



PvuI (7)
SgfI (6)
1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCGAGAAGTTGGGGGAGGGGTCGGCAATTGAACGGGTGCCTA
101 GAGAAAGTGGCGCGGGTAAACTGGAAAGTGATGTCGTGACTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

Psp1406I (203) **HindIII (245)**
201 GTGAACGTTCTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGGCTCGCATCTCTCCTTACGCGCCCGCCCTACCTGAGGCC
301 GCCATCCACGCGGGTTGAGTCGCGTTTCTGCGCCCTCCCGCTGTGGTGCCTCCTGAAGTGCCTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC
401 GGGCCTTTGTCCGGCGCTCCCTTGGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCAACTCTACGCTTTTGTTCGTTT

KasI (535) **AgeI (552)** **BspHI (568)**
501 TCTGTTTCTGCGCCGTTACAGATCCAAGCTGTGACCGGGCGCTACCTGAGATCACCGGTAGGAGGGCCATCATGAGATCCAGCTGTTGTGACATGTGCTCA
601 CAGGAAGAGTTCAGGCACAGAGGAGCCAGCTGGTGGCACTGTGATCTCAGGGTCTTGGAGGGCTTTGAGAGCATCTTAGACTGGCTGTCTTGGG
11▶ Q E E F Q A Q R S Q L V A L L I S G S L E G F E S I L D W L L S W
701 ATGTGCTCTCCAGGGAGGACTATGAGGGCTCAGCCTCCCTGGCAACCTCTCTCCATTCTGCCAGGCGTCTGCTGGACACAGTCTGGAACAAGGGTGT
44▶ D V L S R E D Y E G L S L P G Q P L S H S A R R L L D T V W N K G V
801 TTGGGCTGTGAGAAGCTCCTCGAAGCTGTGACAGGAGGACAGGCCAACAGTACATACCTTTGAAGTGTATGGTCTGGGACACTCACTCCCTTCATCCA
77▶ W G C Q K L L E A V Q E A Q A N S H T F E L Y G S W D T H S L H P
901 ACCAGAGCTGCAGAGTCCCGCCAGCCATTGTGAGAGACTCTACAACCATGTAGAAGCCATGCTGGAGCTGGCAAGGGGAGGGGTTCTGAGCC
111▶ T R D L Q S H R P A I V R R L Y N H V E A M L E L A R E G G F L S
1001 AGTACGAGTGTGAGGAGATCAGGCTGCCAATCTTACGCTGTCTCAGAGGGCAAGAAGCTGCTTGTATCTCGTCCGGTGAAGCCAAATGGACTGGCTGC
144▶ Q Y E C E E I R L P I F T S S Q R A R R L L D L A A V K A N G L A A
1101 CTTCTTACAGCAGTCCAGGAACTGCCAGCTCCACTGCCTCTGCCTTACGAGGCTGTGAGTGTGAGAAGTTCATATCTAAGCTGAGGACCATGGTG
177▶ F L L Q H V R E L P A P L P L P Y E A A E C Q K F I S K L R T M V

SeaI (1221)
1201 TTGGCTCAGTCTCGCTTCTCAGTACTTACGATGGGTCA GAGAATCTTTGCCTGGAGGATATATACACGGAGAACATCTTGGAGCTCGGACTGAAGTGG
211▶ L A Q S R F L S T Y D G S E N L C L E D I Y T E N I L E L R T E V

BstEII (1365)
1301 GCACAGCCGGGCTTGCAGAAGAGCCCTGCCATCCTGGGCTGGAGGACCTCTTTGATACCCATGGTCACTGAACAGAGATGCCGACACCATACTGGT
244▶ G T A G A L Q K S P A I L G L E D L F D T H G H L N R D A D T I L V
1401 GGTGGGCAAGCAGGCTGGCAAGAGCACTTCTTGCAGCGTTTGCACCTGTGTGGCAACAGGGAGGAGCTTCCAGGAGTTTCTTCTTATTTCCCA
277▶ V G E A G S G K S T L Q R L H L L W A T G R S F Q E F L F I F P
1501 TTCAGCTCCGACAGTTGCAATGCTGGCCAAACCGCTGTCCCTGAGGACGCTCTTTGAGCACTGCTGGCCTGATGCTCAGGACGATGCTGTCT
311▶ F S C R Q L Q C V A K P L S L R T L L F E H C C W P D V A Q D D V

HpaI (1634)
1601 TCCAGTCTCTTCTGACCATCTGACCGTGTCTTAACTTTGATGGCTGGACGAGTTCAAGTTCGGTTCCAGCCGGGAGCGCCACTGCTCTCC
344▶ F Q F L L D H P D R V L L T F D G L D E F K F R F T D R E R H C S P
1701 AATTGACCCACGTCAGTCCAGACTCTGCTCTTCAACCTTCTCCAGGGAACTGCTGAAGAATGCTGCAAGGTGCTGACCAGCCGTCGGATGCTGTG
377▶ I D P T S V Q T L L F N L L Q G N L L K N A C K V L T S R P D A V

Eco47III (1802)
1801 TCAGCGCTCTCAGGAAGTTCGTCCTGACAGAGTGCACCACTGAAGGGCTTCTCTGAAGAGGGCATCCAAGTGTACCTGAGAAAGCACCACCGGGAACCTG
411▶ S A L L R K F V R T E C Q L K G F S E E G I Q L Y L R K H H R E P
1901 GGTGGCAGACCGCTCATCCAGCTGATCCAAGCCACCTCAGCCCTGCATGGTTTGTGCCACCTCCCTGTCTTCTTGGATGGTGTCCAGATGCCACCG
444▶ G V A D R L I Q L I Q A T S A L H G L C H L P V F S W M V S R C H R
2001 GGAACCTTTGCTGAGAAGAGGGTCTTCCCAACAACAGCAGGACATGTACCTCCTGATCCTGCAGCATTCTCTGCTGCATGCCTCCCTCCGGACTCC
477▶ E L L L Q N R V F P T T S T D M Y L L I L Q H F L L H A S P P D S
2101 TCCCAGTCTGGTGGGACCTGGACTCCTCAAAGCCGGCTCTCCACCTCTGCACCTTGGCCACCTGGCTTCCGGGCTGGCCATGAGCTGCTATG
511▶ S P L G L G P G L L Q S R L S T L L H L G H L A L R G L A M S C Y

XmaI (2286) **KasI (2297)**
2201 TGTCTCAGCCAGCAGCTCCAGGCAGCTCAGGTTGACTCTGATGATATTTCTTGGTTTCTGGTACGTGCCCAAAGTAGTGTGCCGGGAGCAAGGC
544▶ V F T S A Q Q L Q A A Q V D S D D I S L G F L V R A Q S S V P G S K A
2301 GCCCTGGAGTTCCTGCACATTACCTTCCAGTGTCTTTTGGCGTTTCTACTTGGCTGTGAGTGTGACACGTCAGCGCCCTCTCAAGCACCTTTT
577▶ P L E F L H I T F Q C F F A A F Y L A V S A D T S A A S L K H L F
2401 AGCTGTGGCCGGTGGGAGCTCACTGCTGGAAAGGCTGTGCCAACCTGTGATCCAGGGCTCCAGAGTCAAGAAGGGCAGCGAAGCAGCCCTGCTGC
611▶ S C G R L G S S L L G R L L P N L C I Q G S R V K K G S E A A L L

BglII (2590)
2501 AGAAGGCTGAGCCACACAACCTGCAGATCACAGCAGCCTTCTAGCAGGCTGTTGTGCCAGCAGCATCGGGACCTGTTGGCTGCATGCCAGATCTCCGA
644▶ Q K A E P H N L Q I T A A F L A G L L S Q Q H R D L L A A C Q I S E

BsrBI (2630)
2601 GAGGGTGTGCTCCAGCGTCAGGACGTGCCCGCTCGTGTCTGGCCACAGCCTCCGCGAGCACTTCCATTCCATCCCGCTGCCGTGCCGGTGAGAC
677▶ R V L L Q R Q A R A R S C L A H S L R E H F H S I P P A V P G E T

NsiI (2706)
2700 CAAGAGCATGCATGCTATGCCGGCTTTATTTGGCTCATCCGGAGCCTGTACGAGATGCAGGAGGAGCAGTTGGCCAGGAGGCTGTCCGTGCTTGGAC
710▶ K S M H A M P G F I W L I R S L Y E M Q E E Q L A Q E A V R R L D

Bsp120I (2831)
2800 ATCGGGCACCTGAAGTTGACATTTTGCAGAGTGGGCCCTGCAGAGTGTGCTGCGCTGGCCTTTGACTGCAACATCTCCAGCGGCTGTGGCCCTACAGC
744▶ I G H L K L T F C R V G P A E C A A L A F V L Q H L Q R P V A L Q
2900 TGGATTAACTCTGTGGGAGATGTGCGAGTGGAAACAGCTGCGACCGTGCCTTGGGGTCTGCACAGCTCTGATTTTGGCAGATAACAATATCTCAGACCG
777▶ L D Y N S V G D V G V E Q L R P C L G V C T A L Y L R D N N I S D R

3000 AGGTGCCCGCACGCTGGTTGAGTGTGCTCTTCGCTGTGAGCAGCTGCAGAACTAGCTCTCTTCAACAACAACTCACGGATGCGTGGCCTGCTCCATG
810▶ G A R T L V E C A L R C E Q L Q K L A L F N N K L T D A C A C S M
3100 GCCAAGCTCCTTGACACAAGCAGAAGCTTCTTGTCCCTGAGGGTGGGGAACAATCACATCACAGCCGCTGGAGCCGAGGTGCTGGCCAGGGACTCAAGA
844▶ A K L L A H K Q N F L S L R V G N N H I T A A G A E V L A Q G L K
3200 GCAACACCTCCCTGAAGTTCCTGGGTTCTGGGCAACAGCGTGGGTGATAAGGGCACCAAGCCCTGGTGAAGTTGTAGCCGACCACCAGAACCTAAA
877▶ S N T S L K F L G F W G N S V G D K G T Q A L A E V V A D H Q N L K
3300 GTGGCTCAGCTTGGTAGGAAACAACATTGGCAGCATGGGTGCCAAGCCCTAGCACTGATGCTGGAGAAGAACAAGTCACTAGAGGAGCTCTGCCTAGAG
910▶ W L S L V G N N I G S M G A Q A L A L M L E K N K S L E E L C L E
3400 GAAAACCATATCTGTGACGAAGGGGTATATTCTCGCAGAAGGACTCAAGAGAATCAACTTTGAAATTCCTGAAACTGTCCAACAATGGCATCACCT
944▶ E N H I C D E G V Y S L A E G L K R N S T L K F L K L S N N G I T
3500 ACCGGGTGCAGAAGCCCTCTTGACGGCCCTCAGCAGGAACAGTGCCATTCTGGAGGTTGGCTTCGAGGGAACACATCTCTTTGGAGGAAATCCAAC
977▶ Y R G A E A L L Q A L S R N S A I L E V W L R G N T F S L E E I Q T
NheI (3658)
3600 ACTGAGCTCCAGGACGCCAGACTCTTGTGTGATGTCTCCGTTTGTGAGTGGACTGTAGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGG
1010▶ L S S R D A R L L L •
HpaI (3796)
3700 ACAAACCACAAGTGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAAGTT
EcoRI (3892)
3800 AACACAACAATTGCATTCATTTATGTTTCAGGTTTCAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAACCTCTACAATGTGGTATGGAATTCT
3900 AAAATACAGCATAGCAAACTTTAACCTCAAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAAT
4000 GTGCATTAGCTGTTGCAGCCTCACCTTCTTTCATGGAGTTAAGATATAGTGTATTTTCCCAAGTTTGAACAGCTCTTCATTTCTTTATGTTTTAAA
SspI (4131) SwaI (4145)
4100 TGCACTGACCTCCACATTCCTTTTTAGTAAAATATTCAGAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTTATTAGGCAGAATCCAG
4200 ATGCTCAAGGCCCTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGAACCTTTAATAGAAATTGGACAGCAAGAAAGCGAGCTTCTAG
4300 CTTTAGTTCTGGTGTACTTGAGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCATTCTCAATGAGCACAAAGCAGTCAGGAGCATAGT
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
4400 CAGAGATGAGCTCTGACATGCCACAGGGCTGACCACCTGATGGATCTGTCCACCTCATCAGAGTAGGGTGCAGCCACCAATGGTGTCAA
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 (4570)
4500 GTCCTTCTGCCGTTGCTCACAGCAGACCAATGGCAATGGCTTCCAGCACAGACAGTGCACCTGCCAATGTAGGCCTCAATGTGGACAGCAGAGATGATC
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
4600 TCCCAGTCTTGGTCTGATGGCCGCCGACATGGTCTTGTGTCCTATAGAGCATGGTATCTTCTCAGTGGCGACCTCCACCAGCTCCAGATCCT
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
AseI (4778)
4700 GCTGAGAGATGTTGAAGTCTTCATGGTGGCCCTCCTATAGTGAAGTCTTACTATGCCGATATACTATGCCGATGATTAATTGTCAAACAGCGTG
8▶ Q S I N F T K M
4800 GATGGCGTCTCCAGCTTATCTGACGGTTCACTAAACGAGCTCTGCTTATATAGACCTCCACCCTACACGCTACCGCCATTTCGCTCAATGGGGCGGA
SpeI (4933)
4900 GTTGTACGACATTTTGGAAAGTCCCGTTGATTTACTAGTCAAAAACAACTCCATTGACGTCAATGGGGTGGAGACTTGGAAATCCCCGTGAGTCAAC
SnaBI (5061)
5000 CGCTATCCAGGCCATTGATGTAAGTCCAAAACCCGATCATCATGGTAATAGCGATGACTAATACGTAGATGTAAGTCCAAAGTAGGAAAGTCCATAAGG
NdeI (5166)
5100 TCATGTAAGTGGGCATAATGCCAGGCGGGCATTACCCTGATTGACGTCAATAGGGGGCTACTTGGCATATGATACACTTGTGTAAGTCCAAAGTGGGC
5200 AGTTTACCCTAAATACTCCACCCATTGACGTCAATGAAAAGTCCCTATTGGCGTACTATGGGAACATACGCTATTATTGACGTCAATGGGCGGGGGTGC
PacI (5352) SdaI (5344)
5300 TTGGCGGTGAGCCAGGCGGGCCATTTACCCTAAGTTATGTAACGCTGAGGTTAATTAAAGAACATGTGAGCAAAAGGCCAGAAAAGGCCAGGAACCG
5400 TAAAAGGCCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCAGAAAATCAGCGCTCAAGTCAAGTCAAGTGGCGAAACCCGACAGGA
5500 CTATAAGATAACCAGGCGTTTTCCCTGGAAAGTCCCTCGTGCCTCTCTGTTCCGACCCTGCCCTTACCGGATACCTGTCCGCTTTCTCCCTTCGG
ApaLI (5676)
5600 GAAGCGTGGCGCTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTGCTCCAAGCTGGGCTGTGTGCACGAACCCCGTTTCAGCC
5700 CGACCCTGCGCTTATCCGGTAACTATCGTCTTGTAGTCAACCCGGTAAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAAACAGGATTAGCAGA
5800 GCGAGGTATGTAGGCGGTGCTACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAG
5900 TTACCTTCGGA AAAAGAGTTGGTAGCTCTTGTATCCGGCAAAACAAACCACCGCTGGTAGCGGTGTTTTTTGTTTGAAGCAGCAGATTACGCGCAGAAA
PacI (6092)
6000 AAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGTCTGACGCTCAGTGAACGAAAACCTCACGTTAAGGGATTTTGGTCAAGGCTAGTTAATTA

EagI (6112)

Swal (6101) NotI (6111)

6100 ACATTTAAATC AGCGGCCGC AATAAAATATCTTTATTTTCATTACATCTGTGTGGTTTTTTGTGGAATCGTAACTAACATACGCTCTCCATCAAAA
6200 CAAAACGAAACAAAACAACTAGCAAATAGGCTGTCCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTATCGAA