



PvuI (7)
SgfI (6) 1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA **MfeI (82)**

101 GAGAAGGTGGCGCGGGTAAACTGGAAAGTGATGCTGTACTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

Psp1406I (203) 201 GTGAACGTTCTTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCCTTACGCGCCCGCCCTACCTGAGGCC **HindIII (245)** **Bsu36I (291)**

301 GCCATCCACGCCGGTTGAGTCGCGTTTCTGCCGCCTCCCGCCTGTGGTGCCTCCTGAAGTGCCTCCGCCGTCTAGGTAAGTTTAAAGTCAAGTGCAGACC

401 GGGCCTTTGTCCGGCGCTCCCTTGGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCAACTCTACGTCTTTGTTTCGTTT

NgoMIV (441)
NgoMI (441)
NaeI (441)

501 TCTGTTTGTCCGGCTTACAGATCCAAGCTGTGACCGGCCCTACCTGAGATCACCGGTACCATTGGCTAAGACCCCTAGTGACCATCTGCTGCCACCT **AgeI (552)** **NcoI (560)**
1▶ M A K T P S D H L L S T L

601 GGAGGAGCTGGTGCCTATGACTTCGAGAAGTTCAAGTCAAGCTGCAGAACACCAGTGTGCAGAAGGAGCACTCCAGGATCCCCGGAGCCAGATCCAG **BamHI (677)**
13▶ E E L V P Y D F E K F K F K L Q N T S V Q K E H S R I P R S Q I Q

701 AGAGCCAGGCCGGTGAAGATGGCCACTCTGCTGGTCACTACTATGGGGAAGAGTACGCCGTGCAGCTCACCTGCAGGTCTGCGGGCCATCAACCAGC **MscI (719)** **BalI (719)**
47▶ R A R P V K M A T L L V T Y Y G E E Y A V Q L T L Q V L R A I N Q

801 GCCTGCTGGCCGAGGAGCTCCACAGGGCAGCCATTGAGGAATATTCACACAAGAAAACGGCACAGATGATTCGCAGCGTCCAGCTCCCTGGGGAGAA **SspI (839)**
80▶ R L L A E E L H R A A I Q E Y S T Q E N G T D D S A A S S S L G E N

901 CAAGCCCAGGAGCTGAAGACTCCAGACCACCCCGAGGGGAACGAGGGGAACGGCCCTCGGCCGTACGGGGCGGAGCTGCCAGCCTGCGGTGCAGCCAG **BsiWI (962)** **EagI (958)**
113▶ K P R S L K T P D H P E G N E G N G P R P Y G G G A A S L R C S Q

1001 CCCGAGGCCGGGAGGGGCTGTGAGGAAGCCCTGAGCAAACGCAGAGAGAAGGCTCGGAGGGCTGGACGCGCAGGGCAAGCCTCGGACCCGGAGCC **FspI (1169)** **SacII (1187)**
147▶ P E A G R G L S R K P L S K R R E K A S E G L D A Q G K P R T R S

1101 CGGCCCTGCCGGGCGGAGAAGCCCGGCCCTGCAGGGCGTAGAGGGGGCCAGGCCGAGGTCCGGCTGCGCAGAAACCCAGCTCCCGGGGAGGCT **BstBI (1246)** **Bsp119I (1246)** **AsuII (1246)**
180▶ P A L P G G R S P G P C R A L E G G Q A E V R L R R N A S S A G R L

1201 GCAGGGCTGCGGGGGCGCCCGGGGAGAAGGAGTGTAGGCCCTTGAAGTGTACTGCCCTCGGAAAGATGCGACCTAGAAGCCTTGAAGTCCAC **XbaI (1347)**
213▶ Q G L A G G A P G Q K E C R P F E V Y L P S G K M R P R S L E V T

1301 ATTTCTACAGGGGAGAAGGCGCCGAAATCCAGAAATCTCCTGACTCTAGAGGAAAAGACAGCTGCGAATCTGGACTCGGCAACAGAACCCCGGGCAA **BspEI (1407)**
247▶ I S T G E K A P A N P E I L L T L E E K T A A N L D S A T E P R A

1401 GGCCCACTCCGGATGGAGGGCATCTGCGGACCTGAAGGAAGCCCTGAAATCCAGAACATTCGGTACCAGGAGGCCACCAGACAGGCTGCGAGTCC **Asp718I (1534)** **Acc65I (1534)** **Bsu36I (1592)**
280▶ R P T P D G G A S A D L K E G P G N P E H S V T G R P P D T A A S P

1501 CCGTTGCCACGCCAGGAAGGAGACCCAGTTGACGGTACCTGTGTGGTATTCTGCAGCTTCCCGAGGCAGTTTCTGGGCACCCCGAGCCCTCAGGC **BsrBI (1602)**
313▶ R C H A Q E G D P V D G T C V R D S C S F P E A V S G H P Q A S G

1601 AGCCGCTACCTGGTCCCGCGTCCAGGACTCCATGAAAGGAAGAGCCCGGAAGCCTAAGCCCGAGCCCTGCCACAGTGTAAAGCGCCACCTGA **DraIII (1780)**
347▶ S R S P G C P R C Q D S H E R K S P G S L S P Q P L P Q C K R H L

1701 AGCAGTCCAGCTGCTCTTCTGTGAGGATCACGATGAGCCATCTGCCTCATCTGCAGTCTGAGTCTGAGTCCAGGACCAAGGCCACCGGTGCGCCCATGA **Eco47III (1929)**
380▶ K Q V Q L L F C E D H D E P I C L I C S L S Q E H Q G H R V R P I E

1801 GGAGTTCGCTTGAACACAAGAAGAAAATTCAGAAGCAGCTGGAGCATCTGAAGAAGCTGAGAAAATCAGGGGAGGACAGGATCCTATGGGGAGGAG **NdeI (2051)**
413▶ E V A L E H K K K I Q K Q L E H L K K L R K S G E E Q R S Y G E E

1901 AAGCAGTGCAGCTTTCTGAAACAAACTGAAAGCGTGAAGCAGCGGGTGCAGAGGAAGCTGGAGCAGGTGTACTACTTCTGGAACAGCAGGAGCATTCT **ScaI (2276)**
447▶ K A V S F L K Q T E A L K Q R V Q R K L E Q V Y Y F L E Q Q E H F

2001 TTGTGGCCTCACTGGAGGACGTGGGCCAGATGGTTGGGAGATCAGGAAGGCATATGACACCCCGTATCCCAGGACATCGCCCTGCTCGACGCGCTGAT **BspEI (2322)**
480▶ F V A S L E D V G Q M V G Q I R K A Y D T R V S Q D I A L L D A L I

2101 TGGGAACTGGAGCCAAGGAGTCCAGTCCAGTCCAGTCCAGTCCAGTCCAGTCCAGTCCAGTCCAGTCCAGTCCAGTCCAGTCCAGTCCAGTCCAGTCCAG **ScaI (2276)**
513▶ G E L E A K E C Q S E W E L L Q D I G D I L H R A K T V P V P E K

2201 TGGACCACTCCTCAAGAGATAAAACAAAAGATCCAACCTCCTCCACCAGAAGTCAAGTTCAGAGTTTGTGGAGAAGACAAAAGTACTTCTCAGAAACCTGCGTT **BspEI (2322)**
547▶ W T T P Q E I K Q K I Q L L H Q K S E F V E K S T K Y F S E T L R

2301 CAGAAATGAAATGTTCAATGTTCCGGAGCTGATTGGCGCTCAGGCACATGCTGTTAATGTATTCTGGATGCAGAAACCGCTTACCCCAACCTCATCTT **ScaI (2276)**
580▶ S E M E M F N V P E L I G A Q A H A V N V I L D A E T A Y P N L I F

2401 CTCTGATGATCTGAAGAGTGTAGACTTGAAACAAGTGGGAGAGGCTGCCTGATGGCCGCAAAGATTTGACAGCTGTATCATTGTTCTGGGCTCTCCG
 613▶ S D D L K S V R L G N K W E R L P D G P Q R F D S C I I V L G S P
BamHI (2555)

2501 AGTTTCTCTCTGGCCGCGTTACTGGGAGGTGGAGTTGGAGACAAGACAGCATGGATCCTGGGAGCCTGCAAGACATCCATAAGCAGGAAAGGGAACA
 647▶ S F L S G R R Y W E V E V G D K T A W I L G A C K T S I S R K G N
Tth111I (2601)

2601 TGACTCTGTCCAGAGAATGGCTACTGGGTGGTATAATGATGAAGGAAAATGAGTACCAGGCGTCCAGCGTCCCGGACCCCGCTGTAATAAAGGA
 680▶ M T L S P E N G Y W V V I M M K E N E Y Q A S S V P P T R L L I K E
 2701 GCCTCCAAGCGTGTGGGCATCTTCGTGGACTACAGAGTTGGAAGCATCTCCTTTTACAATGTGACAGCCAGATCCCACATCTATACATTGCGCCAGCTGC
 713▶ P P K R V G I F V D Y R V G S I S F Y N V T A R S H I Y T F A S C
PmlI (2840)
Eco72I (2840)
BbrPI (2840)

2801 TCTTTCTCTGGGCCCTTCAACCTATCTTCAGCCCTGGGACACGTGATGGAGGGAAGAACACAGCTCCTCTGACTATCTGTCCAGTGGGTGGTCAGGGGC
 747▶ S F S G P L Q P I F S P G T R D G G K N T A P L T I C P V G G Q G
MscI (2947)
BalI (2947)
NheI (2941)

2901 CTGACTGAATGCCAACACTGCATCTCTCTTCTGCTTCTGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGGACAAACCACAACCTAGAAT
 780▶ P D •

3001 GCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAAAGTTAAACAACAATTGCATT
HpaI (3079) MfeI (3090)

3101 CATTTTATGTTTCAGGTTCCAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAACCTCTACAAATGTGGTATGGAATCTAAAATACAGCATAGCAAA
EcoRI (3175)

3201 ACTTTAACCTCCAATCAAGCCTCTACTTGAATCCTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTTGCA
 3301 GCCTCACCTTCTTTCATGGAGTTAAGATATAGTGATTTTCCCAAGGTTTGAAGTACTGCTCTTCATTTCTTTATGTTTAAATGCACTGACCTCCCACAT

3401 TCCCTTTTGTAGTAAATATTGAGAAATAATTTAATACATCATTGCAATGAAATAAATGTTTTTTTATAGGCAGAATCCAGATGCTCAAGGCCCTTCAT
SspI (3414) SwaI (3428)

3501 AATATCCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTAAATAGAAAATGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCTGGTGTAC
141◀ • N R T Y

3601 TTGAGGGGATGAGTTCTCAATGGTGGTTTTGACCAGCTTGCCATTCACTCAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTCTGC
 135◀ 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 C
 3701 ACATGCCACAGGGGCTGACCACCCTGATGGATCTGTCCACCTCATCAGAGTAGGGGCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCGTTGCT
 102◀ 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
 3801 CACAGCAGACCAATGGCAATGGCTTCCAGCACAGACAGTGACCCTGCAATGTAGGCCCTCAATGTGGACAGCAGAGATGATCTCCCAGTCTTGCTCCTG
 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 (3995)

3901 ATGGCCGCCCCGACATGGTGTCTTGTCTCATAGAGCATGGTATCTTCTAGTGGCGACCTCCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGG
 35◀ 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 T
VspI (4061)
AseI (4061)

4001 TCTTCATGATGGCCCTCCTATAGTGAGTCGTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTA
 2◀ K M

4101 TCTGACGGTCACTAAACGAGCTCTGCTTATATAGACCTCCACCCTACACGCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTTACGACATTTGG

4201 AAAGTCCCGTTGATTTACTAGTCAAAAACAACTCCCATTTGACGTCAATGGGGTGGAGACTTGAAATCCCCGTGAGTCAAACCCTATCCACGCCATT
SpeI (4216)

4300 GATGACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTACTGCCAAGTAGGAAAGTCCATAAGGTCATGTACTGGGCATAA
SnaBI (4344)
Eco105I (4344)

4400 TGCCAGGCGGGCATTACCCTCATTGACGTCAATAGGGGGCTACTTGGCATATGATACACTTGATGTACTGCCAAGTGGGAGTTTACCGTAAATACT
NdeI (4449)

4500 CCACCCATTGACGTCAATGGAAAGTCCCTATTGGCGTTACTATGGGAACATACGTCATTATTGACGTCAATGGGCGGGGTCGTTGGGCGTCCAGCCAGG

4600 CGGGCCATTTACCCTAAGTTATGTAACGCCCTGCAGGTTAA TTAAGAACATGTGAGCAAAGGCCAGCAAAGGCCAGGAACCGTAAAAAGGCCGCTT
PacI (4635) BspLU11I (4645)

4698 GCTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCAGAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAG
 4798 GCGTTTTCCCCTGGAAGCTCCCTCGTGCCTCTCTGTTCCGACCCTGCGCTTACCGGATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTGGCGTTTT

4898 CTCATAGCTCAGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCCAAGCTGGGCTGTGTGCACGAACCCCGTTCCAGCCGACCGCTGCGCCTT
ApaLI (4959)

4998 ATCCGGTAACTATCGTCTTGTAGTCCAACCCGGTAAACACGACTTATCGCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGC
 5098 GGTGCTACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGAAAAA

5198 GAGTTGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGGTTTTTTTTGTTTGAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGA

5298 AGATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGGAACGAAAACCTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATC AGCG

5398 GCCGCAATAAAATATCTTTATTTTCATTACATCTGTGTGTTGGTTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAAACAAAACGAAACAAA
5498 CAAACTAGCAAAATAGGCTGTCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA

EagI (5395)
NotI (5394)

PacI (5375) SwaI (5384)