRI (2187)

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

EcoO109I (2386)

2101 ATAACACGTTTTCTAAGGAGCAACTTGACTCATTTCACACACTGAAGACTTTTGAAGCTGGTGGCAATAACTTCATTTGCTCCTGTGAATTCCTCTCCT
511▶ I T T F S K E Q L D S F H T L K T L E A G G N N F I C S C E F L S
2201 TCACTCAGGAGCAGCAAGCACTGGCCAAAGTCTTGATTGATTGGCCAGCAAAATACCTGTGACTCTCCATCCCATGTGCGTGGCCAGCAGGTTGAGGA
544▶ F T Q E Q Q A L A K V L I D W P A N Y L C D S P S H V R G Q Q V Q D

NcoI (2405)
NsiI (2494)

2301 TGTCCGCCTCTCGGTGTCCGAATGTCACAGGACAGCACTGGTGTCTGGCATGTGCTGTGCTCTGTTCTGCTGATCCTGCTCACGGGGGCTCTGTGCCAC
577▶ V R L S V S E C H R T A L V S G M C C A L F L L I L L T G V L C H

2401 CGTTTCCATGGCCTGTGGTATATGAAAATGATGTGGGCTGGCTCCAGGCCAAAAGGAGCCAGGAAAGCTCCAGCAGGAACATCTGCTATGATGCAT
611▶ R F H G L W Y M K M M W A W L Q A K R K P R K A P S R N I C Y D A

BsrBI (2514)

2501 TTGTTTCTTACAGTGAGCGGGATGCCTACTGGGTGGAGAACCCTTATGGTCCAGGAGCTGGAGAACCCTCAATCCCCCTTCAAGTTGTGCTTTCATAAGCG
644▶ F V S Y S E R D A Y W V E N L M V Q E L E N F N P P F K L C L H K R
2601 GGACTTCATTCTGGCAAGTGGATCATTGACAATATCATTGACTCCATTGAAAAGAGCCACAAAACCTGCTTTGTGCTTTCTGAAAACCTTTGTGAAGAGT
677▶ D F I 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 K S
2701 GAGTGGTGAAGTATGAACTGGACTTCTCCATTTCCGCTTTTTGATGAGAACAATGATGCTGCCATTCTATTCTTCTGGAGCCATTGAGAAAAAG
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 I L L E P I E K K

2801 CCATTCCCAGCGCTTCTGCAAGCTGCGGAAGATAATGAACACCAAGACCTACCTGGAGTGGCCCATGGACGAGGCTCAGCGGAAGGATTTTGGGTAAA
744▶A I P Q R F C K L R K I M N T K T Y L E W P M D E A Q R E G F W V N
Eco47III (2809) NcoI (2863)
2901 TCTGAGAGCTGCGATAAAGTCTAGGTTCCCATATTTAAGACCAGTCTTTGTCTAGTTGGGATCTTGCTAGCTGGCCAGACATGATAAGATACATTGATG
777▶ L R A A I K S •
3001 AGTTTGGACAAACCACAACCTAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAA
HpaI (3104) MfeI (3115)
3101 ACAAGTTAAACAACAACAAATTGCATTCTTTTATGTTTCAGGTTTCAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAACCTCTACAATGTGGTATG
EcoRI (3200)
3201 GAATTCTAAAATACAGCATAGCAAACTTTAACCTCCAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGT
▶ ◀
3301 TGCCAATGTGCATTAGCTGTTTGCAGCCTCACCTCTTTCATGGAGTTAAGATATAGTGTATTTTCCAAGGTTTGAAGTCTCTTCAATTTCTTTATG
SspI (3439) SmaI (3453)
3401 TTTTAAATGCACTGACCTCCACATTCCCTTTTAGTAAAATATTCAGAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTTATTAGGCAG
EcoO109I (3514)
3501 AATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTAAATAGAAATTGGACAGCAAGAAAGCGAG
3601 CTTCTAGCTTTAGTTCTGGTGTACTTGGGGGATGAGTTTCTCAATGGTGGTTTTGACCAGCTTGCCATTCTCAATGAGCACAAAGCAGTCAGGA
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 P
SacI (3714)
3701 GCATAGTCAGAGATGAGCTCTCTGCACATGCCACAGGGGCTGACCACCCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCTGACAGCCACAATGG
110▶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 I T
StuI (3878)
3801 TGTCAAAGTCTTCTGCCGTTGCTCACAGCAGACCCAATGGCAATGGCTTCAGCACAGACAGTGACCCTGCCAATGTAGGCCTCAATGTGGACAGCAGA
77▶ 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 A S
3901 GATGATCTCCCAGTCTTGGTCTGATGGCCGCCCGACATGGTCTTGTCTCATAGAGCATGGTATCTTCTCAGTGGCGACCTCCACCAGCTCC
44▶ 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 E
BspHI (4028)
4001 AGATCTGCTGAGAGATGTTGAAGTCTTCTGATGGCCCTCTATAGTGAGTCGTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAAA
10▶L D Q Q S I N F T K M ◀ AseI (4086)
4101 CAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTTCACTAAACGAGCTCTGCTTATATAGACCTCCACCGTACACGCCTACCGCCATTTGCGTCAAT
SacI (4143)
4200 GGGGCGGAGTTGTTACGACATTTTGAAAGTCCCGTTGATTTACTAGTCAAAACAAACTCCCATTGACGTCAATGGGGTGGAGACTTGGAAATCCCCGT
SpeI (4241)
4299 GAGTCAAACCGCTATCCACGCCATTGATGTACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTACTGCCAAGTAGGAAAGT
SnaBI (4369)
4399 CCCATAAGGTCATGTACTGGCATAATGCCAGGCGGGCCATTTACCGTATTGACGTCAATAGGGGGCTACTTGGCATATGATACACTTGATGTACTGC
NdeI (4474)
4499 CAAGTGGGAGTTTACCCTAAATACTCCACCCATTGACGTCAATGAAAGTCCCTATTGGCGTTACTATGGGAACATACGTCAATTATTGACGTCAATGGG
PstI (4653) SdaI (4652) PacI (4660) BspLU11I (4670)
4599 CGGGGTCGTTGGGCGGTGAGCCAGGCGGGCCATTTACCGTAAGTTATGTAACGCTG C G A G T T A A T T A A G A A C A T G T G A C A A A A G G C C A G A A A A G
4697 GCCAGGAACCGTAAAAGGCCGCTTGTGCGCTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAATCGACGCTCAAGTCAGAGGTGGCGAA
4797 ACCCGACAGGACTATAAAGATACCAGGCGTTTTCCCTGGAAGCTCCCTCGTGCCTCTCTGTTCCGACCCTGCCGCTTACCGGATACCTGTCCGCTT
ApaLI (4984)
4897 TCTCCCTTCGGGAAGCGTGGCGCTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTGCTTCCGCTCAAGCTGGGCTGTGTGCACGAACCC
4997 CCCGTTACGCCCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTTGTAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACA
5097 GGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTCTTGAAGTGGTGGCTAACTACGGCTACACTAGAAGAAGTATTTGGTATCTGCGCTCT
5197 GCTGAAGCCAGTTACCTTCGAAAAAGAGTTGGTGTAGCTCTTATCGGCAAAACAAACCACCGCTGGTAGCGGTGGTTTTTTTGTGCAAGCAGCAGATT
5297 ACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGCTCTGACGCTCAGTGGAACGAAAACCTCACGTTAAGGGATTTTGGTCATGG
EagI (5420)
5397 CTAGTTAATTAACATTTAAATC AGCGGCCGCAATAAAATATCTTTATTTTATTACATCTGTGTGTTGGTTTTTTTGTGTAATCGTAACTAACATACGC
PacI (5400) SmaI (5409) NotI (5419)
5496 TCTCCATCAAACAAAACGAAACAAAACAAACTAGCAAAATAGGCTGTCCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA