



PvuI (7)
SgfI (6)
1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA
101 GAGAAGGTGGCGCGGGTAAACTGGAAAGTGATGTCGTGACTGGTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

HindIII (245)
Psp1406I (203) PvuII (239) Bsu36I (291)
201 GTGAACGTTCTTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGGCTCGCATCTCTCTTACCGCGCCCGCCCTACCTGAGGCC
301 GCCATCCACGCGGTTGAGTGCAGTCTGCCGCTCCCGCCTGTGGTGCCTCTGAAGTGCCTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMIV (441)
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCGCTACCTAGACTCAGCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCTAACTCTACGCTTTTGTTCGTTT

NcoI (560)
BstEII (555)
AgeI (552)
501 TCTGTTTCTGCGCCGTTACAGATCCAAGCTGTGACCGGCCCTACCTGAGATCACCGGTCACCATGGGCCTCTCCACCGTGCCTGACCTGCTGCTGCCGCT
1 M G L S T V P D L L L P L

Bsu36I (632) AvrII (660)
601 GGTGCTCTGGAGCTGTTGGTGGGAATATACCCTCAGGGGTTATTGGACTGGTCCCTCACCTAGGGGACAGGGAGAAGAGAGATAGTGTGTGTCGCCAA
13> V L L E L L V G I Y P S G V I G L V P H L G D R E K R D S V C P Q

BsrGI (764) XmaI (783)
701 GAAAAATATATCCACCCTCAAATAATTCGATTTGCTGTACCAAGTGCCACAAGGAACCTACTGTACAATGACTGTCCAGGCCCGGGCAGGATACGG
47> G K Y I H P Q N N S I C C T K C H K G T Y L Y N D C P G P G Q D T

BsrBI (816) PvuII (861) BglII (899)
801 ACTGCAGGGAGTGTGAGAGCGGCTCCTTACCCTCAGAAAACACCTCAGACACTGCCTCAGCTGTCCAAATGCCGAAAGGAAATGGGTCAGGTGGA
80> D C R E C E S G S F T A S E N H L R H C L S C S K C R K E M G Q V E

DraIII (927) BstAPI (998)
901 GATCTCTTCTGCACAGTGGACCGGGACACCGTGTGTGGTGCAGGAAGAACCAGTACCGGCATTATTGGAGTGAAAACCTTTTCCAGTGCCTCAATTGC
113> I S S C T V D R D T V C G C R K N Q Y R H Y W S E N L F Q C F N C

DraIII (1050)
1001 AGCCTCTGCCTCAATGGACCGTGCACCTCTCCTGCCAGGAGAAACAGAACACCGTGTGCACCTGCCATGCAGTTCCTTTCTAAGAAAACGAGTGTG
147> S L C L N G T V H L S C Q E K Q N T V C T C H A G F F L R E N E C

1101 TCTCCTGTAGTAACTgtaagaaaagcctggagtgcacgaagtgtgctcctaccagattgagaatgtaagggcactgaggactcagGCCACCACAGTGC
180> V S C S N C K K S L E C T K L C L P Q I E N V K G T E D S G T T V L

1201 GTTGCCCTGGTCAATTTCTTTGGTCTTTGCTTTTATCCCTCCTTTCATTGGTTAATGTATCGCTACCAACGGTGGAAAGTCCAAGCTCTACTCCATT
213> L P L V I F F G L C L L S L L F I G L M Y R Y Q R W K S K L Y S I

HindIII (1374)
1301 GTTTGTGGAAATCGACACCTGAAAAAGAGGGGAGCTTGAAGGAACACTACTAAGCCCTGGCCCCAAACCAAGCTTCAGTCCCCTCCAGGCTTCA
247> V C G K S T P E K E G E L E G T T T K P L A P N P S F S P T P G F

1401 CCCCCACCTGGGCTTCAGTCCCGTGGCCAGTTCACCTTCCAGTCCACCTATACCCCGGTGACTGTCCAACTTTGCGGCTCCCCGACAGAGA
280> T P T L G F S P V P S S T F T S S T Y T P G D C P N F A A P R E

1501 GGTGGCACCCATCAGGGGGCTGACCCATCCTTGCAGACGCCCTCGCTCCGACCCATCCCCAACCCCTTCAAGTGGGAGGACAGCGCCAC
313> V A P P Y Q G A D P I L A T A L A S D P I P N P L Q K W E D S A H

EcoRI (1678) XmnI (1674) AvrII (1692)
1601 AAGCCACAGAGCCTAGACACTGATGACCCCGCAGCGTGTACGCCGTGGTGGAGAACGTGCCCGGTTGCGCTGGAAGGAATCTGCGGCGCCTAGGGC
347> K P Q S L D T D D P A T L Y A V V E N V P P L R W K E F V R R L G

PvuI (1716) ClaI (1714) SphI (1766) SacII (1795)
1701 TGAGCGACCACGAGATCGATCGGCTGGAGCTGCAGAACGGGCGCTGCCTGCGCGAGGCGCAATACAGCATGCTGGCGACCTGGAGGCGGCGCACGCGCG
380> L S D H E I D R L E L Q N G R C L R E A Q Y S M L A T W R R R T P R

MluI (1827)
1801 GCGCGAGGCCACGCTGGAGCTGCTGGGACGCGTGTCCGCGACATGGACCTGCTGGGCTGCCTGGAGGACATCGAGGAGGCGCTTTGCGGCCCGCGCC
413> R E A T L E L L G R V L R D M D L L G C L E D I E E A L C G P A A

MscI (1948) BbsI (1916) NheI (1942)
1901 CTCCCGCCCGCGCCAGTCTTCTCAGATGAGGCTGCGCCCTGCTAGTGGCCAGACATGATAAGATACATTGATGAGTTTGGACAAACCACAACCTAGAA
447> L P P A P S L L R •

HpaI (2080)
2001 TGCAGTGAATAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGTGAATAAACAAGTTAAACAACAATTGCAT

EcoRI (2176)
2101 TCATTTTATGTTTCAGTTTCAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAACCTCTACAAATGTGGTATGGAATCTAAAATACAGCATAGCAA
2201 AACTTAACCTCAAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTGCCAATGTCATTAGCTGTTTC

SapI (2358)
2301 AGCCTCACCTTCTTTCATGGAGTTAAGATATAGTGTATTTTCCCAAGGTTTGAAGTACTGCTTCATTCTTTATGTTTTAAATGCACTGACCTCCACA

SspI (2415) SmaI (2429) EcoO109I (2490)
2401 TTCCCTTTTGTAGTAAATATTCAGAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCA

2501 TAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTTAATAGAAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCTGGTGTGA
141 • N R T Y

2601 CTTGAGGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCATTTCATCTCAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTCTG
SacI (2690)
136 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 Y D S I L E R

BstXI (2719)

2701 CACATGCCACAGGGGCTGACCACCCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCCGTTGC
102 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 F D K Q G N S

StuI (2854)

2801 TCACAGCAGACCCAATGGCAATGGCTTCAGCACAGACAGTGACCCTGCCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCCAGTCTTGGTCTC
69 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 I E G T K T R

XmnI (2996)

2901 GATGGCCGCCCGACATGGTGTGTTGTCTCATAGAGCATGGTGTCTTCTCAGTGGCGACCTCCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAG
36 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 D Q Q S I N F

BbsI (3000) **AseI (3062)**

3001 GTCTTCATGGTGGCCCTCTATAGTGAGTCGTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTT
24 T K M

3101 ATCTGACGGTTCACATAACGAGCTCTGCTTATATAGACCTCCACCGTACACGCCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTTACGACATTTTG
SacI (3119)

SpeI (3217)

3201 GAAAGTCCCGTTGATTTACTAGTCAAACAACCTCCATTGACGTCAATGGGGTGAGACTTGAAATCCCCGTGAGTCAAACCGCTATCCACGCCATT
SnaBI (3345)

3301 GATGTACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTACTGCCAAGTAGGAAAGTCCATAAGGTCATGTACTGGGCATAA

NdeI (3450)

3401 TGCCAGGCGGGCATTACCCTGTCATTGACGTCAATAGGGGGCGTACTTGGCATATGATACACTTGATGTACTGCCAAGTGGGCAGTTTACCGTAAATACT

3501 CCACCCATTGACGTCAATGGAAAGTCCCTATTGGCGTACTATGGGAACATACGTCATTATTGACGTCAATGGGCGGGGTCGTTGGGCGGTGAGCCAGG

PacI (3636) **SdaI (3628)** **BspLU11I (3646)**

3601 CGGGCCATTTACCGTAAGTTATGTAACGCTGCAGGTTAAATAAGAACATGTGAGCAAAGGCCAGCAAAGGCCAGGAACCGTAAAAAGGCCGCTTGC
EagI (4396)

3701 TGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCAAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGC
NotI (4395)

3801 GTTTCCTGGAAGCTCCCTCGTGCCTCTCCTGTTCCGACCCTGCCGTTACCGGATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTGGCGTTTCT

3901 CATAGCTCAGCGTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCCAAGCTGGGCTGTGTGCACGAACCCCCGTTACGCCGACCGCTGCCCTTAT

4001 CCGGTAACATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGCGGG

4101 TGCTACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGAAAAAGA

4201 GTTGGTAGCTCTTGATCCGGCAAACAACACCCTGGTAGCGGTGGTTTTTTTGTGCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAG

4301 ATCCTTTGATCTTTTCTACGGGTCTGACGCTCAGTGGAAACGAAAACCTCACGTTAAGGGATTTTGGTCAATGGCTAGTTAATTAACATTTAAATCAGCGGC
PacI (4376) **SwaI (4385)** **NotI (4395)**

4401 CGCAATAAAATATCTTTATTTTATTACATCTGTGTGTTGTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAAAACAAAACGAAACAAAACA

4501 AACTAGCAAAATAGGCTGTCCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA