



150  
|-----|

1 GGATCTGCGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATGCCACAGTCCCGAGAAGTTGGGGGAGGGTTCGGCAATTGAACGGGTGCCTA  
101 GAGAAGGTGGCGCGGGGTAAACTGGGAAAGTGATGTCGTGACTGGCTCCGCCTTTTTCCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC  
201 GTGAACGTTCTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCTTCACGCGCCCGCCCTACCTGAGGCC  
301 GCCATCCACGCGGTTGAGTCCGCTTTCGCCGCTCCCGCTGTGGTGCCTCTGAAGTGCCTCCGCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC  
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCGGGCTCTCCACGCTTTGCCTGACCTGCTTGTCTCAACTCTACGCTTTTGTTCGTTT

SphI (560)

Agel (552)

501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGCGCCTACCTGAGATCACCGGTACAGATGCCTCTGCGCCACTGGGGGATGGCCAGGGGAGTAA  
130 M P L R H W G M A R G S K  
601 GCCCGTTGGGGATGGAGCCAGCCATGGTGCATGGGAGGCTGAAGGTGCTTCTGCACTGGGCTGGTCCAGGCGGGGAGCCCTGGGTCACCTTT  
130 P V G D G A Q P M A A M G G L K V L L H W A G P G G G E P W V T F  
701 AGTGAGTCATCGCTGACAGCTGAGGAAGTCTGCATCCACATTGCACATAAAGTTGGTATCACTCCTCCTTGTCTCAATCTCTTTGCCCTTTCGATGCTC  
470 S E S S L T A E E V C I H I A H K V G I T P P C F N L F A L F D A  
801 AGGCCAAGTCTGGTTGCCCCAAACACATCCTAGAGATCCCAGAGATGCAAGCTGATGCTATATTTCCGCATAAGGTTTTATTTCCGGAACCTGGCA  
800 Q A Q V W L P P N H I L E I P R D A S L M L Y F R I R F Y F R N W H  
901 TGGCATGAATCCTCGGAACCGGCTGTGTACCGTTGTGGGCCCCAGGAACCGAGGCATCCTCAGATCAGACAGCACAGGGGATGCAACTCCTGGACCCA  
1130 G M N P R E P A V Y R C G P P G T E A S S D Q T A Q G M Q L L D P  
1001 GCCTCATTGAGTACCTCTTTGAGCAGGCAAGCATGAGTTTGTGAATGACGTGGCATCACTGTGGGAGCTGTCGACCAGGAGGAGATCCACCACTTTA  
1470 A S F E Y L F E Q G K H E F V N D V A S L W E L S T E E E I H H F  
1101 AGAATGAGAGCCTGGGCATGGCCTTTCTGCACCTCTGTACCTCGCTCCTCCGCATGGCATCCCCCTGGAGGAGGTGGCCAAGAAGACCAGCTTCAAGGA  
1800 K N E S L G M A F L H L C H L A L R H G I P L E E V A K K T S F K D  
1201 CTGCATCCCGCGCTCCTTCCGCCGCATATCCGGCAGCACAGCGCCCTGACCCGGCTGCGCCTTCGGAACGTCTTCCGAGGTTCTGCGGGACTTCCAG  
2130 C I P R S F R R H I R Q H S A L T R L R L R N V F R R F L R D F Q  
1301 CCGGGCGACTCTCCAGCAGATGGTATGGTCAAATACCTAGCCACACTCGAGCGGCTGGCACCCCGCTTCCGCACAGAGCGTGTGCCGCTGTGCCACC  
2470 P G R L S Q Q M V M V K Y L A T L E R L A P R F G T E R V P V C H  
1401 TGAGGCTGCTGGCCAGCGGAGGGGAGCCCTGCTACATCCGGGACAGTGGGGTGGCCCTACAGACCTGGCCCTGAGTCTGCTGTGGGCCCCCAAC  
2800 L R L L A Q A E G E P C Y I R D S G V A P T D P G P E S A A G P P T  
1501 CCACGAGGTGCTGGTACAGGACTGGTGGCATCCAGTGGTGGCCAGTAGAGGAGGAGGTGAACAAGGAGGAGGGTTCTAGTGGCAGCAGTGGCAGGAAC  
3130 H E V L V T G T G G I Q W W P V E E E V N K E E G S S G S S G R N  
1601 CCCAAGCCAGCCTGTTGGGAAGAGCCAAAGCTCACAAGGCAAGTGGCCAGCGGCGAGCAGGCGGGAGCCACTGTGGGCTACTTGTGACT  
3470 P Q A S L F G K K A K A H K A V G Q P A D R P R E P L W A Y F C D  
1701 TCCGGGACATCACCCAGTGGTGTGAAAGAGCACTGTGTCAGCATCCACCGGAGGACAACAAGTGCCTGGAGCTGAGCTTGCCTTCCCGGGCTGCGGC  
3800 F R D I T H V V L K E H C V S I H R Q D N K C L E L S L P S R A A A  
1801 GCTGCTCTCGTGTGCTGGTGGACGGCTATTTCCGCCTGACGGCCGACTCCAGCCACTACCTGTGCCACGAGGTGGTCCCCACGGCTGGTGTGAGC  
4130 L S F V S L V D G Y F R L T A D S S H Y L C H E V A P P R L V M S  
1901 ATCCGGATGGATCCACGGACCCTGCTGGAGCATTGTGACGGCAAGTGGGGCCGAGGACGGCTGTACCTACTGAGCACCAGCCACC  
4470 I R D G I H G P L L E P F V Q A K L R P E D G L Y L I H W S T S H

SphI (2048)

2001 CCTACCGCTGATCCTCACAGTGGCCAGCGTAGCCAGGACCAGACGGCATGCAGAGCTTGGGCTCCGAAAGTTCCTTACGAGCAGGACGGGGG  
480 P Y R L I L T V A Q R S Q A P D G M Q S L R L R K F P I E Q Q D G A  
2101 CTTCTGCTGGAGGGTGGGGCCGGTCTTCCCGAGCTTCCGGAACTTGGGGCTGCCTTGCAGGGCTGCTTGTGAGGGCCGGGATGACTGCTTCTCT  
513 F V L E G W G R S F P S V R E L G A A L Q G C L L R A G D D C F S  
2201 CTGCGTCTGCTGCTGCTGCCCCAACAGGAGAACTCCAATCTCATCATCGGGGGGCTCGGGCCAGCCCAAGACTCAACTCAGCCAGCTCA  
547 L R R C I M V P Q Y G E T H G N L I D I M W R L R R E R G H V T P M A W K M V  
2301 GCTTCCACCGGTTGACCAGAAGGAGATCACCCAGCTGTCCCACTTGGGCCAGGGCACAAGGACCAACGTGTATGAGGGCCGCTGCGAGTGGAGGGCAG  
580 S F H R V D Q K E I T Q L S H L G Q G T R T N V Y E G R L R V E G S  
2401 CGGGACCCTGAGGAGGCAAGATGGATGACGAGGACCCCTGCTGCTGGCAGGACCGTGGCAGGAGCTACGAGTGGTGTCAAAGTGTGGACCCT  
613 G D P E E G K M D D E D P L V P G R D R G Q E L R V V L K V L D P  
2501 AGTCACCATGACATCGCCTGGCCTTCTACGAGACAGCCAGCCTCATGAGCCAGGTCTCCACACGCACCTGGCCTTCTGTCATGGCGTCTGTGTGCGG  
647 S H H D I A L A F Y E T A S L M S Q V S H T H L A F V H G V C V R  
2601 GCCCTGAAAATATCATGGTACAGAGTACGTGGAGCAGGACCCTGGATGTGTGGCTGCGGAGGAGCGGGCCATGTGCCATGGCTTGAAGATGGT  
680 G P E N I M V P Q Y G E T H G N L I D I M W R L R R E R G H V T P M A W K M V  
2701 GGTGGCCAGCAGCTGGCCAGCGCCCTCAGCTACCTGGAGAACAAGAAGCTGGTTCATGGTAATGTGTGTGGCCGGAACATCTGCTGGCCCGGCTGGGG  
713 V A Q Q L A S A L S Y L E N K N L V H G N V C G R N I L L A R L G  
2801 TTGGCAGAGGGCACCAGCCCTTTCATCAAGCTGAGTGTCTGGCGTGGGCGCCCTCCTCAGGGAGGAGCGGGTGGAGAGGATCCCTGGCTGG  
747 L A E G T S P F I K L S D P G V G L G A L S R E E R V E R I P W L  
2901 CCCCCAATGCCTACCAGGTGGGGCCAAACAGCCTAAGCACCAGCCTGGACAAGTGGGGGTTGGGCCACCCTCCTGGAGATCTGCTTTGACGGAGAGGC  
780 A P E C E L P G G A N S L S T A M D K W G F G G A T L L E I C F D G E A  
3001 CCCTCTCAGAGCCGAGTCCCTCCGAGAAGGAGATTTCTACAGAGGCAKAGCCGGCTGCGGAGCCCTCCTGCCACAGCTGGCCACACTCACCAGC  
813 P L Q S R S P S E K E H F Y Q R Q H R L P E P S C P Q L A T L T S  
3101 CAGTGTGACCTATGAGCCAACCCAGAGGCCATCATTCCGCACCATCTGCTGACCTACCCGGCTGCAGCCCCAATCTTGTGACGCTTGTGACTG  
847 Q C L T Y E P T Q R P S F R T I L R D L T R L Q P H N L A D V L T

3201 TGAACCCGGACTCACCGCGTCGGACCTACGGTTTTCCACAAGCGCTATTTGAAAAAGATCCGAGATCTGGGCGAGGGTCACTTCGGCAAGGTCAGCTT  
880▶ V N P D S P A S D P T V F H K R Y L K K I R D L G E G H F G K V S L  
3301 GTACTGCTACGATCCGACCAACGACGGCACTGGCGAGATGGTGGCGGTGAAAGCCCTCAAGGCAGACTGCGGCCCCAGCACCGCTCGGGCTGGAAGCAG  
913▶ Y C Y D P T N D G T G E M V A V K A L K A D C G P Q H R S G W K Q  
3401 GAGATTGACATTCTGCGCAGCTCTACCACGACACATCATCAAGTACAAGGGCTGCTGCGAGGACCAAGGCGAGAAGTCTGTCAGTGGTCTGGAT  
947▶ E I D I L R T L Y H E H I I K Y K G C C E D Q G E K S L Q L V M E  
3501 ACGTGCCCTGGGCGACCTCCGAGACTACCTGCCCCGACAGCATCGGGCTGGCCAGCTGTGCTCTTCGCCAGCAGATCTGCGAGGGCATGGCCTA  
980▶ Y V P L G S L R D Y L P R H S I G L A Q L L L F A Q Q I C E G M A Y  
3601 TCTGCACTCGCAGCACTACATCCACCGAGACCTAGCCGCGCGCAACGTGCTGTGGACAACGACAGGCTGGTCAAGATCGGGGACTTTGGCCTAGCCAAG  
1013▶ L H S Q H Y I H R D L A A R N V L L D N D R L V K I G D F G L A K  
3701 GCCGTGCCGAAGGCCACGAGTACTACCGCGTGCAGGAGTGGGGACAGCCCGTGTCTGGTATGCCCCAGAGTGCCTGAAGGAGTATAAGTTCTACT  
1047▶ A V P E G H E Y Y R V R E D G D S P V F W Y A P E C L K E Y K F Y  
3801 ATGCGTCAGATGTCTGGTCTTCGGGGTGACCTGTATGAGCTGCTGACGCACTGTACTCCAGCCAGAGCCCCACGAAATTCCTTGAGCTCATAGG  
1080▶ Y A S D V W S F G V T L Y E L L T H C D S S Q S P T K F L E L I G  
3901 CATTGCTCAGGGTCAAGTACAGTCTGAGACTCACTGAGTTGCTGGAACGAGGGGAGAGGCTGCCACGGCCGACAAATGCTCCTGTGAGGTCTATCAT  
1113▶ I A Q G Q M T V L R L T E L L E R G E R L P R P D K C P C E V Y H  
4001 CTCATGAAGAAGTCTGGGAGACAGAGCGTCTTTGCCCAACCTTCGAAACCTCATACCACTTGAAGACAGTCCATGAGAAGTACCAAGGCCAGG  
1147▶ L M K N C W E T E A S F R P T F E N L I P I L K T V H E K Y Q G Q

**NheI (4126)**

4101 CCCCTTCAGTGTTCAGCGTGTGCTGAGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGGACAAACCACAACCTAGAATGCAGTGAAAAAATG  
1180▶ A P S V F S V C •  
4201 CTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAAGTTAACAACAACAATTGCATTATTTTATGTTTCAG  
4301 GTTCAGGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAAACCTCTACAAATGTGGTATGGAATCTAAAATACAGCATAGCAAACTTTAACCTCCAAA  
4401 TCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTTGCAGCCTCACCTTCTTTC  
4501 ATGGAGTTAAGATATAGTGTATTTTCCAAGTTTGAAGTACTCTTCATTTCTTTATGTTTTAAATGCACTGACCTCCACATTCCTTTTTAGTAAA  
4601 ATATTCAGAAATAATTTAAATACATCATTGCAATGAAATAAATGTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTT  
4701 AGTAGTTGGACTTAGGGAACAAAGAACCTTTAATAGAAATTTGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCCTGGTGTACTTGAGGGGGATGAGT  
1141 • N R T Y K L P I L  
4801 TCCTCAATGGTGGTTTTGACCAGCTTGCCATTCATCTCAATGAGCACAAGCAGTCAAGGAGCATAGTCAAGATGAGCTCTCTGCACATGCCACAGGGGC  
130▶ 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 S  
4901 TGACCACCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCCGTTGCTCACAGCAGACCCAA  
97▶ 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 I  
5001 GGCAATGGCTTCAAGCAGACAGTACCTGCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCCAGTCTTGGTCTGATGGCCGCCCCGACA  
64▶ 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 V  
5101 TGGTGCTTGTCTCATAGAGCATGGTATCTTCTCAGTGGCGACTCCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGGTCTTCATGGTGGCCC  
30▶ 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  
5201 TCCTATAGTGAGTCGTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTCTACTA  
5301 AACGAGCTCTGCTTATATAGACCTCCACCGTACACGCCTACCGCCATTTGCGTCAATGGGCGGAGTTGTTACGACATTTTGAAAGTCCCCTTGATT  
5401 TACTAGTCAAACAAACTCCCATTGACGTCAATGGGGTGGAGACTTGAAATCCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTACTGCCAAAAC  
5501 CGCATCATCATGTAATAGCGATGACTAATACGTAGATGTAAGTACGCAAGTAGGAAAGTCCATAAGGTCATGTAAGTGGCATAATGCCAGGCGGGCCATT  
5601 TACCGTCATTGACGTCAATAGGGGGCTACTTGGCATATGATACACTTGTACTGCAAGTGGGAGTTTACCCTAAATACTCCACCCATTGACGTCA  
5701 ATGGAAAGTCCCTATTGGCGTACTATGGGAACATACGTCATTATTGACGTCAATGGGCGGGGTGCTTGGGCGGTACAGCCAGGCGGGCCATTACCCTA  
5801 AGTTATGTAACGCTGACGGTTAATTAAGAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGGCCGCTTCTGGCGTTTTTCCATAG  
5901 GCTCCGCCCCCTGACGAGCATCACAATAATCGACGCTCAAGTCAAGGTTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCCCTGGAAGC  
6001 TCCCTCGTGGCTCTCCTGTTCCGACCCTGCCGTTACCGGATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTGGCGTTTTCTCATAGCTCACGCTGTA  
6101 GGTATCTCAGTTCGGTGTAGGTCGTTGCTCCAAGCTGGGCTGTGTGCACGAACCCCCGTTCCAGCCGACCCTGCGCTTATCCGGTAACTATCGTCT  
6201 TGAGTCCAACCCGTAAGACAGCACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTCTTGT  
6301 AAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGAT  
6401 CCGGCAACAAACCACCGCTGGTAGCGGTGGTTTTTTTGTGCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTC  
6501 TACGGGTCTGACGCTCAGTGGAAACGAAAACCTCACGTTAAGGGATTTTGGTATGGCTAGTTAATTAACATTTAAATCAGCGGCCGCAATAAAATATCTT

6601 TATTTTCATTACATCTGTGTGTTGGTTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAACAAAACGAAACAAAACAACTAGCAAATAGGC  
6701 TGTCCCAGTGCAAGTGCAGGTGCCAGAACATTCTCTATCGAA