



PvuI (7) SgfI (6) EcoNI (96)
1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTCGGCAATTGAACGGGTGCCTA
101 GAGAAGGTGGCGCGGGTAAACTGGAAAGTGATGTCGTGACTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

HindIII (245) Psp1406I (203) PvuII (239) EcoNI (287)
201 GTGAACGTTCTTTTTCGCAACGGGTTTCCGCCAGAACACAGCTGAAGCTTCGAGGGGCTCGCATCTCTCTTACAGCGCCCGCCGCTACCTGAGGCC
301 GCCATCCACGCGGTTGAGTCGCGTCTGCCGCTCCCGCCTGTGGTGCCTCTGAAGTGCCTCCGCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMIV (441) NaeI (441)
401 GGGCCTTTGTCCGGCGCTCCCTTGGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTCAACTCTACGTCTTTGTTTCGTTT

KasI (535) AgeI (552)
501 TCTGTTCTGCGCGGTTACAGATCCAAGCTGTGACCGCGGCTACCTGAGATCACCGGTCATCATGATCAAAGACAAAGAATCTCCCATCAGAAGCTGTCA
1 M I K D K E S P I R S C H

BspLU111 (671)
601 TTTTGTTTACATTGTGGCCTTAGTATTTGGAACATAATCCAGTTCTCTGATGAAAGTGAATTTGTGGTAGACATGTCAAAACAAAGCCTTATTCATGTT
13 F V Y I V A L V F G T I I Q F S D E S E F V V D M S K T S L I H V
701 CCCAAAGACTGCCACAAAAACAAAGTCTTAGACTTGTCTCAAACAACATATCTGAGCTTACCTGTCTGATATCAGCTTCTCTCAGGGCTGAGAG
47 P K D L P P K T K V L D L S Q N N I S E L H L S D I S F L S G L R
801 TTCTGAGACTTTCCATAATAGAATCCAGGGCCTTGATATTAGTATTTCAAGTTCAACCATGATTTGGAATATTTGGATTTATCTCATAATCAGTTGCA
80 V L R L S H N R I Q G L D I S I F K F N H D L E Y L D L S H N Q L Q
901 GAAGATATCTGCATCCAATCACCACGACTCTCAAGCATTAGACTCTCATTCAATGACTTCGATGCCCTGCCATCTGTAAGGAATTTGGCAACTTG
113 K I S C H P I T T T L K H L D L S F N D F D A L P I C K E F G N L
1001 ACCCAACTGAATTTCTTAGGATTAAGTGTACAAAGTTACAACAATTAGATTTACTACCCATTGCTCACTTGCACCTAAGTTGTATCCTTCTGGATTTGG
147 T Q L N F L G L S A T K L Q Q L D L L P I A H L H L S C I L L D L
1101 AAGACTATATGAAAGAAAAAAGAAAGAAAGTCTCAAATTCGAATACAAAGAAACTCACCTTGTTTTCCACCAAATAGCTTTTCTGTCCAAGT
180 E D Y M K E N K K E S L Q I L N T K K L H L V F H P N S F F S V Q V
1201 GGACATATCAGCGAATAGTTTAGGGTGTACAAGTACTAATATTAATGAATGATTACAATTGTCAAGTTTACTTAAATTTTATCAGGACTCACT
213 D I S A N S L G C L Q L T N I K L N D Y N C Q V L L K F L S G L T
1301 GGAGGACCAACTTACTAAATTTACCCTCAACCACATGGAACAACATTTGAAATGTTTGGTTAAAGTTTTCAGTTCCTTTGGCCCAAACCTATAGAAT
247 G G P T L L N F T L N H M E T T W K C L V K V F Q F L W P K P I E
1401 ATCTCAATATTTACAATTTAACAATAGTTGAAAGCATTGATGAAGAAGTTTTTACTTATTATAAAAACGACATTGAAGGCACTGAAAATAGAACATATTAC
280 Y L N I Y N L T I V E S I D E E V F T Y Y K T T L K A L K I E H I T

HpaI (1566)
1501 AAACAAAGTTTTTATTTTTTCCAGACAGCATTATACACAGTGTCTGAGATGAACATTCTGATGTTAACCATATCAGACACAGCCTTTATACACATG
313 N K V F I F S Q T A L Y T V F S E M N I L M L T I S D T R F I H M
1601 CTTTGTCTCAGGAACCAAGCACATTTAAGTTTTTGAACCTTACCAGAATAGTTTACAGATAGTGTCTTCAAATTTGTGACACTTTAGCTAGATTGG
347 L C P Q E P S T F K F L N F T Q N S F T D S V F Q N C D T L A R L

EcoRI (1797)
1701 AGACACTTATCTTACAAAAGAATGAATTAAGACCTTTTCAAACAAGTCTCATGACTAAGGATATGCTTTCTTTGAAACACTGGATGTTAGCTGGAA
380 E T L I L Q K N E L K D L F K T S L M T K D M L S L E T L D V S W N
1801 TTCTTTGGAATATGACAGAAGTAATGGAATGCTCTTGGGTTGGGAGTATAGTGGTGTAAATTTATCTTCAAATGCACTCACTGACTCTGTTTTCAGA
413 S L E Y D R S N G N C S W V G S I V V L N L S S N A L T D S V F R

XbaI (1974)
1901 TGTTTACCTCCTCGGATCAAGGTTCTTGATCTTACAATAACAGAATAAGGAGCATCCCTAAAGATGTCACTGTCTAGAAACTTTGCAAGAACTCAACC
447 C L P P R I K V L D L H N N R I R S I P K D V T G L E T L Q E L N

PvuII (2093)
2001 TTGCTTCCAATCTTTAGCCACCTTCTGGATGTGGTATCTTTAGCAGCCTTTCCATACTGATCATTGACTATAAATCAATTTCCAATCCATCAGCTGA
480 L A S N S L A H L P G C G I F S S L S I L I I D Y N S I S N P S A D
2101 TTTCTTCCAGAGTGCAGAAAGATTAGGTCCCTCAAAGTGGGAAACAATCCATTCCAATGTTCTGTGAGCTAAGAGACTTTATCAAAGTGTAGGCCAA
513 F F Q S C Q K I R S L K V G N N P F Q C S C E L R D F I Q S V G Q

BspEI (2250)
2201 GTATCCAGTGACGTGGTAGAGGGCTGGCCTGAGTCTTATAAGTGTGACTATCCGAAAGCTACAAGGAAACCCCTCTAAAGGACTTCCAGGTATCTGAGC
547 V S S D V V E G W P E S Y K C D Y P E S Y K G T P L K D F Q V S E

Asp718I Acc65I
2301 TATCCTGCAACACAGCTCTGCTGATCGTCACCATTGTGGTCCCTGGGCTGGTGGCTGTTGCTGTGACTGTCTCTGTATCTACCTGGATCTGCCCTG
580 L S C N T A L L I V T I V V P G L V L A V A V T V L C I Y L D L P W
2401 GTACCTCAGGATGGTGTGTCAGTGGACCCAGACCCGGCGAGGCCAGGAATGTACCCTTGAAGAAGTCCAAAGAAGTCTCCAGTTCATGCTTTTATT
613 Y L R M V C Q W T Q T R R R A R N V P L E E L Q R T L Q F H A F I

NgoMIV NaeI (2599)
2501 TCATACAGTGAACATGACTCTGCCTGGGTGAAGAATGAATTAATCAACTAGAAAAAGAAGATATAAGAATTTGTCTCCACGAGAGAAAATTTGTTG
647 S Y S E H D S A W V K N E L I P N L E K E D I R I C L H E R N F V
2601 CCGCAAGAGCATTGTGGAATAATCATCAACTGCATTGAGAAAAGTTACAAATCCATCTTTGTCTTGTCTCCAACTTTGTCCAGAGCGAATGGTGCA
680 A G K S I V E N I I N C I E K S Y K S I F V L S P N F V Q S E W C H

BsaBI (2797)
2701 TTATGAACCTACTTTGCCACCAATCTCTCCATGAAGGATCTAATAACTTAATCCTGATCTTGCTGGAACCCATTCCACAGAACCATTCTGAT
713 Y E L Y F A H H N L F H E G S N N L I L I L L E P I P Q N T I P D

2801 AGATATCACAAAGCTAAGAGCTCTCATGGCACAGAGAAGCTATTTGGAATGGCCCAAGGAGAAGAG TAAGCATGGACTCTTTGGGCTAATATTAGAGCTG
747▶ R Y H K L R A L M A Q R T Y L E W P K E K S K H G L F W A N I R A
SpeI (2919) XcmI (2987)
2901 CTTTTAATATTAATAAGACTAGTCACTGAAAATGATGATGTGAAAGGTTAAAAAAAATAAACATCTGAAATCCAATTTAAGAAACCATTCATTCACTT
780▶ A F N I K L R L V T E N D D V K G •
MscI (3050)
3001 GGATTCTGATGGACTGGAGCAGCAGAAATACATTAACACGGAGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGGACAAACCACAAGT
NheI (3044)
3101 AATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAAGTTAACAAACAATTGC
HpaI (3182)
3201 ATTCATTTTATGTTTCAGGTTTCAGGGGGAGGTGTGGGAGGTTTTTTAAAGCAAGTAAACCTCTACAAATGTGGTATGGAATTCTAAATACAGCATAGC
EcoRI (3278)
3301 AAACTTTAACCTCCAAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTT
3401 GCAGCCTCACCTTCTTTCATGGAGTTTAAAGATATAGTGTATTTTCCCAAGTTTGAACAGTCTTTCATTTCTTTATGTTTTAAATGCACTGACCTCCCA
SwaI (3531)
3501 CATTCCCTTTTTAGTAAATATTAGAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTTATTAGGCAGAAATCCAGATGCTCAAGGCCCTT
3601 CATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTAAATAGAAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCCTGGTG
141▶ • N R T
3701 TACTTGAGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCCATTCTCAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTC
136▶ Y 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
3801 TGCACATGCCACAGGGGCTGACCACCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCTGACAGCCACAATGGTGTCAAAGCTCTTGCCCGTT
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 (3956)
3901 GCTCACAGCAGACCAATGGCAATGGCTTCAGCACAGCAGTACCTGCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCCAGTCTTGCTC
70▶ 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
4001 CTGATGGCCGCCCGACATGGTCTTGTTCCTCATAGAGCATGGTATCTTCTCAGTGGCGACCTCCACAGCTCCAGATCCTGCTGAGAGATGTTGA
36▶ R 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
AseI (4164)
4101 AGGCTTTCATGATGGCCCTCCTATAGTGAGTCGTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGC
3▶ T K M
4201 T TATCTGACGGTTCACTAAACGAGCTCTGCTTATATAGACCTCCACCGTACACGCTACCGCCATTTCGCTCAATGGGGCGGAGTTGTTACGACATTT
SpeI (4319)
4301 TGGAAAGTCCCGTTGATTTACTAGTCAAACAAACTCCCATTGACGTCAATGGGGTGGAGACTTGGAAATCCCCGTGAGTCAAACCGCTATCCACGCC
SnaBI (4447)
4400 ATTGATGTACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTACTGCCAAGTAGGAAAGTCCATAAGGTCATGTACTGGGCA
NdeI (4552)
4500 TAATGCCAGGCGGCCATTTACCCTCATTGACGTCAATAGGGGGCTACTTGGCATATGATACACTTGTACTGCCAAGTGGGCGAGTTTACCCTAAAT
4600 ACTCCACCCATTGACGTCAATGGAAAGTCCTATTGGCGTTACTATGGGAACATACGTCAATTATTGACGTCAATGGGCGGGGCTGTTGGGCGGTCAGCC
PstI (4731) SdaI (4730) PacI (4738) BspLU11I (4748)
4700 AGGCGGGCCATTTACCGTAAGTTATGTAACGCTTGCAGGTTAA TTAAGAACATGTGAGCAAAGGCCAGCAAAGGCCAGGAACCGTAAAAAGGCCG
4798 GTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCAAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAGATA
4898 CAGGCGTTTTCCCTGGAAGCTCCCTCGTGCCTCTCTGTTCCGACCCTGCCGTTACCGGATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTGCCG
ApaLI (5062)
4998 TTTCTCATAGCTCAGCGTGTAGGTATCTCAGTTCGGTGTAGGTGTTTCGCTCCAAGCTGGGCTGTGTGCACGAACCCCCGTTACGCCGACCGTCCG
5098 CTTATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTA
5198 GCGCGTGTACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAA
5298 AAAGAGTTGGTAGCTCTTGTATCCGCAACAAACCACCCTGGTAGCGGTGGTTTTTTTGTGTTGCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCA
PacI (5478) SwaI (5487)
5398 AGAAGATCCTTTGATCTTTTCTACGGGCTGACGCTCAGTGGAAACGAAAACCTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATC A
EagI (5498)
NotI (5497)
5498 GCGGCCGCAATAAAATATCTTTATTTTATTACATCTGTGTGGTTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAACAAACGAAACA
5598 AAACAACTAGCAAATAGGCTGTCCCCAGTGAAGTGCAGGTGCCAGAACATTTCTCTATCGAA