



PvuI (7)
SgfI (6)
EcoNI (96)

1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGCAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA
 101 GAGAAAGTGGCGCGGGTAAACTGGAAAGTGATGTCGTGTAAGTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCGTATATAAGTGCAGTAGTCGCC

HindIII (245)
Bsu36I (291)

Psp1406I (203)
PvuII (239)
EcoNI (287)

201 GTGAACGTTCTTTTTTCGCAACGGGTTTGGCCGACAGTGAAGCTTCGAGGGGCTCGCATCTCTCTTACCGCGCCCGCCCTACCTGAGGCC
 301 GCCATCCACGCGGTTGAGTGCAGTCTGCCGCTCCCGCCTGTGGTGCCTCTGAACTGCGTCCGCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMIV (441)

401 GGGCCTTTGTCCGGCGCTCCCTTGGAGCCTACCTAGACTCAGCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCTCAACTCTACGCTTTTGTTCGTTT

NcoI (560)

BstEII (555)
AgeI (552)

501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGGCGCCTACCTGAGATCACCGGTCCACCTATTCAGAAAGCATAAAGGTATGCCTGTGG

EcoRI (612)
BstXI (626)
BsrBI (670)
Eco47III (683)

601 TTTTCATCCGCCAGAAATCCGCAACTCCATTTCTTGGACTTTGAGCCAGTATAGAGTACCAGTTTGTGGAGCGGTTGGAAGAGCGCTACAAATGTGCC
 13▶ F I R Q N S G N S I S L D F E P S I E Y Q F V E R L E E R Y K C A

DraIII (706)
XcmI (729)

701 TTCTGCCACTCGGTGCTTACAACCCACAGACAGGATGTGGGCACCGCTTCTGCCAGCACTGCATCCTGTCCCTGAGAGAATTAACACAGTGCCAA
 47▶ F C H S V L H N P H Q T G C G H R F C Q H C I L S L R E L N T V P

801 TCTGCCCTGTAGATAAAGAGGTCAATCTCAGGAGGTTTTAAAGACAATTGTTGCAAAAGAGAAGTCTCAACTATATGTATATTGCAGCAATGC
 80▶ I C P V D K E V I K S Q E V F K D N C C K R E V L N L Y V Y C S N A

XcmI (914)
Acc65I (932)

901 TCCTGGATGTAATGCCAAGGTTATTCTGGGCGGTACCAGGATCACCTTCAGCAGTGTCTATTTCACCTGTGCAAGTGTCTAATGAGAAGTGCCGGGAG
 113▶ P G C N A K V I L G R Y Q D H L Q Q C L F Q P V Q C S N E K C R E

BstBI (1049)
Bsp119I (1049)

1001 CCAGTCTACGAAAGACCTGAAAGAGCATTGAGTGCATCCTGTGAGTTCGAAAGGAAAAATGCCTTTATTGCAAAAAGGATGTGGTAGTCATCAATC
 147▶ P V L R K D L K E H L S A S C Q F R K E K C L Y C K K D V V V I N

BspHI (1107)

1101 TACAGAATCATGAGGAAAATTGTGTCCGTAATACCCAGTATTTGTCCCAACAATTGTGCGAAGATTATTCTAAAACTGAGGTAGATGAACACCTGGC
 180▶ L Q N H E E N L C P E Y P V F C P N N C A K I I L K T E V D E H L A

PstI (1273)

1201 TGTATGTCCTGAAGCTGAGCAAGACTGTCCTTTAAAGCACTATGGCTGTGCTGTAACGGATAAACGGAGGAACCTGCAGCAACATGAGCATTAGCCTTA
 213▶ V C P E A E Q D C P F K H Y G C A V T D K R R N L Q Q H E H S A L

1301 CGGGAGCAGATGCGTTTGGTTTTAGAAAAGAAATGTCCAATTAGAAAGACAGATTTCTGACTTACACAAGAGCCTAGAAGCAAGAAAAGTAAATCCAGC
 247▶ R E H M R L V L E K N V Q L E E Q I S D L H K S L E Q K E S K I Q

NheI (1401)
HindIII (1470)

1401 AGCTAGCAGAAATATAAAGAACTTGAAGAGGAGTTCAAGCAGTTTGCACAGTTGTTTGGCAAAAATGGAAGCTTCTCCCAACATCCAGGTTTTTGC
 280▶ Q L A E T I K K L E K E F K Q F A Q L F G K N G S F L P N I Q V F A

HpaI (1558)

1501 CAGTCACATTGACAAGTCAAGCTTGGCTAGAAGCTCAAGTGCATCAATTATTACAAATGGTTAACGACCAAAAAATAAATTTGACCTGAGACCTTTGATG
 313▶ S H I D K S A W L E A Q V H Q L L Q M V N Q Q Q N K F D L R P L M

AseI (1699)

1601 GAAGCAGTTGATACAGTGAACAGAAAATTACCCTGCTAGAAAACAATGATCAAAGATTAGCCGTTTTAGAAGAGGAACTAACAAACATGATACCCACA
 347▶ E A V D T V K Q K I T L L E N N D Q R L A V L E E E T N K H D T H

SspI (1702)
PvuII (1717)

1701 TTAATATTATAAAGCACAGCTGAGTAAAAATGAAGAGCGATTTAACTGCTGGAGGGTACTTGTCTAATGGAAGCTCATTGGAAGGTGACAGATTA
 380▶ I N I H K A Q L S K N E E R F K L L E G T C Y N G K L I W K V T D Y

DraIII (1831)

1801 CAAGATGAAGAAGAGAGAGCGGTGGATGGGCACACAGTGTCCATCTTACAGCCAGTCTTCTACACCAGCCGCTGTGGCTACCGGCTCTGTGCTAGAGCA
 413▶ K M K K R E A V D G H T V S I F S Q S F Y T S R C G Y R L C A R A

MscI (1987)

1901 TACCTGAATGGGGATGGGTGAGGGAGGGGTCACACCTGTCCCTATACTTTGTGGTCATGCGAGGAGAGTTTGAAGTCACTGTTGCAAGTGGCCATTTCAGGC
 447▶ Y L N G D G S G R G S H L S L Y F V V M R G E F D S L L Q W P F R

BstEII (2004)

2001 AGAGGGTGACCCTGATGCTTCTGGACCAGAGTGGCAAAAAGAACATTATGGAGACCTTCAAACCTGACCCCAATAGCAGCAGCTTTAAAAGACCTGATGG
 480▶ Q R V T L M L L D Q S G K K N I M E T F K P D P N S S S F K R P D G

2101 GGAGATGAACATTGCATCTGGCTGTCCCGCTTTGTGGCTCATTCTGTTTTGGAGAATGCCAAGAAGCCTACATTAAGATGACACTCTGTTCTTAAAA
 513▶ E M N I A S G C P R F V A H S V L E N A K N A Y I K D D T L F L K

XbaI (2260)
MscI (2271)

2201 GTGGCCGTGGACTTAACTGACCTGGAGGATCTCTAGTCACTGTTATGGGGTGATAAGAGGCTAGACTAGCTGGCCAGACATGATAAGATAATTGATGA
 547▶ V A V D L T D L E D L •

2301 GTTTGGACAAACCACAAC TAGAATGCAGTGA AAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAA

HpaI (2403)
EcoRI (2499)

2401 CAAGTAAACAACAACAATTGCATTCATTTTATGTTTCAGGTTTCAGGGGAGGTGTGGGAGTTTTTAAAGCAAGTAAACCTCTACAAATGTGGTATGG

2501 AATTCTAAAATACAGCATAGCAAACTTTAACCTCAAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGT
2601 GCCAATGTGCATTAGCTGTTTGCAGCCTCACCTCTTTCATGGAGTTAAGATATAGTGTATTTTCCAAGGTTTGAAGTCTTTCATTCTTTATGT
2701 TTTAAATGCACTGACCTCCACATTCCCTTTTTAGTAAATATTCAGAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTTATTAGGCAGA
EcoO109I (2813) SspI (2738) SmaI (2752)
2801 ATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTTAATAGAAATTGGACAGCAAGAAAGCGAGC
2901 TTCTAGCTTTAGTTCTGGTGTACTTGGAGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCCATTTCATCTCAATGAGCACAAAGCAGTCAGGAG
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
SacI (3013) BstXI (3042)
3001 CATAGTCAGAGATGAGCTCTGCACATGCCACAGGGGCTGACCACCCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCTGACAGCCACAATGGT
110 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
StuI (3177)
3101 GTCAAAGTCTTCTGCCGTTGCTCACAGCAGACCCAATGGCAATGGCTTCCAGCACAGACAGTGACCCTGCCAATGTAGGCCTCAATGTGGACAGCAGAG
77 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 V A S
3201 ATGATCTCCCAGTCTTGGTCTGATGGCCGCCGACATGGTCTTGTCTCATAGAGCATGGTATCTTCTCAGTGGCAGCTCCACCAGCTCCA
43 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 V L E L
BspHI (3327)
BbsI (3323)
XmnI (3319) AseI (3385)
3301 GATCTGCTGAGAGATGTTGAAGTCTTCATGATGGCCCTCTATAGTGAGTCGATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAAC
10 D Q Q S I N F T K M
SacI (3442)
3401 AGCGTGGATGGCTCTCCAGCTATCTGACGGTTCACTAAACGAGCTCTGCTTATATAGACCTCCACCCTACACGCTACCGCCATTTGCGTCAATGG
3501 GGCGGAGTTGTTACGACATTTTGGAAAGTCCCGTTGATTTACTAGTCAAACAAACTCCATTGACGTCAATGGGGTGGAGACTTGAAATCCCGTGA
SpeI (3540)
3600 GTCAAACCGCTATCCAGCCATTGATGTACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGACTGCCAAGTAGGAAAGTCC
SnaBI (3668)
3700 CATAAGGTGATGACTGGCATAATGCCAGGCGGGCCATTTACCGTCATTGACGTCAATAGGGGGCTACTTGGCATATGATACACTTGTACTGCCA
NdeI (3773)
3800 AGTGGCAGTTTACCCTAAATACTCCACCATTGACGTCAATGAAAGTCCCTATTGGCGTTACTATGGGAACATACGTCAATTATTGACGTCAATGGCG
3900 GGGTCTGTTGGCGGTGACGCGAGCGGGCCATTTACCGTAAGTTATGTAACGCC T G C A G G T T A A T T A A G A A C A T G T G A G C A A A A G G C C A G C A A A A G G C
PstI (3952) SdaI (3951) PacI (3959) BspLU11I (3969)
3998 CAGGAACCGTAAAAAGGCCGCTTGGCTGGCGTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAATCGACGCTCAAGTCAGAGGTGGCGAAC
4098 CCGACAGGACTATAAAGATACCAGCGTTTTCCCTGGAAGCTCCCTCGTGGCTCTCTGTTCCGACCTGCCGTTACCGGATACCTGTCCGCTTTC
4198 TCCCTTCGGGAAGCGTGGCGTTTTCTCATAGCTCAGCTGTAGGTATCTCAGTTCGGTGTAGGTGTTCCGCTCCAAGCTGGGCTGTGTGCACGAACCCCC
ApaLI (4283)
4298 CGTTCAGCCCGACCGCTGCGCTTATCCGGTAATATCGTCTTGGTCCAACCCGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGG
4398 ATTAGCAGAGCAGGATGTAGGCGGTGCTACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGC
4498 TGAAGCCAGTTACCTTCGAAAAAGAGTTGGTAGCTCTTATCCGCAACAAACCACCGCTGGTAGCGGTGTTTTTTGTTTGAAGCAGCAGATTAC
4598 GCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGTCTGACGCTCAGTGAACGAAAACCTCACGTTAAGGGATTTTGGTATGGCT
EagI (4719)
PacI (4699) SmaI (4708) NotI (4718)
4698 AGTTAATTAACATTTAAATC AGCGGCCCAATAAAATATCTTTATTTTTCATTACATCTGTGTGGTTTTTTGTGTGAATCGTAACTAACATACGCTCT
4798 CCATCAAACAAACGAAACAAACAAACTAGCAAAATAGGCTGTCCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA