



PvuI (7)
SgfI (6)
1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCCGAGAAGTTGGGGGAGGGGTCGGCAATTGAACGGGTGCCTA
101 GAGAAGGTGGCGCGGGTAAACTGGAAAGTGATGCTGTACTGGTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

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

NgoMI (441) **NaeI (441)**
401 GGGCCTTTGTCCGGCGCTCCCTTGGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCTAACTCTACGCTTTTGTTCGTTT

KasI (535) **AgeI (552)** **BspLU11I (560)** **BsrGI (569)**
501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGCGCCTACCTGAGATCACCGGTCAACATGTTTCTGTACAACCTAACCTTGCAGAGAGCCACTGG
1 M F L Y N L T L Q R A T G

BglIII (668)
601 CATCAGCTTTGCCATTTCATGAAACTTTTTCTGGAACCAAAACAAGAATTGTTGTTTCCCGTGGAAAGATCTGGAGCTGCTTCGCCAGACCCCAAC
13 I S F A I H G N F S G T K Q Q E I V V S R G K I L E L L R P D P N
701 ACTGGCAAAGTACATACCCTACTCTGGAAGTATTCGGTGTATCCGGTCACTCATGGCCTTTAGGCTGACAGGTGGCACCAGAACTACATTGTAG
47 T G K V H T L L T V E V F G V I R S L M A F R L T G G T K D Y I V

PshAI (808) **XcmI (870)**
801 TTGGCAGTGACTCTGGTCGAATTGTTATTTTGGAAATACAGCCATCTAAGAATATGTTTGAGAAGATTACCAAGAAACCTTTGGCAAGAGTGGATGCCG
80 V G S D S G R I V I L E Y Q P S K N M F E K I H Q E T F G K S G C R
901 TCGCATCGTTCCTGGCCAGTTCCTAGCTGTGGATCCAAAGGGCGAGCCGTTATGATTAGTGCATTGAGAAAACAGAAATGGTGTATATTTGAACAGA
113 R I V P G Q F L A V D P K G R A V M I S A I E K Q K L V Y I L N R
1001 GATGCTGCAGCCGACTTACCATTTTCATCTCCCTGGAAGCCCAAAAGCAACACTTTAGTGTATCATGTAGTTGGAGTAGATGTCGGATTTGAAAATC
147 D A A A R L T I S S P L E A H K A N T L V Y H V V G V D V G F E N
1101 CAATGTTTGTCTGCGAAATGGATTATGAGGAAGCAGACAATGATCCAACAGGGGAAGCAGCAGCTAATACCCAGCAGACACTTACTTTCTATGAGCT
180 P M F A C L E M D Y E E A D N D P T G E A A A N T Q Q T L T F Y E L
1201 AGACCTTGGTTTAAATCATGTGGTCCGAAAATACAGTGAACCTTTGGAGGAACACGGCAACTTCTTATTACAGTCCAGGAGGGTCCAGATGGTCCAAGT
213 D L G L N H V V R K Y S E P L E E H G N F L I T V P G G S D G P S

ScaI (1302) **BstEII (1345)**
1301 GGAGTACTGATCTGCTCTGAAAATATATTACTTACAAGAACTTTGGTGACCAGCCAGATATCCGCTGTCCAATTCAGGAGGGCGGAATGACCTGGATG
247 G V L I C S E N Y I T Y K N F G D Q P D I R C P I P R R R N D L D

ClaI (1449)
1401 ACCCTGAAAGAGGAATGATTTTTGTCTGCTCTGCAACCCATAAAAACCAATCGATGTTCTTCTTTGGCTCAAAGTGCAGGGAGATATCTTTAAGAT
280 D P E R G M I F V C S A T H K T K S M F F S L A Q T E Q G D I F K I
1501 CACTTTGGAGACAGATGAAGATATGGTTACTGAGATCCGGCTCAAATATTTGATACTGTACCGTGTGCTGCCATGTGTGCTTAAACAGGGTTC
313 T L E T D E D M V T E I R L K Y F D T V P V A A A M C V L K T G F
1601 CTTTTGTAGCATCAGAATTTGGAACCACTTACTTATATCAAATGACATCTTGGAGATGATGATGAAGAACCTGAGTTTTCATCAGCCATGCCTCTGG
347 L F V A S E F G N H Y L Y Q I A H L G D D D E E P E F S S A M P L
1701 AAGAAGGAGACACATTCTTTTTTTCAGCCAAAGACCACTTAAQAACCTTGTGCTGGTTGATGAGTTGGACAGCCTCTCTCCATTCTGTTTTGCCAGATAGC
380 E E G D T F F F Q P R P L K N L V L V D E L D S L S P I L F C Q I A

SandI (1848)
1801 TGATCTGGCCAATGAAGATACTCCACAGTTGTATGTGGCCTGTGGTAGGGACCCCGATCATCTCTGAGAGTCCCTAAGACATGGACTTGAGGTGCAGAA
413 D L A N E D T P Q L Y V A C G R G P R S S L R V L R H G L E V S E

BstEII (1921) **SalI (1949)**
1901 ATGGCTGTTTCTGAGCTACCTGGTAACCCCAACGCTGTCTGGACAGTCCGTCGACACATTGAAGATGAGTTTGTATGCCTACATATTGTTGCTTTTCGTA
447 M A V S E L P G N P N A V W T V R R H I E D E F D A Y I I V S F V
2001 ATGCCACCCTAGTGTTCATTGGAGAACTGTAGAAGAAGTACTGACTCTGGGTTCTGGGACCCCGACCTTGTCTGCTCCTTATTAGGAGA
480 N A T L V L S I G E T V E E V T D S G F L G T T P T L S C S L L G D
2101 TGATGCCTTGGTGCAGGTCTATCCAGATGGCATTCCGGCACATACGAGCAGACAAGAGAGTCAATGAGTGAAGACCCCTGGAAGAAAACAATTGTGAAG
513 D A L V Q V Y P D G I R H I R A D K R V N E W K T P G K K T I V K
2201 TGTGCACTGAACAGCGACAAGTGGTATTGCCCTGACAGGAGGAGAGCTGGTCTATTTCCAGATGGATCCTTCAGGACAGCTGAATGAGTACACAGAAC
547 C A V N Q R Q V V I A L T G G G E L V Y F E M D P S G Q L N E Y T E
2301 GGAAGGAGATGTCAGCAGATGTGGTGTGCATGAGTCTGGCCAATGTACCCCTGGAGAGCAGCGGTCTCGCTTCTGGCTGTGGGGCTTGTGGACAACAC
580 R K E M S A D V V C M S L A N V P P G E Q R S R F L A V G L V D N T

SphI (2447)
2401 TGTCAGAATCATCTCCCTGGATCCCTCAGACTGTTTGGCAACCTTAAGCATGACAGGCTCTCCAGCCAGCCTGAGTCTTGTGTATCGTGGAAATGGGT
613 V R I I S L D P S D C L Q P L S M Q A L P A Q P E S L C I V E M G
2501 GGGACTGAGAAGCAGGATGAGCTGGGTGAGAGGGGCTCGATTGGCTTCTATACCTGAATATTGGGCTACAGAACGGTGTGCTGCTGAGGACTGTCTGG
647 G T E K Q D E L G E R G S I G F L Y L N I G L Q N G V L L R T V L

SandI (2644)
Asp718I (2636) **Acc65I (2636)**
2601 ACCCTGCTACTGGGATTTGCTGTGATACTCGACTCGGTACCTGGGTCCTGTGAAGCTTCCGAGTCCGAATGCAAGGCCAGGAGGCAGTATT
680 D P V T G D L S D T R T R Y L G S R P V K L F R V R M Q G Q E A V L

BsrBI (2712)
2701 GGCCATGTCAAGCCGCTCATGGTTGAGCTATTCTACCAATCTCGCTTCCATCTACCCCACTGTCTTACGAGACACTGGAATTTGCATCGGGTTTTGCC
713 A M S S R S W L S Y S Y Q S R F H L T P L S Y E T L E F A S G F A

2801 TCGGAACAGTGTCCCGAGGGCATTGTGGCCATCTCCACCAACACCTACGGATTTTGGCATTAGAGAAGCTCGGTGCTGTCTTCAATCAAGTAGCCTTC
747▶ S E Q C P E G I V A I S T N T L R I L A L E K L G A V F N Q V A F
2901 CACTGCAGTACACACCCAGGAAATTTGTCATCCACCCTGAGAGTAACAACCTTATTATCATTGAAACGGACCACAATGCCTACACTGAGGCCACGAAAGC
780▶ P L Q Y T P R K F V I H P E S N N L I I E T D H N A Y T E A T K A

BsrBI (3052)

3001 TCAGAGAAAGCAGCAGATGGCAGAGGAAATGGTGAAGCAGCAGGGGAGGATGAGCGGGAGCTGGCCGAGAGATGGCAGCAGCATTCTCAATGAAAC
813▶ Q R K Q Q M A E E M V E A A G E D E R E L A A E M A A A F L N E N
3101 CTCCTGAATCCATCTTTGGAGCTCCCAAGGCTGGCAATGGCAGTGGCCTCTGTGATCCGATGATGAATCCCATTAAGGGAACACACTGGACCTTG
847▶ L P E S I F G A P K A G N G Q W A S V I R V M N P I Q G N T L D L
3201 TCCAGCTGGAACAGAATGAGGCAGCTTTTAGTGTGGCTGTGTGCGAGTTTCCAACACTGGTGAAGACTGGTATGTGCTGGTGGGTGTGGCAAGGACCT
880▶ V Q L E Q N E A A F S V A V C R F S N T G E D W Y V L V G V A K D L

HindIII (3346)

3301 GATACTAAACCCCGATCTGTGGCAGGGGCTTCGTCTATACTTACAAGCTTGTGAACAATGGGAAAACTGGAGTTTTTGCACAAGACTCCTGTGGAA
913▶ I L N P R S V A G G F V Y T Y K L V N N G E K L E F L H K T P V E
3401 GAGGTCCCTGCTGCTATTGCCCATCCAGGGGAGGTGTTGATTGGTGTGGGAAAGCTGTTGCTGTCTATGACCTGGGAAAGAAGTACTCCGAA
947▶ E V P A A I A P F Q G R V L I G V G K L L R V Y D L G K K K L L R
3501 AATGTGAGAATAAGCATATTGCCAATTATCTCTGGGATCCAGACTATCGGACATAGGGTAATTGTATCTGATGTCCAAGAAAGTTTCATCTGGGTTCCG
980▶ K C E N K H I A N Y I S G I Q T I G H R V I V S D V Q E S F I W V R
3601 CTACAAGCGTAATGAAACACAGCTTATCATCTTTGCTGATGATACCTACCCCGATGGGTCACTACAGCCAGCCTCCTGGACTATGACACTGTGGCTGGG
1013▶ Y K R N E N Q L I I F A D D T Y P R W V T T A S L L D Y D T V A G

BsiBI (3760)
BsaBI (3760)

3701 GCAGACAAGTTTGGCAACATATGTGTGGTGAAGCTCCACCTAACACCAATGATGAAGTAGATGAGGATCCTACAGGAAACAAAGCCCTGTGGGACCGTG
1047▶ A D K F G N I C V V R L P P N T N D E V D E D P T G N K A L W D R

BspHI [m] (3834)

3801 GCTTGCTCAATGGGGCTCCAGAAAGCAGAGGTGATCATGAACCTACCATGTCGGGGAGACGGTGTCTTGCAGAAGACCACGCTGATCCCTGGAGG
1080▶ G L L N G A S Q K A E V I M N Y H V G E T V L S L Q K T T L I P G G
3901 CTCAGAATCACTTGTCTATACCACCTTGTCTGGAGGAATTGGCATCCTTGTGCCATTCACGTCCCATGAGGACCATGACTTCTCCAGCATGTGGAATG
1113▶ S E S L V Y T T L S G G I G I L V P F T S H E D H D F F Q H V E M
4001 CACCTGCGGTCTGAACATCCCCCTCTGTGGCGGGACACCTCAGCTTTCGCTCCTACTACTCCCTGTGAAGAATGTGATTGATGGAGACCTCTGTG
1147▶ H L R S E H P P L C G R D H L S F R S Y Y F P V K N V I D G D L C

NcoI (4112)
XhoI (4183) BspEI (4193)

4101 AGCAGTTCAATTCATGGAACCCAAACAAACAAAGAAGCTCTCTGAAGAACTGGACCGAACCCACCCGAAAGTGTCCAAGAAACTCGAGGATATCCGGAC
1180▶ E Q F N S M E P N K Q K N V S E E L D R T P P E V S K K L E D I R T

NheI (4229)

4201 CCGCTACGCTTCTGAGCCCTCCTTCCCGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGGACAAACCACAACCTAGAATGCAGTGAAAAA
1213▶ R Y A F •

HpaI (4367)

4301 ATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAAGTTAAACAACAACATTGCATTATTTATGTTT

EcoRI (4463)

4401 CAGGTTCCAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAACCTCTACAAATGTGGTATGGAATCTAAAATACAGCATAGCAAACTTTAACCTCC
4501 AAATCAAGCCTCTACTTGAATCCTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTTGCAGCCTCACCTTCT
4601 TTCATGGAGTTTAAAGATATAGTGTATTTCCCAAGGTTTGAACCTAGCTTTCATTCTTTATGTTTTAAATGCACTGACCTCCACATCCCTTTTATG

SwaI (4716)

4701 AAAATATTCAGAAATAATTTAAATACATCATTGCAATGAAATAAATGTTTTTTATTAGGCAGAAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAG
4801 TTTAGTAGTTGACTTAGGGAACAAAGGAACCTTAAATAGAAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTGATTCTGGTGTACTTGAGGGGGATG
141▶ 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 P
4901 AGTTCCTCAATGGTGGTTTTGACCAGCTTGCATTATCTCAATGAGCACAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTGACATGCCACAGG
131▶ 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 P
5001 GGCTGACCACCCTGATGGATCTGTCCACCTCATCAGAGTAGGGTGCCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCGTTGCTCACAGCAGACCC
98▶ 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 (5141)
Eco147I (5141)

5101 AATGGCAATGGCTTCAGCACAGACAGTACCCTGCCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCAGTCTTGGTCTGATGGCCGCCCG
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 (5291)

5201 ACATGGTCTTGTGCTCATAGAGCATGGTGTCTTCTCAGTGGGACCTCCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGGCTTTCATGATGG
31▶ 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 (5349)

5301 CCCTCTATAGTGAAGTATTATACTATGCGGATATACTATGCGGATGATTAATTTGCAAAACAGCGTGGATGGCGTCTCCAGCTATCTGACGGTTCC
5400 ACTAAACGAGCTCTGCTTATATAGACCTCCACCGTACACGCCTACCGCCATTTGCGTCAATGGGGCGAGTTGTTACGACATTTTGGAAAGTCCCCTT

SpeI (5504)

5500 GATTTACTAGTCAAAACAAACTCCATTGACGTCAATGGGGTGGAGACTTGGAAATCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTACTGCC

SnaBI (5632)
Eco105I (5632)

5599 AAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTAAGTGAAGTCCCATAGGTCATGACTGGGCATAATGCCAGGCGGG

NdeI (5737)

5699 CCATTTACCGTCATTGACGTCAATAGGGGGCGTACTTGGCATATGATACACTTGATGTACTGCCAAGTGGGCAGTTTACCCTAAATACTCCACCCATTGA

5799 CGTCAATGAAAAGTCCCTATTGGCGTTACTATGGGAACATACGTCATTATTGACGTCAATGGCGGGGTCGTTGGCGGTCAGCCAGGCGGGCCATTTA

SdaI (5915) PacI (5923) BspLU11I (5933)

5899 CCGTAAGTTATGTAACGCCCTGCAGGTTAA TTAAGAACATGTGAGCAAAGGCCAGCAAAGGCCAGGAACCGTAAAAAGGCCGCGTTGCTGGCGTTTT

5997 TCCATAGGCTCCGCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCC

6097 TGGAAAGCTCCCTCGTGCGCTCTCCTGTTCCGACCTGCCGTTACCGGATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTGGCGCTTCTCATAGCTCA

ApaLI (6247)

6197 CGCTGTAGGTATCTCAGTTCGGTGTAGGTGCTTCGCTCCAAGCTGGGCTGTGTGCACGAACCCCGTTCAGCCGACCGCTGCGCTTATCCGGTAACT

6297 ATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGA

6397 GTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGC

6497 TCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGGTTTTTTTTGTTTGCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGA

EagI (6683)

PacI (6663) SmaI (6672) NotI (6682)

6597 TCTTTTCTACGGGTCTGACGCTCAGTGGAACGAAAACCTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATC AGCGGCCGAATAA

6696 AATATCTTTATTTTCATTACATCTGTGTGTTGGTTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAAACAAAACGAAACAAAACAACTAGCA

6796 AAATAGGCTGTCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTATCGAA