



1 GGATCTGCATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATGCCACAGTCCCGGAGAAGTTGGGGGAGGGTTCGGCAATTGAACGGGTGCCTA
101 GAGAAGGTGGCGCGGGTAAACTGGGAAAGTATGTCGTGACTGGCTCCGCCTTTTTCCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC
201 GTGAACGTTCTTTTTCGCAACGGGTTTCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCTTACGCGCCGCCCTACCTGAGGCC
301 GCCATCCACGCCGTTGAGTCCGCTTCCGCCCTCCCGCTGTGGTGCCTCCTGAAGTGCCTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC
401 GGGCCTTTGTCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCCTGACCTGCTTGTCTAACTCTACGCTTTTGTTCGTTT

NcoI (560)
BstEII (555)
AgeI (552)

501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGCGCCTACCTGAGATCACCGGTACCATTGGGGTGGCTTTGCTCTGGGCTCCTGTTCCCTGTGAG
130 M G W L C S G L L F P V S
601 CTGCTGGTCTGCTGCAGGTGGCAAGCTCTGGGAACATGAAGTCTTGCAGGAGCCACCTGCGTCTCCGACTACATGAGCATCTCTACTTGCAGTGG
130 C L V L L Q V A S S G N M K V L Q E P T C V S D Y M S I S T C E W
701 AAGATGAATGGTCCCACCAATTGCAGCACCGAGCTCCGCCTGTTGTACCAGCTGGTTTTTCTGCTCTCCGAAGCCACACGTGTATCCCTGAGAACAACG
470 K M N G P T N C S T E L R L L Y Q L V F L L S E A H T C I P E N N
801 GAGCGCGGGTGCCTGTGCCACTGCTCATGGATGAGTGGTTCAGTGCAGTAACTATACTGGACCTGTGGGCTGGGAGCAGCTGCTGTGGAAGGG
800 G G A G C V C H L L M D D V V S A D N Y T L D L W A G Q Q L L W K G
901 CTCCTTCAAGCCAGCGAGCATGTGAAACCCAGGGCCAGGAAACCTGACAGTTCACACCAATGTCTCCGACACTCTGCTGCTGACCTGGAGCAACCCG
1130 S F K P S E H V K P R A P G N L T V H T N V S D T L L L T W S N P
1001 TATCCCCCTGACAATTACCTGTATAATCATCTACCTATGCAGTCAACATTTGGAGTAAAAACGACCCGGCAGATTTAGAATCTATAACGTGACCTACC
1470 Y P P D N Y L Y N H L T Y A V N I W S E N D P A D F R I Y N V T Y
1101 TAGAACCTCCCTCCGCATCGCAGCCAGCACCTGAAGTCTGGGATTTCTACAGGGCAGGGTGGGCTGGGCTCAGTGTATAACACCACCTGGAG
1800 L E P S L R I A A S T L K S G I S Y R A R V R A W A Q C Y N T T W S
1201 TGAGTGGAGCCACCAAGTGGCAACTCCTACAGGAGCCCTTCGAGCAGCACCTCTGCTGGGCTCAGCGTTCCTGATTGTCATCTGCGCC
2130 E W S P S T K W H N S Y R E P F E Q H L L L G V S V S C I V I L A
1301 GTCTGCCTGTTGTGTATGTCAGCATCACCAAGATTAAGAAAGATGGTGGGATCAGATTCACCAACCAGCCCGCAGCCGCTCGTGGCTATAATAATCC
2470 V C L L C Y V S I T K I K K E W W D Q I P N P A R S R L V A I I I
1401 AGGATGCTCAGGGTTCACAGTGGGAGAAAGCGGTCCCGAGGCCAGGAACCAGCCAAAGTCCACACTGGAAGAATTGTCTTACCAAGCTTTGCCCTGTTT
2800 Q D A Q G S Q W E K R S R G Q E P A K C P H W K N C L T K L L P C F
1501 TCTGGAGCAACAAGTAAAGAGTGAAGATCCTCACAAGGCTGCAAAAGAGATGCCTTTCCAGGGCTCTGAAAAATCAGCATGGTGGCCAGTGGAGATC
3130 L E H N M K R D E D P H K A K E M P Q G S G K S A W C P V E I
1601 AGCAAGACAGTCTCTGCGCAGAGCATCAGCGTGGTGCATGTGTGGAGTTGTTTGGAGCCCGGTGGAGTGTAGGAGGAGGAGGAGGTAGAGGAAG
3470 S K T V L W P E S I S V V R C V E L F E A P V E C E E E E V E E
1701 AAAAAGGGAGTCTGTGCATCGCTGAGAGCAGCAGGGATGACTTCCAGGAGGGAAGGGAGGGCATTGTGGCCCGGTAACAGAGAGCTGTTCTGGGA
3800 E K G S F C A S P E S S R D D F Q E G R E G I V A R L T E S L F L D
1801 CCTTCTCGGAGAGGAGAATGGGGGCTTTTCCAGCAGGACATGGGGGAGTCAIGCCTTCTCCACCTTCGGGAAGTACGAGTGTACATGCCTGGGAT
4130 L L L A E T E N G G A G F C Q Q D M A G E S C L L P P S G S T S A H M P W D
1901 GAGTCCCAAGTCCAGGGCCCAAGGACCTCCCTGGGGAGGAGCAGCCTCCACCTGGAGCAAGTCCCTGCCAGCCCGCAGAGTCCAG
4470 E F P S A G P K E A P P W G K E Q P L H L E P S P P A S P T Q S P
2001 ACAACCTGACTTGCACAGAGACGCCCTCGTATCGCAGGCAACCCTGCTTACCAGCTTCAGCAACCTCCTGAGCCAGTACCCTGTCCAGAGAGCT
4800 D N L T C T E T P L V I A G N P A Y R S F S N S L S Q S P C P R E L
2101 GGGTCCAGACCCACTGCTGGCCAGACACTGGAGGAAGTAGAACCCGAGATGCCTGTGTCCCCAGCTCTCTGAGCAACCAGTGTCCCAACCTGAG
5130 G P D P L L A R H L E E V E P E M P C V P Q L S E P T T V P Q P E
2201 CCAGAACTGGGAGCAGATCCTCCGCCGAAATGTCCTCCAGCATGGGGCAGTGCAGCCCCGCTCTCGGCCCCACAGTGGCTATCAGGAGTTGTAC
5470 P E T W E Q I L R R N V L Q H G A A A A P V S A P T S G Y Q E F V
2301 ATGCGGTGGAGCAGGGTGGCACCCAGCCAGTGCAGTGGTGGGCTTGGTCCCGAGGAGGCTGGTTACAAGGCCTTCTCAAGCCTGTTGCCAGCAG
5800 H A V E Q G G T Q A S A V V G L G P P G E A G Y K A F S S L L A S S
2401 TGCTGTGTCCCGAGAAAATGTGGGTTTGGGGCTAGCAGTGGGGAAGAGGGGTATAAGCCTTCCAGACCTCATTCTGGCTGCCCTGGGGACCCTGCC
6130 A V S P E K C G F G A S S G E E G Y K P F Q D L I P G C P G D P A
2501 CCAGTCCCTGTCCCTTGTTCACCTTTGGACTGGACAGGGAGCCACTCGCAGTCCGAGAGCTCACATCTCCAAGCAGTCCCGAGAGCACCTGGGTC
6470 P V P V P L F T F G L D R E P P R S P Q S S H L P S S S P E H L G
2601 TGGAGCCGGGGAAAAGTGAAGGACATGCCAAAGCCCACTTCCCGAGGAGCAGGCCACAGACCCCTTGTGGACAGCCTGGGAGTGGCATTGTCTA
6800 L E P G E K V E D M P K P P L P Q E A Q A T D P L V D S L G S G I V Y
2701 CTCAGCCCTTACCTGCCACTGTGCGCCACCTGAAACAGTGTATGGCCAGGAGTGGTGGCCAGACCCCTGTATGSCCAGACCTGTGCTGTGGTGC
7130 S A L T C H L C G H L K Q C H G Q E D G G Q T P V M A S P C C G C
2801 TGCTGTGGAGACAGTCTCGCCCCCTACAACCCCTGAGGGCCCGAGACCCCTCTCCAGTGGGGTTCAGTGGAGGCCAGTCTGTGTCCGGCCTCC
7470 C C G D R S S P P T T P L R A P D P S P G G V P L E A S L C P A S
2901 TGGACCCCTGGGCATCTCAGAGAAGAGTAAATCCTCATCATCTCCATCCTGCCCCGGAATGCTCAGAGCTCAAGCCAGACCCCAAAATCGTGAA
7800 L A P S G I S E K S K S S S S F H P A P G N A Q S S S Q T P K I V N

AvrII (3051)

3001 CTTTGTCTCCGTGGGACCACATACATGAGGGTCTCTTAGGTGCATGCTCCTTAGGACTAGCTGGCCAGACATGATAAGATACATTGATGAGTTGGAC
8130 F V S V G P T Y M R V S •
3101 AAACCACAAC TAGAATG CAGTGA AAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAACAAGTTAA

3201 CAACAACAATTGCATTCAATTTATGTTTCAGGTTCCAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAAACCTCTACAAATGTGGTATGGAATTCTAA
3301 AATACAGCATAGCAAACTTTAACCTCCAAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGT
3401 GCATTAGCTGTTTGCAGCCTCACCTTCTTTCATGGAGTTAAGATATAGTGTATTTTCCCAAGGTTTGAAGTACTCTTCATTCTTTATGTTTTAAATG
3501 CACTGACCTCCCACATCCCTTTTATGATAAATATTAGAAATATTTAAATACATCATTGCAATGAAAAAATGTTTTTTATTAGGCAGAAATCCAGAT
3601 GCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTTAATAGAAATTGGACAGCAAGAAAGCGAGCTTCTAGCT
3701 TTAGTTCCTGGTGTACTTGAGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCCATTCAATGAGCACAAGCAGTCAGGAGCATAGTCA
141 • N R T 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
3801 GAGATGAGCTCTGCACATGCCACAGGGGCTGACCACCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCTGACAGCCACAATGGTCAAAGT
107 S I L E R 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
3901 CCTTCTGCCCGTTGCTCACAGCAGACCAATGGCAATGGCTTCAGCACAGACAGTACCCTGCCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTC
74 K Q G N 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
4001 CCCAGTCTTGGTCTGATGGCCGCCGACATGGTGTGTTGTCTCATAGAGCATGGTGTCTTCTCAGTGGCGACCTCCACCAGCTCCAGATCCTGC
41 G T K T 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
4101 TGAGAGATGTTGAAGGTCTTCATGGTGGCCCTCTATAGTGAGTTCGTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACAGCGTGGA
74 Q S I N F T K M
4201 TGGCGTCTCCAGCTTATCTGACGGTTCACTAAACGAGCTCTGCTTATATAGACCTCCACCCTACACGCTACCGCCATTGCGTCAATGGGGCGGAGT
4301 TGTTACGACATTTTGAAAGTCCCGTTGATTTACTAGTCAAAACAACTCCATTGACGTCAATGGGGTGGAGACTTGAAATCCCCGTGAGTCAAACCG
4401 CTATCCACGCCCATTTGATGTAAGTCCGCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTAAGTCCCAAGTAGGAAAGTCCCATAGGTC
4501 ATGTAAGTGGGCATAATGCCAGGCGGGCCATTTACCCTGATTGACGTCAATAGGGGGCGTACTTGGCATATGATACACTTGTACTGCAAGTGGGCGAG
4601 TTTACCGTAAATACTCCACCCATTGACGTCAATGAAAGTCCCTATTGGCGTACTATGGAAACATACGTCATTATTGACGTCAATGGGCGGGGGTCTGT
4701 GGGCGTCCAGCCAGGCGGGCCATTTACCCTGAAAGTATGTAACGCTGAGGTTAATAAGAACATGTGAGCAAAGGCCAGCAAAGGCCAGGAACCGTA
4801 AAAAGGCCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCTGACGAGCATCACAATAATCGACGCTCAAGTCAAGGTTGGCGAAACCCGACAGGACT
4901 ATAAAGATACCAGGCGTTTCCCCTGGAAGTCCCTCGTGCCTCTCTGTTCCGACCCTGCCGCTTACCGGATACCTGTCCGCTTTCTCCCTTCGGGA
5001 AGCGTGGCGCTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCTGCTCCAAAGTGGGCTGTGTGCACGAACCCCCGTTAGCCCG
5101 ACCGCTGCGCTTATCCGGTAACTATCGTCTTGAAGTGGTGGCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTT
5201 GAGGTATGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTT
5301 ACCTTCGAAAAAGAGTTGGTAGCTCTTATCCGCAAAACAAACCACCCTGGTAGCGGTGGTTTTTTGTTTGAAGCAGCAGATTACGCGCAGAAAA
5401 AAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGCTGACGCTCAGTGGAAACGAAACTCACGTTAAGGGATTTTGGTATGGCTAGTTAATTAAC
5501 ATTTAAATCAGCGGCCGAATAAAATATCTTTATTTTTCATTACATCTGTGTGTTGGTTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAAACA
5601 AAACGAAACAAAACAACTAGCAAAATAGGCTGTCCCAAGTCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA