



**PvuI (7)**  
**SgfI (6)**  
1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGGCAGAGCGCACATCGCCACAGTCCCCGAGAAGTTGGGGGAGGGGTCGGCAATTGAACGGGTGCCTA  
101 GAGAAAGTGGCGCGGGTAAACTGGAAAGTGATGCTGTACTGGCTCCGCCTTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

**Psp1406I (203)** **HindIII (245)**  
201 GTGAACGTTCTTTTTTCGCAACGGGTTTCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCTTACGCGCCCGCCCTACCTGAGGCC  
301 GCCATCCACGCGGTTGAGTCGCGTTTCTGCCGCCTCCCGCTGTGGTGCCTCCTGAAGTGCCTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

**NgoMIV (441)**  
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCTCAACTCTACGCTTTTGTTCGTTT

**AgeI (552)** **NcoI (561)**  
501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGGGCGCTACCTGAGATCACCGGTCCACCATGGGGGAAGAGGGTGGTTACGCTCTCACGATGAGG  
1 M G E E G G S A S H D E  
601 AGGAAAGAGCAAGTGTCTCTCGGACATTCTCCGGTGTGAAATGTGCTCGCAGGAGGCTTTTCAGGCACAGAGGAGCCAGCTGGTCGAGCTGCTGGT  
13 E E R A S V L L G H S P G C E M C S Q E A F Q A Q R S Q L V E L L V  
701 CTCAGGGTCCCTGGAAGGCTTCGAGAGTGTCTGGACTGGCTGCTGCTCTGGAGGTCCTCTCTGGGAGGACTACGAGGGCTTCCACCTCTGGGCCAG  
46 S G S L E G F E S V L D W L L S W E V L S W E D Y E G F H L L G Q

**XcmI (816)**  
801 CCTCTCTCCCACTGGCCAGGCGCTTCTGGACACCGTCTGGAATAAGGGTACTTGGGCTGTGAGAAGTCTATCGGGCTGCCAAGAAGCCAGGCCG  
80 P L S H L A R R L L D T V W N K G T W A C Q K L I A A A Q E A Q A  
901 ACAGCCAGTCCCCAAGCTGCATGGCTGCTGGACCCCACTGCTCCACCCAGCCGAGACCTGCAGAGTACCCGGCCAGCCATTGTGAGGAGGCTCCA  
113 D S Q S P K L H G C W D P H S L H P A R D L Q S H R P A I V R R L H

**BsrBI (1034)**  
1001 CAGCCATGTGGAGAACATGCTGGACCTGGCATGGGAGCGGGTTCGTCAGCCAGTATGAATGTGATGAAATCAGGTTGCCGATCTTACACCGTGCAG  
146 S H V E N M L D L A W E R G F V S Q Y E C D E I R L P I F T P S Q

**BspLU11I (1165)**  
1101 AGGCAAGAAGGCTGCTTGTATCTTCCACGGTGAAGCGAATGGATTGGCTGCCTTCTTCTACAACATGTTTCAGGAATTACAGTCCCATTGGCCCTGC  
180 R A R R L L D L A T V K A N G L A A F L L Q H V Q E L P V P L A L  
1201 CTTTGAAGCTGCCACATGCAAGAAGTATATGGCAAGCTGAGGACCAGGTGTCTGCTCAGTCTCGTTCCTCAGTACCTATGATGGAGCAGAGACGCT  
213 P L E A A T C K K Y M A K L R T T V S A Q S R F L S T Y D G A E T L

**XcmI (1383)**  
1301 CTGCTGGAGGACATATACAGAGAATGCTCTGGAGGCTGGGCAGATGTGGCATGGCTGGACCCCGCAGAAGAGCCACCTTGGCCCTGGAG  
246 C L E D I Y T E N V L E V W A D V G M A G P P Q K S P A T L G L E  
1401 GAGCTCTTACGACCCCTGGCCACCTCAATGACGATGGGACACTGTGCTGGTGGTGGGTGAGGCGGGCAGTGGCAAGAGCACGCTCCTGCAGCGGCTGC  
280 E L F S T P G H L N D D A D T V L V V G E A G S G K S T L L Q R L

**NgoMIV (1560)**  
1501 ACTTGCTGTGGGTCGAGGGCAAGACTTCCAGGAATTTCTCTTTGCTTCCATTGCTGCTGCGGCGAGCTGCAGTGCATGGCCAAACCTCTCTGTGCG  
313 H L L W A A G Q D F Q E F L F V F P F S C R Q L Q C M A K P L S V R

**HpaI (1687)**  
1601 GACTCTACTCTTTGAGCACTGCTGTTGGCCTGATGTTGGTCAAGAAGACATCTTCCAGTTACTCCTTGACCACCTGACCGTGTCTTAACTTTGAT  
346 T L L F E H C C W P D V G Q E D I F Q L L L D H P D R V L L T F D  
1701 GGCTTTGACGAGTTCAAGTTCAGGTTACGGATCGTGAACGCCACTGCTCCCCGACCGACCCACCTGTCCAGACCCTGCTCTTCAACCTTCTGCAGG  
380 G F D E F K F R F T D R E R H C S P T D P T S V Q T L L F N L L Q

**BstEII (1828)** **EagI (1842)**  
1801 GCAACCTGCTGAAGAATGCCCGCAAGTGGTTACCAGCCGTCGGCGCTGTGTCCGAGTACATCCGACCGAGTTCAACCTCAAGGG  
413 G N L L K N A R K V V T S R P A A V S A F L R K Y I R T E F N L K G

**BspHI (1942)** **RsrII (1959)**  
1901 CTTCTGTAACAGGCATCGAGCTGTACTGAGGAAGCGCCATCATGAGCCCGGGTGGCGGACCGCCTCATCCGCTGCTCAAGAGACCTCAGCCCTG  
446 F S E Q G I E L Y L R K R H H E P G V A D R L I R L L Q E T S A L  
2001 CACGGTTGTGCCACTGCTTCTCATGGATGGTTCAAATGCCACAGGAAGTGTGCTGCAGGAGGGGGTCCCCAAGACCACTACAGATA  
480 H G L C H L P V F S W M V S K C H Q E L L L Q E G G S P K T T T D  
2101 TGTACCTGCTGATTCTGCAGCATTTTCTGCTGCATGCCACCCCCAGACTCAGTTCCTCAAGGTTCTGGGACCGAGTCTTCTTGGGGCCGCTCCAC  
513 M Y L L I L Q H F L L H A T P P D S A S Q G L G P S L L R G R L P T  
2201 CCTCTGCACCTGGGCGACTGGCTGTGGGGCTGGGCATGTGCTGTACGTGTTCTCAGCCAGCAGCTCCAGGCAGCACAGGTCAGCCCTGATGAC  
546 L L H L G R L A L W G L G M C C Y V F S A Q Q L Q A A Q V S P D D

**EcoRI (2360)**  
2301 ATTTCTTTGGCTTCTGTTGCGGGCCAAAGTGTGTCGACGGGAGTACGGCGCCCTGGAATTCTTACATCACTTTCCAGTGTCTTCTTGGCCGCT  
580 I S L G F L V R A K G V V P G S T A P L E F L H I T F Q C F F A A  
2401 TCTACCTGGCACTCAGTGTGATGTGCCACCAGCTTGTCTCAGACACCTTCAATTGTGGCAGGCCAGGCAACTCACAATGGCCAGGCTCTGCCAC  
613 F Y L A L S A D V P P A L L R H L F N C G R P G N S P M A R L L P T

**BsaBI (2500)**  
2501 GATGTGCATCCAGCCTCGGAGGGAAAGGACAGCAGCGTGGCAGCTTTGCTGCGAGAAGGCCGAGCCGACCAACCTTCCAGTACACAGCAGCTTCTGGCA  
646 M C I Q A S E G K D S S V A A L L Q K A E P H N L Q I T A A F L A  
2601 GGGCTGTTGTCCCGGAGCACTGGGGCTGCTGGCTGAGTGCCAGACATCTGAGAAGGCCCTGCTCCGGCCAGGCTGTGCCCGCTGGTGTCTGGCC  
680 G L L S R E H W G L L A E C Q T S E K A L L R R Q A C A R W C L A

**BspEI (2790)**  
2701 GCAGCCTCCGAAGCACTTCCACTCCATCCCGCAGCTGCACCGGGTGAAGCCAGAGCGTGCATGCCATGCCCGGGTTCATCTGGCTCATCCGAGCCT  
713 R S L R K H F H S I P P A A P G E A K S V H A M P G F I W L I R S L

**BbrPI (2838)** **Bsp120I (2884)**  
2801 GTACGAGATGCAGGAGGCGGCTGGCTCGGAAGGCTGCACGTGGCCTGAATGTTGGGCACCTCAAGTTGACATTTTGCAGTGTGGGCCCACTGAGTGT  
746 Y E M O E E R L A R K A A R G L N V G H L K L T F C S V G P T E C

2901 GCTGCCCTGGCCTTTGTGCTGCAGCACCTCCGGCGGCCCTGGCCCTGCAGCTGGACTACAACCTGTGGGTGACATTGGCGTGAGCAGCTGTGCCTT  
780▶ A A L A F V L Q H L R R P V A L Q L D Y N S V G D I G V E Q L L P  
3001 GCCTTGGTGTCTGCAAGGCTCTGTATTTGCGCGATAACAATATCTCAGCCGAGGCATCTGCAAGCTCATTGAATGTGCTCTTCACTGCGAGCAATTGCA  
813▶ C L G V C K A L Y L R D N N I S D R G I C K L I E C A L H C E Q L Q  
ApaLI (3138) NcoI (3147)  
3101 GAAGTTAGCTCTATTCAACAACAAATTGACTGACGGCTGTGCACACTCCATGGCTAAGCTCCTTGCATGCAGGCAGAACTTCTTGGCATTGAGGCTGGGG  
846▶ K L A L F N N K L T D G C A H S M A K L L A C R Q N F L A L R L G  
SacII (3216)  
3201 AATAACTACATCACTGCCGCGGAGCCCAAGTGTGGCCGAGGGGCTCCGAGGCAACACCTCCTTGCAGTTCTCTGGGATTCTGGGGCAACAGAGTGGGTG  
880▶ N N Y I T A A G A Q V L A E G L R G N T S L Q F L G F W G N R V G  
Bsp120I (3306)  
3301 ACGAGGGGGCCAGGCCCTGGCTGAAGCCTTGGGTGATCACCAGAGCTTGAAGTGGCTCAGCCTGGTGGGGAACAACATTGGCAGTGTGGGTGCCAAGC  
913▶ D E G A Q A L A E A L G D H Q S L R W L S L V G N N I G S V G A Q A  
3401 CTTGGCACTGATGCTGGCAAAGAAGCTCATGCTAGAAGAACTGCTGCTGGAGGAGAACCATCTCCAGGATGAAGTGTATGTTCTCTCGAGAAGGACTG  
946▶ L A L M L A K N V M L E E L C L E E N H L Q D E G V C S L A E G L  
AvrII (3553) SdaI (3571)  
3501 AAGAAAAATTCAAGTTTGAAAACTCTGAAGTTGTCCAATAACTGCATCACCTACCTAGGGGCAGAAGCCCTCCTGCAGGCCCTGAAAGGAATGACACCA  
980▶ K K N S S L K I L K L S N N C I T Y L G A E A L L Q A L E R N D T  
XbaI (3634) NheI (3686)  
3601 TCCTGGAAGTCTGGCTCCGAGGGAAACACTTTCTCTAGAGGAGGTTGACAAGCTCGGCTGCAGGACACCAGACTCTTGTCTTGGAGCTAGCTGGCCAGA  
1013▶ I L E V W L R G N T F S L E E V D K L G C R D T R L L L •  
3701 CATGATAAGATACATTGATGAGTTTGGACAAACCACAACCTAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTATGCTATTGCTTTATTTGTA  
HpaI (3824)  
3801 ACCATTATAAGCTGCAATAAACAAGTTAACAACAACAATTGCATTCATTTTATGTTTCAGGTTTCAGGGGAGGTGTGGGAGGTTTTTTAAAGCAAGTAAA  
EcoRI (3920)  
3901 ACCTCTACAAATGTGGTATGGAATTCTAAAATACAGCATAGCAAAACTTTAACCTCCAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAG  
4001 GCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTTGCAAGCCTCACCTCTTTTCATGGAGTTTAAGATATAGTGTATTTTCCCAAGGTTTGAAC  
SspI (4159) SwaI (4173)  
4101 TAGCTCTTCAATTTCTTTATGTTTAAATGCACTGACCTCCACATTCCCTTTTGTAGTAAATATTCAGAAATAATTTAAATACATCATTGCAATGAAAT  
4201 AAATGTTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTTAATAGAAA  
4301 TTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCCTGGTGTACTTGAGGGGATGAGTTTCCTCAATGGTGGTTTTGACCAGCTTGCCATTCATCTCAA  
141 • N R T Y K L P I L E E I T T K V L K G N M E I  
BstXI (4463)  
4401 TGAGCACAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTCTGCACATGCCACAGGGGCTGACCACCCTGATGGATCTGTCCACCTCATCAGAGTAGGG  
117▶ 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 D V E D S Y P  
4501 GTGCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCGTTGCTCACAGCAGACCCAATGGCAATGGCTTCAAGCAGACAGTACCCTGCCAATGTAG  
84▶ 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 T V R G I Y  
4601 GCCTCAATGTGGACAGCAGAGATGATCTCCCCAGTCTTGGTCTGATGGCCGCCCCGACATGGTGCTTGTGTCTCATAGAGCATGGTATCTTCTCAG  
50▶ 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 L M T I K E T  
4701 TGGCAGCTCCACAGCTCCAGTCTGCTGAGAGATGTTGAAGTCTTCATGGTGGCCCTCTATAGTGAGTCGTATTATACTATGCCGATATACTATG  
17▶ A V E V L E L D Q Q S I N F T K M  
AseI (4806)  
4801 CCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTTCACTAAACGAGCTCTGCTTATATAGACCTCCCACCGTACACGCCT  
SpeI (4961)  
4901 ACCGCCCATTTGCGTCAATGGGCGGAGTTGTTACGACATTTTGAAAGTCCCGTTGATTTACTAGTCAAAACAACTCCATTGACGTCAATGGGGTGG  
SnaBI (5089)  
5001 AGACTTGAAATCCCGTGAGTCAAACCGTATCCACGCCATTGATGTACTGCCAAAACCGCATCATCATGGTAAATAGCGATGACTAATACGTAGATGT  
NdeI (5194)  
5101 ACTGCCAAGTAGGAAAGTCCCATAAGGTGATGACTGGCATAATGCCAGGCGGGCCATTTACCGTCATTGACGTCAATAGGGGGCGTACTTGGCATATG  
5201 ATACACTTGATGACTGCCAAGTGGCAGTTTACCCTAAATACTCCACCATTGACGTCAATGAAAAGTCCCTATTGGCGTTACTATGGGAACATACGTC  
SdaI (5372) PacI (5380) BspLU11I (5390)  
5301 ATTATTGACGTCAATGGGCGGGGTCGTTGGGCGGTCAGCCAGGCGGGCCATTTACCGTAAGTTATGTAACGCTGACAGGTTAAATAAGAACATGTGAGC  
5401 AAAAGGCCAGCAAAGGCCAGGAACCGTAAAAGGCCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCAAAAATCGACGCTCA  
5501 AGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCCCTGGAAGCTCCTCTGTCGCTCTCTGTTCCGACCCTGCCGCTTACCG  
5601 GATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTGGCGCTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTGCTCCAAGCTGGG  
ApaLI (5704)  
5701 CTGTGTGCACGAACCCCGTTCAGCCCACCGCTGCGCTTATCCGGTAACTATCGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTAT  
5801 GCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTAT

5901 TTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGTTTTTTGT

6001 TTGCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGTCTGACGCTCAGTGAACGAAAACACGTTAA

EagI (6140)  
PacI (6120) SwaI (6129) **NotI (6139)**  
6101 GGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATC AGCGGCCCAATAAAATATCTTTATTTTCATTACATCTGTGTGTTGGTTTTTTGTGTGAATC  
6201 GTAACAAACATACGCTCTCCATCAAACAAAACGAAACAAAACAACTAGCAAATAGGCTGTCCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTAT  
6301 CGAA