



150

PvuI (7)
SgfI (6) 1 GGATCTGCATCGCTCCGGTGCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCCGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA
MfeI (82)
101 GAGAAGGTGGCGCGGGTAAACTGGAAAAGTATGTCGTGTACTGGCTCCGCTTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

Psp1406I (203) 201 GTGAACGTTCTTTTTTCGCAACGGGTTTCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCCTTCACGCGCCCGCCCTACCTGAGGCC
HindIII (245)
Bsu36I (291)

301 GCCATCCACGCCGGTTGAGTCGCGTTCTGCCGCTCCCGCTGTGGTGCTCCTGAACTGCGTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC
NgoMIV (441)
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCTCAACTCTACGCTTTTGTTCGTTT

BstEII (555)
AgeI (552) **NcoI (560)** 501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGGCGCTACCTGAGATCACCGGTCCACATGGGACTTCCCATCCGGGTTCTGGTCTTAGGCTG
1 M G T S H P A F L V L G C
EcoRI (684)
601 TCTTCTCACAGGGCTGAGCCTAATCCTCTGCCAGCTTTCATTACCCTCTATCCTTCCAATGAAAATGAAAAGTTGTGCAGCTGAATTCATCCTTTTCT
13 L L T G L S L I L C Q L S L P S I L P N E N E K V V Q L N S S F S
701 CTGAGATGCTTTGGGAGAGTGAAGTGAAGTGGCAGTACCCATGTCTGAAGAAGAGAGTCCGATGTGAAAATCAGAAAATGAAGAAAACAACAGCGGCC
47 L R C F G E S E V S W Q Y P M S E E E S S D V E I R N E E N N S G
BsrGI (851)
801 TTTTGTGACGGTCTTGAAGTGAAGTGAAGTGGCAGTGCCTCGGGGCCACACAGGGTTGTACACTTGTATTACAACCACACTCAGACAGAAGAGAATGAGCTTGA
80 L F V T V L E V S S A S A A H T G L Y T C Y Y N H T Q T E E N E L E
901 AGGCAGGCACATTTACATCTATGTGCCAGACCAGATGTAGCCTTTGTACCTTAGGAATGACGGATTATTTAGTCATCGTGGAGGATGATGATTCTGCC
113 G R H I Y I Y V P D P D V A F V P L G M T D Y L V I V E D D D S A
Acc65I (1062)
1001 ATTATACCTTGTGCGACAACCTGATCCCGAGACTCCTGTAACCTTACACAACAGTGAAGGGGGTGGTACCTGCCTCCTACGACAGCAGACAGGGCTTTAATG
147 I I P C R T T D P E T P V T L H N S E G V V P A S Y D S R Q G F N

Bsp120I (1114) 1101 GGACCTTCACTGTAGGGCCCTATATCTGTGAGGCCACCGTCAAAGGAAAGAAGTCCAGACCATCCCATTAAATGTTTATGCTTTAAAAGCAACATCAGA
180 G T F T V G P Y I C E A T V K G K K F Q T I P F N V Y A L K A T S E

XbaI (1206) 1201 GCTGGATCAGAAATGGAAGCTCTTAAACCGTGTATAAGTCAAGGGAAACGATTGTGGTCACCTGTGCTGTTTTTAAACATGAGGTGGTTGACCTTCAA
213 L D L E M E A L K T V Y K S G E T I V V T C A V F N N E V V D L Q
BstEII (1257)
1301 TGGACTTACCCTGGAGAAGTGAAGGCAAAGGCATCACAATGCTGGAAGAAATCAAAGTCCCATCCATCAAATGGTGTACACTTTGACGGTCCCGGAGG
247 W T Y P G E V K G K G I T M L E E I K V P S I K L V Y T L T V P E
1401 CCACGGTGAAGACAGTGGAGATTACGAATGTGCTGCCGCCAGGCTACCAGGGAGGTCAAAGAAATGAAGAAAGTCACTATTTCTGTCCATGAGAAAGG
280 A T V K D S G D Y E C A A R Q A T R E V K E M K K V T I S V H E K G
BsrGI (1376)
1501 TTTCAATGAAATCAAACCCACCTTCCAGCCAGTTGGAAGCTGTCAACCTGCATGAAGTCAAACATTTTGTGTAGAGGTGCGGGCTACCCACCTCCGAGG
313 F I E I K P T F S Q L E A V N L H E V K H F V V E V R A Y P P P R
1601 ATATCCTGGTGAAAAACAATCTGACTCTGATTGAAAACTCACTGAGATCACCCTGATGTGAAAAAGATTGAGAAATAAGGTATCGAAGCAAATTA
347 I S W L K N N L T L I E N L T E I T T D V E K I Q E I R Y R S K L
EcoRV (1599)
1701 AGCTGATCCGTGCTAAGGAAGAAGACAGTGGCCATTACTATTGTAGCTCAAAATGAAGATGCTGTGAAGAGCTATACTTTTGAAGTGTAACTCAAGT
380 K L I R A K E E D S G H Y T I V A Q N E D A V K S Y T F E L L T Q V
SapI (1767) **HpaI (1788)**
1801 TCCTTCATCCATTCTGGACTTGGTGCATGATCACCATGGCTCAACTGGGGACAGACGGTGGAGTGCACAGCTGAAGGCACGCCGCTTCTGATATTGAG
413 P S S I L D L V D D H H G S T G G Q T V R C T A E G T P L P D I E
1901 TGGATGATATGCAAAGATATTAAGAAATGTAATAATGAAATTCCTGGACTATTTGGCCAACAATGTCTCAAACATCATCACGGAGATCCACTCCCGAG
447 W M I C K D I K K C N N E T S W T I L A N N V S N I I T E I H S R
2001 ACAGGAGTACCGTGGAGGGCCGTGTGACTTTGCAAAAGTGGAGGAGACCATCGCCGTGCGATGCCTGGCTAAGAATCTCCTTGGAGCTGAGAACCAGAGA
480 D R S T V E G R V T F A K V E E T I A V R C L A K N L L G A E N R E

PstI (2147) 2101 GCTGAAGCTGGTGGCTCCACCCTCGTCTTGAACCTCACGGTGGCTGCTGCAGTCTGGTGGTGTGTTGGTATTGTGATCATCTCACTATTGTCTGGTT
513 L K L V A P T L R S E L T V A A A V L V L L V I V I I S L I V L V
2201 GTCATTTGAAAACAGAAACCGAGGTATGAAATTCGCTGGAGGGTCAATGAATCAATCAGCCCGGATGGACATGAATATATTTATGTGGACCCGATGCAGC
547 V I W K Q K P R Y E I R W R V I E S I S P D G H E Y I Y V D P M Q
BsaBI (2169)
2301 TGCCTTATGACTCAAGATGGGAGTTTCCAAGAGATGGACTAGTCTTGGTGGGTCTTGGGGTCTGGAGCGTTTGGGAAGGTGGTTGAAGGAACAGCCTA
580 L P Y D S R W E F P R D G L V L G R V L G S G A F G K V V E G T A Y
SpeI (2337)
2401 TGGATTAAGCCGTCACCACTGTGATGAAAGTTGCGATGAAGATGCTAAAACCCACGCCAGATCCAGTGAAGAAACAAGCTCTCATGTCTGAACTGAAG
613 G L S R S Q P V M K V A V K M L K P T A R S S E K Q A L M S E L K

2501 G L S R S Q P V M K V A V K M L K P T A R S S E K Q A L M S E L K
ATAATGACTCACCTGGGGCCACATTTGAACATTGTAACCTTGTGGGAGCCTGCACCAAGTCAGGCCCATTTACATCATCACAGAGTATTGCTTCTATG
647▶ I M T H L G P H L N I V N L L G A C T K S G P I Y I I T E Y C F Y

EcoRV (2677)

2601 GAGATTTGGTCAACTATTTGCATAAGAATAGGGATAGCTTCTGAGCCACCACCAGAGAAGCCAAAGAAAGAGCTGGATATCTTTGGATTGAACCTGC
680▶ G D L V N Y L H K N R D S F L S H H P E K P K K E L D I F G L N P A
2701 TGATGAAAGCACACGGAGCTATGTTATTTTATCTTTTGAACCAATGGTGACTACATGGACATGAAGCAGGCTGATACTACACAGTATGTCCCATGCTA
713▶ D E S T R S Y V I L S F E N N G D Y M D M K Q A D T T Q Y V P M L

SspI (2819)

2801 GAAAGGAAAGAGGTTTTCTAAATATTCCGACATCCAGAGATCACTCTATGATCGTCCAGCCTCATATAAGAAGAAATCTATGTTAGACTCAGAAGTCAAAA
747▶ E R K E V S K Y S D I Q R S L Y D R P A S Y K K K S M L D S E V K

StuI (2925)

2901 ACCTCCTTTTCAGATGATAACTCAGAAGCCTTACTTTATTGGATTTGTTGAGCTTACCTATCAAGTTGCCGAGGAATGGAGTTTTTGGCTTCAAAAAA
780▶ N L L S D D N S E G L T L L D L L S F T Y Q V A R G M E F L A S K N

NsiI (3091) BstBI (3099)

3001 TTGTGTCCACCGTGATCTGGCTGCTCGCAACGTCTCTGGCACAAGGAAAAATTGTGAAGATCTGTGACTTTGGCCTGGCCAGAGACATCATGCATGAT
813▶ C V H R D L A A R N V L L A Q G K I V K I C D F G L A R D I M H D

DraIII (3182)

3101 TCGAACTATGTGTGAAAGGCAGTACCTTTCTGCCGTGAAGTGGATGGCTCCTGAGAGCATCTTTGACAACCTCTACACCACACTGAGTGTCTGGT
847▶ S N Y V S K G S T F L P V K W M A P E S I F D N L Y T T L S D V W

Acc65I (3296)

3201 CTTATGGCATTCTGCTCTGGGAGATCTTTCCCTTGGTGGCACCCCTTACCCCGCATGATGGTGGATTCTACTTTCTACAATAAGATCAAGAGTGGGTA
880▶ S Y G I L L W E I F S L G G T P Y P G M M V D S T F Y N K I K S G Y

3301 CCGGATGGCCAAGCCTGACCAGCTACCAGTGAAGTCTACGAGATCATGGTGAATGTGGAACAGTGAAGCAGGAGGAGACCCCTCTTTTACCACCTG
913▶ R M A K P D H A T S E V Y E I M V K C W N S E P E K R P S F Y H L

SphI (3497)

3401 AGTGAGATTGTGGAGAATCTGCTGCCTGGACAATAAAAAAGAGTTATGAAAAAATTCACCTGGACTTCTGAAGAGTGACCATCCTGCTGTGGCAGCA
947▶ S E I V E N L L P G Q Y K K S Y E K I H L D F L K S D H P A V A R

NsiI (3518)

3501 TCGTGTGGACTCAGACAATGCATACATTGGTGTACCTACAAAAACGAGGAAGACAAGTGAAGGACTGGGAGGGTGGTCTGGATGAGCAGAGACTGAG
980▶ M R V D S D N A Y I G V T Y K N E E D K L K D W E G G L D E Q R L S

Eco47III (3598)

Bsu36I (3646)

Tth11II (3637)

3601 CGCTGACAGTGGCTACATCATTCTCTGCTGACATTGACCCTGTCCCTGAGGAGGAGGACCTGGGCAAGAGGAACAGACACAGCTCGCAGACCTCTGAA
1013▶ A D S G Y I I P L P D I D P V P E E E D L G K R N R H S S Q T S E

3701 GAGAGTGCATTGAGACGGGTTCCAGCAGTTCACCTTCATCAAGAGAGAGGACGAGACCATTGAAGACATCGACATGATGGACGACATCGGCATAGACT
1047▶ E S A I E T G S S S S T F I K R E D E T I E D I D M M D D I G I D

NheI (3843)

3801 CTTGACAGCTGGTGAAGACAGCTTCTGTAACGTGGCGATTGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGGACAAACCACAACACTAGA
1080▶ S S D L V E D S F L • L A D S

HpaI (3981) MfeI (3992)

3901 ATGCACTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAAACAAGTTAACAAACAATGCA

EcoRI (4077)

4001 TTCATTTTATGTTTCAGGTTTCAGGGGAGGTGTGGGAGTTTTTTAAAGCAAGTAAACCTCTACAAATGTGGTATGGAAATCTAAAATACAGCATAGCA

4101 AAACCTTAACTCCAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTTG

SapI (4259)

4201 CAGCCTCACCTTCTTTCATGGAGTTTAAGATATAGTGTATTTCCCAAGGTTTGAAGTACTCTTCATTTCTTTATGTTTTAAATGACTGACCTCCAC

SspI (4316)

SwaI (4330)

4301 ATTCCCTTTTTAGTAAATATTCAGAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTC

4401 ATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAGGAACCTTAATAGAAATGGACAGCAAGAAAGCGAGTCTAGCTTTAGTTCCTGGTGT

141◀ • N R T Y

4501 ACTTGAGGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCCATTCATCTCAATGAGCACAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTCT

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

4601 GCACATGCCACAGGGGCTGACCACCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCGTTG

103◀ 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

StuI (4755)

4701 CTCACAGCAGACCAATGGCAATGGCTTCAGCACAGACAGTGACCCTGCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCAGTCTTGGTCC

69◀ 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 I I E G T K T R

4801 TGATGGCCGCCGACATGGTGTCTGTTGCTCCTCATAGAGCATGGTGTCTTCTCAGTGGCGACCTCCACCAGCTCCAGATCTGCTGAGAGATGTTGAA

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

BspHI (4905) AseI (4963)
 4901 GGTCTTCATGATGGCCCTCTATAGTGAGTCGTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCT
 3 T K M

5001 TATCTGACGGTTCATAAACGAGCTCTGCTTATATAGACCTCCCACCGTACACGCCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTTACGACATTTT
 SpeI (5118)

5101 GGAAAGTCCCGTTGATTTACTAGTCAAAACAACTCCCATTGACGTCAATGGGGTGGAGACTTGAAATCCCCGTGAGTCAAACCGCTATCCACGCCCAT
 SnaBI (5246)

5201 TGATGTACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTACTGCCAAGTAGGAAAGTCCATAAGGTCATGTACTGGGCATA
 NdeI (5351)

5301 ATGCCAGGCGGGCCATTTACCGTCATTGACGTCAATAGGGGGCTACTTGGCATATGATACACTTGATGTACTGCCAAGTGGGCAGTTTACCGTAAATAC
 5401 TCCACCCATTGACGTCAATGGAAAGTCCCTATTGGCGTTACTATGGGAACATACGTCAATTATTGACGTCAATGGGCGGGGTCGTTGGGCGGTGAGCCAG

PacI (5537)
 PstI (5530) SdaI (5529) BspLU11I (5547)
 5501 GCGGGCCATTTACCGTAAGTTATGTAACGCCTGCAGGTTAATTAAGAACATGTGAGCAAAAGGCCAGCAAAGGCCAGGAACCGTAAAAAGGCCGCGTTG
 5601 CTGGCGTTTTTTCATAGGCTCCGCCCCCTGACGAGCATCACAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGG
 5701 CGTTTCCCCTGGAAGCTCCCTCGTGCCTCTCCTGTTCCGACCCTGCCGTTACCGGATACCTGTCCGCTTCTCCCTTCGGAAGCGTGGCGCTTTC

5801 TCATAGCTCAGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTGCTCCAAGCTGGGCTGTGTGCACGAACCCCCGTTCCAGCCGACCGCTGCGCCTTA
 5901 TCCGTAACATATCGTCTTGAGTCCAACCCGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCG
 6001 GTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGAAAAAG
 6101 AGTTGGTAGCTCTTGATCCGGCAAACAACCCGCTGGTAGCGGTGGTTTTTTTGTGTTGCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAA

6201 GATCCTTTGATCTTTTCTACGGGTCTGACGCTCAGTGAACGAAACTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATCAGCGG
 PacI (6277) SmaI (6286) **EagI (6297)** **NotI (6296)**

6301 CCGCAATAAAATATCTTTATTTTTCATTACATCTGTGTGGTTTTTTTGTGTAATCGTAACATAACGCTCTCCATCAAACAAAACGAAACAAAAC
 6401 AAAC TAGCAAAATAGGCTGTCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA