



PvuI (7)
SgfI (6) 1 GGATCTGCATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCCGAGAAGTTGGGGGAGGGGTCCGCAATTGAACGGGTGCCTA
MfeI (82)
101 GAGAAAGTGGCGCGGGTAAACTGGAAAAGTATGTCGTGTACTGGCTCCGCCTTTTTCCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

Psp1406I (203) 201 GTGAACGTTCTTTTTTCGAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCCTTCACGCGCCCGCCCTACCTGAGGCC
Bsu36I (291)
301 GCCATCCACGCGGTTGAGTCGCGTTCTGCGCCTCCCGCTGTGGTGCTCCTGAACTGCGTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMIV (441)
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCTCAACTCTACGCTTTTGTTCGTTT

BstEII (555)
AgeI (552) **NcoI (560)**
501 TCTGTTCTGCGCGGTTACAGATCCAAGCTGTGACCGGCGCTACCTGAGATCACCGGTACCATTGGAACCACAGGTTACTCTAAATGTGACTTTTAAAAA
1▶ M E P Q V T L N V T F K N

EcoRV (649)
601 TGAATTCAAAGCTTTCTGGTTTCTGATCCAGAAAATACAACCTGGGCTGATATCGAAGCTATGGTAAAAGTTTCATTTGATCTGAATACTATTCAAATA
13▶ E I Q S F L V S D P E N T T W A D I E A M V K V S F D L N T I Q I

Eco47III (759)
701 AAATACCTGGATGAGGAAAATGAAGAGGTATCCATCAACAGTCAAGGAGAATATGAAGAAGCGCTTAAGATGGCAGTAAACAGGAAAACCAACTGCAGA
47▶ K Y L D E E N E E V S I N S Q G E Y E E A L K M A V K Q G N Q L Q
801 TGCAAGTCCACGAAGGGCACCATGTCGTTGATGAAGCCCCACCCAGTTGTAGGAGCAAAACGACTAGCTGCCAGGGCAGGGAAGAAGCCACTTGACACA
80▶ M Q V H E G H H V V D E A P P P V V G A K R L A A R A G K K P L A H

BamHI (948)
901 TTA CTCTTCACTGGT GAGAGTCTTGGGATCAGACATGAAGACCCAGAGGATCCTGCAGTGCAGTCTTTCCACTTGTCCATGTGACACAGACCAGCCT
113▶ Y S S L V R V L G S D M K T P E D P A V Q S F P L V P C D T D Q P

HpaI (1057)
1001 CAAGACAAGCCCCAGACTGTTTCAAGCTACCTGGAGACGTTAGAGAACAAGTGGTAAACGAAACGGTTGAGAAGCTTGAACAGAAAATTACATGAAA
147▶ Q D K P P D W F T S Y L E T F R E Q V V N E T V E K L E Q K L H E
1101 AGCTTGTCTCCAGAACCATCCTTGGGTTCTGTCCCTCAGAAGTCTCAATGCCTACTTCAAGAAACATTGTTTTGCCAGAAAACAGTTCACTG
180▶ K L V L Q N P S L G S C P S E V S M P T S E E T L F L P E N Q F S W

BstAPI (1211)
1201 GCATATTGCTTGAACAACCTGCCAAAGAAGGATTGTTGGTGTCCGCTACCAGTGTAGCCTATGCCATCCTACAATATCTGTGAAGATTGTGAAGCAGGG
213▶ H I A C N N C Q R R I V G V R Y Q C S L C P S Y N I C E D C E A G

MscI (1305)
NdeI (1301) **ScaI (1382)**
1301 CCATATGGCCATGACACTAACCACGCTCTGCTGAAGTTGCGGAGACCTGTTGTGGGCTCCTCTGAACGTTCTGTCACTCAAAGTACTCTACTCCTCGTC
247▶ P Y G H D T N H V L L K L R R P V V G S S E P F C H S K Y S T P R

BstAPI (1467)
1401 TTCCTGCTCTGGAACAAGTCAAGGCTCCAGAAACAGGTTGATAAGAAGTTCTTAAAGCAGAAAAGCAAAGTTGCGAGCTGAGAAGAAAACAGTAA
280▶ L P A A L E Q V R L Q K Q V D K N F L K A E K Q R L R A E K K Q R K

NcoI (1566)
EcoRI (1557)
1501 AGCAGAGGTCAAGGAACTTAAAAAGCAGCTTAACTCCATAGGAAAATCACCTGTGGAAATCAATCCATGGACTCCAGAGCCCCAAGTCTCCTTTAGGC
313▶ A E V K E L K K Q L K L H R K I H L W N S I H G L Q S P K S P L G
1601 CGACCTGAGAGCTTGCTCCAGTCAATACCCTGATGCTCCCTTTCAGCGCTGACCTCCGTTATGCCAATGCTCAGTGCAGCATTGTGGATGAGAATT
347▶ R P E S L L Q S N T L M L P L Q P C T S V M P M L S A A F V D E N
1701 TGCCTGATGGGACTCACCTTCAGCCAGGAACCAAGTTTATCAAACACTGGAGGATGAAAAATACAGGAAATGTAAGTGGAGTGCAGACACAAAGCTCAA
380▶ L P D G T H L Q P G T K F I K H W R M K N T G N V K W S A D T K L K

NgoMIV (1867)
1801 GTTCATGTGGGAAACCTGACTTTGGCTTCCACAGAAAAGAAGGATGTTTTGGTTCCTGCTCAAGGCCGGCCATGTGGGAGTTGTATCTGTGGAGTTC
413▶ F M W G N L T L A S T E K K D V L V P C L K A G H V G V V S V E F

Bst1107I (1923) **BstXI (1956)**
1901 ATTGCCCCAGCCTTGAGGGAACGTATACTTCCATTGGCGTCTTTCTCACAAGGCGCAGCAATTTGGGCTCGGGTCTGGTGCAGTATCATAGTAGATC
447▶ I A P A L E G T Y T S H W R L S H K G Q Q F G P R V W C S I I V D
2001 CTTTCCCCTCGAAGAGAGCCCTGATAACATTGAAAAGGCATGATCAGCTCAAGCAAACTGATGATCTCACCTGCCAGCAAGAGGAAAACCTTTCTTCT
480▶ P F P S E E S P D N I E K G M I S S S K T D D L T C Q Q E E T F L L
2101 GGCTAAAGAAGAAAGACAGCTTGGTGAAGTACTGAGCAGACAGAAGGACAGCAGCCTGCATCCCACAGAAGGCAAAAAATGTTGCCAGTGAAGGGAG
513▶ A K E E R Q L G E V T E Q T E G T A A C I P Q K A K N V A S E R E
2201 CTCTACATCCCCTGTGGATCTTCTGACTGCCAGGACCTGTGCTTTGAGCTGTTGGATATAAATGTTCAAGAGTTGGAGAGAGTGCCCCACA
547▶ L Y I P S V D L L T A M D L L S F E L L D I N I V Q E L E R V P H
2301 ACACCCCTGTGGATGTGACTCCCTGCATGTCTCCTCTGCCACATGACAGTCCCTTAATAGAGAAGCCAGGCTTGGGCGAGATAGAGGAAGAGAATGAAGG
580▶ N T P V D V T P C M S P L P H D S P L I E K P G L G Q I E E E N E G

SandI (2494)
2401 GGCAGATTTAAAGCACTTCTGATTCTATGGTGTGAGTAAAGAGGAAGGCTGAGAACATTGCTTCTGTGGAGGAAGCAGAAGAAGACCTGAGTGGGACC
613▶ A G F K A L P D S M V S V K R K A E N I A S V E E A E E D L S G T

A G F K A L P D S M V S V K R K A E N I A S V E E A E E D L S G T

PshAI (2570)

2501 CAGTTTGTGTGTGAGACAGTAATCCGATCCCTTACCTTGATGCTGCCCCAGACCACAACCCCTCTTGCAGACAGAAGTCCTTGCAGATGACATTTGCCT
647▶ Q F V C E T V I R S L T L D A A P D H N P P C R Q K S L Q M T F A
2601 TGCTGAAGGACCACTTGGAAATGAGAAGGAGGAGATTATCCATATCGCTGAGGAAGAAGCTGTCATGGAGGAGGAGGAGGATGAGGAGGATGAGGAGGA
680▶ L P E G P L G N E K E E I I H I A E E E A V M E E E E D E E E E

XcmI (2786)

2701 GGAGGATGAGCTCAAAGATGAAGTTCAAAGTCAGTCTCTGCTTCTCAGAGGATTACATCATCATCTCGCTGAGTGCTTTGATACCAGCCGCCCTCTG
713▶ E D E L K D E V Q S Q S S A S S E D Y I I I L P E C F D T S R P L

BsrGI (2810)

StuI (2835)

2801 GGGGATTCTATGTACAGCTCTGCGTCTCACAGCCAGGCCTGGAGCGAGGTGCTGAAGGCAAGCCTGGGGTTGAGGCTGGGCAGGAACCAGCTGAGGCTG
747▶ G D S M Y S S A L S Q P G L E R G A E G K P G V E A G Q E P A E A

2901 GGGAAAGACTCCCTGGAGGGGAGAACCAGCCACAGGAGCAGCATAAGTGACATCTCACGACCTCACAGACTCTGGAACAGTGCCCTAATCCCAGA
780▶ G E R L P G G E N Q P Q E H S I S D I L T T S Q T L E T V P L I P E

BsrGI (3042)

3001 GGTAGTGGAGTTCACCGTCACTGCCAGGAGCTCTCTTGTGTACATCATCATGGTCCCCAGGAGTGATTACCAGTTACCATAACCAGAAGTTTCT
813▶ V V E L P P S L P R S S P C V H H H G S P G V D L P V T I P E V S

SapI (3162)

3101 TCAGTCCCTGATCAGATCAGAGGAGAGCCAGAGGCTCATCAGACTTGTAAACAGCAGACAGAAGAGCTATGACCACTCAAGGCACCATCATGGAGCA
847▶ S V P D Q I R G E P R G S S G L V N S R Q K S Y D H S R H H H G S

3201 GCATTGCTGGAGGACTGGTGAAGGGGGCTTTGTCTGTTGCTGCTCTGCATACAAGGCCCTGTTTGTGGCCACCAGTCACTGCACAGCCAATAATTC
880▶ S I A G G L V K G A L S V A A S A Y K A L F A G P P V T A Q P I I S

SdaI (3399)

3301 TGAAGATCAGACAGCAGCCCTGATGGCCATCTCTTGAATGGGATTCTGTGACAGGAGCTGAACCTACGGCTGCTGAAGAAACACAATTACAATATC
913▶ E D Q T A A L M A H L F E M G F C D R Q L N L R L L K K H N Y N I

MscI (3482)

NheI (3476)

3401 CTGCAGGTTGTGACAGAACTTCTCAGTTAAACAACAACGACTGGTACAGCCAACGCTATTGAGGAGTGACCTTGTGCTAGCTGGCCAGACATGATAAGA
947▶ L Q V V T E L L Q L N N N D W Y S Q R Y •

3501 TACATTGATGAGTTTGGACAAACCACAACACTAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAA

HpaI (3614)

MfeI (3625)

3601 GCTGCAATAAACCAAGTTAAACAACAACAATTGCATTCATTTTATGTTTCAGGTTTCAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAAACCTCTACAA

EcoRI (3710)

3701 ATGTGGTATGGAATTCTAAAATACAGCATAGCAAACCTTAACTCCAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCAT

SapI (3892)

3801 CAGGGGCTGTTGCCAATGTGCATTAGCTGTTTGACGCCTCACCTTCTTTCATGGAGTTAAGATATAGTGATTTTCCAAGTGTGAACTAGCTCTTCA

SspI (3949)

SwaI (3963)

3901 TTTCTTTATGTTTTAAATGCACTGACCTCCACATTCCCTTTTTAGTAAAATATTCAGAAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTT

4001 TATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGAACCTTTAATAGAAATTTGGACAGCA

4101 AGAAAGCGAGCTTCTAGCTTTAGTTCCTGGTGTACTTGAGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCATTATCTCAATGAGCACAAA

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

BstXI (4253)

4201 GCAGTCAGGAGCATAGTCAGAGATGAGCTCTCTGCACATGCCACAGGGGCTGACCACCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCTGACA
114◀ 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 H R V

StuI (4388)

4301 GCCACAATGGTGTCAAAGTCTTCTGCCGTTGCTCACAGCAGACCAATGGCAATGGCTTCAGCACAGACAGTGACCCTGCCAATGTAGGCCTCAATGT
80◀ 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 A E I H

4401 GGACAGCAGAGATGATCTCCCCAGTCTGGTCTGATGGCCGCCCGACATGGTGCTGTTGTCTCATAGAGCATGGTGATCTTCTCAGTGGCGACCTC
47◀ 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 A V E

AseI (4596)

4501 CACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGTCTTCATGGTGGCCCTCTATAGTGAGTCGTATTATACTATGCCGATATACTATGCCGATGATTA
14◀ V L E L D Q Q S I N F T K M

4601 ATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTTCATAAACGAGCTCTGCTTATATAGACCTCCACCGTACACGCCTACCGCCATT

SpeI (4751)

4701 TCGCTCAATGGGCGGAGTTGTTACGACATTTTGGAAAGTCCCCTGTTTACTAGTCAAAACAACTCCCATTGACGTCAATGGGGTGGAGACTTGGAA

SnaBI (4879)

4801 ATCCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTACTGCCAAGT

NdeI (4984)

4901 AGGAAAGTCCCATAAGGTGATGACTGGGCATAATGCCAGGCGGGCCATTTACCGTCATTGACGTCAATAGGGGGCGTACTTGGCATATGATACACTTGA

5001 TGTACTGCCAAGTGGGAGTTTACCGTAAATACTCCACCCATTGACGTCAATGAAAGTCCCTATTGGCGTACTATGGGAACATACGTCAATTATTGACG

SdaI (5162)PacI (5170) **BspLU11I (5180)**

5101 TCAATGGGCGGGGTCGTTGGGCGGTACGCCAGGCGGGCCATTTACCGTAAGTTATGTAACGCCTGCAGGTTAATTAAGAACATGTGAGCAAAAGGCCAG
5201 CAAAAGGCCAGGAACCGTAAAAAGGCCGCTTGTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAATCGACGCTCAAGTCAGAGGT
5301 GGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCCCTGGAAGCTCCCTCGTGCGCTCTCTGTTCCGACCCTGCCGCTTACCGGATACCTGC

ApaLI (5494)

5401 CGCCTTTCTCCCTTCGGGAAGCGTGGCGTTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCAAGCTGGGCTGTGTGCAC
5501 GAACCCCGTTAGCCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTG
5601 GTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTG
5701 CGCTCTGCTGAAGCCAGTTACCTTCGGA AAAAGAGTTGGTAGCTCTTGATCCGGCAAACAACCACCGCTGGTAGCGGTGTTTTTTGTTTGAAGCAG
5801 CAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGTCTGACGCTCAGTGGAAACGAAAACCTCACGTTAAGGGATTTTGG

EagI (5930)

PacI (5910) SwaI (5919) **NotI (5929)**

5901 TCATGGCTAGTTAATTAACATTTAAATCAGCGGCCGCAATAAAATATCTTTATTTTCATTACATCTGTGTGTGGTTTTTTGTGTGAATCGTAACTAACA
6001 TACGCTCTCCATCAAACAAAACGAAACAAAACAAACTAGCAAATAGGCTGTCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA