



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

Psp1406I (203) **PvuII (239)** **Bsu36I (291)**
201 GTGAACGTTCTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCCTTACGCGCCCGCCGCTACCTGAGGCC
301 GCCATCCACGCCGGTTGAGTCGCGTTTCTGCCGCCTCCCGCTGTGGTGCCTCCTGAAGTGCCTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMI (441)
NaeI (441)
401 GGGCCTTTGTCCGGCGCTCCCTTGGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCTAACTCTACGCTTTTGTTCGTTT

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

NcoI (615)
601 CATCAGCTTTGCCATCCATGGCAACTTCTCTGGAACCAAGCAACAGGAAATTGTTGTTTCCCGTGGGAAGATTTGGAGTTACTACGCCAGACCCTAAC
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 ACTGGCAAAGTACATACCCTCCTACTGTTGAAGTATTTGGTGTATCCGGTCACCTATGGCGTTTAGGCTAACAGGTGGCACCAGAACTACATTGTAG
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

BsaBI (819) **XcmI (870)**
801 TTGCAGTGACTCAGCCGATTGTTATCTTGGAAATACAGCCATCAAAGAATATGTTTGAGAAAATTCACCAAGAACTTTTGGCAAAAAGCGGATGTGC
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 CCGTATTGTTCTGGCCAGTTCTTAGCTGTGGATCCAAAGGAAGAGCTGTTATGATTAGTGAATTGAGAAGCAGAAATGGTATATATCTTGAACAGA
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

Eco72I (1066) **BbrPI (1066)**
1001 GACGCTGCAGCCCGACTTACCATTTCTCTCCCTGGAGGCCACAAAGCGAACACTCTGGTGTATCACGTGGTTGGCGTAGACGTGGGATTTGAGAATC
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 CTATGTTTGTCTTGGAAATGGATTATGAGGAGGCAGACAATGATCCAACAGGGGAAGCAGCAGCAATACCAGCAGACACTTACTTTCTGAAC
180 P M F A C L E M D Y E E A D N D P T G E A A A A N T Q Q T L T F Y E L
1201 GGACCTTGGCTTAAATCATGTGGTTTCGAAATACAGTGAACCTTGGAGGAACATGGCAACTTCTTATTACAGTTCTTGGAGGGTCAGATGGTCCAAGT
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
1301 GGAGTGCTAATCTGCTCTGAGAATTATATCACCTACAAGAATTTGGTACCAGCCAGACATCCGATGTCCAATTTCCAGGAGACGGAATGACCTGGATG
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

EcoRV (1486) **Eco32I (1486)**
1401 ACCCTGAACGAGGAATGATTTTTGTTGCTCTGCCACCATAAGACCAAGTCCATGTTCTTTCTTCTGGCCAAACGGAGCAGGGAGATATCTTTAAGAT
280 D P E R G M I F V C S A T H K T K S M F F F L A Q T E Q G D I F K I
1501 CACTTTAGAGACAGATGAAGATATGGTAACCGAGATCCGCCTCAAGTATTTTGATACTGTGCCTGTTGCTGCTATGTGTGCTTAAACAGGCCTC
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

XbaI (1695)
1601 CTTTTGTGGCGTCAGAATTTGAAATCATTACTTGTATCAAATTGCCCATCTCGGAGATGATGATGAAGAACCTGAGTTTTCTGCTGCCATGCCTCTAG
347 L F V A S E F G N H Y L Y Q I A H L G D D E E P E F S S A M P L
1701 AAGAAGGAGACACATTTCTTTTCAGCCGAGACCTCAAAAATCTCGTGCTGGTGAAGTGAACCTGGACAGCCTCTCCTATTCTGTTTTGCCAGATAGC
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

PshAI (1850)
PvuII (1825) **SandI (1848)**
1801 TGATTTGGCAATGAAGACACCCACAGCTGTATGTAGCTGTGGTAGGGGACCCCGTCCCTGAGAGTCTTAAGGCATGGACTTGAGGTGTCGGAA
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
1901 ATGGCTGTTTCTGAGCTCCCTGGTAACCCCAATGCTGTCTGGACAGTCCGTCGGCACATTGAAGATGAGTTTGTATGCCTACATCATTGTGCTTTCTGTA
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 ATGCCACACTTGTCTATCTATCGGAGAGACTGTGGAAGAAGTACTGACTCTGGCTTCTTGGGCACCACTCCAACCTTGTCTGCTCCTTGTAGGAGA
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 TGATGCACTGGTGCAGGTGATCCAGATGGCATCCGACACATACGAGCAGATAAAAAGAGTTAATGAGTGAAGACTCCCGGCAAGAAAACGATTGTGAAG
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

BsrBI (2296)
2201 TGTGCAGTGAACCAGCGACAAGTGGTGATCGCCCTGACTGGGGGAGAGCTGGTCTATTTTCGAGATGGATCCCTCAGGACAGTTGAATGAGTACACGGAGC
547 C A V N Q R Q V V I A L T G G E L V Y F E M D P S G Q L N E Y T E
2301 GAAAGAGATGTACAGATGTGGTGTGCATGAGTCTGGCCAACGTGCCCTTGGAGAACAGCGATCTCGTTTCTGGCTGTGGGGCTGGTGGACAACAC
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
2401 TGTGAGAATCATCTCCCTCGACCATCAGACTGTTTACAGCCTCTGAGTATGACAGGCTCTCCAGCCAGCCTGAGTCTATGATTGTGAAATGGGT
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 GGGACTGAGAAAAGATGAGCTGGGTGAGAGGCTCTATTGGCTTCTGTACTGAACTTGGACTACAGAACGGTACTGCTGAGGACTGTCCAG
647 G T E A 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 R L T V L

SandI (2644) **XmnI (2658)** **BspEI (2672)**
2601 ACCCTGTTACTGGGACCTGTCTGACACCCGCACTAGGTATCTGGGGTCCCGTCTGTGAAACTCTCCGGGTCGGATGCAAGGCCAGGAGGCTGTTCT
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
2701 GGCTATGTCAGTCGCTCATGGCTGAGTACTCTTACCAGTCTCGCTTCCATCTACCCCTCTGTCTTATGAGACCTGGAATTTGCATCGGGCTTTGCC
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 TCTGAACAGTGTCCCGAGGGCATTGTTGCCATCTCCACCAACACTTTGAGGATTTGGCTTTAGAGAAGCTTGGTGCTGCTTCAATCAAGTAGCCTTCC
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 CATTGCAGTACACACCCAGGAAGTTTGTATCCACCCTGAGAGTAACAACCTTATCATCATTGAGACGGATCACAAATGCCTACTGAGGCCACAAAAGC
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 TCAGAGAAAGCAGCAGATGGCTGAGGAAATGGTAGAAGCAGCAGGGGAGGATGAGCGGGAGTTGGCTGCAGAAATGGCAGCAGCATTCTCAATGAAAAC
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

Tth111I (3193)

3101 CTCCCAGAATCCATTTTTGGAGCTCCCAAGGCTGGCAATGGGAGTGGGCTCTGTGATTGCGGGTATGAACCTATCCAGGGGAATACACTAGACCTTG
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 TCCAGTTGGAGCAAACGAGGCAGCCTTTAGTGTGGCAGTGTGTAGTTCTCCAACACTGGTGAAGATTGGTATGTGCTGGTGGGTGTTGCCAAGGACTT
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

SnaBI (3339)

Eco105I (3339)

Bst1107I (3336)

3301 GATACTGAGCCCTCGATCTGTGGCAGGGGGCTTTGTGTATACGTACAAGCTTGTGAACAACGGGGAGAAGTTGGAGTTTCTGCACAAGACTCCAGTGGAA
913▶ I L S 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

BstBI (3494)

AsuII (3494)

3401 GAGGTCCTGCTGCCATTGCCCATCCAGGGGAGGGTACTGATTGGTGTGCGGAAAGCTTTTACGAGTTTATGACCTGGGGAAGAAGAAGTTACTTCCGAA
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

BstXI (3540)

3501 AGTGTGAGAATAAGCATATTGCCAATTACATATCTGGGATCCAGACAATTGGTACAGGGTAATTGTGTCTGATGTCCAAGAAAGTTTCATCTGGGTTCCG
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 ATACAAGCGTAACGAGAACCAGCTCATTATCTTTGCTGATGACACCTATCCAGATGGGTACCACAGCCAGCCTTCTCGACTATGACACTGTGGCTGGG
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

XcmI (3746)

BsaBI (3760)

3701 GCAGACAAGTTTGGCAACATTTGTGTGGTGGGCTCCACCTAACCAACAGATGAGGTGGATGAAGATCCCCTGGAACAAAGCCCTGTGGGACCGGG
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 (3836)

3801 GCTTGCTCAATGGGGCTTACAGAAGGCAGAGGTCAATCATGAACCTACCAGTTGGAGAGACCGTGTGCTGCTACAGAAGACCACACTGATCCCTGGAGG
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 CTCAGAGTCCCTGTCTATACCCTTTATCTGGAGGAATTGGCATCCTTGTCCCTTTCAGCTCCTCAGGAGCCATGACTTCTCCAGCATGTTGAAATG
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 CACCTGCGGTCTGAGCATCCCCCTTTGTGGACGGGACCACCTGAGCTTTCGTTCTTACTATTTCCCTGTTAAGAATGTGATTGATGGAGACCTTTGTG
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)

4101 AGCAGTTCAACTCCATGGAACCCAAACAAGCAGAAGAAGCTCTCTGAGGAGCTGGACCGAACCCACCTGAAGTGTCCAAGAAGCTTGAGGACATTAGGAC
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 (4232)

4201 CCGCTATGCCTTCTGAACCCGTCTTTATCTGGGCTAGCTGAGCTGATAAGATACATTGATGAGTTTGGACAAACCACAAGTGAATGCAGTGAAA
1213▶ R Y A F •

HpaI (4370)

4301 AAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAAGTTAAACAACAATTGCATTCATTTTATG

EcoRI (4466)

4401 TTTCAGGTTACAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAAACCTCTACAATGTGGTATGGAATTCTAAAATACAGCATAGCAAACCTTTAACC

4501 TCCAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTGCAGCCTCACCT

4601 TCTTTCATGGAGTTAAGATATAGTGTATTTTCCCAAGTTTGAAGTACTGCTTTCATTTCTTTATGTTTTAATGCACTGACCTCCACATTCCTTTTT

SspI (4705)

SwaI (4719)

4701 AGTAAAATATTCAGAAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCC

4801 CAGTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTTAATAGAAATGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCTCTGGTGTACTTGAGGGGG

141 • N R T Y K L P

4901 ATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCCATTCATCTCAATGAGCACAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTCTGCACATGCCAC
132▶ 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 C M G C

BstXI (5009)

5001 AGGGGCTGACCACCTGTATGGATCTGTCCACCTCATCAGAGTAGGGGTGCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCCGTTGCTCACAGCAGA
99▶ 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 S V A S

StuI (5144)

Eco147I (5144)

5101 CCCAATGGCAATGGCTTCAGCACAGACAGTACCCTGCCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCAAGTCTTGGTCTGATGGCCGC
66▶ 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 I A A

BspHI (5294)

XmnI (5286)

5201 CCGACATGGTGCTTGTGCTCCTCATAGAGCATGGTGTCTTCTCAGTGGCAGCTCCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGGTCTTCATGA
32▶ 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 T K M ◀

VspI (5352)

AseI (5352)

5301 TGGCCCTCTATAGTGAGTCGTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGT

5401 TCACTAAACGAGCTCTGCTTATATAGACCTCCACCGTACACGCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTTACGACATTTTGAAAGTCCCG

SpeI (5507)
 5501 TTGATTTACTAGTCAAAACAAACTCCCATTGACGTCAATGGGGTGGAGACTTGAAATCCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTACTG

SnaBI (5635)
 Eco105I (5635)
 5600 CCAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTACTGCCAAGTAGGAAAGTCCCATAAGGTCATGTACTGGGCATAATGCCAGGCC

NdeI (5740)
 5700 GGCCATTTACCGTCATTGACGTCAATAGGGGGCTACTTGGCATATGATACACTTGATGTACTGCCAAGTGGCAGTTTACCGTAAATACTCCACCCATT

5800 GACGTCAATGGAAAGTCCCTATTGGCGTACTATGGGAACATACGTCATTATTGACGTCAATGGGCGGGGTCGTTGGGCGGTGAGCCAGGCGGGCCATT

SdaI (5918) PacI (5926) BspLU11I (5936)
 5900 TACCGTAAGTTATGTAACGCCTGCAGGTTAA TTAAGAACATGTGAGCAAAGGCCAGCAAAGGCCAGGAACCGTAAAAGGCCGCGTTGCTGGCGTT

5998 TTTCCATAGGCTCCGCCCCCTGACGAGCATCACAATAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCC

6098 CCTGGAAGCTCCCTCGTGCCTCTCTGTTCCGACCCTGCCGTTACCGGATACCTGTCCGCCTTCTCCCTTCGGAAGCGTGGCGCTTCTCATAGCT

ApaI (6250)
 6198 CACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTGCTCCAAGCTGGGCTGTGTGCACGAACCCCCGTTGAGCCGACCGCTGCGCCTTATCCGGTAA

6298 CTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACA

6398 GAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGAAAAAGAGTTGGTA

6498 GCTCTTGATCCGGCAAACAACCACCGCTGGTAGCGGTGTTTTTTTTGTTTGAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTT

PacI (6666) SmaI (6675) **EagI (6686)**
NotI (6685)
 6598 GATCTTTTCTACGGGGTCTGACGCTCAGTGAACGAAACTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATCAGCGGCCCAATA

6698 AAATATCTTTATTTTATTACATCTGTGTGTTGGTTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAACAAAACGAAACAAAACAACTAGC

6798 AAAATAGGCTGTCCCAGTGCAAGTGCAGGTGCCAGAATTTCTCTATCGAA