



PvuI (7)
SgfI (6)
 1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTCGGCAATTGAACGGGTGCCTA
 101 GAGAAAGTGGCGGGGTAAGTGGAAAGTGTGCTGTACTGGTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

Psp1406I (203) **HindIII (245)** **Bsu36I (291)**
 201 GTGAACGTTCTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCCTTACGCGCCCGCCCTACCTGAGGCC
 301 GCCATCCACGCCGGTTGAGTCGCGTTTCTGCCGCCTCCCGCTGTGGTGCCTCCTGAAGCTGCGTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMIV (441)
 401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCCTGTTGCTCAACTCTACGCTTTTGTTCGTTT

KasI (535) **AgeI (552)** **NcoI (568)**
 501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGCGCCCTACCTGAGATCACCGGTAGGAGGGCCACCATGGTTCTCCGTGCAAGGACTCTGCACCCC
 1 M V L R R R T L H P

Acc65I (648)
 601 TTGTCCTCTGTTACAGGCTGCAGTGTGCTGGTGCAGACTCTGGCCTGGGTACCTGCCTGCCTTCTACCTGTGAGCTGAAGCCTCATGGCCTGGTGG
 11 L S L L V Q A A V L A E T L A L G T L P A F L P C E L K P H G L V
 701 ACTGCAATTGGCTGTTCTGAAGTCTGTACCCCGTTTCTGCGGCAGCATCTGCTCCAACATCACCCGCTCTCCTTGATCTCCAACCGTATCCACCA
 44 D C N W L F L K S V P R F S A A A S C S N I T R L S L I S N R I H H

Tth11II (813)
 801 CCTGCACAACCTCCGACTTCGTCCACCTGTCCAACCTGCGGCAGCTGAACCTCAAGTGGAACTGTCCACCCACTGGCCTTAGCCCCCTGCACCTTCTCTTGC
 77 L H N S D F V H L S N L R Q L N L K W N C P P T G L S P L H F S C
 901 CACATGACCATTGAGCCAGAACCTTCTGGCTATGCTACACTGGAGGAGCTGAACCTGAGCTATAATGGTATCACCCTGTGCCCGACTGCCAGCT
 111 H M T I E P R T F L A M R T L E E L N L S Y N G I T T V P R L P S

XbaI (1040) **NgoMIV (1059)**
 1001 CCCTGGTGAATCTGAGCCTGAGCCACACCAACATCCTGTTTCTAGATGCTAACAGCCTCGCCGCTATACAGCCTGCGGCTTCTTTCATGGACGGGAA
 144 S L V N L S L S H T N I L V L D A N S L A G L Y S L R V L F M D G N

KasI (1146)
BstEII (1136)
 1101 CTGCTACTACAAGAACCCTGCACAGGAGCGGTGAAGGTGACCCAGGCGCCCTCTGGGCTGAGCAATCTCACCCATCTGTCTCTGAAGTATAACAAC
 177 C Y Y K N P C T G A V K V T P G A L L G L S N L T H L S L K Y N N
 1201 CTCACAAAGTCCCGCCCAACTGCCCCAGCCTGGAGTACCTCTGGTGTCTATAACCTCATTGTCAAGCTGGGGCTGAAGACCTGGCCAATCTGA
 211 L T K V P R Q L P P S L E Y L L V S Y N L I V K L G P E D L A N L

SeaI (1310)
 1301 CCTCCCTTCGAGTACTTGATGTGGGTGGGAATTGCCGTCGCTGCGACCATGCCCCCAATCCCTGTATAGAATGTGGCCAAAAGTCCCTCCACCTGCACCC
 244 T S L R V L D V G G N C R R C D H A P N P C I E C G Q K S L H L H P
 1401 TGAGACTTCCATCACCTGAGCCATCTGGAAGGCTGGTGTGAAGKACACTCTCCATACACTGAACTCTTCTGTTTCCAAGGCTGGTCAAGCTTGGTCAAC
 277 E T F H H L S H L E G L V L K D S S L H T L N S S W F Q G L V N L

FspI (1576)
 1501 TCGGTGCTGGACCTAAGCGAGAAGTCTCTCTAATGAAAGCATCAACACACCAATGCCTTTGAGAAGTAAACCCGCTGCGCAAGCTCAACCTGTCCCTTCA
 311 S V L D L S E N F L Y E S I N H T N A F Q N L T R L R K L N L S F
 1601 ATTACCGAAGAAGTATCCTTTGCCCGCTCCACTGGCAAGTTCCTTCAAGAACCTGGTGTCACTGAGGAGCTGAACATGAACGGCATCTTCTTCCG
 344 N Y R K K V S F A R L H L A S S F K N L V S L Q E L N M N G I F F R
 1701 CTCGCTCAACAAGTACACGCTCAGATGGCTGGCCGATCTGCCAAACTCCACACTCTGCATCTTCAAATGAACCTCATCAACCAGGCACAGCTCAGCAT
 377 S L N K Y T L R W L A D L P K L H T L H L Q M N F I N Q A Q L S I

Acc65I (1803)
 1801 TTTGGTACCTTCCGAGCCCTTCGCTTTGTGACTTGTGACAGACAATCGCATCAGTGGGCTTCAACGCTGTCAGAAGCCACCCCTGAAGAGGCAGATGATG
 411 F G T F R A L R F V D L S D N R I S G P S T L S E A T P E E A D D

BamHI (1925) **NcoI (1999)**
 1901 CAGAGCAGGAGGAGCTGTTGCTGCGGATCCTCACCCAGCTCCACTGAGCACCCTGCTTCTAAGAAGTTCATGGACAGGTGTAAGAAGTTCAGTTCCAC
 444 A E Q E E L L S A D P H P A P L S T P A S K N F M D R C K N F K F T
 2001 CATGGACCTGTCTCGAAACAACCTGGTACTATCAAGCCAGAGATGTTTGTCAATCTCTCAGCCTCCAGTGTCTTAGCCTGAGCCACAACCTCCATTGCA
 477 M D L S R N N L V T I K P E M F V N L S R L Q C L S L S H N S I A

XmnI (2186)
 2101 CAGGCTGCAATGGCTCTCAGTCTCTGCCGCTGACTAATCTGCAGGTGCTGGACCTGTCCATAACAACCTGGACTTGTACCCTGGAATCGTTCAGTG
 511 Q A V N G S Q F L P L T N L Q V L D L S H N K L D L Y H W K S F S
 2201 AGTACCACAGTTGACGGCCCTGGACCTGAGCTACAACAGCCAGCCCTTTAGCATGAAGGGTATAGGCCACAATTTAGTCTTTGTTGGCCCATCTGTCCAT
 544 E L P Q L Q A L D L S Y N S Q P F S M K G I G H N F S F V A H L S M
 2301 GCTACACAGCCTTAGCCTGGCACACAATGACATTCATACCCGTGTGCTCCTCACATCTCAACAGCAACTCAGTGAAGTTTCTTACTTACGCGGCAACGGT
 577 L H S L S L A H N D I H T R V S S H L N S N S V R F L D F S G N G

SfiI (2448)
 2401 ATGGGCCGATGTGGGATGAGGGGGGCTTTATCTCCATTTCTTCCAAGGCTGAGTGGCCTGCTGAAGCTGGACCTGTCTCAAATAACCTGCATATCC
 611 M G R M W D E G G L Y L H F F Q G L S G L L K L D L S Q N N L H I
 2501 TCCGGCCCGAGAACCTTGACAACCTCCCAAGAGCCTGAAGCTGCTGAGCCTCCGAGACAACCTACCTATCTTTCTTTAACTGGACCTGTCTGCTTCTCT
 644 L R P C Q N L D N L S A D P H K S L K L L S L R D N Y L S F F N W T S L S F L
 2601 GCCCAA CCTGGAAGTCTAGACTGGCAGGCAACAGCTAAAGGCCCTGACCAATGGCACCCTGCCTAATGGCACCCTCTCCAGAAAATGGATGTCAGG
 677 P N L E V L D L A G N Q L K A L T N G T L P N G T L L Q K L D V S
 2701 AGCAACAGTATCGTCTGTGGTCCAGCCTTCTCGCTGCGGGTGCAGCTGAAAGAGGTCAACCTCAGCCACAACATTCTCAAGCAGGTGGATCGCT
 711 S N S I V S V V P A F F A L A V E L K E V N L S H N I L K T V D R

Bsp120I (2808) **XbaI (2834)**
 2801 CCTGGTTTGGGCCATTGTGATGAACCTGACAGTCTAGACGTGAGAAGCAACCTCTGCACTGTGCCTGTGGGGCAGCCTTCGTAGACTTACTGTTGGA
 744 S W F G P I V M N L T V L D V R S N P L H C A C G A A F V D L L L E

2901 GGTGCAGACCAAGGTGCCTGGCCTGGCTAATGGTGTGAAGTGTGGCAGCCCCGGCCAGCTGCAGGGCCGTAGCATCTTCGCA CAGGACCTGCGGCTGTGC
777▶ V Q T K V P G L A N G V K C G S P G Q L Q G R S I F A Q D L R L C
3001 CTGGATGAGGTCTCTCTTTGGGACTGCTTTGGCCTTTCACTCTTGGCTGTGGCCGTGGGCATGGTGGTGCCTATACTGCACCATCTCTGCGGCTGGGACG
811▶ L D E V L S W D C F G L S L L A V A V G M V V P I L H H L C G W D
3101 TCTGGTACTGTTTTATCTGTGCCTGGCATGGTACCTTTGCTGGCCCCGAGCCGACGCGAGCGCCCAAGCTCTCCCTATGATGCCTTCGTGGTGTTCGA
844▶ V W Y C F H L C L A W L P L L A R S R R S A Q A L P Y D A F V V F D
3201 TAAGGCACAGAGCGCAGTTGGGACTGGGTGTATAACGAGCTGCGGGTGGGCTGGAGGAGCGCGCGGTTCGCCGAGCCCTACGCTTGTGTCTGGAGGAC
877▶ K A Q S A V A D W V Y N E L R V R L E E R R G R R A L R L C L E D
Tth111I (3390)
RsrII (3388)
3301 CGAGATTGGCTGCCTGGCCAGACGCTCTTCGAGAACCTCTGGGCTTCCATCTATGGGAGCCGCAAGACTCTATTTGTGCTGGCCACACGGACCGCGTCA
911▶ R D W L P G Q T L F E N L W A S I Y G S R K T L F V L A H T D R V
FspI (3409)
BspEI (3485)
3401 GTGGCCTCTGCGCACGACTTCTCTGCTGGCTCAGCAGCGCTGTTGGAAGACC GCAAGGACGTGGTGGTGGTGGTATCCTGCGTCCGGATGCCACCCG
944▶ S G L L R T S F L L A Q Q R L L E D R K D V V V L V I L R P D A H R
Bsp120I (3586)
3501 CTCCCCTATGTGCGACTGCGCCAGCGTCTCTGCCCCAGAGTGTGCTTCTTGGCCCCAGCAGCCCAACGGGCAGGGGGGCTTCTGGGCCAGCTGAGT
977▶ S R Y V R L R Q R L C R Q S V L F W P Q Q P N G Q G G F W A Q L S
NheI (3694)
3601 ACAGCCCTGACTAGGGACAACCGCCACTTCTATAACGAGA AACTTCTGCCGGGGACCTACAGCAGAATAGCTCAGAGCAACAGCTGGAACAGCTGCTAGC
1011▶ T A L T R D N R H F Y N Q N F C R G P T A E •
3701 TGGCCAGACATGATAAGATACATTGATGAGTTTGGACA AACCACAAC TAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTT

HpaI (3832)
3801 TATTTGTAACCATTATAAGCTGCAATAAACAAGTTAAACAACA AATTGCATTCATTTATGTTTCAGGTTTCAGGGGGAGGTGTGGGAGGTTTTTAAAG

EcoRI (3928)
3901 CAAGTAAACCTCTACAAATGTGGTATGGAATTTCAA AATACAGCATAGCAAACCTTTAACCTCCAAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGA
4001 TGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTTGCAGCCTCACCTTCTTTCATGGAGTTAAGATATAGTGTATTTTCCCAAG

SspI (4167) SwaI (4181)
4101 GTTTGAAGTAGCTCTTCATTTCTTTATGTTTTAAATGCACTGACCTCCACATTCCTTTTTAGTAAAATATTCAGAAATAATTTAAATACATCATTGCA
4201 ATGAAAATAAATGTTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTT
4301 AATAGAAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCTGTTGTA CTTGAGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCCATT
141▶ N R T Y K L P I L E E I T T K V L K G N
SacI (4442)
4401 CATCTCAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTG CACATGCCACAGGGGCTGACCACCCTGATGGATCTGTCCACCTCATCA
120▶ M E I L V F 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
4501 GAGTAGGGGTGCCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCCGTTGCTC ACAGCAGACCCAATGGCAATGGCTTCAGCACAGACAGTACCCTGC
86▶ S Y P H R V A 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
4601 CAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCCAGTCTTGGTCTGATGGCCGCCCGACATGGTGTCTTGTGCTCATAGAGCATGGTGTAT
53▶ I Y A E I H 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
BspHI (4756)
XmnI (4748)
4701 CTTCTCAGTGGCGACCTCCACCAGTCCAGATCCTGCTGAGAGATGTTGAAGGTCTTCATGATGGCCCTCTATAGTAGTCTGATTATACTATGCCGAT
20▶ K E T A V E V L E L D Q Q S I N F T K M

AseI (4814) SacI (4871)
4801 ATACTATGCCGATGATTAATGTCAAACACGCGTGGATGGCGTCTCCAGC TATCTGACGGTTCATAAACGAGCTCTGCTTATATAGACCTCCCACCGT

SpeI (4969)
4901 ACACGCCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTTACGACATTTT GAAAGTCCCGTTGATTTACTAGTCAAACAAACTCCCATTGACGTCA

SnaBI (5097)
5000 ATGGGGTGGAGACTTGGAAATCCCCGTGAGTCAAACCGCTATCCACGCCATTGATG TACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATA
5100 CGTAGATGTACTGCCAAGTAGGAAAGTCCATAAGGTCATGTACTGGCATAATGCCAGGCGGGCCATTTACCGTCATTGACGTCAATAGGGGGCGTACT

NdeI (5202)
5200 TGGCATATGATACTTGTACTGCTGCAAGTGGGCGAGTTTACCGTAAATACTCCACCCATTGACGTCAATGGAAAGTCCCTATTGGCGTTACTATGGGA

SdaI (5380) PacI (5388)
5300 ACATACGTCATTATTGACGTCAATGGGCGGGGCTGTTGGCGGTCAGCCAGGCGGGCCATTTACCGTAAAGTTATGTAACGCCTGCAGGTTAA TTAAG

BspLU11I (5398)
5398 AACATGTGAGCAAAGGCCAGCAAAGGCCAGGAACCGTAAAAAGGCCGCTTGTGGCGTTTTTTCATAGGCTCCGCCCTGACGAGCATCACAAAA
5498 ATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCCTGGAAGTCCCTCGTGGCTCTCTGTTCCGACCT
5598 GCCGTTACCGGATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTGGCGCTTTCTCATAGCTCAGCTGTAGGTATCTCAGTTCGGTGTAGGTGTTCCG
5698 TCCAAGCTGGGCTGTGTGCAGAACCCCCGTTACGCCGACCGCTGCGCTTATCCGGTAACTATCGTCTTGTAGTCCAACCCGGTAAGACGACTTAT

5798 CGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAG
5898 AAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGT
5998 GGTTTTTTTGTGGCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGGAAACGAAA

EagI (6148)

PacI (6128) **SwaI (6137)** **NotI (6147)**

6098 ACTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATC AGCGGCCGCAATAAAATATCTTTATTTTCATTACATCTGTGTGTTGGTTTT
6198 TTGTGTGAATCGTAACTAACATACGCTCTCCATCAAAACAAAACGAAACAAAACAACTAGCAAATAGGCTGTCCCCAGTGCAAGTGCAAGTGCCAGAA
6298 CATTCTCTATCGAA