



**PvuI (7)**  
**SgfI (6)** 1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCCGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA **EcoNI (96)**

101 GAGAAGGTGGCGGGGTAAGTGGAAAGTGATGTCGTGACTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

**Psp1406I (203)** **HindIII (245)** **Bsu36I (291)**  
201 GTGAACGTTCTTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGGCTCGCATCTCTCTTACACGGCCCGCCCTACCTGAGGCC **EcoNI (287)**

301 GCCATCCACGCGGTTGAGTCGCGTTCTGCCGCTCCCGCCTGTGGTGCTCTGAACTGCGTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCAACTCTACGCTTTTGTTCGTTT

**NgoMIV (441)** **SgrAI (551)** **BsrGI (573)**  
501 TCTGTTTGTCCGGCGTTACAGATCCAAGCTGTGACCGGCGCCTACCTGAGATCACCGGCGAAGGAGGCCACCATGTACAGGATGCAACTCCTGTCTTGCA **SphI (699)**

601 TTGCACTAAGTCTTGCACCTGTGCACGAATTCGGCCACAGCCACCGGACTTCCAGCCGGTGTCCACCTGGTTGCGCTCAACAGCCCCCTGTGAGGGG **SphI (699)**

101 I A L S L A L V T N S A H S H R D F Q P V L H L V A L N S P L S G G

**SacII (712)** **SdaI (793)**  
701 CATGGGGGATCCGGGGGCGACTTCCAGTGTCTCCAGCAGGCGGGGCGCTGGGGCTGGCGGCACCTTCCGCGCTTCTGTCTCGGCGCTGCAG **SdaI (793)**

43 M R G I R G A D F Q C F Q Q A R A V G L A G T F R A F L S S R L Q

**BsrGI (804)** **PvuII (877)**  
801 GACCTGTACAGCATCGTGCGCCGTGCCGACCGCAGCCGTGCCATCGTCAACTCAAGGACGAGTCTGTTTCCAGCTGGGAGGCTCTGTTCTCAG **PvuII (877)**

77 D L Y S I V R R A D R A A V P I V N L K D E L L F P S W E A L F S

**XmaI (920)** **Bsu36I (958)** **SapI (982)**  
901 GCTCTGAGGGTCCGCTGAAGCCCGGGGACGCATCTTCTCTTTGACGGCAAGGACGTCTGAGGCACCCACCTGGCCCCAGAGCGTGTGGCATGG **SapI (982)**

110 G S E G P L K P G A R I F S F D G K D V L R H P T W P Q K S V W H G

1001 CTCGGACCCAACGGGCGCAGGCTGACCGAGAGCTACTGTGAGACGTGGCGGACGGAGGCTCCCTCGGCCACGGGCCAGGCCTCTCGTGGGGGGC **BspHI (1167)**

143 S D P N G R R L T E S Y C E T W R T E A P S A T G Q A S S L L G G

**XmnI (1159)** **Acc65I (1183)**  
1101 AGGCTCCTGGGCGAGTCCGCGAGCTGCCATCACGCCTACATCGTGTCTGATTGAGAACAGCTTCATGACTGCCTCCAAGTACCGAGGATAGGTA **Acc65I (1183)**

177 R L L G Q S A A S C H H A Y I V L C I E N S F M T A S K V P G V G

**Tth111I (1255)**  
1201 CGAATTCGGTGTATCTCTCAGAGTGCAAGACTGGGAATGGAAAGAACTACAGAGGGACGATGTCCAAAACAAAAATGGCATCACCTGTCAAAAATGGAG **Tth111I (1255)**

210 T N S V Y L S E C K T G N G K N Y R G T M S K T K N G I T C Q K W S

**Bsp120I (1397)**  
1301 TTCCACTTCTCCCCACAGACCTAGATTCTCACCTGCTACACACCCTCAGAGGACTGGAGGAGAACTACTGCAGGAATCCAGACAACGATCCGCGAGGGG **Bsp120I (1397)**

243 S T S P H R P R F S P A T H P S E G L E E N Y C R N P D N D P Q G

**NsiI (1472)**  
1401 CCCTGGTGTATACTACTGATCCAGAAAAGAGATATGACTACTGCGACATTCTTGAGTGTGAAGAGGAATGTATGCATTGCAAGTGGAGAAAATATGACG **NsiI (1472)**

277 P W C Y T T D P E K R Y D Y C D I L E C E E E C M H C S G E N Y D

**XcmI (1515)** **Tth111I (1513)**  
1501 GCAAAATTTCAAAGACCATGTCTGGACTGGAATGCCAGCCTGGGACTCTCAGAGCCACACGCTCATGGATACATTCCTTCAAATTTCAAACAAGAA **Tth111I (1513)**

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

**Eco47III (1671)**  
1601 CCTGAAGAAGAATTACTGTCTGAACCCCGATAGGGAGCTGCGGCCTTGGTGTTCACCACCGACCCCAACAAGCGCTGGGAACCTTGTGACATCCCCCGC **Eco47III (1671)**

343 L K K N Y C R N P D R E L R P W C F T T D P N K R W E L C D I P R

1701 TGCACAACACTCCACCATCTTCTGGTCCACCTACCAGTGTCTGAAGGGAACAGGTGAAAACATATCGCGGAAATGTGGCTGTACCGTGTCCGGGCACA **Eco47III (1671)**

377 C T T P P P S S G P T Y Q C L K G T G E N Y R G N V A V T V S G H

**ApaLI (1815)**  
1801 CCTGTGACACTGGAGTGACAGACCCCTCACACATAACAGGACACCGGAAAACCTTCCCTGCAAAAATTTGGATGAAAACACTACTGCCGCAATCCTGA **ApaLI (1815)**

410 T C Q H W S A Q T P H T H N R T P E N F P C K N L D E N Y C R N P D

**NcoI (1913)** **Bsp120I (1908)** **XcmI (1989)**  
1901 CGGAAAAAGGGCCCATGGTGCCATACAACCAACAGCCAAGTGGGAGTACTGTAAGATACCGTCTGTGACTCCTCCCGAGTATCCACGGAACAA **Bsp120I (1908)**

443 G K R A P W C H T T N S Q V R W E Y C K I P S C D S S P V S T E Q

**NcoI (2050)** **BstXI (2050)**  
2001 TTGGCTCCACAGCACCCTGAGCTAACCCCTGTGGTCCAGGACTGTACCATTGGTGTGAGACAGAGCTACCGAGGCACATCCTCCACCACCACCACAG **BstXI (2050)**

477 L A P T A P P E L T P V V Q D C Y H G D G Q S Y R G T S S T T T T

**BbsI (2146)**  
2101 GAAAGAAGTGTGAGTCTTGGTCTATGACACACACCGGCACCAGAAGACCCAGAAAACCTACCCAAATGCTGGCCTGACAATGAACTACTGCAGGAA **BbsI (2146)**

510 G K K C Q S W S S M T P H R H Q K T P E N Y P N A G L T M N Y C R N

2201 TCCAGATGCCGATAAAGGCCCTGGTGTTTTACCACAGACCCAGCGTCAAGTGGGAGTACTGCAACCTGAAAAAATGCTCAGGAACAGAAGCGAGTGT **BbsI (2146)**

543 P D A D K G P W C F T T D P S V R W E Y C N L K K C S G T E A S V

**MscI (2312)** **NheI (2306)**  
2301 GTATGAGCTAGTGGCCAGACATGATAAGATACATTGATGAGTTTGGCAAAACCAACTAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTG **NheI (2306)**

577 V •

**HpaI (2444)**

2401 ATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAAGTTAAACAACAATTGCATTCATTTTATGTTTCAGGTTTCAGGGGGAGGTGTGGGA

2501 GGTTTTTTAAAGCAAGTAAACCTCTACAAATGTGGTATGGAATTCTAAAATACAGCATAGCAAACTTTAACCTCCAATCAAGCCTCTACTTGAATCC

2601 TTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGCTGTGCCAATGTGCATTAGCTGTTTGCAGCCTCACCTCTTTCATGGAGTTAAGATATAGT

SapI (2722) SspI (2779) SwaI (2793)

2701 TATTTTCCAAGTTTGAAGTAGCTCTTCATTTCTTTATGTTTTAAATGCACTGACCTCCACATTCCCTTTTGTAGTAAATATTCAGAAATAATTTAAA

2801 TACATCATTGCAATGAAAATAAATGTTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGAAAC

2901 AAAGAACCTTTAATAGAAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCCTGGTGTACTTGAGGGGATGAGTTCCTCAATGGTGGTTTTGAC

SacI (3054) BstXI (3083)

3001 CAGCTTGCCATTCATCTCAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTCTGCACATGCCACAGGGGCTGACCACCCTGATGGATCTG

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

3101 TCCACCTCATCAGAGTAGGGGTGCCTGACAGCCCAATGGTGTCAAAGTCTTCTGCCGTTGCTCACAGCAGACCCAATGGCAATGGCTTCAGCACAGA

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

3201 CAGTGACCCTGCCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCAGTCTTGGTCTGATGGCCGCCCGACATGGTCTTGTTCCTCATA

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

BspHI (3368) BbsI (3364)

3301 GAGCATGGTATCTTCTCAGTGGCGACCTCCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGGCTTTCATGATGGCCCTCCTATAGTGAGTCGTATTA

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

XmnI (3360)

3401 TACTATGCCGATATACTATGCCGATGATTAATTGTCAAACACGCGTGATGGCGTCTCCAGCTTATCTGACGGTTCACTAAACGAGCTCTGCTTATATA

AseI (3426) SacI (3483)

3500 GACCTCCCACCGTACACGCCTACCGCCATTTGCGTCAATGGGCGGAGTTGTTACGACATTTTGAAAGTCCCGTTGATTTACTAGTCAAAAACAACT

3599 CCCATTGACGTCAATGGGTTGGAGACTTGAAATCCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTAAGTCCAAAACCGCATCATGTTAATA

SpeI (3581)

SnaBI (3709)

3699 GCGATGACTAATACGTAGATGACTGCCAAGTAGGAAAGTCCATAAGGTCATGTACTGGGCATAATGCCAGGCGGGCCATTTACCGTCATTGACGTCAA

NdeI (3814)

3799 TAGGGGGCGTACTTGGCATATGATACACTTGATGTACTGCCAAGTGGGCGATTTACCGTAAATACTCCACCCATTGACGTCAATGAAAGTCCCTATTGG

SdaI (3992)

3899 CGTACTATGGGAACATACGTCATTATTGACGTCAATGGGCGGGGCTGTTGGGCGGTGAGCCAGGCGGGCCATTTACCGTAAGTTATGTAACGCTGC

PacI (4000) BspLU11I (4010)

3998 AGGTTAA TTAAGAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGGCCGCTTGGTGGCGTTTTTCCATAGGCTCCGCCCCCTGAC

4097 GAGCATCACAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGCGTTTTCCCTGGAAGCTCCCTCGTGCCTCTC

4197 CTGTTCCGACCCTGCCGTTACCGGATACCTGTCCGCTTTCTCCCTTCGGAAAGCGTGGCGCTTTCATAGCTCACGCTGTAGGTATCTCAGTTCGGT

ApaLI (4324)

4297 GTAGTTCGTTCCGCTCAAGCTGGGTGTGTGCACGAACCCCGTTCCAGCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTTGAAGTGGTGGCCTAACT

4397 AGACAGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTCTTGAAGTGGTGGCCTAACT

4497 ACGGTACTACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAAACAAACCAC

4597 CGCTGGTAGCGGTGGTTTTTTTGTGTTGCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTACGGGGTCTGACGCT

EagI (4760) PacI (4740) SwaI (4749) NotI (4759)

4697 CAGTGAACGAAAACCTCACGTTAAGGGATTTTGGTTCATGGCTAGTTAATTAACATTTAAATCAGCGGCCCAATAAAATATCTTTATTTTATTACATCT

4797 GTGTGTTGGTTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAAACAAAACGAAACAAAACAACTAGCAAAATAGGCTGTCCCAGTGCAAGT

4897 GCAGTGCCAGAACATTTCTCTATCGAA