



125

**PvuI (7)**  
**SgfI (6)** 1 GGATCTCGATCGCTCCGGTGCCCGTCAGTGGCGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA  
MfeI (82) EcoNI (96)

101 GAGAAGTGGCGCGGGTAAACTGGAAAGTGATGTCGTACTGGTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGC

**Psp1406I (203)** **Bsu36I (291)**  
EcoNI (287)

201 GTGAACGTTCTTTTTCGCAACGGGTTTCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCTTACCGCCGCCGCCCTACCTGAGGCC

301 GCCATCCACGCCGGTTGAGTCGCGTTCTGCCGCTCCCGCTGTGGTGCCTCTGAAGTGCCTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

**NgoMI (441)**  
**NaeI (441)**

401 GGGCCTTTGTCCGGCGCTCCCTTGGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTCAACTCTACGTCTTTGTTTCGTTT

**KasI (535)** **AgeI (552)** **BstEII (569)** **BspLU11I (592)**

501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGCGCCTACCTGAGATCACCGGTCATCATGAGCTGGTACCCTCCCTCCCAACCCAGACATGTGG  
1▶ M S W S P S L P T Q T C G

**BsaBI (681)**

601 AGCCTGGGAAATGAAAGAAGCCTGGGGACCGGGGATTTGAAACGTCATCCGGTGGACAATCAGGCGACAGGTGAACAGATCGCCATCAAGCAATGC  
13▶ A W E M K E R L G T G G F G N V I R W H N Q A T G E Q I A I K Q C

**XmaI (788)**  
**SmaI (788)**

701 CGACAGGAGCTCAGCCAAAGAAGACAGACCGCTGGTGCCTCGAAATCCAGATCATGAGAAGGCTGAACCATCCCAATGTGGTGGCTGCCGGGATGTCC  
47▶ R Q E L S P K N R D R W C L E I Q I M R R L N H P N V V A A R D V

**NcoI (845)** **MscI (842)** **ScaI (851)** **BglIII (867)** **XmnI (885)**

801 CAGAGGGGATGCAGAACCTGGCACCAATGATTTGCCACTGCTGGCCATGGAGTACTGCCAAGGAGAGATCTCCGAAGATACTTGAACAGTTCCGAGAA  
80▶ P E G M Q N L A P N D L P L L A M E Y C Q G G D L R R Y L N Q F E N

901 CTGCTGTGGCCTCGCGGAAGGAGCTGTCTTACCTGTGAGTGACATCGCATCGGCTCTTAGATACCTTACGAAAACAGAATCATCCATCGAGACCTG  
113▶ C C G L R E G A V L T L L S D I A S A L R Y L H E N R I I H R D L

**VspI (1038)**  
**AseI (1038)** **ApaLI (1095)**

1001 AAGCCAGAAAAACATCGTTCTGCAGCAAGGAGAGAAAAAGATTAATACACAAAATATTGATCTAGGATATGCCAAGGAGCTGGATCAGGGCAGTCTGTGCA  
147▶ K P E N I V L Q Q G E K R L I H K I I D L G Y A K E L D Q G S L C

**KasI (1128)**

1101 CGTCATTTGTGGGACTCTGCAATACCTGGCGCAGAGCTTCTGGAGCAGCAGAAGTACACCGTGACCGTTGACTACTGGAGCTTCGGCACCCCTGGCCTT  
180▶ T S F V G T L Q Y L A P E L L E Q Q K Y T V T V D Y W S F G T L A F

1201 CGAGTGCATCACTGGCTTCCGGCCCTTCTCCCTAACTGGCAGCCTGTGAGTGGCACTCCAAAGTCCGGCAGAAGAGCGAAGTGGACATCGTTGTTAGT  
213▶ E C I T G F R P F L P N W Q P V Q W H S K V R Q K S E V D I V V S

1301 GAAGACTTGAATGGAGCAGTGAAGTTTTCAAGTTCGCTACCTTCCCAATAATCTTAACAGTGTCTTGGCTGAACGGCTGGAGAAGTGGCTGCAGCTGA  
247▶ E D L N G A V K F S S L P F P N N L N S V L A E R L E K W L Q L

1401 TGCTTATGTGGCCTCGGCAAGGGGACGGATCCCAAGTATGGCCCAACGGCTGCTTCCAGAGCCCTGGATGACATCTTGAACCTGAAGCTGGTTCA  
280▶ M L M W H P R Q R G T D P Q Y G P N G C F R A L D D I L N L K L V H

1501 TGTCTTGAACATGGTACAGGCACCGTTACACATACCCCGTGACGGAGGATGAGAGTCTGCAGAGCTTAAAAACAGAATCCAGGAAGACACGGGGATC  
313▶ V L N M V T G T V H T Y P V T E D E S L Q S L K T R I Q E D T G I

1601 CTGGAGACAGACCAGGAGCTGCTGCAAGAGGCGGGTGGTCTGCTCCCTGACAAGCTGCTACTCAGTGCATCTCAGACAGCAAGCAACAGAGGGCC  
347▶ L E T D Q E L L Q E A G L V L L P D K P A T Q C I S D S K T N E G

1701 TCACGTTGGACATGGATCTTGTTTTTCTTTGACAACAGTAAATCAACTATGAGACTCAGATCACCCCGACCCCAACCGGAAAGTGTGAGCTGTAT  
380▶ L T L D M D L V F L F D N S K I N Y E T Q I T P R P Q P E S V S C I

1801 CCTCAGGAGCCCAAGCGGAACCTCTCCTTCTCCAGCTGAGGAAAGTGTGGGCGAAGTCTGGCACAGCATCCAGACGCTGAAGGAAGACTGTAAACCG  
413▶ L Q E P K R N L S F F Q L R K V W G Q V W H S I Q T L K E D C N R

**SfiI (1977)** **BspEI (1937)** **NcoI (1973)**

1901 CTGCAGCAGGGACAGCGAGCAGCCATGATGAGTCTCCTCCGGAATAACAGCTGCCTCTCTAAGATGAAGAACGCCATGGCCTCCACGGCCAGCAGCTCA  
447▶ L Q Q G Q R A A M M S L L R N N S C L S K M K N A M A S T A Q Q L

2001 AGGCCAAGCTGGACTTCTTCAAAAACAGCATCCAGTGCAGTGGAGAAGTATAAAGAGCAGACCGAGTGGGATCACCTCAGATAAATTGCTGCTGGC  
480▶ K A K L D F F K T S I Q I D L E K Y K E Q T E F G I T S D K L L L A

**BsrBI (2164)**

2101 TTGGCGGGAGATGGAGCAGGCTGTGGAGCAGTGTGGGCGGGAGAATGACGTGAAGCATCTAGTAGAGCGGATGATGGCACTGCAGACTGACATTGTGGAC  
513▶ W R E M E Q A V E Q C G R E N D V K H L V E R M M A L Q T D I V D

2201 CTGCAGAGGAGCCGATGGTTCGGAAGCAGGGGGACCTGGATGACCTAGAGGAACAAGCGAGGGAGCTCTACCGAAGACTCAGGGAGAAGCCAAGAG  
547▶ L Q R S P M G R K Q G G T L D D L E E Q A R E L Y R R L R E K P R

2301 ACCAAAGGACAGAAGGTGACAGCCAGGAGATGGTACGGCTGCTGCTTCCAGCAATCCAAAGCTTTGAGAAGAAAGTTCGGGTGATTTATACAGCTCAG  
580▶ D Q R T E G D S Q E M V R L L L Q A I Q S F E K K V R V I Y T Q L S

**PshAI (2484)**

2401 TAAGACCTGGTTTGTAAAGCAGAAGGCACTGGAGTTGCTGCCAAGGTAGAAGAGGTAGTGAGCCTTATGAACGAGGACGAGAGGACCGTGGTCCGGCTT  
613▶ K T V V C K Q K A L E L L P K V E E V V S L M N E D E R T V V R L

2501 CAGGAGAAGCGGCAGAAGGAACCTGGAACCTCCTGAAGATCGCTGTAGCAAAGTCCGAGGTCCTGAGTGGAAAGCCAGACAGCATGAATGTGTCTC  
647▶ Q E K R Q K E L W N L L K I A C S K V R G P V S G S P D S M N V S

**Tth111I (2600)**

2601 GACTCAGTCAACCCTGGTCAGCTAATGTCCAGCCTTCCAGTGCCTGTGACAGCTTACCTGAATCAGACAAGAAAAGTGAAGAAGTGGTGGCCGAAGCCCA  
680▶ R L S H P G Q L M S Q P S S A C D S L P E S D K K S E E L V A E A H

2701 CGCCCTCTGCTCCCGGCTAGAAAGTGGCTGCAGGACACTGTGAAGGAGCAAGACAGAAGCTTACGGTAACCGCCGGATCCTATCCCTATGATGTGCCA  
713▶ A L C S R L E S A L Q D T V K E Q D R S F T V T A G S Y P Y D V P

BstEII (2766)

MscI (2879)

2801 GACTATGCTGGCTATCCATATGATGTTCTGATTATGCTGGATACCCTTATGATGTGCCAGACTATGCCTAAAGCTAGCTGGCCAGACATGATAAGATAC  
747▶ D Y A G Y P Y D V P D Y A G Y P Y D V P D Y A •

NdeI (2816)

NheI (2873)

2901 ATTGATGAGTTTGGACAAACCACAACCTAGAATGCAGTGAATAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCT

HpaI (3011) MfeI (3022)

3001 GCAATAAACAAAGTTAAACAACAACAAATTGCATTCATTTTATGTTTCAGGTTTCAGGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAACCTCTACAAATG

EcoRI (3107)

3101 TGGTATGGAATTCATAAATACAGCATAGCAAACCTTTAACCTCCAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAG

3201 GGGCTGTTGCCAATGTGCATTAGCTGTTTGACGCTCACCTTCTTTTCATGGAGTTAAGATATAGTGTATTTTCCCAAGGTTTGAAGTACTGCTTTCATTT

SspI (3346) SwaI (3360)

3301 CTTTATGTTTTAAATGCACTGACCTCCACATTCCTTTTGTAGTAAATATTCAGAAATAATTTAAATACATCATTGCAATGAAATAAATGTTTTTTAT

3401 TAGGCAGAATCCAGATGCTCAAGGCCCTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTTAATAGAAATTTGGACAGCAAGA

3501 AAGCGAGCTTCTAGCTTTAGTTCCTGGTACTTGAGGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCCATTCTCAATGAGCACAAGCA  
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

3601 GTCAGGAGCATAGTCAGAGATGAGCTCTCTGCACATGCCACAGGGGCTGACCACCTGATGGATCTGCCACCTCATCAGAGTAGGGGTGCTGACAGCC  
113▶ 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 A

StuI (3785)  
Eco1471 (3785)

3701 ACAATGGTGTCAAAGTCTTCTGCCGTTGCTCACAGCAGACCCAATGGCAATGGCTTCAGCAGACAGTACCCTGCAATGAGGCTCAATGTGGA  
79▶ 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 H V

3801 CAGCAGAGATGATCTCCCAGTCTTGGTCTGATGGCCGCCGACATGGTGTCTTGTGCTCATAGAGCATGGTGTCTTCTCAGTGGCGACCTCCAC  
46▶ 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 V

VspI (3993)  
AseI (3993)

3901 CAGCTCCAGATCCTGCTGAGAGATGTTGAAGTCTTCATGATGGCCCTCTATAGTGAGTCTGATTATACTATGCCGATATACTATGCCGATGATTAATT  
13▶ L E L D Q Q S I N F T K M

4001 GTCAAACACAGCGTGGATGGCGTCTCCAGCTTATCTGACGTTCACTAAACGAGCTCTGCTTATATAGACCTCCACCGTACACGCTACCGCCATTGCG

SpeI (4148)

4101 GTCAATGGGGCGGAGTTGTTACGACATTTTGGAAAGTCCCCTGTTGATTTACTAGTCAAACAAACTCCCATTGACGTCAATGGGGTGGAGACTTGAAAT

SnaBI (4276)  
Eco105I (4276)

4200 CCCCCTGAGTCAAACCGCTATCCACGCCATTGATGACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGACTGCCAAGTAG

NdeI (4381)

4300 GAAAGTCCATAAGGTCACTGACTGGGCATAATGCCAGGCGGGCCATTTACCGTCATTGACGTCAATAGGGGGCTACTTGGCATATGATACACTTGATG

4400 TACTGCCAAGTGGGAGTTTACCCTAAATACTCCACCCATTGACGTCAATGGAAAGTCCCTATTGGCGTTACTATGGGAACATACGTCAATTATTGACGTC

SdaI (4559)PacI (4567) BspLU11I (4577)

4500 AATGGGCGGGGTCGTTGGCGGTGAGCCAGGCGGGCCATTTACCGTAAGTTATGTAACCGCTG 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 G G C C A G  
4598 CAAAAGGCCAGGAACCGTAAAAAGCGCGTGGTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCAGAAAAATCGACGCTCAAGTCAGAGGT  
4698 GCGGAAACCCGACAGGACTATAAGATACCAGGCTTTCCCTGGAAGTCCCTCGTGCCTCTCTGTTCCGACCTGCCGCTTACCGGATACCTGTC

ApaLI (4891)

4798 CGCCTTTCTCCCTTCGGGAAGCGTGGCGTTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCAAGCTGGGCTGTGTGCAC  
4898 GAACCCCGCTTACGCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTTGTGTCACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTG  
4998 GTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTG  
5098 CGCTCTGCTGAAGCCAGTTACCTTCGAAAAAGAGTTGGTAGCTCTTGTATCCGGCAACAAACCACCGCTGGTAGCGGTGTTTTTTGTTTGAAGCAG  
5198 CAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCCTTTCTACGGGGTCTGACGCTCAGTGGAAACGAAAACTCACGTTAAGGGATTTTGG

EagI (5327)  
PacI (5307) SwaI (5316) NotI (5326)

5298 TCATGGCTAGTTAATTAACATTTAAATC AGCGGCCCAATAAAATATCTTTATTTTACATTACATCTGTGTGTTGTTTTTGTGTGAATCGTAACCTAACA  
5398 TACGCTCTCCATCAAACAAAACGAAACAAAACAAACTAGCAAAATAGGCTGTCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTATCGAA