



PvuI (7)
SgfI (6)
1 GGATCTGCATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCCGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA
101 GAGAAGGTGGCGCGGGTAAACTGGAAAAGTGTGCTGTACTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

Psp1406I (203) **HindIII (245)**
201 GTGAACGTTCTTTTTCGCAACGGGTTTCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCCTTCACGCGCCCGCCCTACCTGAGGCC
301 GCCATCCACGCCGGTTGAGTCGCGTTCTGCCGCTCCCGCTGTGGTGCCTCCTGAAGTGCCTCCGCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMIV (441)
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCTCAACTCTACGCTTTTGTTCGTTT

AgeI (552) **BspHI (560)** **BspEI (590)**
501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGCGCCTACCTGAGATCACCGGTCATCATGAAGGTTGTCCCAGAAAAGAATGCTGTCCGGATACT
601 CTGGGGGCGAGAACGGGGTCTCGGGCCATGGGAGCTCAGCGGCTTCTGCAGGAGCTGGTAGAAGATAAAACCCGGTGGATGAAATGGGAGGGCAAGAGA
13▶ W G R E R G A R A M G A Q R L L Q E L V E D K T R W M K W E G K R
701 GTAGAAGTCCGGATAGTCCACGCTCTACCTTCTTATTGGCCTTCAGCCAGACAGGACTCTTACCTCCACCCATGTGAACCATAATATCTATATTA
47▶ V E L P D S P R S T F L L A F S P D R T L L A S T H V N H N I Y I
801 CGGAGGTGAAGACTGGCAAGTGTGTTTCCCTGATTGGACACCGCGTACTCCATGGTGTGTCACCTTTTATCCCACCATCTCAGGCCCTATTGCTTC
80▶ T E V K T G K C V H S L I G H R R T P W C V T F H P T I S G L I A S
901 TGGCTGCCTAGATGGGGAGGTTAGGATTTGGGATTTACACGGTGGCAGTGAAGCTGGTTCACAGATAGCAACAATGCCATTGCCTCCCTGGCTTTCCAC
113▶ G C L D G E V R I W D L H G G S E S W F T D S N N A I A S L A F H

SalI (1058) **PshAI (1051)**
1001 CCTACGGCTCAGTCTCTGCTGATTGCCACTGCCAATGAGATCCACTTCTGGGACTGGAGTCGACGGGAACCCCTTGTCTGGTGAAGACAGCTAGTGAGA
147▶ P T A Q L L L I A T A N E I H F W D W S R R E P F A V V K T A S E
1101 TGGAACGGGTCGGTCTGGTGAGATTTGATCCACTTGGACACTACTTACTCACAGCAATTGTTAACCCCTCTAATCAACAGGGTGTGACGAACAGAGAT
180▶ M E R V R L V R F D P L G H Y L L T A I V N P S N Q Q G D D E P E I
1201 CCCATAGATGGAACAGAATTACCCACTACCGTACGCGTCCCTCCTGCAATCACAGCCAGTTCGCCGACGCCTCTCCTCACAATTTCTGCACATG
213▶ P I D G T E L S H Y R Q R A L L Q S Q P V R R T P L L H N F L H M

SapI (1310) **EagI (1390)**
1301 CTGTCCTCCCGCTCTTCTGGCATCCAGACCGAGCCCTTCCATCCCCGGAGCAGGCCTCGTCAACGCAGCAGGACCAGGGCCTCTGAACCGCGCTCTG
247▶ L S S R S S G I Q T E P F H P P E Q A S S T Q Q D Q G L L N R P S

NgoMIV (1426)
1401 CCTCAGTACAGTCCAGAGCAGCACTGCCGCAACAGCTCCGCAACCTCAGTCTGGTCTTACC CGCGCTCTTTGGGAGGGCCTGTCTAGCCACC
280▶ A F S T V Q S S T A G N T L R N L S L G P T R R S L G G P L S S H P
1501 TTCTAGGTATACCGAGAAATAGCTCCTGGGTTGACAGGATCTGAGTGGACCCGGACAGTACTCAGTCTGAACTCCCGCTCTGAGGCGGAATCCATGCC
313▶ S R Y H R E I A P G L T G S E W T R T V L S L N S R S E A E S M P

BsrGI (1676)
1601 CGCCCAGAACCAGTGCCTCTTCGGTGAGTTTGTCTGTGCTGAGACAGCAGGAAGTGGCTCTCAGGCATCTGTGTACACTTCAGCCACAGAAGGGA
347▶ P P R T S A S S V S L L S V L R Q Q E G G S Q A S V Y T S A T E G
1701 GGGTTTTCCGCATCAGGTTGGCAACTGAGTCAGATGGAGGGAATGGTCCAGCCAAAACACTCGGCAGCATTGCCATCAGTCTCAGTGTGACCT
380▶ R G F P A S G L A T E S D G N G S S Q N N S G S I R H E L Q C D L
1801 GAGACGCTTCTTCTGGAGTATGACCGGCTTCCAGGAGCTGGATCAGAGCCTGAGTGGGGAAGCTCCCCAGACCCAACAGGCCAGGAAATGCTCAACAAT
413▶ R R F F L E Y D R L Q E L D Q S L S G E A P Q T Q Q A Q E M L N N
1901 AACATTGAATCTGAGAGGCCAGGCCCTTCCCACAGCCACCCACACAGCAGTGAAGAACAATCCAACCTGTCCCGTGGCCACCTGAATCGTGTGCTG
447▶ N I E S E R P G P S H Q P T P H S S E N N S N L S R G H L N R C R
2001 CTTGCCACAATCTCCTGACCTTCAACAACGATACCCTGCGCTGGGAAAGAACCACACCTAATACTCCTCTGGCGAGGCTAGTTTCTCTTGGCAGGTC
480▶ A C H N L L T F N N D T L R W E R T T P N Y S S G E A S S S W Q V P

XhoI (2146) **BstXI (2177)**
2101 CAGCTCCTTTGAGAGTGTCCATCAAGTGGCAGCCAGTTGCCACTCTCGAGCGGACTGAGGGCCAAACGCCAGCTCCAGCAGGCTGGAGTTGAGCAGC
513▶ S S F E S V P S S G S Q L P P L E R T E G Q T P S S S R L E L S S

BglII (2287)
2201 TCTGCTAGTCCGAGGAGAGGACTGTGGGGTGGCCTTTAACCAGGAGACAGGCCACTGGGAAAGAATTTACACCAGTCCAGCAGATCTGGAAGT
547▶ S A S P Q E E R T V G V A F N Q E T G H W E R I Y T Q S S R S G T
2301 TGTACAGGAGGCTTACATCAGGATATGCCTGAGGAGACTCTGAGGAGATTCACTCAGGAGGAGGCTGTGGAATCTTCCCTCATTTCATTATCCCG
580▶ V S Q E A L H Q D M P E E S S E E D S L R R R L L E S S L I S L S R
2401 TTATGATGGAGCAGGATCCAGAGACCCCAATTTACCAGACCCAGCAGATTATCTCCTGCTGATACTACGCCAGAGGATGATCCAGTATCTCTCA
613▶ Y D G A G S R E H P I Y P D P A R L S P A A Y Y A Q R M I Q Y L S

Eco47III (2519)
2501 CGGAGAGACAGTATTCGCCAGCGCTCCATGCGCTACCAACAGAACCGTCTCCGTTCTTCCACCTCCTCCTTCTCCTCAGACAACCAGGGTCCATCAGTAG
647▶ R R D S I R Q R S M R Y Q Q N R L R S S T S S S S S D N Q G P S V
2601 AGGGAACCGACTTGAATTTGAGGACTTTGAGGACAATGGTACAGATCCAGGCACCGAGCTCCACGCAATGCCGGATGTCTGCACCTTCGCTTGGACG
680▶ E G T D L E F E D F E D N G D R S R H R A P R N A R M S A P S L G R

BspHI (2754)

2701 CTTTGTCCAAGGCGTTTCTTGCTGCCTGAGTACTTGCCTTATGCTGGGATTTTTTCATGAACGTGGACAGCCTGGCTTGGCTACTCACTCTTCTGTTAAC
713 F V P R R F L L P E Y L P Y A G I F H E R G Q P G L A T H S S V N
2801 AGGGTCTTGGCAGGGCAGTGATCGGTGATGGACAGTCTGCTGTGGCCAGTAACATTGCCAATACTACCTACCGGCTCCAGTGGTGGGACTTCACTAAGT
747 R V L A G A V I G D G Q S A V A S N I A N T T Y R L Q W W D F T K

BglII (2954)

