



PvuI (7)
SgfI (6) 1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA
MfeI (82) **EcoNI (96)**
101 GAGAAAGTGGCGGGGTAACGGAAAGTGTGTCTGTACTGGTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

Psp1406I (203) 201 GTGAACGTTCTTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCTTACGCGCCCGCCGCTACCTGAGGCC
HindIII (245) **EcoNI (287)**
301 GCCATCCACGCGGGTTGAGTCGCGTTTCTGCCGCTCCCGCTGTGGTGCCTCCTGAAGTGCCTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMIV (441)
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTCTCAACTCTACGCTTTTGTTCGTTT

KasI (535) **SphI (560)**
501 TCTGTTTCTGCGCCGTTACAGATCCAAGCTGTGACCGGGCCCTAGCTGAGATCACCGGTGAGCATGCCGGAAAACTCCGAGTGGGCAAGTTGGGCTC
AgeI (552) 1 M P G K L R S G A K L G S
601 AGACGGGGCCGAGGAGAGCATGGAGACGCTGCCGAAGCCAAGCGAGAAGAAAAGTAAAAAGAGAAGCAAAATCAAAGACCGAAGAAGCAACAGAAGGA
13 D G A E E S M E T L P K P S E K K T R K E K T K S K T E E A T E G

BamHI (765)
701 ATGGAAGAGGCCGTTTCTCCAAAGCAAAGAAAAACAAACAAGAAAGGGCCTTCTGAGGATGATGTGGATCCCCCTAAATCCAGGAAGGCCAAGAAGCAGG
47 M E E A V S S K A K K T N K K G P S E D D V D P P K S R K A K K Q
801 AGGAGGAGCCTCAAGACGACTGCTTCTACAAGCAAAACCTCAAGAAAGAAAAAGGAGCCCTTGAAGCAAGCAGACTCTGAAACCAAGAGATAAT
80 E E E P Q D D T A S T S K T S K K E P L E K Q A D S T K E I I
901 AACAGAGGAGCCTTCCGAAGAAGAGGCAGACATGCCTAAGCCCAAGAAGATGAAGAAAGGGAAAGAAGCAAAACGGAGATGCCGGAGAGAAAAGCCCAAG
113 T E E P S E E E A D M P K P K K M K K G K E A N G D A G E K S P K
1001 CTGAAGAATGGACTCTCCCAACCTTCCGAAGAAGAGGCAGACATTCTAAGCCCAAGAAGATGAAGAAAGGGAAAGAAGCAAAACGGAGATGCTGGAGAGA
147 L K N G L S Q P S E E E A D I P K P K K M K K G K E A N G D A G E
1101 AAAGCCCAAGCTGAAGAATGGACTCTCCCAACCTTCCGAAGAAGAGGTAGACATTCTAAGCCCAAGAAGATGAAGAAAGGGAAAGAAGCAAAACGGAGAG
180 K S P K L K N G L S Q P S E E E V D I P K P K K M K K G K E A S G D
1201 TGGGGAGAGAAAAGCCAGGCTGAAGGATGGACTCTCCCAACCTTCTGAACCGAAATCCAACCTCAGTGATGCTCCTGGTGGAGAAAGTAGTAGCGAG
213 A G E K S P R L K D G L S Q P S E P K S N S S D A P G E E S S S E

BsaBI (760)
1301 ACAGAAAAGGAAATACCTGTGGAGCAGAAAAGAGGGAGCTTCTCTAATTTTCCATTTCTGAAGAGACTGTCAAGCTTCTCAAAGCTCGTGGGTGAACT
247 T E K E I P V E Q K E G A F S N F P I S E E T V K L L K A R G V N

BsrGI (1436)
1401 TCCTGTTTCTATACAAGCAAGACCTTTATCATGTGTACAGTGGGAAAGACTTAATTGCCAGGCACGGACAGGAACCGGAAAGACATTCTCTTTTGC
280 F L F P I Q A K T F H H V Y S G K D L I A Q A R T G T G K T F S F A
1501 CATCCCTTAATTGAGAACTTCAAGGTGGGCTACAAGAGAGGAAGAGAGGCGGAGCCCTCAGGTGCTAGTCTTGCACCCACAAGAGAATTAGCAAAT
313 I P L I E K L Q G G L Q E R K R G R A P Q V L V L A P T R E L A N
1601 CAAGTGAAGCAAGACTTCAAGGACATCAACAAAAGCTCTGTAGCTTGTATGTTGGAACACCTACGGTGGTCAAGTGAACGAATGCGGAGTG
347 Q V S K D F S D I T K K L S V A C F Y G G T P Y G G Q I E R M R S

EcoRV (1705)
1701 GGATTGATATCCTGGTTGGGACCCAGGTCGTATTAAGACCCTTGCAGAATGGCAAGCTAGATCTACCAAACCTAAACATGTTGCTCGGATGAAGT
380 G I D I L V G T P G R I K D H L Q N G K L D L T K L K H V V L D E V
1801 CGACCAGATGTTGGATGGGTTTTGCTGATCAAGTGGGAAGAAATTTATGTTGCATACAAGAAAGATTCTGAAGCAACCCCAACATTGCTTTTC
413 D Q M L D M G F A D Q V E E I L C V A Y K K D S E D N P Q T L L F
1901 TCTGCAACTTGCCTCATTGGGTGTTAATGTTGCTAAGAAATACATGAAATCTACATACGAACAGGTGGACCTGATTGGTAAAAAGACTCAGAAAGCAG
447 S A T C P H W V F N V A K K Y M K S T Y E Q V D L I G K K T Q K A

BsaBI (1701) **SmaI (1717)** **BglII (1761)** **BspLU11I (1779)** **SalI (1798)**
2001 CTATAACTGTGGAGCACCTGGCGATTAAGTGTCACTGGACAGAAAGGGCAGCGGTGATTGGGGATGTGATCCGAGTGTACAGTGGTCATCAAGGGCGCAC
480 A I T V E H L A I K C H W T E R A A V I G D V I R V Y S G H Q G R T

BbrPI (2148)
2101 GATCATCTTCTGTGAAACCAAGAAGGATGCCAGGAGCTATCTCAGAACACGTGCATAAAGCAGGATGCCAGTCCCTTACATGGCGACATTCCACAGAAG
513 I I F C E T K K D A Q E L S Q N T C I K Q D A Q S L H G D I P Q K

XmnI (2217)
2201 CAAAGGAAATCACCCCTGAAAGGTTTCCGAAATGGCAATTTTGGAGTTTTGGTGGCAACCAATGTTGCTGCCGTGGGTTAGACATCCCTGAGGTTGACT
547 Q R E I T L K G F R N G N F G V L V A T N V A A R G L D I P E V D
2301 TGGTTGTTGAGAGCTGCCACCAAGGATGTGGAGTCTTACATTCATCGTTCCGGGGCGGACAGGCAGAGCTGGAAGGACAGGAGTTTGCATCTGCTTTTA
580 L V V Q S C P P K D V E S Y I H R S G R T G R A G R T G R V C I C F Y
2401 CCAGAACAAGAAGAGTACCAGTTAGCACAAGTGGAGCAGAAAGCGGGAATTAATTTAAACGGATAGGTGTTCTTCTGCAACGGAAATAAATAAGCC
613 Q N K E E Y Q L A Q V E Q K A G I K F K R I G V P S A T E I I K A
2501 TCCAGCAAAGACCCATCAGGCTCTGGATTCTGTGCCTCCACTGCCATTAGCCATTTCAAGCAGTCAGCTGAGAAGCTGATTGAGGAGAAGGGAGCTG
647 S S K D A I R L L D S V P P T A I S H F K Q S A E K L I E E K G A

StuI (2603) **Eco47III (2654)**
2601 TAGAGGCTTGGCAGCTGCTTGGCCACATCTCAGGAGCCACATCAGTCGATCAGCGCTCCCTGATCAACTCGCAAGCAGGCTTTGTGACCATGATCCT
680 V E A L A A A L A H I S G A T S V D Q R S L I N S Q A G F V T M I L
AfeI (2654)

ClaI (2770)
2701 GCGGTGCTCCATTGAGATGCCAACATCAGTTACGCTTGGAAAGAACTTAAGGAGCAGCTGGGCGAGAGCATGCAGCAAGTGAAGGGAATGGTCTTC
713 R C S I E M P N I S Y A W K E L K E Q L G E S I D A K V K G M V F

2801 CTCAAAGGAAAAC TGGGGTTTGT TTTGATGTCCGAAC TGAAGCAGT CACAGAAATACAGGAGAAGTGGCATGATTTCGAGACGCTGGCAGCTCACCGTGG
747▶ L K G K L G V C F D V R T E A V T E I Q E K W H D S R R W Q L T V

EcoRV (2936)

2901 CCACCGAGCAGCCAGAGCTGGAGGGACCTCCAGACGGATATCGAGGCCGATGGGTCAGCGTGATGGCAGCCGTGGTGC TTTTCAGAGGACAGCGGGGTGG
780▶ A T E Q P E L E G P P D G Y R G R M G Q R D G S R G A F R G Q R G G
3001 AAGCAGAACTTCCGGGACAGGACAGCGAGGAGGAGTAAAACTCCGAGGACAGCGACCCAGGAGGTGGCAACAGAGGCCAGAAGCGGAGTTTAGT
813▶ S R N F R G Q G Q R G G S R N F R G Q R P G G G N R G Q K R S F S

MscI (3136)

NheI (3130)

3101 AAAGCGTTTGGTCAGTGAGTAGAGGCCAGAGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGGACAAACCACAAC TAGAATGCAGTGAAAAA
847▶ K A F G Q •

HpaI (3268) MfeI (3279)

3201 AATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAAACAAGTTAAACAACAACAATTGCATTCATTTTATGTT

EcoRI (3364)

3301 TCAGGTTTCAGGGGAGGTGTGGGAGTTTTTTAAAGCAAGTAAACCTCTACAAATGTGGTATGGAATTCTAAAATACAGCATAGCAAACTTTAACCTC

3401 CAAATCAAGCCTCTACTTGAATCCTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTTGCAGCCTCACCTTC

3501 TTTTCATGGAGTTTAAGATATAGTGATTTTTCCCAAGTTTGAAGTCTTCTTCTTTATGTTTTAAATGCACTGACCTCCACATTCCCTTTTATG

SspI (3603) SmaI (3617)

3601 TAAAATATTCAGAAATAATTTAAATACATCATTGCAATGAAAAATAATGTTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCCA

3701 GTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTAATAGAAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCCTGGTGTACTTGAGGGGGAT

141 • N R T Y K L P I

SacI (3878)

3801 GAGTTCCTCAATGGTGGTTTTGACCAGCTTGCATTCTCTCAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTCTGCACATGCCACAG
132▶ 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 C

BstXI (3907)

3901 GGGCTGACCACCCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCGTTGCTCACAGCAGACC
98▶ 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 S G

StuI (4042)

4001 CAATGGCAATGGCTTCAGCACAGACAGTACCCTGCCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCAAGTCTTGGTCTGATGGCCGCCCC
65▶ 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 G

BspHI (4192)

XmnI (4184)

4101 GACATGGTCTTGTGTCTCATAGAGCATGGTGTCTTCTCAGTGGCGACCTCCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGGTCTTCATGATG
32▶ 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 (4250)

4201 GCCCTCTATAGTGAGTCGTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTTC

SacI (4307)

4301 ACTAAACGAGCTCTGCTTATATAGACCTCCACCGTACACGCCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTTACGACATTTTGGAAAGTCCCGTT

SpeI (4405)

4401 GATTTACTAGTCAAACAAACTCCATTGACGTCAATGGGGTGGAGACTTGGAAATCCCCGTGAGTCAAACCGCTATCCACGCCATTGATGACTGCCA

SnaBI (4533)

4501 AAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTACTGCCAAGTAGGAAAGTCCATAAGGTCATGTACTGGGCATAATGCCAGGCGGGC

NdeI (4638)

4601 CATTTACCGTCATTGACGTCAATAGGGGCGTACTTGGCATATGATACACTTGTACTGCTCAAGTGGGCGAGTTTACCGTAAATACTCCACCATTGAC

4701 GTCAATGGAAAGTCCCTATTGGCGTTACTATGGGAACATACGTATTATTGACGTCAATGGGCGGGGTCTTGGGCGGTGAGCCAGGCGGGCCATTAC

PacI (4824)

PstI (4817)

SdaI (4816)

BspLU11I (4834)

4801 CGTAAGTTATGTAACGCCCTGCAGGTTAATAAGAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAGGCCGTTGCTGGCGTTTTTCC

4901 ATAGGCTCCGCCCTGACGAGCATCACAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCTGG

5001 AAGCTCCCTCGTGCCTCTCCTGTTCCGACCCTGCCGTTACCGGATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTGGCGCTTTCTCATAGCTCACGC

ApaLI (5148)

5101 TGTAGGTATCTCAGTTCGGTGTAGGTGTTGCTCCAAGCTGGGTGTGTGCACGAACCCCGTTCCAGCCGACCGCTGCGCTTATCCGGTAACTATC

5201 GTCTTGAGTCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTT

5301 CTTGAAGTGGTGGCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGAAAAAGAGTTGGTAGCTCT

5401 TGATCCGGCAAACAAACCACCGCTGGTAGCGGTGGTTTTTTGTTTGGCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCT

EagI (5584)

PacI (5564) SmaI (5573)

NotI (5583)

5501 TTTCTACGGGTCTGACGCTCAGTGAACGAAACTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATCAGCGCCGCAATAAAATA

5601 TCTTTATTTTCATTACATCTGTGTGGTTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAAACAAAACGAAACAAAACAACTAGCAAAAT

5701 AGGCTGTCCCAAGTGAAGTGCAGGTGCCAGAACATTTCTCTATCGAA