



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

1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA  
 101 GAGAAAGTGGCGCGGGTAAACTGGAAAGTGATGTCGTGTAAGTGGCTCCGCCTTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

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**Psp1406I (203)**
**HindIII (245)**

201 GTGAACGTTCTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCCTTACGCGCCCGCCCTACCTGAGGCC  
 301 GCCATCCAGCGCGGTTGAGTCGCGTTTCTGCCGCCTCCCGCCTGTGGTGCCTCCTGAAGTGCCTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

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

401 GGGCCTTTGTCCGGCGCTCCCTTGGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCAACTCTACGTCTTTGTTTCGTTT

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**NcoI (560)**  
**BstEII (555)**  
**KasI (535)**
**AgeI (552)**

501 TCTGTTCTGCGCGGTTACAGATCCAAGCTGTGACCGCGCGCTACCTGAGATCACCGGTACCATGGCTGAACAACTTCTCTCAGGCTTTGATTTGAG  
 601 CAATATGCGGAAAGCTGTGAAGATACGAGAGAGAACCCAGAAGACATTTTCAAACCTACCAATGGGATCATCTATCACTTTAAACCATGCACCGATAC  
 13▶ N M R K A V K I R E R T P E D I F K P T N G I I Y H F K T M H R Y  
 701 ACGCTGGAGATGTTCAGAACATGCCAGTTTTGCCACAGTTCGAGAGATCATCCACAAGCACTTATTGACAGAAGTGTCCAGGCTTCCCTGGAAAGCC  
 47▶ T L E M F R T C Q F C P Q F R E I I H K A L I D R S V Q A S L E S

**SphI (876)**  
**Ppu10I (874)**  
**NsiI (874)**
**BspLU11I (893)**

801 AGAAGAAGCTCAACTGGTGTGTCGTAAGTCAAGGCTCGTGGCTCTGAAAACCAATGGTGTGAAACTGCCTCATGCATGCAGCTTGTCAAGTACATGTG  
 80▶ Q K K L N W C R E V R K L V A L K T N G D G N C L M H A A C Q Y M W

**Tth111I (916)**

901 GGGTGTTCAGGATACTGACCTGGTCTGAGGAAGGCCCTTGCAGCACCTTAAGGAGACAGACTCGGAACTTAAATTCCTGCGAGCTGGAATCT  
 113▶ G V Q D T D L V L R K A L C S T L K E T D T R N F K F R W Q L E S  
 1001 CTGAAATCTCAGGAATTTGTGAAACAGGACTTTGTACGACTCGGAACCTGGAATGACGAATGGGCAACTTGGTCAAATGGCATCAGCAGACACAC  
 147▶ L K K S Q E F V E T G L C Y D T R N W N D E W D N L V K M A S A D T  
 1101 CTGCGCCGAAGTGGACTTCAGTACAATTCCTGGAAGAAATCCACATATTTGCTCAGCAACATCCTCAGAAGACCCATCATTGTCAATTCAGACAA  
 180▶ P A A R S G L Q Y N S L E E I H I F V L S N I L R R P I I V I S D K

**EcoRV (1295)**  
**Eco32I (1295)**

1201 AATGCTAAGAAGTTTGAATCTGGTTCCAATTTTGTCTCTTTGAAAGTGGTGGGATTTATCTGCCTCTTCACTGGCTGCCAGGAGTGTACAGATAT  
 213▶ M L R S L E S G S N F A P L K V G G I Y L P L H W P A Q E C Y R Y

**AvrII (1308)**
**BstEII (1341)**
**HpaI (1387)**

1301 CCCATCGTCTAGGCTATGACAGCCAGCACTTTGTACCCTGGTGACCCTGAAGGACAGTGGACCTGAACCTCGCGCTGTCCACTTGTAAACAGAGACC  
 247▶ P I V L G Y D S Q H F V P L V T L K D S G P E L R A V P L V N R D

**BsiBI (1488)**  
**BsaBI (1488)**

1401 GGGTAGGTTTGAAGACTTAAAGTTCCTTCTTACAGATCCTGAGAATGAGATGAAGGAAAAGCTTCTAAAGGACTTGTATGATGATGAGAGATCCC  
 280▶ R G R F E D L K V H F L T D P E N E M K E K L L K E Y L I V M E I P  
 1501 TGTGCAAGCTGGGACCACGGCAGCTCACCTGATCAACGCTGCAAAATTTGGATGAAGCTAAGTACCTACCCAAAGAAATAAATTTGGTAGACGATTACTTT  
 313▶ V Q G W D H G T T H L I N A A K L D E A N L P K E I N L V D D Y F

**FspI (1665)**

1601 GAGCTTGTTCAGCACGAATAACAAGAAATGGCAGGAGAACAGCGATCAGGCCAGGAGAGCGGCACATGCGCAGAACCCCTTGGAGCCTTCCACACCCAGC  
 347▶ E L V Q H E Y K K W Q E N S D Q A R R A A H A Q N P L E P S T P Q

**KasI (1790)**

1701 TATCACTCATGGATATAAAATGTGAGACACCCAACTGTCTTTTCTTCATGTCCTGTAACACTCAGCCTTTATTCCACGAATGCTCAGAGAGGGCCAAAA  
 380▶ L S L M D I K C E T P N C P F F M S V N T Q P L F H E C S E R R Q K  
 1801 GAATCAGAGCAAGCTCCCAAAGCTGAACCTCGAAGCTAGGCCCTGAAGGACTCCAGGCGTGGGACTTGGCTCCTCAAACCTGGAGCCCCGAGGAAACCGCT  
 413▶ N Q S K L P K L N S K L G P E G L P G V G L G S S N W S P E E T A  
 1901 GGAGGACCTCATTGACCCCAACAGCACCCAGCCTTTTTCTCTTCAAGTGAAGGACTGCAATGAAGTGCAGGAGTCTGGGTGCCCTTTTACTTTGA  
 447▶ G G P H S A P P T A P S L F L F S E T T A M K C R S P G C P F T L

**VspI (2044)**  
**AseI (2044)**

2001 ATGTGCAGCATAATGGATTCTGTGAGCGTTGCCACGCCCGGACAGATTAATGCCAGCCACACCGCAGACCCTGAAAGTGCCAAGCCTGCCTTCAGGATGT  
 480▶ N V Q H N G F C E R C H A R Q I N A S H T A D P G K C Q A C L Q D V  
 2101 CACTCGGACCTTAAATGGCATCTGCAGTACCTGTTTCAAAGGACTACAGCAGAGCCAGCTCAGTCCAGTATCCCTGCCTCTGTCAACAA  
 513▶ T R T F N G I C S T C F K R T T A E P S S S L T S S I P A S C H Q

**BstXI (2253)**

2201 CGCTCCAAGTCTGACCCCTCACAACCTCATCCAAAGTCTCACTCCACACTTGGCCACCGGACTGGAAATGTCTCTCTTCTGGCTGCCTCTCCAGGCTG  
 547▶ R S K S D P S Q L I Q S L T P H S C H R T G N V S P S G C L S Q A  
 2301 CACGACTCCAGGAGACAGAGCAGGACAAGCAAGTGCAGGAAAGCTGGCTGCATGATTTTGGGACTCCAGAAAACAAGGGCTTTTGCCTCTATGTTT  
 580▶ A R T P G D R A G T S K C R K A G C M Y F G T P E N K G F C T L C F  
 2401 CATCGAATACAGAGAAAATAAGCAGTCTGTTACTGCCTCTGAGAAAGCTGGTTCCCGGCCCCAGGTTCCAGAAACATGCTCCGTGCCTGGGACGGAG  
 613▶ I E Y R E N K Q S V T A S E K A G S P A P R F Q N N V P C L G R E

2501 TCGGGCACACTCGGAAGCACCATGTTTGAAGGGTACTGTCAGAAGTGTTCATCGAAGCTCAGAACCAGAGATTCATGAAGCAAGAAGAACGGAAGAAC  
647▶ C G T L G S T M F E G Y C Q K C F I E A Q N Q R F H E A R R T E E  
XmaI (2666)  
SmaI (2666)  
SrfI (2665)

2601 AGCTGAGATCAAGCCAGCATAGAGACATGCCTCGAACTACACAGGTAGCCTCAAGGCTGAAATGTGCCCGGGCCTCCTGCAAGAACATTCTGGCCTGTCG  
680▶ Q L R S S Q H R D M P R T T Q V A S R L K C A R A S C K N I L A C R  
Eco47III (2795)  
AfeI (2795)

2701 CAGTGAGGAAGTCTGTATGGAGTGCCAGCACCTAAGCCAACGAGTAGGTTCTGTGGCCACCAGGGGTGAGCCACGCCTGAAGAGCCCTAAACAGCGC  
713▶ S E E L C M E C Q H L S Q R V G S V A H R G E P T P E E P P K Q R  
Bsp120I (2804)

2801 TGCCGGGCCCTGCTTGTGATCACTTTGGCAATGCCAAGTGAATGGTACTGCAATGAGTGTACCAGTTCAAGCAGATGTATGGCTAAGTGCGAACAC  
747▶ C R A P A C D H F G N A K C N G Y C N E C Y Q F K Q M Y G •  
MscI (2926)  
BaliI (2926)  
NheI (2920)

