



**PvuI (7)**  
**SgfI (6)** 1 GGATCTGCGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCCGAGAAGTTGGGGGAGGGGTGCGCAATTGAACGGGTGCCTA

101 GAGAAAGTGGCGCGGGTAAACTGGAAAAGTGTGCTGTACTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

**HindIII (245)**  
**Psp1406I (203)** 201 GTGAACGTTCTTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCTTACCGCGCCGCCCTACCTGAGGCC

301 GCCATCCACGCCGGTTGAGTCGCGTTTCTGCCGCTCCCGCTGTGGTGCCTCCTGAAGTGCCTCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

**NgoMIV (441)**  
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTCCTGACCTGCTTGTCTCAACTCTACGCTTTTGTTCGTTT

**AgeI (552)** 501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGGCGCTACCTGAGATCACCGGTAGGAGGGCCATCATGACAGTTTTCTTTCTTTGCATTCTTC

601 GCTGCCATTCTGACTCACATAGGGTGCAGAACCCAGCGCCGAAATCCAGAAAACGGAGGGAGAAGATATAACCGATTCAACATGGGCAATGTGCCTACA

111▶ A A I L T H I G C S N Q R R N P E N G G R R Y N R I Q H G Q C A Y

**BbrPI (786)**  
701 CTTTCATTCTCCAGAACACGACGGAACTGCCGTGAGAGTGCACAGAGCAGTACAACACCAACGCTCTGCAAAGGGATGCTCCACACGTGGAGCCGGA

44▶ T F I L P E H D G N C R E S A T E Q Y N T N A L Q R D A P H V E P D

801 TTTCTCTCCAGAAAATCAGCATCTGAGCATTGAGTAAATATACTAGTGGCTGCAAAAATGAGAATTACATTGTGGAAAATATGAAGTCG

77▶ F S S Q K L Q H L E H V M E N Y T Q W L Q K L E N Y I V E N M K S

901 GAGATGGCCAGATACAACAGAATGCTGTTCAAACACACGGCCACCATGCTTGAGATAGGAACAGTCTCTATCTCAGACTGCAGAGCAGACCCGAA

111▶ E M A Q I Q Q N A V Q N H T A T M L E I G T S L L S Q T A E Q T R

**EcoRI (1064)**  
1001 AGCTGACAGATGTTGAGACCCAGGTAATAAATCAAACATCCCGACTTGAAATACAACCTGCTAGAGAATTCATTATCAACATACAAGCTAGAGAAGCAACT

144▶ K L T D V E T Q V L N Q T S R L E I Q L L E N S L S T Y K L E K Q L

1101 TCTCCAACAGACAAATGAAATCTGAAGATTCAGGAAATACAGGAAATCTAGAGCACAAAATCTAGAAAATGGAGGGAAAAACACAAAAGAAATGGAC

177▶ L Q Q T N E I L K I H E K N S L L E H K I L E M E G K H K E E L D

1201 ACCTTGAAGGAGGAGAAAAGAAAACCTTCAAGGCTTGGTTTCTCGTCAGACATTATCATCCAGGAGTTGGAGAAGCAACTTAGTAGAGCTACCAACAACA

211▶ T L K E E K E N L Q G L V S R Q T F I I Q E L E K Q L S R A T N N

1301 ACAGCATCTGCAGAAGCAAACTGGAGCTCATGGACACAGTTCATAACCTTGTGAGCCTTTCAGTAAAGAAAGGTTTGTCTAAAGGGAGGAAAAAG

244▶ N S I L Q K Q Q L E L M D T V H N L V S L C T K E G V L L K G G K R

**BsaBI (1431)**  
1401 AGAAGAAGAGAAACCATTTCGAGACTGTGCAGATGTATATCAAGCTGGTTTTAATAAAAAGTGAATCTACACTATTTATTTAATAATATGCCAGAACC

277▶ E E E K P F R D C A D V Y Q A G F N K S G I Y T I Y F N N M P E P

1501 AAAAAAGTATTTTGAATATGGATGTGAATGGGGAGGTTGGACAGTAATACAACACCGGGAAGTGAAGCCTGGATTTCCAGAGGGGCTGGAAGGAGT

311▶ K K V F C N M D V N G G G W T V I Q H R E D G S L D F Q R G W K E

**SspI (1630)** 1601 ATAAAATGGGTTTTGGGAATCCCTCTGGTGAATATTGGCTCGGGAACGAGTTCATTTTGAATAACAGTACAGAGGACAGTACATGCTGAGGATTGAGCT

344▶ Y K M G F G N P S G E Y W L G N E F I F A I T S Q R Q Y M L R I E L

1701 GATGGACTGGGAAGGGAACCGCTACTCACAGTACGACAGATTCCACATAGGAAATGAAAAGCAGAACTATAGTTATATTTAAAAGGTCACACAGGG

377▶ M D W E G N R A Y S Q Y D R F H I G N E K Q N Y R L Y L L K G T G

1801 ACAGCAGGCAACAGAGCAGCTTATCTTACACGGTGTGATTTTACAGCAGAAAGGATGCTGATAACGACAACGTATGTGCAAAATGCGCTCTCATGCTAA

411▶ T A G K Q S S L I L H G A D F S T K D A D N D N C M C K C A L M L

1901 CAGGAGTTGGTGGTTCGATGCCTGTGGCCCTTCCAATCTAAATGGAATGTTCTACTGCGGGACAAAATCATGAAAACGAAATGGGATAAAGTGGA

444▶ T G G W W F D A C G P S N L N G M F Y T A G Q N H G K L N G I K W H

**Bsp120I (2010)**  
**EcoO109I (2009)** 2001 CTACTTCAAAGGCCAGTTACTCTTACGTTCCACCACCATGATGATCCGGCCCTTGGACTTTTGAAGTGTCTAGCCAGTATTAGAAAAGCTGCAAAGA

477▶ Y F K G P S Y S L R S T T M M I R P L D F •

**MscI (2112)**  
**NheI (2106)** 2101 AAGCTGGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGGACAAACCACAACCTAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTG

**HpaI (2244)** 2201 ATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAAAGTTAAACAACAATTGCATTCATTTTATGTTTCAGGTTTCAGGGGAGGTGTGGGA

**EcoRI (2340)**  
2301 GGTTTTTTAAAGCAAGTAAAACCTCTACAAATGTGGTATGGAATCTAAAATACAGCATAGCAAACTTTAACCTCAAATCAAGCCTCTACTTGAATCC

2401 TTTTCTGAGGGATGAATAAGGCATAGGATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTGACGCTCACCTTCTTTCATGGAGTTAAGATATAGTG

**SapI (2522)** 2501 TATTTTCCAAGTTTGAAGTACTCTTCATTTCTTTATGTTTAAATGCACTGACCTCCACATTCCCTTTTATGAAAATATTCAGAAAATATTTAAA

**SspI (2579)** **Swal (2593)**

2601 TACATCATTGCAATGAAAATAAATGTTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAAC

2701 AAAGGAACCTTTAATAGAAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCCTGGTGTACTTGAGGGGGATGAGTTCCTCAATGGTGGTTTTGAC  
 141 • N R T Y K L P I L E E I T T K V

2801 CAGCTTGCCATTCATCTCAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTCTGCACATGCCACAGGGGCTGACCACCTGATGGATCTG  
 124 L K G N 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

2901 TCCACCTCATCAGAGTAGGGGTGCTGACAGCCACAATGGTGTCAAAGTCCTTCTGCCGTTGCTCACAGCAGACCAATGGCAATGGCTTCAGCACAGA  
 90 D V E D S 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

3001 CAGTGACCTGCCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCCAGTCTTGGTCTGATGGCCGCCCGACATGGTGCTTGTTCCTCATA  
 57 T V R G 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

3101 GAGCATGGTATCTTCTCAGTGGCGACCTCCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGTCTTCATGGTGGCCCTCTATAGTGAGTCGTATTA  
 24 L M T I K E T A V E V L E L D Q Q S I N F T K M

3201 TACTATGCCGATATACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTTCATAAACGAGCTCTGCTTATATAG

3301 ACCTCCCACCGTACACGCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTTACGACATTTTGAAAGTCCCCTTGGATTTACTAGTCAAAACAACTCC  
 SpeI (3381)

3401 CATTGACGTCAATGGGGTGGAGACTTGAAATCCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTACTGCCAAAACCGCATCATCATGGTAATAGC

3501 GATGACTAATACGTAGATGTAAGTCCCAAGTAGGAAAGTCCCATAAAGTCACTGACTGGGCATAATGCCAGGGGGCCATTTACCGTCATTGACGTCAATA  
 SnaBI (3509)

3601 GGGGGCTACTTGGCATATGATACACTTGTACTGCAAGTGGGAGTTTACCCTAAATACTCCACCCATTGACGTCAATGGAAAGTCCCTATTGGCG  
 NdeI (3614)

3701 TTAATGGAACATAACGTCATTATTGACGTCAATGGGCGGGGTCGTTGGGCGTCCAGCAGCGGGCCATTTACCGTAAGTTATGTAACGCTGCAGG  
 SdaI (3792)

3801 TTAATTAAGAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGGCCGCTTGTGGCGTTTTTCCATAGGCTCCGCCCTGACGAGC  
 PacI (3800) BspLU11I (3810)

3901 ATCACAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCCTGGAAGTCCCTCGTGGCTCTCTGT

4001 TCCGACCCTGCCGTTACCGGATACCTGTCGCTTTCTCCCTTCGGGAAGCGTGGCGTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAG

4101 GTCGTTGCTCCAAGCTGGGCTGTGTGACGAACCCCGTTAGCCCGACCGCTGCGCTTATCCGGTAACTATCGTCTTGAAGTCCAACCCGGTAAGAC  
 ApaLI (4124)

4201 ACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGG

4301 CTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAGAGTTGGTAGCTCTTATCCGGCAAAACAAACCACCGCT

4401 GGTAGCGGTGGTTTTTTGTTTGAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTACGGGGTCTGACGCTCAGT

4501 GGAACGAAAACCTCACGTTAAGGGATTTTGGTATGGCTAGTTAATTAACATTTAAATCAGCGGCCGCAATAAAATATCTTTATTTTATTACATCTGTGT  
 EagI (4560)  
 PacI (4540) SwaI (4549) NotI (4559)

4601 GTTGGTTTTTTGTGTAATCGTAACTAACATACGCTCTCCATCAAACAAAACGAAACAAAACAACTAGCAAAATAGGCTGTCCCCAGTGCAAGTGCAG

4701 GTGCCAGAACATTTCTCTATCGAA