



PvuI (7)
SgfI (6) 1 GGATCTGCATCGCTCCGGTGCCCGTCAGTGGCAGAGCGCACATCGCCACAGTCCCGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGTGCCTA **MfeI (82)**

101 GAGAAAGTGGCGCGGGTAAACTGGAAAGTGATGCTGTACTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCGTATATAAGTGCAGTAGTCGCC

Psp1406I (203) 201 GTGAACGTTCTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCCTTACGCGCCCGCCGCTACCTGAGGCC **HindIII (245)** **Bsu36I (291)**

301 GCCATCCACGCGGGTTGAGTCGCGTTTCTGCCGCCTCCCGCTGTGGTGCCTCCTGAAGTGCCTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

401 GGGCCTTTGTCCGGCGCTCCCTTGAGCGCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTCTCAACTCTACGCTTTTGTTCGTTT **NgoMIV (441)**

501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGGGCGCTACCTGAGATCACCGGTATCATGACCACCGAGCAGCGCAGCCTGCAAGCCTTCCA **KasI (535)** **AgeI (552)**
1▶ M T T E Q R R S L Q A F Q

BspEI (608) 601 GGATTATATCCGGAAGACCTGGACCCTACCTACATCCTGAGCTACATGGCCCTTGGTTTAGGGAGGAAGAGGTGCAGTATATTCAGGCTGAGAAAAAC
13▶ D Y I R K T L D P T Y I L S Y M A P W F R E E E V Q Y I Q A E K N

Bsp120I (705) 701 AACAAAGGCCCAATGGAGCTGCCACACTTTTTCTCAAGTTCTGTTGGAGCTCCAGGAGGAAGGCTGGTTCCGTGGCTTTTGGATGCCCTAGACCATG
47▶ N K G P M E A A T L F L K F L L E L Q E E G W F R G F L D A L D H

801 CAGGTTATTCTGGACTTTATGAAGCCATTGAAAGTTGGGATTTCAAAAAAATTGAAAAGTTGGAGGAGTATAGATTACTTTTAAAAACGTTTACAACCGA **Psp1406I (884)**
80▶ A G Y S G L Y E A I E S W D F K K I E K L E E Y R L L L K R L Q P E

901 ATTTAAAACAGAAATATCCCAACCGATATCATTCTGATCTGTCTGAATGTTTAAATTAATCAGGAATGTGAAGAAATCTACAGATTTGCTCTACTAAG **EcoRV (925)** **AseI (955)**
113▶ F K T R I I P T D I I S D L S E C L I N Q E C E E I L Q I C S T K

1001 GGGATGATGGCAGGTGCAGAGAAATTTGGTGAATGCCTTCTCAGATCAGACAAGGAAAACCTGGCCAAAACCTTGAACCTTGTGGAGAAAGAAAGGA
147▶ G M M A G A E K L V E C L L R S D K E N W P K T L K L A L E K E R

1101 ACAAGTTCAGTGAAGTGTGGATTGTAGAGAAAGGTATAAAAGATGTTGAAACAGAAAGATCTTGAGGATAAGATGGAAACTTCTGACATACAGATTTTCTA
180▶ N K F S E L W I V E K G I K D V E T E D L E D K M E T S D I Q I F Y **BglII (1155)**

1201 CCAAGAAGATCCAGAATGCCAGAATCTTAGTGAGAATTCATGTCCACCTTCAGAAGTGTCTGATACAAAATTTGTACAGCCCATTTAAACCAAGAAA **EcoRI (1233)** **BsrGI (1271)**
213▶ Q E D P E C Q N L S E N S C P P S E V S D T N L Y S P F K P R N

1297 TTACCAATTAGAGCTTGCCTTGCCTGCTATGAAAGGAAAAACACAATAATATGTCTCCTACAGGTTGTGAAAAACCTTTGTTTCACTGCTTATATGT
245▶ Y Q L E L A L P A M K G K N T I I C A P T T G C G K T F V S L L I C

1397 GAACATCATCTTAAAAAATCCCAAGCAAAAAGGGGAAAGTTGTCTTTTTGCGAATCAGATCCCAGTGTATGAACAGCAGAAATCTGTATTCTCAA
279▶ E H H L K K F P Q G Q K G K V V F F A N Q I P V Y E Q Q K S V F S

1497 AATACTTTGAAAGACATGGGTATAGAGTTACAGGCATTTCTGGAGCAACAGCTGAGAATGTCCAGTGAACAGATTGTTGAGAACAAATGACATCATCAT
312▶ K Y F E R H G Y R V T G I S G A T A E N V P V E Q I V E N N D I I I

1597 TTTAACTCCACAGATCTTGTGAACAACCTTAAAAAGGGAACGATTCCATCACTATCCATCTTTACTTTGATGATATTTGATGAATGCCACAACACTAGT
345▶ L T P Q I L V N N L K K G T I P S L S I F T L M I F D E C H N T S

1697 AAACAACACCCGTACAATATGATCATGTTTAAATATCTAGATCAGAAAACCTGGAGGATCTTCAGGCCACTGCCCCAGGTCTGGGCTGACTGCCTCGG
379▶ K Q H P Y N M I M F N Y L D Q K L G G S S G P L P Q V I G L T A S

1797 TTGGTGTGGGGATGCCAAAACACAGATGAAGCCTTGGATTATCTGCAAGCTGTGTGCTTCTTGTGATGCGTCAGTATAGCAACAGTCAAAACAAA
412▶ V G V G D A K N T D E A L D Y I C K L C A S L D A S V I A T V K H N

1897 TCTGGAGGAACTGGAGCAAGTTGTTTATAAGCCCCAGAAGTTTTTTCAGGAAAGTGAATCACGGATTAGCGACAAAATTTAAATACATCATAGCTCAGCTG
445▶ L E E L E Q V V Y K P Q K F F R K V E S R I S D K F K Y I I A Q L

1997 ATGAGGGACACAGAGAGTCTGGCAAAGAGAATCTGCAAAGACCTGAAAACCTTATCTCAAATTCAAAATAGGGAAATTTGGAACACAGAAATATGAACAAT
479▶ M R D T E S L A K R I C K D L E N L S Q I Q N R E F G T Q K Y E Q

NsiI (2118)
SphI (2116) 2097 GGATTGTTACAGTTCAGAAAAGCATGCATGGTGTCCAGATGCCAGACAAAAGATGAAGAGAGCAGGATTTGTAAGCCCTGTTTTTATACACTTCACATTT
512▶ W I V T V Q K A C M V F Q M P D K D E E S R I C K A L F L Y T S H L

SphI (2229) 2197 GCGGAAATATAATGATGCCCTCATTATCAGTGAGCATGCACGAATGAAAGATGCTCTGGATTACTTGAAGACTTCTTCAGCAATGTCCGAGCAGCAGGA
545▶ R K Y N D A L I I S E H A R M K D A L D Y L K D F F S N V R A A G

BglII (2313) 2297 TTCGATGAGATTGAGCAAGATCTTACTCAGAGATTTGAAGAAAAGCTGCAGGAACTAGAAAAGTGTTCAGGGATCCCAGCAATGAGAATCCTAAACTTG
579▶ F D E I E Q D L T Q R F E E K L Q E L E S V S R D P S N E N P K L **BamHI (2367)**

2397 AAGACCTCTGCTTCACTTACAAGAAGAGTACCACTTAAACCCAGAGACAATAACAATTTCTTTTGTGAAAACAGAGCACTTGTGGACGCTTTAAAAAA
612▶ E D L C F I L Q E E Y H L N P E T I T I L F V K T R A L V D A L K N

2497 TTGGATTGAAGAAATCCTAAACTCAGTTTTCTAAAACCTGGCATATTGACTGGCGTGGCAAAAACAAATCAGAACACAGGAATGACCTCCCGCACAG
645▶ W I E G N P K L S F L K P G I L T G R G K T N Q N T G M T L P A Q **XemI (2468)**

NsiI (2609) 2597 AAGTGTATATTGGATGCATTCAAAGCCAGTGGAGATCACAATATTCTGATTGCCACCTCAGTTGCTGATGAAGGCATTGACATTGCACAGTGCATCTTG
679▶ K C I L D A F K A S G D H N I L I A T S V A D E G I D I A Q C N L

2697 TCATCCTTTATGAGTATGTGGCAATGTATCAAAATGATCCTAAAACAGAGGAGGAGCAAGAGGTAGCAAGTGTCTTCTGACTAGTAA
712▶ V I L Y E Y V G N V I K M I Q T R G R G R A R G S K C F L L T S N

BsrGI (2825)
BspLU11I (2822)
2794 TGCTGGTGAATTTGAAAAAGAACAAATAAACATGTACAAAAGAAAAATGATGAATGACTCTATTTTACGCCTTCAGACATGGGACGAAGCAGTATTTAGG
744▶ A G V I E K E Q I N M Y K E K M M N D S I L R L Q T W D E A V F R

BstAPI (2990)
2894 GAAAAGATTCTGCATATACAGACTCATGAAAAATTCATCAGAGATAGTCAAGAAAAACAAAACCTGTACCTGATAAGGAAAAATAAAAACTGCTCTGCA
778▶ E K I L H I Q T H E K F I R D S Q E K P K P V P D K E N K K L L C
2994 GAAAGTGCAAAGCCTTGGCATGTTACACAGCTGACGTAAGAGTGATAGAGGAATGCCATTACACTGTGCTTGGAGATGCTTTTAAAGGAATGCTTTGTGAG
811▶ R K C K A L A C Y T A D V R V I E E C H Y T V L G D A F K E C F V S
3094 TAGACCACATCCCAAGCCAAAGCAGTTTTCAAGTTTTGAAAAAGAGCAAAGATATTCTGTGCCGACAGAAGTGCAGCCATGACTGGGGAATCCATGTG
844▶ R P H P K P K Q F S S F E K R A K I F C A R Q N C S H D W G I H V
3194 AAGTACAAGACATTTGAGATTCCAGTTATAAAAAATGAAAGTTTTGTGGTGGAGGATATTGCAACTGGAGTTCAGACACTGTACTCGAAGTGGGAAAGACT
878▶ K Y K T F E I P V I K I E S F V V E D I A T G V Q T L Y S K W K D

MscI (3376)
EcoRV (3338) NheI (3370)
3294 TTCATTTTGAAGAATACCATTTTGTCCAGCAGAAATGTCCAAATGATATCAGTCCCTCAATCTTCAGCTACAGGGAGCTAGCTGGCCAGACATGATAAG
911▶ F H F E K I P F D P A E M S K •

3394 ATACATTGATGAGTTTGGACAAACCACAACACTAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATA

HpaI (3508) MfeI (3519)
3494 AGCTGCAATAAACAAAGTTAAACAACAACAATTGCATTCATTTTTATGTTTCAGGTTCAAGGGGAGGTGTGGGAGGTTTTTTAAAGCAAGTAAACCTCTACA

EcoRI (3604)
3594 AATGTGGTATGAATTCTAAATACAGCATAGCAAACCTTTAACCTCCAAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCA
3694 TCAGGGGCTGTTGCCAATGTGCATTAGCTGTTGCAGCCTCACCTTCTTCATGGAGTTAAGATATAGTGATTTTTCCCAAGTTTGAAGTACTGCTCTTC

SspI (3843)
3794 ATTTCTTTATGTTTTAAATGCACTGACCTCCCACATTCCTTTTTAGTAAAATATTCAGAAATAATTTAAATACATCATTGCAATGAAAAAATGTTTT
3894 TTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGAACCTTTAATAGAAATTGGACAGC
3994 AAGAAAGCGAGCTTCTAGCTTTAGTTCTGCTGTTGACTTGGAGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCCATTCATCTCAATGAGCACAA
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

BstXI (4147)
4094 AGCAGTCAGGAGCATAGTCAGAGATGAGCTCTGTCACATGCCACAGGGGCTGACCACCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCTGAC
114▶ 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 Y P H R V

StuI (4282)
4194 AGCCACAATGGTGTCAAAGTCTTCTGCCGTTGCTCACAGCAGACCAATGGCAATGGCTTACAGCACAGACAGTACCTGCCAATGTAGGCCCTCAATG
81▶ 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 I Y A E I
4294 TGGACAGCAGAGATGATCTCCCCAGTCTTGGCTCTGATGGCCGCCGACATGGTCTTGTGCTCATAGAGCATGGTATCTTCTAGTGGCGACCT
47▶ 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 K E T A V E

AseI (4490)
4394 CCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGTCTTCATGATGGCCCTCTATAGTGAGTCTGATTATACTATGCGGATATACTATGCCGATGATT
14▶ V L E L D Q Q S I N F T K M
4494 AATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTCACTAAACGAGCTCTGCTTATATAGACCTCCACCGTACACGCTACCGCCAT
4594 TTGCGTCAATGGGGCGGAGTTGTTACGACATTTTGAAAGTCCCGTTGATTTACTAGTCAAAACAACTCCATTGACGTCAATGGGGTGGAGACTTGGAA

SnaBI (4773)
4694 AATCCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGACTGCCAAG

NdeI (4878)
4794 TAGGAAAGTCCATAAGGTCATGTACTGGGCATAATGCCAGGCGGCCATTTACCGTCATTGACGTCAATAGGGGGCGTACTTGGCATATGATACACTTG
4894 ATGTACTGCCAAGTGGGCGAGTTTACCGTAAATACTCCACCCATTGACGTCAATGGAAAGTCCCTATTGGCGTTACTATGGGAACATACGTCATTATTGAC

SdaI (5056) BspLU11I (5074)
4994 GTCAATGGGCGGGGTCGTTGGGCGGTACGCCAGGCGGGCCATTTACCGTAAGTTATGTAACGCCTGCAGGTTAAATTAAGAACATGTGAGCAAAAGGCCA
5094 GCAAAAGGCCAGGAACCGTAAAAAGCCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAATAATCGACGCTCAAGTCAGAGG
5194 TGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTTCCCTGGAAGCTCCCTCGTGCCTCTCCTGTTCCGACCTGCCGCTTACCGGATACCTGT

ApaLI (5388)
5294 CCGCCTTTCTCCCTTCGGGAAGCGTGGCGCTTTCTCATAGTCCAGCTGTAGGTATCTCAGTTCGGTGTAGGTGCTTCCGCTCCAAGCTGGGCTGTGTGCA
5394 CGAACCCCGCTTCCAGCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTTGTAGTCCAAACCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACT
5494 GGTAAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCT
5594 CGCCTCTGCTGAAGCCAGTTACCTTCGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAAACCCGCTGGTAGCGGTGGTTTTTTTTGTTTGAAGCA
5694 GCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGCTGACGCTCAGTGGAAACGAAAACTCACGTTAAGGGATTTTG

EagI (5824)
NotI (5823)
5794 GTCATGGCTAGTTAATTAACATTTAAATC AGCGGCCGCAATAAAAATATCTTTATTTTTCATTACATCTGTGTGTTGTTTTTGTGTGAATCGTAACTAAC
5894 ATACGCTCTCCATCAAAACAAAACGAAACAAAACAACTAGCAAATAGGCTGTCCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA