



PvuI (7)
SgfI (6)
1 GGATCTGCATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCCGAGAAGTTGGGGGAGGGGTCGGCAATTGAACGGGTGCCTA
101 GAGAAAGTGGCGCGGGTAAACTGGAAAAGTATGTCGTGTACTGGCTCCGCCTTTTTCCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

Psp1406I (203) **PvuII (239)**
201 GTGAACGTTCTTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCCTTCACGCGCCGCCCTACCTGAGGCC
301 GCCATCCACGCCGGTTGAGTCGCGTTCTGCCGCTCCCGCTGTGGTGCTCCTGAACTGCGTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMIV (441)
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCGCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGCTCAACTCTACGCTTTTGTTCGTTT

AgeI (552) **NcoI (568)**
501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGCGCCTACCTGAGATCACCGGTAGGAGGGCCACCATGGAAAACATGCCCCCTCAGTCATGGATT
601 CTGACGTGCTTTTGTCTGCTGTCTCTGGAACCACTTCCATAAAGCGAACTATCCAGAAGCTATCCTTGTGACGAGATAAGGCACAACCTCCC
15▶ 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 TTGTGATTGCAGAATGCAACCATCGTCAACTGCATGAAGTCCCAAACCTATAGGCAAGTATGTGACAAAACATAGACTTGTGACAGCAATGCCATTACACA
48▶ 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 TATAACGAAAGAGTCTTTCAAAGCTGCAAAACCTCACTAAAATCGATCTGAACCACAATGCCAAACAACAGCACCCAAATGAAAATAAAAATGGTATG
81▶ 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 AATATTACAGAAGGGCACTTCTCAGCCTAAGAAATTAACAGTTTTACTGCTGGAAGACAACAGTTATATACTATACCTGCTGGGTTGCCTGAGTCTT
115▶ 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 TGAAGAAGACTTAGCCTAATCAAACAATATATTTAGGTAACATAAAACAACACTTTTGGGCTTAGGAACTGGAAGACTCTATTTGGGCTGGAACCTG
148▶ 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 CTATTTTAAATGTAATCAAACCTTTAAGGTAGAAGATGGGGCATTTAAAAATCTTATACACTTGAAGTACTCTCATTATCTTTCAATAACCTTTTCTAT
181▶ 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
1201 GTGCCCCCAAACCTCAAGTCTCTAAGGAACTTTTCTGAGTAATGCCAAAATCATGAACATCACTCAGGAAGACTTCAAAGGACTGGAAAATTTAA
215▶ 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 CATTACTAGACTGAGTGGAAACTGTCCAAGGTGTACAATGCTCCATTTCTTGCACACCTTGAAGGAAAACCTATCCATCCACATACATCCTCTGGC
248▶ 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 TTTTCAAAGTCTACCCAACCTTCTATCTAAACCTTTCCAGCACTTCCCTCAGGACGATTCTTCTACCTGGTTTAAAATCTGTCAAATCTGAAGGAA
281▶ F Q S L T Q L L Y L N L S S T S L R T I P S T W F E N L S N L K E
1501 CTCATCTTGAATTCAACTATTTAGTTCAAGAAATGCCTCGGGGGCATTTTAAACAAAACCTCCAGTTTACAAATCCTTGATTTGCTTCAACTTTT
315▶ 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 AATATAAGGAATATTTACAATTTATTAATTTCTCAAAATTTCTAAGCTTCTCTCAAGAAGTTGCACCTTAAGAGGCTATGTGTTCCGAGAACT
348▶ 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 TAAAAAGAAGCATTTCGAGCATCTCCAGAGTCTTCCAAACTTGGAACCATCAACTTGGGCATTAACCTTTATTGAGAAAATGATTTCAAAGCTTTCCAG
381▶ 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 AATTTTCCAAACTCGACGTTATCTATTTATCAGGAAATCGCATAGCATCTGTATTAGATGGTACAGATTATCTCTTGGCGAAATCGTCTTCGAAAC
415▶ 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
448▶ 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 GGATTTAAGTTTGAACAATATTTTATTATTGGGAAAAGCCAATTTGAAGGTTTTTTCAGGATATCGCCTGCTTAAATCTGCTTCAATGCCAATACTCAA
481▶ 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 GTGTTTAAATGGCACAGAATTCCTCCATGCCCCACATTAATTTGATTTAACCAACAACAGACTAGACTTTGATGATAACAATGCTTTTCAGTGATC
515▶ 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 TTCACGATCTAGAAGTGTGGACCTGAGCCACAATGCACACTATTTTCACTATAGCAGGGGTAACGCACCGTCTAGGATTTATCCGAACTTAATAAACCT
548▶ 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 CAGGGTGTAAACCTGAGCCACAATGGCATTACACCTCAGAGGAAAAGTGGCTGAAAAGCATCTCACTGAAAGAATGGTTTTTCACTGGAATCGT
581▶ 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 CTTGACGTTTGGAAATGCAAAATGATGGCAAACTGCTCCATTTTAAAAGTCTCCAGAATTTGATACGCCTGGACTTATACATAACAATAACCTTCAAC
615▶ 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 AAATCCAAAATGGAGCATTCTCAATTTGCCTCAGAGCCTCCAAGAGTTACTTATCAGTGGTAACAAATACGTTTCTTTAATTTGGACATTACTCCAGTA
648▶ 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 TTTTCTCACCTTCACTTGTGATTTATCGAGAAATGAGCTGATTTTCTACCCAATTCCTATCTAAGTTTGCACATTCCTGGAGACACTGCTACTG
681▶ 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 AGCCATAATCATTCTCTCACCTACCCTCTGGCTTCTCTCCGAAGCCAGGAATCTGGTGCACCTGGATCTAAGTTTCAACACAATAAAGATGATCAATA
715▶ 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

2801 AATCCTCCTGCAAACCAAGATGAAACGAACTTGTCTATTCTGGAGCTACATGGAACTATTTTACTGCACGTGTGACATAAGTGATTTTCGAAGCTG
748▶ 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
BbrPI (2870) BstBI (2890)

2901 GCTAGATGAAATCTGAATATCACAAATCCTAAATGGTAAATGTTATATGTTCCAATCCTGGGGATCAAAAATCAAAGAGTATCATGAGCCTAGATCTC
781▶ 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
BglIII (2993)

3001 ACGACTTGTGTATCGGATACCACTGCAGCTGCCTGTTTTCTCACATTCCTTACCACCTCCATGGTTATGTTGGCTGCTCTGGTTCACCACCTGTTTT
815▶ 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
PvuII (3025) XcmI (3061)
PstI (3022) NcoI (3061)

3101 ACTGGGATGTTTGGTTTATCTATCACATGTGCTCTGCTAAAGTAAAAGGCTACAGGACTTCATCCACATCCCAAACTTCTATGATGCTTATATTTCTTA
848▶ 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
BspLU11I (3124)

3201 TGACACCAAGATGCATCTGTTACTGACTGGGTAATCAATGAACTGCCTACCACCTGAAGAGAGTGAAGACAAAAGTGCCTCCTTTGTTTAGAGGAG
881▶ 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
NsiI (3211)

3301 AGGGATTGGGATCCAGGATTACCATCATTGATAACCTCATGCAGAGCATAAACCCAGAGCAAGAAAACAATCTTTGTTTTAACCAAGAAATATGCCAAGA
915▶ 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
BamHI (3308)

3401 GCTGGAACTTTAAAACAGCTTTCTACTTGGCCTTACAGAGGCTAATGGATGAGAACATGGATGTGATTATTTTCATCCTCCTGGAACCAAGTGTACAGTA
948▶ 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 CTCACAGTACCTGAGGCTTCGGCAGAGGATCTGTAAGAGTCCATCCTCCAGTGGCCCAACAATCCCAAGCAGAAAATTGTTTTGGCAAAGTCTGAAA
981▶ S Q Y L R L R Q R I C K S I L Q W P N N P K A E N L F W Q S L K
BsrGI (3640)

3601 AATGTGGTCTTGACTGAAAATGATTCACGGTATGACGATTTGTACATTGATTCATTAGGCAATACAGATCCTATCCCTATGATGTGCCAGACTATGCTG
1015▶ N V V L T E N D S R Y D D L Y I D S I R Q Y R S Y P Y D V P D Y A
MscI (3769)

3701 GCTATCCATATGATGTTCTGATTATGCTGGATACCCTTATGATGTGCCAGACTATGCCTAAAGCTAGCTGGCAGACATGATAAGATACATTGATGAGT
1048▶ G Y P Y D V P D Y A G Y P Y D V P D Y A •
NdeI (3706) NheI (3763)

3801 TTGGCAAACCAACTAGAATGCAGTGAATAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAACA
HpaI (3901)

3901 AGTTAAACAACAACAATTGCATTCATTTTATGTTTCAGGTTTCAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAAACCTCTACAAATGTGGTATGGAA
4001 TTCTAAAATACAGCATAGCAAACTTTAACCTCAAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGC
SapI (4179)

4101 CAATGTGCATTAGCTGTTTGCAGCCTCACCTTCTTTATGAGTAAAGATATAGTGTATTTCCCAAGGTTTGAAGTACTGCTCTTCATTTCTTTATGTTT
SwaI (4250)

4201 TAAATGCACTGACCTCCACATTCCTTTTTAGTAAAATATTCAGAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTTATTAGGCAGAAT
EcoO109I (4311)

4301 CCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAGGAACCTTAAATAGAAATGGACAGCAAGAAAGCGAGCTT
4401 CTAGCTTTAGTTCCTGGTGTACTTGAGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCCATTCTCAATGAGCACAAGCAGTCAGGAGCA
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 D P A
4501 TAGTCAGAGATGAGCTCTGTCATGCCACAGGGGCTGACCACCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCTGACAGCCACAATGGTGT
109▶ 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 V I T D
StuI (4675)

4601 CAAAGTCTTCTGCCGTTGCTCACAGCAGACCAATGGCAATGGCTCAGCAGACAGTACCCTGCCAATGTAGGCTCAATGTGGACAGCAGAGAT
76▶ 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 A S I
4701 GATCTCCCAAGTCTTGGTCTGATGGCCGCCCCGACATGGTGCTTGTGTCCTCATAGAGCATGGTGTCTTCTCAGTGGCGACTCCACCAGCTCCAGA
43▶ 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 L E L
AseI (4883)

4801 TCCTGCTGAGAGATGTTGAAGTCTTTCATGATGGCCCTCTATAGTGAGTCGTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACAG
9▶ D Q Q S I N F T K M
4901 CGTGGATGGCTCCTCAGCTTATCTGACGGTTCATAAACGAGCTCTGCTTATATAGACTCCACCGTACACGCCTACCGCCATTTGCGTCAATGGGG
SpeI (5038)

5001 CGGAGTTGTTACGACATTTTGGAAAGTCCCCTGATTTACTAGTCAAAACAACTCCCATTGACGTCAATGGGGTGGAGACTTGAAATCCCCGTGAGTC
SnaBI (5166)

5101 AAACCGCTATCCACGCCATTGATGTAAGTCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTAAGTCCAAAGTAGGAAAGTCCCAT
NdeI (5271)

5201 AAGGTCATGTAAGTGGCATAATGCCAGGCGGGCCATTTACCGTCAATGACGTCAATAGGGGGCTACTTGGCATATGATACACTTGTACTGCAAGT

5301 GGGCAGTTTACCGTAAATACTCCACCCATTGACGTCAATGGAAAGTCCCTATTGGCGTTACTATGGGAACATACGTCATTATTGACGTCAATGGGCGGGG

PacI (5457)

PstI (5450)

SdaI (5449)

BspLU11I (5467)

5401 GTCGTTGGGCGGTGAGCCAGGCGGGCCATTTACCGTAAGTTATGTAACGCCTGCAGGTTAATTAAGAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGA

5501 ACCGTAAAAGGCCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGAC

5601 AGGACTATAAAGATACCAGGCGTTTTCCCCTGGAAGCTCCCTCGTGCCTCTCTGTTCGGACCCTGCCGTTACCGGATACCTGTCCGCTTTCTCCCT

ApaI (5781)

5701 TCGGGAAGCGTGGCGTTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTGTTGCTCCAGCTGGGCTGTGTGCACGAACCCCGTTCC

5801 AGCCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAG

5901 CAGAGCGAGGTATGTAGGCGGTGCTACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAG

6001 CCAGTTACCTTCGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAACCCGCTGGTAGCGGTGGTTTTTTTTGTTTGAAGCAGCAGATTACGGCA

PacI (6197)

6101 GAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGTCTGACGCTCAGTGAACGAAAACCTCACGTTAAGGGATTTTGGTCATGGCTAGTTA

EagI (6217)

SwaI (6206)

NotI (6216)

6201 ATTAACATTTAAATCAGCGGCCGAATAAAATATCTTTATTTTCATTACATCTGTGTGTTGGTTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATC

6301 AAAACAAAACGAAACAAAACAACTAGCAAAATAGGCTGTCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA