



PvuI (7) SgfI (6) MfeI (82) EcoNI (96)
1 GGATCTGCATCGCTCCGGTGCCCGTCAGTGGCAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGTGCCTA
101 GAGAAAGTGGCGCGGGTAAACTGGAAAGTGATGTCGTGACTGGTCCGCCTTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

Psp1406I (203) HindIII (245) EcoNI (287) Bsu36I (291)
201 GTGAACGTTCTTTTTTCGCAACGGGTTTCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCTTACCGCCGCCGCCCTACCTGAGGCC
301 GCCATCCACGCGGTTGAGTGCCTCTCCGCCTCCCGCTGTGGTGCCTCTGAACTGCGTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC
401 GGGCCTTTGTCCGGCCTCCCTTGGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCGCTTGTCTCAACTCTACGCTTTTGTTCGTTT

KasI (535) AgeI (552) BspLU11I (560)
501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGGGCGCTACCTGAGATCACCGGTCAACATGTAAGTCTGGGAGCCGCCCGCACTTGACCTCCTGC
1 M Y S G A G P A L A P P A
601 GCCGCCGCCCCATCCAAGGATATGCCTTCAAGCCTCCACTAGACCCGACTTTGGGACCTCCGGGAGAACAATCAAATTACAGGCCAATTTCTTCGAA
13 P P P P I Q G Y A F K P P R P D F G T S G R T I K L Q A N F F E
EcoRV (739) HpaI (769)
701 ATGGACATCCCCAAATTTGACATCTATCATTATGAATTGGATATCAAGCCAGAGAAGTGCCCGAGGAGAGTTAACAGGAAAATCGTGGAACACATGGTCC
47 M D I P K I D I Y H Y E L D I K P E K C P R R V N R E I V E H M V
BglII (815)
801 AGCACTTTAAACACAGATCTTTGGGATCGGAAGCCCGTGTGGTACGGCAGGAAGAATCTATACACAGCCATGCCCTTCCGATTGGGAGGGACAAGGT
80 Q H F K T Q I F G D R K P V F D G R K N L Y T A M P L P I G R D K V
901 GGAGCTGGAGGTACGCTGCCAGGAGAAGCAAGGATCGCATCTTCAAGTGTCCATCAAGTGGTGTCTGCGTGGTGTGAGCTTGCAGGCGTTACACGATGCA
113 E L E V T L P G E G K D R I F K V S I K W V S C V S L Q A L H D A
BspHI (1055)
1001 CTTTCAGGCGGGTCCAGCGTCCCTTTGAGACGATCCAGGCCCTGGACGTGGTCAAGGCACTTGCCATCCATGAGGTACACCCCGTGGGCGCGT
147 L S G R L P S V P F E T I Q A L D V V M R H L P S M R Y T P V G R
1101 CCTTCTTACCGGTCCGAAAGGCTGCTTAACCTCTTGGCGGGGCGGAGAAGTGTGTTGGTTCATCAGTCCGTCCGGCTTCTCTGGAAAAT
180 S F F T A S E G C S N P L G G G R E V W F G F H Q S V R P S L W K M
SspI (1207)
1201 GATGCTGAATATTGATGTGTGACCAACAGCGTTTTACAAGGCACAGCCAGTAATCGAGTGTGTTGTGAAAGTTTGGATTTTAAAGTATTGAAGAACA
213 M L N I D V S A T A F Y K A Q P V I E F V C E V L D F K S I E E Q
1301 CAAAAACCTCTGACAGATTTCCAAAGGGTAAAGTTTACCAAAGAAATTAAGGTCTAAAGGTGGAGATAACGCACTGTGGGAGATGAAGAGGAAGTACC
247 Q K P L T D S Q R V K F T K E I K G L K V E I T H C G Q M K R K Y
1401 GGTCTGCAATGTGACCGCGGCCAGTCCCAAACATTTCCCGTGCAGCAGGAGAGCGGGCAGACGGTGGAGTGCACGGTGGCCAGTATTTCAA
280 R V C N V T R R P A S H Q T T F P L Q Q E S G Q T V E C T V A G Y T Y F K
1501 GGACAGGCACAAGTTGGTCTGCGCTACCCCCCTCCATGTTTACAAGTGGACAGGAGCAGAAACACACCTACCTTCCCTGGAGGTCTGTAACATT
313 D R H K L V L R Y P H L P C L Q V G Q E Q K H T Y L P L E V C N I
PvuI (1680) KasI (1674)
1601 GTGGCAGGACAAAGATGTATTAATAAAATTAACGGACAATCAGACCTCAACCATGATCAGAGCGACTGTAGGTCCGGCGCCGATCGGCAAGAAGAGATTA
347 V A G Q R C I K K L T D N Q T S T M I R A T A R S A P D R Q E E I
1701 GCAAATGATGCGAAGTGAAGTTTCAACACAGATCCATACGTCCGTGAATTTGGAATCATGGTCAAAGATGAGATGACAGACGTGACTGGCGGGTGC
380 S K L M R S A S F N T D P Y V R E F G I M V K D E M T D V T G R V L
PshAI (1845)
1801 GCAGCCGCTCCATCCTCTACGGGGCAGGAATAAAGCTATTGCGACCCCTGTCCAGGGCGTCTGGGACATGCGGAACAAGCAGTTCACACGGGCATC
413 Q P P S I L Y G G R N K A I A T P V Q G V W D M R N K Q F H T G I
XhoI (1992) XmnI (1962) BglII (1988)
1901 GAGATCAAGGTGTGGCCATTGCGTGTCTCGCCCGGAGCCAGTGCACGGAAGTCCATCTGAAGTCTTACAGAGCAGCTCAGAAAAGATCTCGAGAG
447 E I K V W A I A C F A P Q R Q C T E V H L K S F T E Q L R K I S R
SphI (2006)
2001 ACGCCGCGATGCCACAGGGCCAGCCGTGCTTCTGCAAATACGCGCAGGGGGCGGACAGCGTGGAGCCCATGTTCCGGCACCTGAAGAACACGTATGC
480 D A G M P I Q G Q P C F C K Y A Q G A D S V E P M F R H L K N T Y A
2101 GGGCTGCAGCTGGTGGTGCATCCTGCCCGCAAGACGCCGTGTACGCCAGGTCAAGCGCTGGGAGACACGGTGTGGGATGCCACGCAGTGC
513 G L Q L V V V I L P G K T P V Y A E V K R V G D T V L G M A T Q C
2201 GTGCAGATGAAGAAGCTGCAGAGGACCCAGACACCCCTGTCCAACCTCTGCTGAAGATCAACGTCAAGCTGGGAGGGTGAACAACATCTCTGCTGC
547 V Q M K N V Q R T T P Q T L S N L C L K I N V K L G G V N N I L L
SgrAI (2312) XcmI (2390)
2301 CCCAGGGCAGGCGCGGTTCCAGCAGCCCGTCATCTTCTGGGAGCAGAGTCACTACCCCCCGGGGATGGGAAGAAGCCCTCCATTGCCG
580 P Q G R P P V F Q Q P V I F L G A D V T H P P A G D G K K P S I A A
NeoI (2492)
2401 CGTGGTGGCAGCATGGACGCCACCCCAATCGCTACTGCGCCACCGTGCCTGTCAGCAGCACCCGGCAGGAGATCATACAAGACCTGGCCGCGCATGGTC
613 V V G S M D A H P N R Y C A T V R V Q Q H R Q E I I Q D L A A M V
2501 CGCGAGCTCCTCATCAGTTCTACAAGTCCACGCGCTTCAAGCCACCCGCATCATCTTACCGCAGCGGTGTCTGAAGGCCAGTTCAGCAGGTT
647 R E L L I Q F Y K S T R F K P T R I I F Y R D G V S E G Q F Q Q V
XmaI (2659) SmaI (2659)
2601 TCCACCAGGATGCTGGCCATCCGTGAGGCTGTATCAAGCTAGAAAAAGACTACCAGCCCGGGATCACCTTTCATCGTGGTGCAGAAGAGGCACACAC
680 L H H E L L A I R E A C I K L E K D Y Q P G I T F I V V Q K R H H T

2701 CCGGCTCTTCTGCACTGACAAGAACGAGCGGGTTGGGAAAAGTGAAACATTCCAGCAGGCACGACTGTGGACACGAAAATCACCCACCCACCGAGTTC
713▶ R L F C T D K N E R V G K S G N I P A G T T V D T K I T H P T E F
2801 GACTTCTACTGTGTAGTCACGCTGGCATCCAGGGGACAAGCAGGCCTTCGCACTATCACGTCCTCTGGGACGACAATCGTTTCTCTCTGATGAGCTGC
747▶ D F Y L C S H A G I Q G T S R P S H Y H V L W D D N R F S S D E L SfiI (2988) XcmI (2999)

2901 AGATCCTAACCTACCAGCTGTGTACACCTACGTGCGTGCACACGCTCCGTGTCCATCCCAGCGCCAGCATACTACGCTCACCTGGTGGCCTTCCGGGC
780▶ Q I L T Y Q L C H T Y V R C T R S V S I P A P A Y Y A H L V A F R A
Acc65I (3002) BstXI (3045)

3001 CAGGTACCACCTGGTGGATAAAGGAACATGACAGTGCTGAAGGAAGCCATACCTCTGGGACAGAGTAACGGGCGAGACCACCAAGCACTGGCCAAGGCGGTC
813▶ R Y H L V D K E H D S A E G S H T S G Q S N G R D H Q A L A K A V
FspI (3119) BspLU11I (3141) NheI (3175)

3101 CAGGTTACCAAGACACTCTGCGCACCATGTACTTTGCTTGACATGTTTTAGTGTGTTAGCGATTGTGTACCGAGTGCTAGCTGGCCAGACATGATAAGAT
847▶ Q V H Q D T L R T M Y F A •
3201 ACATTGATGAGTTTGACAAACCACAAC TAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAG

3301 CTGCAATAAACAAGTTAAACAACAACAATTGCATTCATTTATGTTTCAGGTTTCAGGGGAGGTGTGGGAGTTTTTTAAAGCAAGTAAAACCTCTACAAA
HpaI (3313) MfeI (3324)

3401 TGTGGTATGGAATTCTAAAATACAGCATAGCAAACTTTAACCTCAAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATC
EcoRI (3409)

3501 AGGGGCTGTTGCCAATGTGCATTAGCTGTTTGCAGCCTCACCTTCTTTCATGGAGTTTAAGATATAGTGTATTTTCCAAGTTTGAAGTACTAGCTCTTCAT

3601 TTCTTTATGTTTTAAATGCACTGACCTCCACATTCCCTTTTTAGTAAATATTCAGAAATAATTTAAATACATCATTGCAATGAAAAATAATGTTTTTT
SspI (3648) SwaI (3662)

3701 ATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGAACCTTTAATAGAAATGGACAGCAA

3801 GAAAGCGAGCTTCTAGCTTTAGTTCCTGGTGTACTTGAGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCCATTCTCTCAATGAGCACAAG
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
BstXI (3952)

3901 CAGTCAGGAGCATAGTCAGAGATGAGCTCTCTGCATGCCACAGGGGCTGACCACCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCTGACAG
113▶ C D P A 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

4001 CCACAATGGTGTCAAAGTCTTCTGCCGTTGCTCACAGCAGACCCAATGGCAATGGCTTCAGCACAGACAGTGACCTGCCAATGTAGGCCCTCAATGTG
80▶ V I T 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

4101 GACAGCAGAGATGATCTCCCAGTCTTGGTCTGATGGCCGCCGACATGGTGTCTTGTCTCATAGAGCATGGTGTCTTCTCAGTGGCGACCTCC
47▶ V A S 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
BspHI (4237)

4201 ACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGTCTTCATGATGGCCCTCTATAGTGAGTCGATTATACTATGCCGATATACTATGCCGATGATTA
13▶ V L E L D Q Q S I N F T K M XmnI (4229) AseI (4295)

4301 TTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTCTACTAAACGAGCTCTGTTATATAGACCTCCACCCTACACGCTACCGCCATT

4401 GCGTCAATGGGGCGGAGTTGTTACGACATTTTGGAAAGTCCCGTTGATTTACTAGTCAAACAAACTCCATTGACGTCAATGGGGTGGAGACTTGGAA
SpeI (4450)

4500 ATCCCGTGAGTCAAACCGTATCCACGCCATTGATGTACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGACTGCCAAGT
SnaBI (4578)

4600 AGGAAAGTCCATAAGGTCATGTAAGTGGGATAATGCCAGGCGGGCCATTTACCGTCATTGACGTCAATAGGGGGCGTACTTGGCATATGATACACTTGA
NdeI (4683)

4700 TGTAAGTCCAAAGTGGCAGTTTACCCTAAATACTCCACCCATTGACGTCAATGAAAAGTCCCTATTGGCGTACTATGGGAACATACGTCATTATTGACG

4800 TCAATGGGCGGGGTCGTTGGGCGTACGACGCGGGCCATTTACCCTAAGTTATGTAACGCCCTG C A G G T T A A T T A A G A A C A T G T G A C A A A G G C C
SdaI (4861) PacI (4869) BspLU11I (4879)

4898 AGCAAAAGGCCAGGAACCGTAAAAAGGCCGCTTGTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAG
BspLU11I (4879)

4998 GTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCTGGAAGCTCCCTCGTGCCTCTCTGTTCCGACCTGCCGCTTACCGGATACCTG

5098 TCCGCTTTCTCCCTTCCGGAAGCGTGGCGTTTTCTCATAGCTCAGCTGAGGTATCTCAGTTCGGTGTAGGTGTTCCGCTCAAGCTGGGCTGTGTGC

5198 ACGAACCCCGTTCAGCCGACCGTGCCTTATCCGGTAACTATCGTCTTGAGTCCAACCCGTAAGACACGACTTATCGCCACTGGCAGCAGCCAC

5298 TGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTCTTGAAGTGGTGGCCTAACTACGGTACACTAGAAGAACAGTATTTGGTATC

5398 TGGCCTCTGCTGAAGCCAGTTACCTTCGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAAACAAACCACCGCTGGTAGCGGTGGTTTTTTTGTGTTGCAAGC

5498 AGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGTCTGACGCTCAGTGAACGAAAACTCACGTTAAGGGATTTT

5598 GGTCATGGCTAGTTAATTAACATTTAAATC AGCGCGCCGAATAAAATATCTTTATTTTTCATTACATCTGTGTGGTTTTTTTGTGTAATCGTAACTAA
PacI (5609) SwaI (5618) NotI (5628) EagI (5629)

5698 CATACGCTCTCCATCAAACAAACGAAACAAACAAACTAGCAAAATAGGCTGTCCCAGTGCAAGTGCAAGTGCCAGAACATTTCTCTATCGAA