



PstI (6) Bsp120I (6)
SdaI (6) SpeI (13)
1 CCTGCAGGGCCACTAGTCTGTAATCCAGCATTTTGGGAGGCTGAGGCAGATGGATCACCTGAGGTCAGGAGTTCGAGACCAGCTGGCCAACATGATG

101 AAACCCCGTCTCTAGTAAAAATACAAAATTAGCCAGGCATGGTCTATATACCTGTAGTACCAGCTACTTGGGAGACAGAGTGGGAGAATTACTTGAA

201 CCTGGGAGGTTCAAGCCATGGGAGGTGGAAGTTCAGTGCAGCCGAGATGCCACTGCATCCAGCCTGAGCAACAGAGCAAGACTATCTCAAGAAAAAAA

301 GAAAGAAAGAAAGGGACTTGCCAAGGTCATGTATCAGGGCAAGGAAGAGCTGGGGCCAGCTGGTCTCCCTGCTGAGCTGGGAGACCACCTTGATC

401 TGACTTCTCCCATCTTCCCAGCCTAAGCCAGGCCCTGGGGTACAGGAGGCTGGGGAGGCACCGAGGAACGGCCCTGGCATGTGCTGACAGGGAATTTTAT

501 GCTCCAGCTGGGCCAGCTGGGAGGAGCCTGCTGGGCAGAGGCCAGAGCTGGGGCTCTGGAAGGTACTTGGGGAGGTTGCACTGTGAGAATGAGCTCAA

601 GCTGGGTCAGAGAGCAGGGCTGACTCTGCCAGTGCCTGCATCAGCCTCATCGCTCTCTAGGCTCTGGCCTGCTGGACTCTGGGCTCAGGTCCTTCTT

701 GAAAGGCTGTGAGTAGTGAGACAAGGAGCAGGAGTGGGGTGGCAGGAGAGAAGATAGAGATTGAGAGAGAGAGAGAGACAGAGAGAGGAAGA

801 GACAGAGACAAAAGGAGAGAACGGCTTAGACAAGGAGAAAGATGGAAGATAAAGAGACTGGGCGAGTGGCTCAGCCTGTAATCCCAACTTG

901 GGGAGGCCAAGGTGGGAGGATGGCTTGAAGGAAAGAGTCTGAGATCAACTGGCCAACATAGTGAACCCGCTCTAAAAAAGAAAAAAGAAAAA

1001 GAAAAAGAAAAAAGTTTTTTTTAAAGAGACAGAAAGAGACTCAGAGATTGAGACTGAGAGCAAGACAGAGAGACTCACAGGGAAGGGGAA

1101 GAGGAAAACGAGAAAGGAGAGATAACGGAAAGAGATAAAAAAGAAAAGCAGGTGGCAGAGACACAGAGAGGGGACCCAGAGAAAGCCAGACAGACG

1201 CAGGTGGCTGGCAGCGGGCGCTGTGGGGTACAGTAGGGGACCTGcATGA G CCGTTCATCATCATCATCATCATGGTATGGCTAGCATGACTGG

1300 TGGACAGCAAATGGTTCGGATCTGTACGACGATGACGATAAGGTACCTAAGGATCAGCTTGGAGTGTATCCCGTCTTTTACAACGTCGTGACTGGAA

17 G Q Q M G R D L Y D D D D K V P K D Q L G V D P V V L Q R R D W E

1400 AACCTGGCTTACCCAACTTAATCGCCTTGCAGCACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCAGTCCGCTTCCCAACAGT

51 N P G V T Q L N R L A A H P P F A S W R N S E E A R T D R P S Q Q

FspI (1502)
1500 TGCAGCCTGAATGGCGAATGGCGCTTGGCTGGTTCCGGCACCAGAAGCGGTGCCGAAAGCTGGCTGGAGTGGCATCTTCTGAGGCCGACTGT

84 L R S L N G E W R F A W F P A P E A V P E S W L E C D L P E A D T V

1600 CGTCGTCCTCCTCAAACCTGGCAGATGCACGGTTACGATGCGCCCTACACCAACGTAACCTATCCATTACGGTCAATCCGCGCTTGTCCACGGAG

117 V V P S N W Q M H G Y D A P I Y T N V T Y P I T V N P P F V P T E

1700 AATCCGACGGGTTGTTACTCGCTCACATTTAATGTTGATGAAAGCTGGCTACAGGAAGGCCAGACGCGAATATTTTTGATGGCGTTAACTCGCGTTC

151 N P T G C Y S L T F N V D E S W L Q E G Q T R I I F D G V N S A F

1800 ATCTGTGGTCAACGGGCGCTGGTTCGGTACGGCCAGGACAGTCTTGGCTGTAATTTGACTGAGGCGATTTTTACGCGCGGAGAAAACCCGCT

184 H L W C N G R W V G Y G Q D S R L P S E F D L S A F L R A G E N R L

AatII (1983)
1900 CGCGGTGATGGTCTGCGTTGGAGTGACGGCAGTTATCTGGAAGATCAGGATATGTGGCGGATGAGCGGCATTTCCGTGACGCTCTGTTGCTGATAAA

217 A V M V L R W S D G S Y L E D Q D M W R M S G I F R D V S L L H K

2000 CCGACTACAAAATCAGCGATTTCCATGTTGCCACTCGCTTAAATGATGATTTCAGCCGCTGTACTGGAGGCTGAAGTTGAGATGTGGCGGAGTTGC

251 P T T Q I S D F H V A T R F N D D F S R A V L E A E V Q M C G E L

ClaI (2184)
2100 GTGACTACCTACGGTAAACAGTTTCTTATGGCAGGTTGAAACGAGGTCGCGAGCGCACCGCCTTTCGGCGGTGAAATATCGATGAGCGGTGGG

284 R D Y L R V T V S L W Q G E T Q V A S G T A P F G G E I I D E R G G

2200 TTATGCCGATCGCTCACACTACGCTGAAACGTCGAAAACCGAAACTGTGGAGCGCGAAATCCCGAATCTCTATCGTGGGTTGAACTGACACCC

317 Y A D R V T L R L N V E N P K L W S A E I P N L Y R A V V E L H T

2300 GCCGACGCAGCTGATTGAAGCAGAAGCCTGCGATGTCGGTTTCCGCGAGGTCGCGATTGAAAATGGTCTGCTGCTGCTGAAACGGCAAGCCGTTGTGA

351 A D G T L I E A E A C D V G F R E V R I E N G L L L L N G K P L L

EcoRV (2473)
2400 TTCGAGGCGTAAACCGTACGAGCATCATCTCTGCATGGTCAAGTTCAGGATGAGCAGACGATGGTGCAGGATATCCTGCTGATGAGCAGAACTT

384 I R G V N R H E H H P L H G Q V M D E Q T M V Q D I L L M K Q N N F

DrallI (2550)
2500 TAACCGCTGCGCTGTTCCGATTATCCGAACCATCCGCTGGTGGTACGCTGTGGCAGCGCTACGGCCTGTATGTGGTGGATGAAGCAATATGAAACC

417 N A V R C S H Y P N H P L W Y T L C D R Y G L Y V V D E A N I E T

BsaBI (2686)
2600 CACGGCATGGTCCAATGAATCGTCTGACCGATGATCCGCGCTGGCTACCGCGATGAGCGAACCGTAACGCAATGGTGCAGCGCATCGTAATCACC

451 H G M V P M N R L T D D P R W L P A M S E R V T R M V Q R D R N H

2700 CGAGTGTGATCATCTGGTCTGGGGAATGAATCAGGCCACGGCCTAATCAGCAGCGCTGTATCGTGGATCAATCTGTGATCTTCCCGCCCGGT

484 P S V I I W S L G N E S G H G A N H D A L Y R W I K S V D P S R P V

BssHII (2858) BbsI (2869)
2800 GCAGTGAAGGGGGGAGCCGACACTCAGCCACCGATATTATTTCCCGATGACCGCGCGTGGATGAAGACCAGCCCTTCCCGGTGTGCCGAAA

517 Q Y E G G G A D D T T A T D I I C P M Y A R V D E D Q P F P A V P K

2900 TGGTCCATCAAAAATGGCTTTCGCTACCTGGAGAGACGGCCCGCTGATCCTTGGCAATACGCCACGGATGGTAAACAGTCTTGGCGGTTTCGCTA

551 W S I K K W L S L P G E T R P L I L C E Y A H A M G N S L G G F A

3000 AATACTGGCAGCGGTTTCGTCAGTATCCCCGTTACAGGGCGCTTCTGCTGGGATGGTGGATCAGTCCGTTAAATATGATGAAAACGGCAACC

584 K Y W Q A F R Q Y P R L Q G G F V W D W V D Q S L I K Y D E N G N P

Eco47III (3195)
3100 GTGGTCCGCTTACGGCGGTGATTTTGGGATACGCCAGCATCCGAGTTCGTATGAACGGTCTGGTCTTTCGCGACCGCAGCCGATCCAGCGCTG

617 W S A Y G G D F G D T P N D R Q F C M N G L V F A D R T P H P A L

SacI (3300)
3200 ACGGAAGCAAAACACCAGCAGTCTTCCAGTTCCTGTTTACCGGGCAAAACCATCGAAGTGACCAGCGAATACCTGTTCCGTCATAGCGATAACGAGC

651 T E A K H Q Q Q F F Q F R L S G Q T I E V T S E Y L F R H S D N E

3300 TCCTGCACTGGATGGTGGCGTGGATGGAAGCCGCTGGCAAGCGGTGAAGTGCCTCTGGATGTGCTCCACAAGGTAACAGTGTGATGAACTGCCTGA

684 L L H W M V A L D G K P L A S G E V P L D V A P Q G K Q L I E L P E

3400 ACTACCGACCCGGAGAGCCGGGCAACTCTGGCTCACAGTACGCTGAGTGAACCGAAGCGACCGCATGGTCAAGAGCCAGCCGACAGCCGCTGG

717 L P Q P E S A G Q L W L T V R V V Q P N A T A W S E A G H I S A W

3500 CAGCAGTGGCGTCTGGCGGAAACCTCAGTGTGACGCTCCCGCGCGTCCACGCCATCCCGCATCTGACCACCAGCGAAATGGATTTTGCATCGAGC
751▶ Q Q W R L A E N L S V T L P A A S H A I P H L T T S E M D F C I E
3600 TGGTAATAAGCGTTGGCAATTTAACCGCCAGTCAGGCTTTCTTTCACAGATGTGGATTGGCGATAAAAAACAACCTGCTGACGCCGCTGCGCGATCAGTT
784▶ L G N K R W Q F N R Q S G F L S Q M W I G D K K Q L L T P L R D Q F
3700 CACCCGTGACCCGCTGGATAACGACATTGGCGTAAGTGAAGCGACCCGATTGACCCCTAACGCCTGGGTCGAACGCTGGAAGGCGGGCCGATTACCAAG
817▶ T R A P L D N D I G V S E A T R I D P N A W V E R W K A A G H Y Q
3800 GCCGAAGCAGCGTTGTGTCAGTGCACGGCAGATACACTTGTGATGCGGTGCTGATTACGACCGCTCACGCGTGGCAGCATCAGGGGAAACCTTATTTA
851▶ A E A A L L Q C T A D T L A D A V L I T T A H A W Q H Q G K T L F
3900 TCAGCCGGAAACCTACCGGATTGGTAGTGGTCAAATGGCGATTACCGTTGATGTTGAAGTGGCGAGCGATACCCGATCCGGCGGATTGGCCT
884▶ I S R K T Y R I D G S G Q M A I T V D V E V A S D T P H P A R I G L
4000 GAACTGCCAGCTGGCGCAGGTAGCAGAGCGGGTAAACTGGCTCGGATTAGGGCCGCAAGAAACTATCCCGACCGCTTACTGCCGCTGTTTGGCCG
917▶ N C Q L A Q V A E R V N W L G L G P Q E N Y P D R L T A A C F D R

BbsI (4141)

Bst1107I (4122)

BspLU111 (4119) BsiWI (4130)

4100 TGGGATCTGCCATTGTGACAGCATGTATACCCCGTACGTCTTCCGAGCGAAAACGGTCTGCGCTGCGGGACGCGCAATTGAATTATGGCCACACCACT
951▶ W D L P L S D M Y T P Y V F P S E N G L R C G T R E L N Y G P H Q
4200 GCGCGGCGACTTCCAGTTCAACATCAGCCGCTACAGTCAACAGCAACTGATGAAACAGCCATCGCCATCTGCTGCACGCGGAAGAAGGCACATGGCT
984▶ W R G D F Q F N I S R Y S Q Q Q L M E T S H R H L L H A E E G T W L

NdeI (4317)

4300 GAATATCGACGGTTTCCATATGGGATTGGTGGCGACGACTCCTGGAGCCCGTCAGTATCGGGGAATTACAGCTGAGCGCCGGTCTGCTACCACTACCAAG
1017▶ N I D G F H M G I G G D D S W S P S V S A E L Q L S A G R Y H Y Q

NheI (4439)

EcoRI (4433)

4400 TTGGTCTGGTGTCAAAAATAATACTAGTCGAGAATTCGCTAGCTCGACATGATAAGATACATTGATGAGTTTGGACAAACCACAACCTAGAATCGACTG
1051▶ L V W C Q K •
4500 AAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAAC

MfeI (4613)

4600 AAGTTAACAAACAATTCATTCATTTATGTTTCAGGTTTCAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAACCTCTACAATGTGGTAGATC

SwaI (4704)

4700 CATTAAATGTTAAATTAAGTACCCATGACCAAAATCCCTAACGTGAGTTTTCTGTTCCACTGAGCGTCAGACCCCGTAGAAAAGATCAAAGGATCTTCTT

4800 GAGATCCTTTTTTCTGCGCGTAATCTGCTGCTTGCAAAACAAAAAACACCGCTACCAGCGGTGTTTGTGTCGGATCAAGAGCTACCAACTCTTTT

4900 TCCGAAGGTAAGTGGCTTACGAGAGCGCAGATACCAATACTGTTCTTCTAGTGTAGCCGTAGTTAGGCCACCACTCAAGAACTCTGTAGCACCGCTT

5000 ACATACCTCGCTCTGCTAATCTGTTACCAGTGGCTGCTGCCAGTGGCGATAAGTCTGTCTTACCGGTTGGACTCAAGACGATAGTTACCGGATAAGG

5100 CGCAGCGTCTGGCTGAACGGGGGTTCTGTGCACACAGCCAGCTTGAGCGAACGACCTACACCGAACTGAGATACCTACAGCGTGAGCTATGAGAAAAG

5200 CGCCACGCTTCCCGAAGGGGAGAAAGCGGACAGGATATCCGGTAAGCGGACGGTCTGGAACAGGAGAGCGCACGAGGGAGCTTCCAGGGGAAACGCTGG

5300 TATCTTTATAGTCTGTGGGTTTCGCCACCTCTGACTTGAGCGTGCATTTTTGTGATGCTGCTCAGGGGGCGGAGCCTATGAAAAACGCCAGCAACG

BspLU111 (5442)

AseI (5480)

5400 CGGCCTTTTTACGGTTCCTGGCCTTTTGTGCGCCTTTTGTGCTGCTGCTTCTTAATTAATTTTTCAAAGTAGTTGACAATTAATCATCGGCATAGTATA

SfiI (5531)

5500 TCGGCATAGTATAATACGACTCACTATAGGAGGGCCATCATGGCCAAGTTGACCAGTGTCTGCCAGTGTCTCACAGCCAGGGATGGCTGGAGCTGTTG
1▶ M A K L T S A V P V L T A R D V A G A V

5600 AGTTCTGGACTGACAGGTTGGGTTCTCCAGAGATTTTGTGGAGGATGACTTTGCAAGTGTGGTCAGAGATGATGTCACCCCTGTTTCATCTCAGCAGTCCA
21▶ E F W T D R L G F S R D F V E D D F A G V V R D D V T L F I S A V Q

5700 GGACCAGTGGTGCCTGACAACACCTGGCTTGGGTGGTGGAGAGGACTGGATGAGCTGTATGCTGAGTGGAGTGGTGGTCTCCACCAACTTCAGG
54▶ D Q V V P D N T L A W V W V R G L D E L Y A E W S E V V S T N F R

DraIII (5892)

5800 GATGCCAGTGGCCCTGCCATGACAGAGATTGGAGAGCAGCCCTGGGGAGAGAGTTTGCCTGAGAGACCCAGCAGGCAACTGTGTGCACTTTTGGCCAG
88▶ D A S G P A M T E I G E Q P W G R E F A L R D P A G N C V H F V A

SfiI (5940)

5900 AGGAGCAGGACTGAGGATAAGAATTGAGTTTCAGAAAAGGGGCCTGAGTGGCCCTTTTTCACTTAATTAA

121▶ E E Q D •