2901 TTGACCTCCCTGAAATCAGTAATGCTTCCGTGAATGTGCTGGTGCAGAAGTCAAGATCTACAATGATGCCAGCTGTGACATTTCTGCAGATGGCCAGCT
780 F D L P E I S N A S V N V L V Q N C K I Y N D A S C D I S A D G Q L
3001 CCTGGCAGCTTTCATCCCCAGCAGCCAGAGGGCTTCTGATGAAGCATCTGGCAGTGTACTCCCTGGCCCCCATAACCTGGGCGAAATGCTCTAC
813 L A A F I P S S Q R G F P D E G I L A V Y S L A P H N L G E M L Y
3101 ACCAAGCGATTTGGTCCCAATGCCATTTCCGGTGGCCTGTCCCAATGGGCGAGATATGAATGGTGGGCTTGGCCTCACGAAGGATCTGCTGCACCCCT
847 T K R F G P N A I S V S L S P M G R Y V M V G L A S R R I L L H P

DraIII (3208)

3201 CCACAGAGCACATGGTGGCCAGGTCTTCAGGCTGCAACAGGCCATGGTGGAGAGACCTCCATGAGGAGAGTTTTCAACGTCCTTTATCCCATGCCTGC
880 S T E H M V A Q V F R L Q Q A H G G E T S M R R V F N V L Y P M P A

BspLU1II (3312)

3301 CGACCAGCGGAGACATGTCAATCACTCTGCCGTTGGCTGCCTGAGCCAGGGCTTGGCTTGGCTATGGTACTAACAAGGAGACCTGGTGTCTGC
913 D Q R R H V S I N S A R W L P E P G L G L A Y G T N K G D L V I C
3401 CGACCAGAGCCTTAAACTCTGGTGTGAGTACTACTGGACAGCTGAACGAGAGCGTCTTCACTGTCCATTCCAACAGCAGGAGCAGCGAGCGGCCTG
947 R P E A L N S G V E Y Y W D Q L N E T V F T V H S N S R S S E R P
3501 GAACCAGCAGAGCCACATGGAGGACAGACAGACATGGGGCTGATGAATGCCATTGGGCTTCCAGCCCGGAACCTGCCACCTCAGTGACATCTCAGGG
980 G T S R A T W R T D R D M G L M N A I G L Q P R N P A T S V T S Q G
3601 CACCCAGACTCTGGCCCTCAGCTGCAGAATGCCGAAACACAGACTGAGAGGGAGGTCCGGAGCCAGGGACAGCCGCTCAGGTCTGGTGAAGGTGAG
1013 T Q T L A L Q L Q N A E T Q T E R E V P E P G T A A S G P G E G E
3701 GGTTCAGAGTATGGTGCAGTGGAGAAGATGCCTCAGCAGGATCCAGAGGCTGATGGCGAGGGCGGCATGACAGCCGTGGTGCAGCGGGAGCAGAGCA
1047 G S E Y G A S G E D A A L S R I Q R L M A E G M T A V V Q R E Q S
3801 CCACCATGGCCTCCATGGGCGCTTCGGCAACAACATCATCTGACGCCACCGCATTACCCGAGCTCTCAGACGGGACCTGAACCTGGTGCAGCCACAC
1080 T T M A S M G G F G N N I I V S H R I H R S S Q T G T E P G A A H T
3901 CTCCTACCCAGCCCTCACCTCTCGGGGACTGCTCCAGAGGCCGGCACTGGCAGAGCAGGGCCTAAGCCCCGGACAGCTTCTGGGACCAGCCT
1113 S S P Q P S T S R G L L P E A G Q L A E R G L S P R T A S W D Q P

Acc65I (4000)

4001 GGTACCCCTGGGCGGGAGCCAACCCAGCCAACCTGCCCTCTTCTCCCTGTCCCATTCCTGTTTCCCTTCCAGCGCTGAGGGACCAACCCCTCCACT
1147 G T P G R E P T Q P T L P S S S P V P I P V S L P S A E G P T L H

Eco47III (4075)

AvrII (4162)

NheI (4194)

4101 GCGAGTTGACCAATAACAACACCTTCTGGATGGTGGCAGCAGCAGGGGGACGCTGCAGGCCTAGGGGAGAACCACGGAACAGGTAGAGACAGCTAGC
1180 C E L T N N N H L L D G G S S R G D A A G P R G E P R N R
4201 TGGCCAGACATGATAAGATACATTGATGAGTTTGGACAAACCAACTAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTT

4301 TATTTGTAACCATTATAAGCTGCAATAAACAAGTTAACAACAACAATTGCATTCATTTTATGTTTCAGGTTTCAGGGGGAGGTGTGGGAGGTTTTTAAAG

EcoRI (4428)

4401 CAAGTAAACCTCTACAATGTGGTATGGAATTCTAAAATACAGCATAGCAAACTTTAACCTCCAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGA
4501 TGAATAAGGCATAGGCATCAGGGGCTGTGCCAATGTGCATTAGCTGTTTGCAGCCTCACCTCTTTCATGGAGTTTAAGATATAGTGATTTTCCCAAG

SapI (4610)

SspI (4667)

SwaI (4681)

4601 GTTTGAAGTACTCTTTCATTTCTTTATGTTTTAAATGCACTGACCTCCACATTCCTTTTTAGTAAAAATTCAGAAATAATTTAAATACATCATTGCA
4701 ATGAAAAATAATGTTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTT

4801 AATAGAAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCTGGTGTACTTGGAGGGGATGAGTTCTCAATGGTGGTTTTGACCAGCTTGCCATT
141 N R T Y K L P I L E E I T T K V L K G N

BstXI (4971)

4901 CATCTCAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTGACATGCCACAGGGGCTGACCACCCTGATGGATCTGTCCACCTCATCA
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
5001 GAGTAGGGGTGCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCCCTGCTCACAGCAGACCCAATGGCAATGGCTTCCAGCACAGACAGTGACCCTGC
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
5101 CAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCAAGTCTGGTCTGATGGCCGCCCGACATGGTCTGTTGTCCCTCATAGAGCATGGTGTGAT
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

XmnI (5248)

5201 CTTCTCAGTGGCGACCTCCACCAGTCCAGATCCTGCTGAGAGATGTTGAAGTCTTCATGGTGGCCCTCTATAGTGAGTCGTATTATACTATGCCGAT
20 K E T A V E V L E L D Q Q S I N F T K M

AseI (5314)

5301 ATACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTTCACTAAACGAGCTCTGCTTATATAGACCTCCACCGT

SpeI (5469)

5401 ACACGCCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTTACGACATTTGGAAAGTCCCGTTGATTTACTAGTCAAACAAACTCCATTGACGTCAA

SnaBI (5597)

5501 TGGGGTGGAGACTTGAAATCCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATAC

5601 GTAGATGTACTGCCAAGTAGGAAAGTCCATAAGGTCATGTACTGGGCATAATGCCAGGCGGGCCATTTACCGTCATTGACGTCAATAGGGGGCGTACTT

NdeI (5702)

5701 GGCATATGATACACTTGATGTACTGCCAAGTGGGCAGTTTACCCTAAATACTCCACCCATTGACGTCAATGGAAAGTCCCTATTGGCGTTACTATGGGAA

PacI (5888)

SdaI (5880)

BspLU11I

5801 CATACGTCATTATTGACGTCAATGGGCGGGGTCTGTTGGGCGGTGAGCCAGGCGGGCCATTTACCGTAAGTTATGTAACGCCTGCAGGTTAAITAAAGAAC

5901 ATGTGAGCAAAGGCCAGCAAAGGCCAGGAACCGTAAAAAGCCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAAATC

6001 GACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTTCCCTGGAAGCTCCCTCGTGCCTCTCTGTCCGACCCTGCC

6101 GCTTACCGGATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTGGCGTTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCC

ApaI (6212)

6201 AAGCTGGGCTGTGTGCACGAACCCCGTTTCAGCCGACCGTGCCTTATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGC

6301 CACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAG

6401 AACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGGT

6501 TTTTTTGTTCGAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGAACGAAAAC

EagI (6648)

PacI (6628) SwaI (6637) **NotI (6647)**

6601 CACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATCAGCGGCCGAATAAAATATCTTTATTTTCATTACATCTGTGTGTTGGTTTTTTG

6701 TGTGAATCGTAACATAACGCTCTCCATCAAAACAAAACGAAACAAAACAACTAGCAAAATAGGCTGTCCCAGTGCAAGTGCAGGTGCCAGAACAT

6801 TTCTCTATCGAA