2901 ATTGACAGGTCCAGCAAGAAGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGACAAACCACAACCTAGAATGCAGTGAAAAAATGCTTTAT

3001 TTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAACAAGTTAAACAACAACATTGCATTCTTTTATGTTTCAGGTTTCAG  
HpaI (3058) MfeI (3069)

3101 GGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAAACCTCTACAAATGTGGTATGGAAATCTAAAATACAGCATAGCAAACTTTAACCTCAAATCAAGC  
EcoRI (3154)

3201 CTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTTGCAGCCTCACCTCTTTTCATGGAG

3301 TTTAAGATATAGTGTATTTTCCAAGGTTTGAAGTCTCTTCATTTCTTTATGTTTTAAATGCACTGACCTCCACATTCCCTTTTATAGTAAATATTC  
SspI (3393)

3401 AGAATAATTTAAATACATCATTGCAATGAAAAAATGTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGT  
SwaI (3407)

3501 TGGACTTAGGGAACAAAGGAACCTTTAATAGAAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCCTGGTGTACTTGAGGGGGATGAGTTCCTCA  
141▶ • N R T Y K L P I L E E  
SacI (3668) BstXI (3697)

3601 ATGGTGGTTTTGACCAGCTTGCCATTCACTCAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTCTGCACATGCCACAGGGGCTGACCA  
128▶ I T T K V 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  
3701 CCCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCGTTGCTCACAGCAGACCCAAATGGCAAT  
95▶ R I S R 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  
StuI (3832)  
Eco147I (3832)

3801 GGCTTCAGCACAGACAGTGACCCTGCCAATGTAGGCCCAATGTGGACAGCAGAGATGATCTCCCAGTCTTGGTCTGATGGCCGCCCCGACATGGTGC  
62▶ A E A C V 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  
BspHI (3982)

3901 TTGTTGCTCATAGAGCATGGTGTCTTCTAGTGGCAGCTCCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGGCTTTCATGATGGCCCTCTAT  
28▶ K N D E Y L M T I K E T A V E V L E L D Q Q S I N F T K M  
VspI (4040)  
AseI (4040) SacI (4097)

4001 AGTGAGTCGTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGC T TATCTGACGGTTCACTAAACGAG

4101 CTCTGCTTATATAGACCTCCACCGTACACGCCTACCGCCATTTGCGTCAATGGGGCGAGTTGTTACGACATTTTGAAAGTCCCGTTGATTTACTA  
SspI (4195)

4200 G TCAAAACAAACTCCATTGACGTCAATGGGTGGAGACTTGAAATCCCGTGAGTCAAACCGCTATCCAGCCATTGATGTACTGCCAAAACCGCAT

4300 CATCATGGTAATAGCGATGACTAATACGTAGTACTGCAAGTAGGAAAGTCCATAAGGTGATGACTGGGCATAATGCCAGGCGGGCCATTTACCG  
SnaBI (4323)  
Eco105I (4323)

4400 TCATTGACGTCAATAGGGGGCTACTTTGGCATATGATACACTTGATGACTGCCAAGTGGGCAGTTTACCCTAAATACTCCACCCATTGACGTCAATGGA  
NdeI (4428)

4500 AAGTCCCTATTGGCGTTACTATGGGAACATACGTCAATTATTGACGTCAATGGGCGGGGTCTGTTGGCGGTGACGCAGGCGGGCCATTTACCGTAAGTTA

4600 TGTAACGCC T G 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 A G G C C A G G A A C C G T A A A A A G G C C G T T G C T G G C G T T T T T C C A T A G G C T  
SdaI (4606) PacI (4614) BspLU11I (4624)

4698 CCGCCCCCTGACGAGCATCACAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCTGGAAGCTCC

4798 CTCGTGCGCTCTCTGTTCCGACCTGCCGCTTACCGGATACCTGTCGCTTTCTCCCTTCGGGAAGCGTGGCGCTTCTCATAGCTCACGCTGTAGGT

4898 ATCTCAGTTCGGTGTAGGTCGTTTCGCTCCAAGCTGGGCTGTGTGCACGAACCCCCGTTACGCCCCGACCGCTGCGCTTATCCGGTAACTATCGTCTTGA  
ApaLI (4938)

4998 GTCCAACCCGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGCGGTGTACAGAGTCTTGAAG

5098 TGGTGGCCTAACTACGGCTACACTAGAGAAGACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCG

5198 GCAAACAAACCACCGCTGGTAGCGGTGGTTTTTTTTGTTTGCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTCTAC

5298 GGGGTCTGACGCTCAGTGGAAACGAAAACACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATC AGCGGCCGCAATAAAATATCTTTAT

EagI (5374)  
PacI (5354) SmaI (5363) NotI (5373)

5398 TTTCATTACATCTGTGTGTTGGTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAACAAAACGAAACAAAACAACTAGCAAATAGGCTGT

5498 CCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA