



PvuI (7) SgfI (6) MfeI (82)
1 GGATCTGCGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCCGAGAAGTTGGGGGAGGGGTGCGCAATTGAACGGGTGCCTA
101 GAGAAGGTGGCGCGGGTAAACTGGAAAAGTATGTCGTGTACTGGCTCCGCCTTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

Psp1406I (203) Bsu36I (291)
201 GTGAACGTTCTTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCCTTCACGCGCCCGCCCTACCTGAGGCC
301 GCCATCCACGCCGGTTGAGTCGCGTTCTGCCGCTCCCGCTGTGGTGCTCCTGAACTGCGTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMIV (441)
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCTCAACTCTACGCTTTTGTTCGTTT

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

BamHI (624)
601 TGAAACTCAAAGCTTTCTGGTTTCGGATCCAGAAAATACAACCTGGGCTGATGTTGAAGCTATGGTAAAAGTTTCATTTGATCTGAATACTATCCAGATA
13 E T Q S F L V S D P E N T T W A D V E A M V K V S F D L N T I Q I

BsaBI (726) EcoRV (726)
701 AAATACCTGGATGAGGAGAACGAGGAGATATCCATCAATAGTCAAGGTGAATATGAAGAAGCACTTAAGTGGCTAACATTAAGCAAGGAAATCAGCTAC
47 K Y L D E E N E E I S I N S Q G E Y E E A L K M A N I K Q G N Q L

Acc65I (818)
801 AGATGCAAGTCCACGAAGGGTACCATGTTGTAGATGAAGCACTCCCCAAAAATGTGGTAGAAAACCAAGCGGCTGCCAGGACAGGGAAGAAGCCACTTGC
80 Q M Q V H E G Y H V V D E A L P K N V V E N Q A A A R T G K K P L A
901 ACATTATCTTACTGGTGTGAGAGTCTTGGGATCAGACATGAAGACCACAGAGGAGCCTGCACCAGGCAATGTTCTTCTGCTCCTTGTGACACAGACCAG
113 H Y S S L V R V L G S D M K T T E E P A P E Q C S S A P C D T D Q
1001 CCTCAAGACAAGCCCCAGATTGGTTTACAAGTACCTGGAGATGTTCCGAGAACAAGTGGTTAAGGAAACGGTGGAGAAACTGAACAGAGGTTGCAAGG
147 P Q D K P P D W F T S Y L E M F R E Q V V K E T V E K L E Q R L Q
1101 AGAAGCTTGTCTCCAGAAGCCACTCCTGAGTTCCTCACCCACAGAAGTCTCAATGCCTATTTAGAGGAAACCTGTTTTTCCAGAGAACCAGTTCAG
180 E K L V L Q K P L L S S S P T E V S M P I S E E T L F L P E N Q F S
1201 CTGGCATATTGCTTGTAGCCACTGCCAGAAGAGGATCGTTGGAGTGGCTACCAAGTGTAGCCTATGCCCATCTACAACATTTGTGAAGATTGTGAAGCT
213 W H I A C S H C Q K R I V G V R Y Q C S L C P S Y N I C E D C E A

EcoRV (1356) BsrBI (1391)
1301 GGACCATACCCATGACACTAACCATGTTTTGTTAAAGCTGCGGAGACCTGTTGTGATATCTCTGAGCCATTTTTCTACTCCAAGTATCCGCTCCTC
247 G P Y T H D T N H V L L K L R R P V V I S S E P F F Y S K Y S A P

BstAPI (1470)
1401 GTCTGCCTGCTGCTTTGAACAAGTCAAGCTCCAAAAACAGGTGGACAAGAAGCTTTGTGAAAGCAGAAAAGCAAAGTTGCGGGCTGAGAAGAAACAGCG
280 R L P A A L E Q V R L Q K Q V D K N F V K A E K Q R L R A E K K Q R

NcoI (1569)
1501 GAAGGCAGAGGTCAAAGAGCTTAAAAAGCAGCTTAACTCCACAGGAAGATTCATTTATGAAATTCATCCATGGACTTCAGAGTCCCAAGTCCCCTTTG
313 K 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

DraIII (1673)
1601 GGCCGACCTGAGAGCTTGTGTCAGTCTAACACCTGATGCTTCCTTTGCAGCCCTGTGCCAGTTATGCCAACACTCAGTGCAGCATTGTGGATGAGA
347 G R P E S L L Q S N T L M L P L Q P C A P V M P T L S A A F V D E
1701 ATTTGCCTGATGGACTCATCTTCCAGCCAGGAACCAAGTTTATTAACACTGGAGGATGAAAAACACGGGGAATGTGAAGTGAACACAGACACAAAGCT
380 N 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 N T D T K L

MscI (1872)
1801 CAAGTTATGTTGGGAAACTTGACTCTGGCTTCTACAGAGAAGAAAGATGTTTTGGTCCCTGCTTGAAGGCTGGCCACGTTGGGGTGTGTCTGTGGAG
413 K 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

BamHI (1998)
1901 TTCATCGCTCCAACCTTGAGGGGACATACACTTCGCACTGGCGTCTCTCTCACAAAAGCCAGCAGTTTGGGCTCGGGTTTGGTGCAGTATCATAGTGG
447 F I A P T 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
2001 ATCCTTTTCTTCTCTGAGAGCCCTGATAATGTTGAAGGGGACAGGATCAGCTCAAGCAAAGCTGACGATTTCTCTGTGAGCAAGAGGAAGCTTTTCT
480 D P F P S S E S P D N V E G D R I S S S K A D D F S C E Q E E A F L
2101 TCTAGCTGAAGAAGAGATTCCATTGGGTGAGGTGACAAAGCAGACAGAAGGGACAGGACCCAGTGCCTCACAGAAGACAAGACGCGCTGCCAGTGAAGG
513 L A E E E I P L G E V T K Q T E G T G A S A S Q K T R R A A S E R

BsrGI (2204)
2201 GAGCTGTACATTCATCTGTGGACCTCCTGACTGCCAGGACCTGCTGTCTTTGAGCTGCTGGATATAAACATTGTCCAAGAATTGGAGAGAGTGCCAC
547 E L Y I P S V D L L T A Q D L L S F E L L D I N I V Q E L E R V P
2301 ACAACACCCTGTGGATATGACTCCCTGCATGTCTCTGCCACATGACAGTCTTTAATAGAGAAGCCAGGCTTGGGGCAGATACAGGAAGAGAGTGA
580 H N T P V D M T P C M S P L P H D S P L I E K P G L G Q I Q E E S E

SaDI (2497)
2401 AGGGGCGGGATTTAAAGCACCTCCTGATTCCACTGTATCAGCAAGAGGAAAGCTGAGACCCCTGCTTCCGGTGAAGAAAACAGAAGAAGACCTGAGTGGG
613 G A G F K A P P D S T V S A K R K A E T P A S V E E T E E D L S G

2501 ACCCAATTTGTATGTGAGACTGTAATTCGATCCCTTACCTTGGATGCTGCTCCAGACCACAACCTCCTTGCAGGCAGAGTCCCCACAGAGGGAATTAC
647▶ T 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 R S P Q R E L
2601 AGCTGTATTCCACCGAGGGACAGCAGCCACTTGTGCTGCCTGGATTCTGCAGAAAGGATTCTTCTTGAATTTGCCTTGCCTGAAGAAGGACCGCGTGG
680▶ Q L Y S T E G Q Q P L V L P G F C R K D S S L K F A L P E E G P R G
2701 AGATGAGAGGGAGGAGATTGTCCACATTGTTGAGGAAGAAGTCGTTGAGGAAGAGGAGGAAGTCCAAGATGAAGAAGTCCAAAGTCAGTCTTCTGCTTCC
713▶ D E R E E I V H I V E E E V V E E E E V Q D E E V Q S Q S A S

BsrGI (2864) StuI (2889)

2801 TCTGAAGATTATATCATCATCCTTCTGAGTGTCTTGGATACCAGCCGCCCCCTGGGGACTCCATGTACAGCTCTGCGCTCTCCAGCCAGGCCTGGAGC
747▶ S E D Y I I I L P E C F D T S R P L G D S M Y S S A L S Q P G L E
2901 GAGGGGCTGAAGCGAACCTGGGATCGAGTCTGGGCTGGAACCAACTGAGGCTAGAGAGAGACTCCCAGAGAGGGAGAGCCACAGGAGCAGAGCAT
780▶ R G A E G E P G I E S G L E P T E A R E R L P E R E S Q P Q E Q S I
3001 CAGCGACATCCTACAACCTCACAGCCTCTGGACAGGTGCCTAGTCCCCGAGGTGGCAGGACTCCAGCAGCATTGTCCAGGAGCAGCCCTTGTGGGA
813▶ S D I L T T S Q P L D T V P L V P E V A G L P A A L S R S A P C G
3101 CAGTGTGAGTCATCAGGAGTGGATTACCAGGAGTGGATTACCAGCTACCATGCACGAAGTCCCCAGCCCTGATTGACATCAGAGGAGAGCCAGAG
847▶ Q C E S S G V D S P G V D S P A T M H E V P P A P D D I R G E P R
3201 GCTCAACAGGACTCGAAACAGCAGACAGAGGAGCTGTGACCACTCAAGGCACCACAATGGGAGCAGCATTGTGGAGGACTGGTGAAGGGGGCTTTGTC
880▶ G S T G L A N S R Q R S C D H S R H H N G S S I A G G L V K G A L S
3301 TGTGCTGCCTCTGCGTACAAGCCCTGTTTTCTGGGCCACCACTGCTGCACAGCCCATGTTTCTGAAGATCAGACCACAGCCCTGATGGCCATCTC
913▶ V A A S A Y K A L F S G P P V T A Q P I V S E D Q T T A L M A H L

Bsu36I (3432) SdaI (3465)
MscI (3540)

3401 TTTGAAATGGGATTCTGCACAGGCAGCTGAACCTAAGGCTGCTGAGAAAACAATTACAATATCCTGCAGGTTGTGACAGAGCTCCTTCAAGTGAATA
947▶ F E M G F C D R Q L N L R L L R K H N Y N I L Q V V T E L L Q V N

NheI (3534)

3501 ACAACGACTGGTACAGCCACCGCTATTGAGACTGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGGACAAACCAACTAGAAATGCAGTGA
980▶ N N D W Y S H R Y •

HpaI (3672) MfeI (3683)

3601 AAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGTGAATAAACAAGTTAACAAACAATTGCATTCAATTTA

EcoRI (3768)

3701 TGTTCAGGTTTCAAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAACCTCTACAATGTGGTATGGAATTCTAAAATACAGCATAGCAAACTTTAA
3801 CCTCCAAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTGCCAATGTGCATTAGCTGTTTGCAGCCTCAC

SapI (3950)

3901 CTTCTTTTATGAGTTTAAAGATATAGTGTATTTTCCCAAGTTTGAAGTCTTCTTCTTTATGTTTTAAATGCACTGACCTCCACATTCCCTTT

SspI (4007) SmaI (4021)

4001 TTAGTAAAATATTAGAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCC
4101 CCCAGTTTAGTGTGGACTTAGGGAACAAAGGAACCTTTAATAGAAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCTGGTGTACTTGAGGG
141▶ N R T Y K L P
4201 GGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCATTCTCAATGAGCACAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTGCACATGCC
133▶ I L E E 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
4301 ACAGGGGCTGACCACCCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCTGACAGCCACAATGGTGTCAAAGTCCTTCTGCCGTTGCTCACAGCA
100▶ C P S V V 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

StuI (4446)

4401 GACCCAATGGCAATGGCTTCCAGCACAGACAGTACCCTGCCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCAGTCTTGGTCTGATGGCCG
66▶ S G I A I 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
4501 CCCCAGATGGTCTTGTGCTCATAGAGCATGGTATCTTCTCAGTGGCAGCTCCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGTCTTCAT
33▶ G V H H 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

AseI (4654)

4601 GGTGGCCCTCTATAGTGTGATCGTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGAGC
4701 GTTCACTAAACGAGCTCTGCTTATATAGACCTCCACCCTACACGCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTACGACATTTTGGAAAGTCC

SpeI (4809)

4801 CGTTGATTTACTAGTCAAAACAACTCCATTGACGTCAATGGGGTGGAGACTTGGAAATCCCCTGAGTCAAACCGCTATCCACGCCATTGATGACT

SnaBI (4937)

4901 GCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTACTGCCAAGTAGGAAAGTCCATAAGGTCACTGACTGGGCATAATGCCAGGC

NdeI (5042)

5001 GGGCATTACCGTCAATTGACGTCAATAGGGGGCTACTTGGCATATGATACACTTGTACTGCCAAGTGGCAGTTTACCGTAAATACTCCACCCAT
5101 TGACGTCAATGGAAAGTCCCTATTGGCGTACTATGGAAACATACGTCAATTATTGACGTCAATGGGGGGGCTGTTGGCGGTGAGCCAGCGGGCCAT

SdaI (5220)PacI (5228) BspLU11I (5238)

5201 TTACCGTAAGTTATGTAACGCTGCAGGTTAATTAAGAACATGTGAGCAAAGGCCAGCAAAGGCCAGGAACCGTAAAAAGGCCGCTTGTGGCGTTT

5301 TTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCC

5401 CTGGAAGCTCCCTCGTGCCTCTCTGTCCGACCCTGCCGCTTACCGGATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTGGCGCTTTCTCATAGCTC

ApaLI (5552)

5501 ACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTTCGCTCCAAGCTGGGCTGTGTGCACGAACCCCGTTTCAGCCCGACCGCTGCGCCTTATCCGGTAAC

5601 TATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAG

5701 AGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAG

5801 CTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGGTTTTTTTGTTCGCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTG

EagI (5988)

PacI (5968) SwaI (5977) **NotI (5987)**

5901 ATCTTTTCTACGGGGTCTGACGCTCAGTGGAAACGAAAACCTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATCAGCGGCCGCAATAA

6001 AATATCTTTATTTTCATTACATCTGTGTGTTGGTTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAACAAAACGAAACAAAACAACTAGCA

6101 AAATAGGCTGTCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA