



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

1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGCAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA
101 GAGAAAGTGGCGCGGGTAAACTGGAAAGTGATGTCGTGACTGGTCCGCCTTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

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

201 GTGAACGTTCTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGGCTCGCATCTCTCTTACAGCGCCCGCCGCCCTACCTGAGGCC
301 GCCATCCACGCGGGTTGAGTGCAGTCTGCCGCTCCCGCCTGTGGTGCCTCCTGAAGTGCCTCCGCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMIV (441)

401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCAACTCTACGCTTTTGTTCGTTT

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

501 TCTGTTTCTGCGCCGTTACAGATCCAAGCTGTGACCGGCGCTA CTTGAGATCACCGTAGGAGGGCCAGCATGCCACATACTTTGTGGATGGTGTGGGTC
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

Bsu36I (709)

701 ACTCCATTCCTCAGGGCTCACAGAAGCTGTA AAAAGCCTTGACCTGTCCAACAACAGGATCACCTACATTAGCAACAGTGACCTACAGAGGTGTGTGAA
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

AvrII (983)

901 TACTTATCTAATTTATCGTCTTCTGGTCAAGCCCTTTCTTCTTAAACATTCTTAACTTACTGGGAAATCCTTACAAAACCTAGGGGAAACATCTC
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 TTTTTCTCATCTCACA AATTCGAAATCCTGAGAGTGGGAAATATGGACACCTTCACTAAGATTCAAAGAAAAGATTTTGTGGACTTACCTTCCTTGA
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)
NdeI (1185)

1101 GGAACCTGAGATTGATGCTTCAGATCTACAGAGCTATGAGCCAAAAGTTTGAAGTCAATTCAGAATGTAAGTCACTGTATCCTTCATATGAAGCAGCAT
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 ATTTACTGCTGGAGATTTTGTAGATGTTACAAGTCCGTGGAATGTTTGAAGTGGGADACTGATTTGGACACTTTCCATTTTTCAGAACTATCCA
211▶ I L L L E I F V D V T S S V E C L E L R D T D L D T F H F S E L S
1301 CTGGTGAACAAATTCATTGATTA AAAAGTTTACATTTAGAAAATGTGAAAATCACCGATTGAAAAGTTTGTTCAGGTTATGAAAATTTTGAATCAGATTTCC
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

Psp1406I

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

HpaI (1502)
BspEI (1510)

1501 ACGTTAACAAATCCGGAGGCTGCATATTC AAGGTTTTACTTATTTTATGATCTGAGCACTTTATATTCACCTACAGAAAGAGTAAAAGAATCACAGTAG
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 AAAACAGTAAAGTTTTCTGGTTCCTTGTTTACTTTTACAACATTTAAATCATTAGAATACTGGATCTCAGTGA A AATTTGATGGTTGAAGAATACTT
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 GAAAAATTCAGCCTGTGAGGATGCCTGGCCCTCTTACAAACTTAAATTTAAGGCAAAATCATTGGCATCATTGAAAAAACCGGAGAGACTTTGCTC
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

EcoRV (1824)
SpeI (1885)

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 CCAGCACAGCAATACACAGTGAACAGGCTGCATTCCCAAGACTGGA AATTTAGATGTTAGCAACAACAATCTCAATTTATTTTCTTTGAAATTTGCC
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

SpeI (2072)

2001 GCAACTCAAGA AACTTTATATTTCCAGAATAAGTTGATGACTCTACCAGATGCCTCCCTCTTACCCATGTTACTAGTATTGAAAATCAGTAGGAATGCA
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

EcoRI (2187)

2101 ATAACACGTTTTCTAAGGAGCAACTTGACTCATTTCACACACTGAAGACTTTGGAAGCTGGTGGCAATAACTTCATTTGCTCCTGTGAATTCCTCTCCT
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 TCACTCAGGAGCAGCAAGCACTGGCCAAAGTCTTGATTGATTGGCCAGCA AATACCTGTGTGACTCTCCATCCCATGTGCGTGGCCAGCAGGTTGAGGA
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

EcoO109I (2386)

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

NcoI (2405)
NsiI (2494)

2401 CGTTTCCATGGCCTGTGGTATATGAAAATGATGTGGGCTGGCTCCAGGCCAAAAGGAAGCCAGGAAAGCTCCAGCAGGAACATCTGCTATGATGCAT
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 TTGTTTCTTACAGTGGAGGCTACTGGGTGGAGA AACTTATGGTCCAGGAGCTGGAGA AACTTCAATCCCCCTTCAAGTTGTGTCTTCATAAGCG
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 GGACTTCATTCTGGCAAGTGGATCATTGACAATATCATTGACTCCATTGAAAAGAGCCACAAA AACTGTCTTTGTGCTTTCTGAAA AACTTTGTGAAGAGT
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 GAGTGGTGAAGTATGAACTGGACTTCTCCATTTCCGCTTTTTGATGAGAACAATGATGCTGCCATTCTATTCTTCTGGAGCCATTGAGAAAAAAG
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 **Eco47III (2809)** 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**
AvrII (2920) TCTGAGAGCTGCGATAAAGTCTAGGTTCCCATATTTAAGACCAGTCTTTGTCTAGTTGGGATCTT**GCTAGCTGGCCAGACATGATAAGATACATTGATG**
2901 777▶ **L R A A I K S •**
3001 **AGTTTGGACAAACCACAACCTAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAA**
HpaI (3104) MfeI (3115) 3101 **ACAAGTTAAACAACAACAATTGCATTCTTTTATGTTTCAGGTTTCAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAACCTCTACAATGTGGTATG**
EcoRI (3200) 3201 **GAATTCTAAAATACAGCATAGCAAACTTTAACCTCCAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGCTGT**
▶ ◀
3301 **TGCCAATGTGCATTAGCTGTTTGCAGCCTCACCTCTTTCATGGAGTTAAGATATAGTGATTTTCCCAAGTTTGAAGTCTCTTCAATTTCTTTATG**
SspI (3439) SmaI (3453) 3401 **TTTTAAATGCACTGACCTCCACATTCCCTTTTAGTAAAATATTCAGAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTTATTAGGCAG**
EcoO109I (3514) 3501 **AATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTAAATAGAAATTGGACAGCAAGAAAGCGAG**
3601 **CTTCTAGCTTTAGTTCTCGGTGACTTGGAGGGGATGAGTTTCTCAATGGTGGTTTTGACCAGCTTGCCATTCACTCAATGAGCACAAAGCAGTCAGGA**
— 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 **GCATAGTCAGAGATGAGCTCTGACATGCCACAGGGGCTGACCACCCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCTGACAGCCACAATGG**
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 **GATGATCTCCCAGTCTTGGTCTGATGGCCGCCCGACATGGTCTTGTGCTCATAGAGCATGGTATCTTCTCAGTGGCGACCTCCACCAGCTCC**
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 **AGATCTGCTGAGAGATGTTGAAGTCTTCA**GATGGCCCTCCTATAGTGAGTCGTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAAA****
10▶ **L D Q Q S I N F T K M** ◀
AseI (4086)
SacI (4143) 4101 **CAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTTCACTAAACGAGCTCTGCTTATATAGACCTCCACCGTACACGCCTACCGCCATTTGCGTCAAT**
SpeI (4241) 4200 **GGGGCGGAGTTGTTACGACATTTTGAAAGTCCCGTTGATTT**ACTAGTCAAAACAAACTCCCATGACGTCAATGGGGTGGAGACTTGGAAATCCCCGT****
◀
SnaBI (4369) 4299 **GAGTCAAACCGCTATCCACGCCATTGATGTACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTACTGCCAAGTAGGAAAGT**
NdeI (4474) 4399 **CCCATAAGGTCATGTACTGGCATAATGCCAGGCGGGCCATTTACCGTATTGACGTCAATAGGGGGCTACTTGGCATATGATACACTTGATGTACTGC**
4499 **CAAGTGGGAGTTTACCGTAAATACTCCACCCATTGACGTCAATGAAAGTCCCTATTGGCGTTACTATGGGAACATACGTCAATTATTGACGTCAATGGG**
PstI (4653) 4599 **CGGGGTCGTTGGGCGGTGAGCCAGGCGGGCCATTTACCGTAAGTTATGTAACGCCT**G 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 A A A A G****
SdaI (4652) PacI (4660) BspLU11I (4670) 4697 **GCCAGGAACCGTAAAGGCCGCGTGTGCGGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAATCGACGCTCAAGTCAGAGGTGGCGAA**
▶ ◀
4797 **ACCCGACAGGACTATAAAGATACCAGGCGTTTTCCCTGGAAGCTCCCTCGTGCCTCTCTGTTCCGACCCTGCCGCTTACCGGATACCTGTCCGCTT**
ApaLI (4984) 4897 **TCTCCCTTCGGGAAGCGTGGCGTTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTGCTTCCGCTCAAGCTGGGCTGTGTGCACGAACCC**
4997 **CCCGTTCAGCCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTTGTAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACA**
5097 **GGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCTAACTACGGCTACACTAGAAGAAGTATTTGGTATCTGCGCTCT**
5197 **GCTGAAGCCAGTTACCTTCGAAAAAGAGTTGGTGTAGCTTTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGGTTTTTTTGTGGAATCGTAACTAACATACGC**
5297 **ACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGCTGACGCTCAGTGGAACGAAAACCTCACGTTAAGGGATTTTGGTCATGG**
EagI (5420) 5397 **CTAGTTAATTAACATTTAAATCAGCGGCCGAATAAAATATCTTTATTTTATTACATCTGTGTGTTGGTTTTTTTGTGGAATCGTAACTAACATACGC**
PacI (5400) SmaI (5409) NotI (5419) 5496 **TCTCCATCAAACAAAACGAAACAAAACAAACTAGCAAATAGGCTGTCCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA**