



**PvuI (7)**  
**SgfI (6)**  
1 GGATCTGC GATCGCTCCGGTGCCCGTCAGTGGCGAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA

101 GAGAAGGTGGCGCGGGGTAACCTGGGAAAGTGTCTGTGACTGGCTCCGCCTTTTTCCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

**Psp1406I (203)** **PvuII (239)**  
201 GTGAACGTTCTTTTTCGCAACGGGTTTCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCTTACCGCGCCGCCCTACCTGAGGGCC

301 GCCATCCACGCGCGTTGAGTGCAGTCTGCCGCTCCCGCCTGTGGTGCCTCTGAAGTGCCTCCGCGCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

**NgoMIV (441)**  
401 GGGCCTTTGTCCGCGCTCCCTTGAGGCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCTAACTCTACGCTTTTGTTCGTTT

**KasI (535)** **AgeI (552)** **NcoI (568)**  
501 TCTGTTCTGCGCGTTACAGATCCAAGCTGTGACCGCGCTACCTGAGATCACCGGTAGGAGGGCCACCATGGAAAACATGCCCCCTCAGTCATGGATT  
1 M E N M P P Q S W I

601 CTGACGTGCTTTTGTCTGCTGTCCTCTGGAACCACTGTCATCTCCATAAAGCGAACTATTCCAGAAGCTATCCTTGTGACGAGATAAGGCACAACTCCC  
11 L T C F C L L S S G T S A I F H K A N Y S R S Y P C D E I R H N S  
701 TTGTGATTGCAGAATGCAACCATCGTCAACTGCATGAAGTTCFCAAACATAGGCAAGTATGTGACAAAACATAGACTTCCCAACAATGCCATTACACA  
44 L V I A E C N H R Q L H E V P Q T I G K Y V T N I D L S D N A I T H

**ClaI (843)**  
801 TATAACGAAAGAGTCTTTCAAAGCTGCAAAACCTCACTAAATCGATCTGAACCACAATGCCAAACAACAGCACCCAAATGAAAATAAAAATGGTATG  
77 I T K E S F Q K L Q N L T K I D L N H N A K Q Q H P N E N K N G M  
901 AATATTACAGAAGGGCCTTCTCAGCCTAAGAAATCTAACAGTTTTACTGCTGGAAGACAACCAAGTATATACTATACTGCTGGGTTGCTGAGTCTT  
11 N I T E G A L L S L R N L T V L L L E D N Q L Y T I P A G L P E S  
1001 TGAAGAAGCTTAGCCTAATTCAAACAATATATTTTCAGGTAACAAAAACAACACTTTTGGGCTTAGGAACTTGAAAGACTCTATTTGGGCTGGAAGT  
14 L K E L S L I Q N N I F Q V T K N N T F G L R N L E R L Y L G W N C  
1101 CTATTTAAATGTAATCAAACCTTTAAGGTAGAAGTGGGCACTTTAAAAATCTATACACTGAAAGTACTCTATTATCTTTCAATAACCTTTTCTAT  
177 Y F K C N Q T F K V E D G A F K N L I H L K V L S L S F N N L F Y

**BspHI (1255)**  
1201 GTGCCCCCAAACCTACCAAGTTCTTAAGGAACTTTTTCTGAGTAATGCCAAAATCATGAACATCACTCAGGAAGACTTCAAAGGACTGGAAAATTTAA  
21 V P P K L P S S L R K L F L S N A K I M N I T Q E D F K G L E N L

**BglII (1307)** **BstAPI (1354)**  
1301 CATTACTAGATCTGAGTGGAACTGTCCAAGGTGTTACAATGCTCCATTTCTTGCACACCTTGAAGGAAAACCTCATCCATCCACATACATCCTCTGGC  
24 T L L D L S G N C P R C Y N A P F P C T P C K E N S S I H I H P L A  
1401 TTTTCAAAGTCTCACCAACTTCTATCTAAACCTTTCCAGCACTTCCCTCAGGACTTCTTCTACCTGGTTTGAATACTGTCAAATCTGAAGGAA  
27 F Q S L T Q L L Y L N L S T S L R T I P S T W F E N L S N L K E  
1501 CTCCATCTGAATTCAAACCTTTAGTTCAAGAAATGCTCGGGGCACTTTTAAACAAAACCTCCAGTTTACAAAATCCTTGATTTGCTTCAACTTTCT  
31 L H L E F N Y L V Q E I A S G A F L T K L P S L Q I L D L S F N F

**AseI (1623)**  
1601 AATATAAGGAATATTTACAATTTATAATTTCTCAAATTTCTCTAAGCTTCTCTCAAGAAGTTGCACTTAAGAGGCTATGTGTTCCGAGAAGT  
34 Q Y K E Y L Q F I N I S S N F S K L R S L K K L H L R G Y V F R E L  
1701 TAAAAAGAAGCATTTCGAGCATCTCCAGAGTCTTCCAAACTTGGCAACCATCAACTTGGGCATTAACCTTATTGAGAAAATGATTTCAAAGCTTTCCAG  
37 K K K H F E H L Q S L P N L A T I N L G I N F I E K I D F K A F Q  
1801 AATTTTCCAAACCTGAGCTTATCTATTTATCAGGAAATCGCATAGCATCTGTATTAGATGGTACAGATTATTCCTTGGCGAAATCGTCTTCGAAAC  
41 N F S K L D V I Y L S G N R I A S V L D G T D Y S S W R N R L R K

**BbrPI (1932)** **StuI (1993)**  
1901 CTCTCTCAACAGACGATGATGAGTTTGTCCACACGTGAATTTTTACCATAGCACCAAACCTTTAATAAAGCCACAGTGTACTGCTTATGGCAAGGCCTT  
44 P L S T D D D E F D P H V N F Y H S T K P L I K P Q C T A Y G K A L

**EcoRV (2058)**  
2001 GGATTTAAGTTTGAACAATATTTTCAATTATTGGGAAAAGCCAATTTGAAGTTTTTCAGGATATCGCCTGCTTAAATCTGCTTCAATGCCAATACTCAA  
47 D L S L N N I F I I G K S Q F E G F Q D I A C L N L S F N A N T Q  
2101 GTGTTAATGGCACAGAATCTCCTCCATGCCCAATTAATATTTGGATTTAACCAACAACAGACTAGACTTTGATGATAAATGCTTTCAAGTATGATC  
51 V F N G T E F S S M P H I K Y L D L T N N R L D F D D N N A F S D

**XbaI (2207)**  
2201 TTCACGATCTAGAAGTGTGGACCTGAGCCACAATGCACACTATTTTCAGTATAGCAGGGGTAACGCACCGTCTAGGATTTATCCAGAACTTAATAAACCT  
54 L H D L E V L D L S H N A H Y F S I A G V T H R L G F I Q N L I N L  
2301 CAGGGTGTAAACCTGAGCCACAATGGCATTACACCCTCACAGAGGAAAGTGAAGTAAAGCATCTCACTGAAAGAATTTGGTTTTCAGTGGAAATCGT  
57 R V L N L S H N G I Y T L T E E S E L K S I S L K E L V F S G N R  
2401 CTTGACCGTTTGTGGAATGCAAAATGAGGCAAAATCTGTCATTTTTTAAAGTCTCCAGAATTTGATACGCGCTGGACTTATCATACAATAACCTTCAAC  
61 L D R L W N A N D G K Y W S I F K S L Q N L I R L D L S Y N N L Q  
2501 AAATCCCAATGGAGCATTCTCAATTTGCTCAGAGCCTCCAAGAGTACTTATCAGTGGTAACAAATACGTTTCTTAAATGGACATTACTCCAGTA  
64 Q I P N G A F L N L P Q S L Q E L L I S G N K L R F F N W T L L Q Y  
2601 TTTTCTCACCTTCACTTGTGGATTTATCGAGAAATGAGCTGATTTTCTACCCAATGCTATCTAAGTTTGCACATTCCCTGGAGACTGCTACTG  
67 F P H L H L L D L S R N E L Y F L P N C L S K F A H S L E T L L L

**ApaLI (2757)**  
2701 AGCCATAATCATTCTCTCACCTACCCTCTGGCTTCTCTCCGAGCCAGGAATCTGGTGCACCTGGATCTAAGTTTCAACACAATAAAGATGATCAATA  
71 S H N H F S H L P S G F L S E A R N L V H L D L S F N T I K M I N

**BstBI (2890)** **Bsp119I (2890)**  
2801 AATCCTCCCTGCAACCAAGATGAAAACGAACTTGTCTATTCTGGAGCTACATGGGAACTATTTTGAAGTGCACGTGTGACATAAGTATTTCGAAGCTG  
74 K S S L Q T K M K T N L S I L E L H G N Y F D C T C D I S D F R S W

**BspHI (2983)** **BglII (2993)**  
2901 GCTAGATGAAAATCTGAATATCACAATCTCAAATTTGGTAAATGTTATATGTTCCAATCTGGGGATCAAAAATCAAAGAGTATCATGAGCCTAGATCTC  
77 L D E N L N I T I P K L V N V I C S N P G D Q K S K S I M S L D L

PvuII (3025) XcmI (3061)  
PstI (3022) NeoI (3061)  
3001 ACGACTTGTGTATCGGATACCACTGCAGCTGCTCTGTTTTCTCACATTCCTTACCACCTCCATGGTTATGTTGGCTGCTCTGGTTCCACCACCTGTTTT  
811▶ T T C V S D T T A A V L F F L T F L T T S M V M L A A L V H H L F

BspLU11I (3124)  
3101 ACTGGGATGTTTTGTTTTATCATCACATGTGCTCTGCTAAGTTAAAAGGCTACAGGACTTCATCCACATCCCAAACCTTCTATGATGCTTATATTTCTTA  
844▶ Y W D V W F I Y H M C S A K L K G Y R T S S T S Q T F Y D A Y I S Y

NsiI (3211)  
3201 TGACACCAAAGATGCATCTGTTACTGACTGGGTAATCAATGAAGTCCGCTACCACCTGAAGAGAGTGAAGACAAAAGTGCCTCCTTTGTTTAGAGGAG  
877▶ D T K D A S V T D W V I N E L R Y H L E E S E D K S V L L C L E E

BamHI (3308)  
3301 AGGGATTGGGATCCAGGATTACCATCATTGATAACCTCATGCAGAGCATAAACCCAGAGCAAGAAAACAATCTTTGTTTTAACCAAGAAATATGCCAAGA  
911▶ R D W D P G L P I I D N L M Q S I N Q S K K T I F V L T K K Y A K

ScaI (3496)  
3401 GCTGGAACTTAAAACAGCTTTCTACTTGGCCTTGCGAGGCTAATGGATGAGAACATGGATGTGATTATTTTCATCCTCCTGGAACAGTGTACAGTA  
944▶ S W N F K T A F Y L A L Q R L M D E N M D V I I F I L L E P V L Q Y

3501 CTCACAGTACCTGAGGCTTCGGCAGAGGATCTGTAAGAGCTCCATCCTCCAGTGGCCCAACAATCCCAAAGCAGAAAACCTGTTTTGGCAAAGTCTGAAA  
977▶ S Q Y L R L R Q R I C K S S I L Q W P N N P K A E N L F W Q S L K

MscI (3695)  
3601 AATGTGGTCTTGACTGAAAATGATTACCGGTATGACGATTTGTACATTGATTCCATTAGGCAACTACTAGTGTGGAAGTCCAGACTCTGCTAGCTGGCC  
1011▶ N V V L T E N D S R Y D D L Y I D S I R Q Y •

3701 AGACATGATAAGATACATTGATGAGTTTGGACAACCACAACCTAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTT

HpaI (3827)  
3801 GTAACCATTATAAGCTGCAATAAACAAGTTAACAAACAATTGCATTCATTTTATGTTTCAGGTTTCAGGGGGAGGTGTGGGAGGTTTTTAAAGCAAGT

3901 AAAACCTCTACAAATGTGGTATGGAATTCTAAAATACAGCATAGCAAACTTTAACCTCCAAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAAT

4001 AAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTTGCAGCCTCACCTTCTTTCATGGAGTTTAAGATATAGTGTATTTTCCCAAGGTTTG

SapI (4105) SwaI (4176)  
4101 AACTAGCTCTTCATTTCTTTATGTTTTAAATGCACTGACCTCCACATTCCTTTTTAGTAAATATTCAGAAATAATTTAAATACATCATTGCAATGAA

EcoO109I (4237)  
4201 AATAAATGTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGACTTAGGGAACAAAGGAACCTTAAATAG

4301 AAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCTGGTGTACTTGGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCCATTTCATCT  
141▶ • N R T Y K L P I L E E I T T K V L K G N M E

4401 CAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTGCACATGCCACAGGGGCTGACCACCCTGATGGATCTGTCACCTCATCAGAGTA  
118▶ 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 D V E D S Y

4501 GGGGTGCTGACAGCCCAATGGTGTCAAAGTCTTCTGCCGTTGCTCACAGCAGACCAATGGCAATGGCTTCAGCACAGACAGTACCCTGCCAATG  
85▶ 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 T V R G I

StuI (4601)  
4601 TAGGCCTCAATGTGGACAGCAGAGATGATCTCCCAGTCTTGGTCTGATGGCCGCCGACATGGTGTCTTGTGCTCATAGAGCATGGTGTCTTCT  
51▶ 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 L M T I K E

4701 CAGTGGCGACCTCCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGTCTTCATGGTGGCCCTCTATAGTGAGTCGTATTATACTATGCCGATATACT  
18▶ T A V E V L E L D Q Q S I N F T K M

AseI (4809)  
4801 ATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTTCACTAAACGAGCTCTGCTTATATAGACCTCCACCGTACAG

SpeI (4964)  
4901 CCTACCGCCATTTGCGTCAATGGGCGGAGTTGTTACGACATTTTGGAAAGTCCCGTTGATTTACTAGTCAAAAACAACTCCCATGACGTCAATGGGG

SnaBI (5092)  
5001 TGGAGACTTGAAATCCCGTGAGTCAAACCGTATCCACGCCATTGATGTACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGA

NdeI (5197)  
5101 TGTACTGCCAAGTAGGAAAGTCCATAAGGTCACTGACTGGGCATAATGCCAGCGGGCCATTACCCTGATTGACGTCAATAGGGGGCGTACTTGGCAT

5201 ATGATACACTTGATGACTGCCAAGTGGGAGTTTACCCTAAATACTCCACCCATTGACGTCAATGAAAAGTCCCTATTGGCGTTACTATGGGAACATAC

PacI (5383)  
5301 GTCATTATTGACGTCAATGGGCGGGGTCGTTGGGCGGTGAGCCAGCGGGCCATTTACCCTAAGTTATGTAACGCTGCAGGTTAAATAAGAACATGTG  
SdaI (5375) BspLU11I (5393)

5401 AGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGGCCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAAATCGACGC

5501 TCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAGATACCAGCGTTTTCCCTGGAAAGTCCCTCGTGCCTCTCTGTTCCGACCCTGCCGTTA

5601 CCGGATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTGGCGTTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCAAGCT

ApaLI (5707)  
5701 GGGCTGTGTGCACGAACCCCGTTCCAGCCGACCCTGCGCCTTATCCGGTAACTATCGTCTTGTAGTCCAACCCGGTAAGACACGACTTATCGCCACTG

5801 GCAGCAGCCACTGGTAACAGATTAGCAGAGCGAGGTATGTAGCGGTGTACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAG

5901 TATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAACCACCGCTGGTAGCGGTGGTTTTTT  
6001 TGTTTGCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGGAACGAAAACCTCACGT  
6101 TAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATCAGCGGCCGCAATAAAATATCTTTATTTTCATTACATCTGTGTGTGGTTTTTTGTGTGA  
6201 ATCGTAACTAACATACGCTCTCCATCAAAACAAAACGAAACAAAACAACTAGCAAAATAGGCTGTCCCGAGTGCAAGTGCAGGTGCCAGAACATTTCTC  
6301 TATCGAA

PacI (6123) SwaI (6132) **EagI (6143)**  
**NotI (6142)**