



EcoRI (23)

EcoRV (17)

SalI (9) XbaI (19) SdaI (38) SpeI (45)

1 GCGGCCCGCTCGACGATATCTAGAATTCGGATCCTGCAGGGCCCACTAGTTCATGCTTATATGGAAGTTCATTTGCTATTTGCGACACACACTCAAT
101 GAACACCTACTACGCGCTGCAAAGAGCCCGCAGGCCTGAGGTGCCCCACCTCACCACTCTTCTATTTTTGTGTAAAAATCCAGCTTCTTGTCCACC
201 CTCCAAGGAGGGGAGGAGGAGGAGGAGGAGGCAGGTTCTCTAGGCTGAGCGAATGCCCTCTGTGTGCCACGCCACTGATCGCTGCATGCCCAACCTGG
301 GTACACACAGTCTGTGATTCCCGGAGCAGAACGGACCCTGCCACCCCGTCTTGTGTGCTACTCAGTGGACAGACCCAAGGCAAGAAAGGTGACAAAGGA
401 CAGGGTCTTCCAGGCTGGCTTTGAGTTCTAGTACCAGCCCGCCCAATCTCTGTGTGCACATGGAGTCTTGGTCCCGAGAGTCCCGCAGCGCCTCC
501 AGATGGTCTGGGAGGGCAGTTCAGCTGTGGCTGCGCATAGCAGACATAACAACGAGCGTGGGCCAGACCCAGGCTGTGTAGACCCAGCCCCCGCCCC
601 GCAGTGCCTAGGTCAACCACTAACGCCCCAGGCCTGCTTGTGGCTGGCGTACTGTTACCCCTCAAAGCAGGCAGCTCCAGGTTAAAGGTGCCCTGCC
701 CTGTAGAGCCACCTTCTTCCAGGCTGCGGCTGGTAGGTTTGTAGCTTTCATCACGGGCCACCTCCAGCCACTGGACCGCTGGCCCTGCCCTGTC
801 CTGGGAGTGTGGTCTGCGACTTCTAAGTGGCCGCAAGCCACTGACTCCCCAACACCACTTACTCTCAAGCCAGGTCTCTCCCTAGTGACCC

NheI (915)

901 ACCCAGCACATTTAGCTAGCTGAGCCCCACAGCCAGAGGTCTCAGGCCCTGCTTTAGGGCAGTTGCTCTGAAGTGGCAAGGGGAGTGAATGCTCTGG
1001 CCACTCCATGCCCTCCAAGAGCTCCTTCTGCGAGGCGTACAGAACCCAGGGCCCTGGCACCCGTCAGACCCCTGGCCACCCACCTGGGGCTCAGTG
1101 CCCAAGAGATGTCCACACCTAGGATGTCCCGCGTGGTGGGGGCCGAGAGACGGCAGGCCGGGGCAGGCCTGGCCATGCGGGCCGAACCGGGCA
1201 CTGCCAGCGTGGGGCGCGGGGCCAGGCGCGGCCCCAGCCCCGGGCCAGCACCCCAAGGCGGCCAACGCCAAAATCTCTCCCTCTCTCTCTCTCT
1301 CAATCTCGCTCTCGCTCTTTTCTTTTTCGAAAAGGAGGGGAGGAGGGGTAAAAAATGCTGCACCTGTGCGGCAAGCCGGTGTGAGTGCAGCGCGGGG

XhoI (1440)

1401 CCAATCAGCGTGCGCCGTTCCGAAAGTTGCCCTTTATGGCTCGAGCGCGCGCGGCCCTATAAAACCAGCGCGCGAGCGCCACCACCGCCGAG
1501 ACCGCGTCCGCCCGCGAGCACAGAGCTCGCCTTTGCGGATCCGCGCCCGTCCACACCCGCGCCAGgt aagccccggccagccgagccggggcagggcgg
1601 ctcaagccccggccagggcggcgcccttcgccccgagagcccgctctgggcccagcgggggggcgcattggggggggaaccggaaccgctg

BspEI (1726)

1701 gggggcgcggggagaagccccctgggctccggagatgggggacacccccacccagtcaggagcgcgagggcgcgctcgggagggcgctccgggggtgcc
1801 gctctcggggcggggcaaccggcggggtctttgtctgagccggctcttgcgaatggggatcgcaggggtggcgcgggagcccccgccaggccgggt
1901 gggggctggggcgccattgcgctgcgcgctggtcctttgggcttaactgcgtgcgcgctgggaattggcgtaattgcgctgcgcgctgggactcaa
2001 ggcgctaactgcgctgcgctctctggggccggggtgcccgccctgggctggggcgaagggggctcggccggaaggggtggggctgcgcgctcccgg
2101 gcgcttcgcgccacttctcgcgcgagcgcctggcgcccgaggggtggcgctgcgctgcgcgcgccgaccggcgctgttgaaacggcgaggcg
2201 gggctggcgccccgttgggaggggttggggcctgcttctgcccgcgcgcggggagcgcctccgaccagtgcttgcctttatggtataaacggcg
2301 cggccccgcttctcttgcctcccaatctggcgcgccggcgccccctggcgccctaaaggactcggcgcgccggaagtgccagggcgggggcgacctcg

NcoI (2434)

2401 gctcacagcgccccgctattctcgcagCTCACCATGGTTCCTGGGCCCTGTCATGCTGCTGCTGCTGCTGCTGCTGGCCCTGAGGCTACAGCTCTCCCT
2501 GGGCATCATCCCAGTTGAGGAGGAGAAACCCGACTTCTGGAACCGCGAGGCAGCCGAGGCCCTGGGTGCCGCCAAGAAGCTGCAGCCTGCACAGACAGCC
22 G I I P V E E E N P D F W N R E A A E A L G A A K K L Q P A Q T A
2601 GCCAAGAACCCTCATCATCTTCCTGGGCGATGGGATGGGGTGTCTACGGTGCAGCTGCCAGGATCCTAAAAGGGCAGAGAAGGACAAACTGGGCGCTG
56 A K N L I I F L G D G M G V S T V T A A R I L K G Q K K D K L G P

NdeI (2729)

2701 AGATACCCCTGGCTATGGACCGCTTCCCATATGTGGCTCTGTCCAAGACATACAATGTAGACAAACATGTGCCAGACAGTGGAGCCACAGCCACGGCCTA
89 E I P L A M D R F P Y V A L S K T Y N V D K H V P D S G A T A T A Y
2801 CCTGTGCGGGTCAAGGCAACTTCCAGACCATTTGGCTTGTAGTGCAGCCCGCCGCTTTAACAGTGCACACGACCGCGCAACGAGGTCATCTCCGTG
122 L C G V K G N F Q T I G L S A A A R F N Q C N T T R G N E V I S V
2901 ATGAATCGGGCCAAGAAAGCAGGGAAGTCACTGGGAGTGGTAACACCACACAGTGCAGCACGCTCGCCAGCCGGCACCTACGCCACACGGTGAACC
156 M N R A K K A G K S V G V V T T T R V Q H A S P A G T Y A H T V N
3001 GCAACTGGTACTCGGACCGCAGCTGCCTGCCTCGGCCCGCAGGAGGGGTGCCAGGACATCGCTACGCAGCTCATCTCCAACATGGACATTTGATGTGAT
189 R N W Y S D A D V P A S A R Q E G C Q D I A T Q L I S N M D I D V I
3101 CCTGGGTGGAGCCGAAAGTACATGTTTCGCATGGGAACCCAGACCCGCTGAGTACCAGATGACTACGCAAGTGGGACCAGGCTGGACGGGAAGAAT
222 L G G G R K Y M F R M G T P D P E Y P D D Y S Q G G T R L D G K N
3201 CTGGTGCAGGAATGGCTGGCGAAGGCCAGGTTGCCGGTATGTGTGGAACCGCACTGAGCTCATGCAGGCTTCCCTGGACCCGCTGTGTGACCCACTCTCA
256 L V Q E W L A K R Q G A R Y V W N R T E L M Q A S L D P S V T H L
3301 TGGGTCCTTTGAGCCTGGAGACATGAAATACGAGATCCACCGAGACTCCACACTGGAACCCCTCCCTGATGGAGATGACAGAGGCTGCCCTGCGCCTGCT
289 M G L F E P G D M K Y E I H R D S T L D P S L M E M T E A A L R L L

3401 GAGCAGGAACCCCGGGCTTCTTCCTCTTCGTGGAGGGTGGTCGCATCGACACGGTCATCACGAAAGCAGGGCTTACCGGGCACTGACTGAGACGATC
322▶ S R N P R G F F L F V E G G R I D H G H H E S R A Y R A L T E T I
3501 ATGTTTCGACGACGCCATTGAGAGGGCGGGCCAGCTCACAGCGAGGAGGACACGCTGAGCCTCGTCACTGCGGACCCTCCACGCTTCTCCTTCGGAG
356▶ M F D D A I E R A G Q L T S E E D T L S L V T A D H S H V F S F G
3601 GCTACCCCTCGGAGGGAGCTCCATCTTCGGGCTGGCCCTGGCAAGGCCGGGACAGGAAGGCCTACACGGTCCTCCTATACGGAAACGGTCCAGGCTA
389▶ G Y P L R G S S I F G L A P G K A R D R K A Y T V L L Y G N G P G Y
3701 TGTGCTCAAGGACGGGCGCCGGCCGGATGTTACCGAGAGCGAGAGCGGGAGCCCGAGTATCGGCAGCAGTCAGCAGTGCCTTGGACGAAAGAGACCCAC
422▶ V L K D G A R P D V T E S E S G S P E Y R Q Q S A V P L D E E T H
3801 GCAGGCGAGGACGTTGGCGGTGTTTCGCGCGCGCCCGCAGGCGCACCTGGTTTACCGCGTGCAGGAGCAGACCTTCATAGCGCACGTCATGGCCTTCGCGG
456▶ A G E D V A V F A R G P Q A H L V H G V Q E Q T F I A H V M A F A

NheI

3901 CCTGCCTGGAGCCCTACACCGCTGCGACCTGGCGCCCGCCCGCGGACACCAGCGCCGCGCACCCCGGGCGGTCCCGGTCCAAGCGTCTGGATTGAAG
489▶ A C L E P Y T A C D L A P P A G T T D A A H P G R S R S K R L D •
4001 CTAGCTGGCCAGACATGATAAGATACATTTGATGAGTTTGGACAAACCACAACCTAGAAATGCAGTGAATAAATGCTTTATTATTGTAATTTGTGATGCTAT

MfeI (419)

4101 TGCTTTATTGTAAACCATATAAGCTGCAATAAACAAAGTTAAACAACAACAATTCGATTCATTTTATGTTTCAGGTTCCAGGGGAGGTGTGGGAGGTTTTT

4201 TAAAGCAAGTAAAACCTCTACAATGTGGTATGGAAATTAATTCTAAAATACAGCATAGCAAAACTTTAACCTCCAATCAAGCCTCTACTTGAATCCTTT

4301 TCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTTGCAGCCTCACCTTCTTTTCATGGAGTTTAAAGATATAGTGTAT
4401 TTTCCCAAGGTTTGAAGTAGCTCTTCATTTCTTTATGTTTAAATGCAGCTGACCTCCACATTCCTTTTATAGTAAATATTCAGAAATAAATTAATAC
4501 ATCATTGCAATGAAAATAAATGTTTTTTATTAGGCAGAAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTATGATGTTGGACTTAGGGAACAAA
4601 GGAACCTTTAATAGAAATGGACAGCAAGAAAGCGAGCTTCTAGCTTATCCTCAGTCTGCTCCTGCCCACAAAGTGACCGCAGTTGCCGCGCGGTGCG

125◀ • D Q E E A V F H V C N G A P D

4701 CGCAGGGCGAACTCCCGCCCGCAGGCTGCTCGCGATCTCGGTCAATGCGCCGCGGAGGCGTCCCGAAGTTCGTGGACACGACCTCCGACCACTCGG

108◀ R L A F E R G W P Q E G I E T M A P G S A D R F N T S V V E S W E A

4801 CGTACAGCTGCTCCAGGCGCGCACCCACCCAGGCGGTTGTTCCGGCACCACTGTTCTGACCGCGCTGATGAACAGGTTACGGTCCCGTCCCG

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

4901 GACCACCCGGCGAAGTCTCTCCACGAAGTCCCGGGAGAACCCGAGCGGTCGGTCCAGAACTCGACCGCTCCGGCGACGTCGCGCGCGGTGAGCACCC

42◀ V V G A F D D E V F D R S F G L R D T W F E V A G A V D R A T L V

MfeI (5070)

5001 GGACCGCACTGGTCAACTTGGCCATGATGGCTCCTCTGTGAGGAGGAAAGAGAAGAAGGTTAGTACAATTGCTATAGTGAAGTTGATTATACTATG

8◀ P V A S T L K A M

5101 CAGATATACTATGCCAATGATTAATTTGTCAAAGTAGGGCTGCAGGTTAATTAAGAACAATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGG

5201 CCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCAAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAG

5301 ATACCAGGCGTTTTCCCTGGAAGCTCCCTCGTGGCTCTCCTGTTCCGACCTGCGGCTTACCAGTACCTGTCGCTTCTCCTTCCGGAAAGCGTG

5401 GCGCTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTGCTTCCGCTCCAAGCTGGGCTGTGTGCACGAACCCCGTTCAGCCGACCGCT

5501 GCGCCTTATCCGGTAACTATCGTCTGAGTCCAACCCGGTAAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAAACAGGATTAGCAGAGCGAGGTA

5601 TGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACTCTC

5701 GGAAAAAGAGTTGTAGCTCTTGATCCGCAAAACAAACCCGCTGGTAGCGGTGTTTTTTTTGTTTGCAAGCAGCAGATTACGCGCAGAAAAAAGGAT

5801 CTCAAGAAGATCCTTTGATCTTTCTACGGGCTGACGCTCAGTGGAAACGAAAACTACGTTAAGGATTTTGGTCATGGCTAGTTAATTAACATTTAA

5901 ATCA