



PvuI (7)
SgfI (6)
1 GGATCTGC GATCGCTCCGGTGCCCGTCAGTGGGCGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA

101 GAGAAGGTGGCGCGGGGTAACCTGGGAAAGTGTCTGTGACTGGCTCCGCCTTTTTCCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

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

301 GCCATCCACGCGCGGTTGAGTGCAGTCTGCCGCCTCCCGCCTGTGGTGCCTCTGAAGTGCCTCCGCGCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMIV (441)
401 GGGCCTTTGTCCGCGCTCCCTTGAGGCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCTAACTCTACGCTTTTGTTCGTTT

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

601 CTGACGTGCTTTTGTCTGCTGTCCTCTGGAACCACTGTCATCTCCATAAAGCGAACTATTCCAGAAGCTATCCTTGTGACGAGATAAGGCACAACCTCCC
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 TTGTGATTGCAGAATGCAACCATCGTCAACTGCATGAAGTTCFCAAACATAGGCAAGTATGTGACAAAACATAGACTTGCAGAAAACATGCCATTACACA
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 TATAACGAAAGAGTCTTTCAAAGCTGCAAAAACCTCACTAAAATCGATCTGAACCACAATGCCAAAACAAGCACCCTAAATGAAAATAAAAATGGTATG
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 TGAAGAAGACTTAGCCTAATTCAAAACAATATATTTTCAGGTAACAAAAACAACACTTTTGGGCTTAGGAACTTGAAAGACTCTATTTGGGCTGGAAGT
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 CTATTTAAATGTAATCAAACCTTTAAGGTAGAAGATGGGGCATTAAAAATCTATACACTGGAAGTACTCTATTATCTTTCAATAACCTTTTCTAT
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 CATTACTAGATCTGAGTGGAAACTGTCCAAGGTGTTACAATGCTCCATTTCTTGCACACCTTGAAGGAAAACCTCATCCATCCACATACATCCTCTGGC
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 TTTTCAAAGTCTCACCAACTTCTATCTAAACCTTTCCAGCACTTCCCTCAGGACTTCTTCTACCTGGTTTGAAGAACTGTCAAATCTGAAGGAA
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 CTCCATCTGAATTCAACTATTTAGTTCAAGAAATGCTCGGGGCGATTTTTAAACAAAACATCCAGTTTACAAAATCCTTGATTTGCTTCAACTTTCT
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 AATATAAGGAATATTTACAATTTAATAATTTCTCAAATTTCTCTAAGCTTCTCTCAAGAAGTTGCACTTAAGAGGCTATGTGTTCCGAGAAGT
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 TAAAAAGAAGCATTTCGAGCATCTCCAGAGTCTTCCAAAACCTGGCAACCATCAACTTGGGCATTAACCTTATTGAGAAAATGATTTCAAAGCTTTCCAG
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 AATTTTCCAAAACCTGAGCTTATCTATTTATCAGGAAATCGCATAGCATCTGTATTAGATGGTACAGATTATTCCTTGGCGAAATCGTCTTCGGAAC
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 CTCTCTCAACAGACGATGATGAGTTTGTCCACACGTGAATTTTTACCATAGCACAAAACCTTTAATAAAGCCACAGTGTACTGCTTATGGCAAGGCCTT
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 GGATTTAAGTTTGAACAATATTTTCAATTATTGGGAAAAGCCAATTTGAAGTTTTTCAGGATATCGCCTGCTTAAATCTGCTCTCAATGCCAATACTCAA
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 GTGTTAATGGCACAGAATCTCCTCCATGCCCAATTAATATTTGGATTTAACCAACAACAGACTAGACTTTGATGATAAATGCTTTTCAGTGATC
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 TTCACGATCTAGAAGTGTGGACCTGAGCCACAATGCACACTATTTTCAGTATAGCAGGGGTAACGCACCGTCTAGGATTTATCCAGAAGTAAATAAACCT
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 TTTTCTCACCTTCACTTGTGGATTTATCGAGAAATGAGCTGATTTTCTACCAATTCCTATCTAAGTTTGCACATTCCCTGGAGACTGCTACTG
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 AATCCTCCCTGCAACCAAGATGAAAACGAACTTGTCTATTCTGGAGCTACATGGGAACTATTTTGCAGTGCAGGTGTGACATAAGTGATTTTCGAAGCTG
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 GCTAGATGAAAATCTGAATATCACAATTCCTAAATTTGGTAAATGTTATATGTTCCAATCTGGGGATCAAAAATCAAAGAGTATCATGAGCCTAGATCTC
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 ACTGGGATGTTTGGTTTATCATCACATGTGCTCTGCTAAGTTAAAAGGCTACAGGACTTCATCCACATCCCAAACCTTCTATGATGCTTATATTTCTTA
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 AATGTGGTCTTGACTGAAAATGATTACCGGTATGACGATTTGTACATTGATTCCATTAGGCAACTACTAGTGATGGGAAGTCCAGACTCTGCTAGCTGGCC
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 AAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTGCAGCCTCACCTTCTTTCATGGAGTTTAAGATATAGTGATTTTCCCAAGGTTTG

SapI (4105) SwaI (4176)
4101 AACTAGCTCTTCATTTCTTTATGTTTTAAATGCACTGACCTCCACATTCCTTTTTAGTAAATATTTCAGAAATAATTTAAATACATCATTGCAATGAA

EcoO109I (4237)
4201 AATAAATGTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGACTTAGGGAACAAAGGAACCTTAAATAG

4301 AAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCTGGTGTACTTGGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCCATTCATCT
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 TAGGCCTCAATGTGGACAGCAGAGATGATCTCCCACTTGGTCTGATGGCCGCCGACATGGTGTCTGTTGTCCTCATAGAGCATGGTGTCTTCT
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 ATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTTCACTAAACGAGCTCTGCTTATATAGACCTCCACCCTACAG

SpeI (4964)
4901 CCTACCGCCATTTGCGTCAATGGGCGGAGTTGTTACGACATTTGGAAAGTCCCGTTGATTTACTAGTCAAAAACAACTCCCATGACGTCAATGGGG

SnaBI (5092)
5001 TGGAGACTTGAAATCCCGTGAGTCAAACCGTATCCACGCCATTGATGTACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGA

NdeI (5197)
5101 TGTACTGCCAAGTAGGAAAGTCCATAAGGTCACTGACTGGGCATAATGCCAGCGGGCCATTACCCTGATTGACGTCAATAGGGGGCGTACTTGGCAT

5201 ATGATACACTTGATGACTGCCAAGTGGGAGTTTACCCTAAATACTCCACCCATTGACGTCAATGAAAAGTCCCTATTGGCGTTACTATGGGAACATAC

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

5401 AGCAAAGGCCAGCAAAGGCCAGGAACCGTAAAAAGCCGCTTGTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAAATCGACGC

5501 TCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAGATACCAGCGTTTTCCCTGGAAAGCTCCCTCGTGCCTCTCTGTTCCGACCCTGCCGTTA

5601 CCGGATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTGGCGCTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCAAGCT

ApaLI (5707)
5701 GGGCTGTGTGCACGAACCCCGTTCCAGCCGACCCTGCGCCTTATCCGGTAACTATCGTCTTGTAGTCCAACCCGGTAAGACACGACTTATCGCCACTG

5801 GCAGCAGCCACTGGTAACAGATTAGCAGAGCGAGGTATGTAGCGGTGTACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAG

5901 TATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAACCACCGCTGGTAGCGGTGGTTTTTT
6001 TGTTTGCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGGAACGAAAACCTCACGT
6101 TAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATCAGCGGCCGCAATAAAATATCTTTATTTTCATTACATCTGTGTGTGGTTTTTTGTGTGA
6201 ATCGTAACTAACATACGCTCTCCATCAAAACAAAACGAAACAAAACAACTAGCAAAATAGGCTGTCCCGAGTGCAAGTGCAGGTGCCAGAACATTTCTC
6301 TATCGAA

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