



PstI (7)
SdaI (7) SpeI (14)

1 CCTGCAGGGCCCACTAGTCAGGGCCCCAACCCCCCAAGCCCCATTTCACAACACGCTGGCGCTACAGGGCGGTGACTTCCCCTTGCTTTGGGGGGGG

101 GGCTGAGACTCCTATGTGTCCGGATTGGTCAGGCACGGCCTTCGGCCCCGCTCCTGCCACCCGAGATTGGCCGCTAGCCCTCCCCGAGCGCCTGCCT

HindIII (279)

201 CCGAGGGCCGGCCACCATAAAAGAAGCCGCCCTAGCCACGTCCCCTCGCAGTTCGGGGTCCCGGGTCTGTCTCAAAGCTTCGAGGGGCTCGCATCTC

301 TCCTTACCGCGCCCGCCCTACCTGAGGCCGCCATCCACGCCGGTTGAGTCCGGTTCTGCCGCTCCCGCTGTGGTGCCTCCTGAACTGCGTCCGCC

401 GTCTAGGTAAGTTTAAAGCTCAGGTCGAGACCGGCCCTTTGTCCGGCGCTCCCTTGAGGCTACCTAGACTCAGCCGGCTCTCCACGCTTTCCTGACCC

NcoI (564)

501 TGCTTGCTCAACTCTACGTCTTTGTTTTCTGTTCTGCGCCGTTACAGATCAAGCCACCATGGGGGTTCTCATCATCATCATCATCATGGTATG

601 GCTAGCATGACTGGTGACAGCAAATGGGTCGGGATCTGTACGACGATGACGATAAGGTACCTAAGGATCAGCTTGGAGTTGATCCCGTCTTTTACAAC

701 GTCGTGACTGGGAAACCCCTGGCGTTACCAACTAATCGCCTTGACGACATCCCCCTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCG

801 CCCTTCCAACAGTTGGCAGCCTGAATGGCAATGGCGTTTCCGCTGGTTCCGGCACCAGAAGCGGTGCCGAAAGCTGGCTGGAGTGGCATCTTCTC

901 GAGGCCGATACTGTCGTCGCCCTCAAACCTGGCAGATGACGGTTACGATGCGCCATCTACACCAACGTAACCTATCCCATACGGTCAATCCGCCGT

1001 TTGTTCCACGGAGAATCCGACGGGTTGTTACTCGCTCACATTTAATGTTGATGAAAGCTGGCTACAGGAAGCCAGACCGCAATATTTTTGATGGCGT

1101 TAACTCGGCGTTTCATCTGTGGTCAACGGCGCTGGGTGCGTTACGGCCAGGACAGTCTGTTGCCGCTGAATTTGACCTGAGCGCATTTTTACGGGCC

1201 GGAGAAAACCGCCTCGCGTGATGGTGTGCGTTGGAGTGACGGCAGTTATCTGGAAGATCAGGATATGTGGCGGATGAGCGGCATTTCCGTCAGCTCT

1301 CGTTGCTGCATAAACCGACTACAAAATCAGCGATTTCCATGTTCCACTCGCTTAAATGATGATTTACGCGCGCTGTACTGGAGGCTGAAGTTCAGAT

1401 GTGCGCGGAGTTGCGTGACTACCTACGGTAACAGTTTCTTTATGGCAGGGTGAACCCAGGTCGCCAGCGCCACCGCCCTTTCCGGCGTGAATATC

1501 GATGAGCGTGGTGTATGCCGATCGCGTCACACTACGCTGAAACGTCGAAAACCCGAAACTGTGGAGCGCCGAAATCCCGAATCTCTATCGTCCGGTGG

1601 TTGAATGCACACCGCCGACCGCAGCTGATTGAAGCAGAAGCCGTCGATGTCCGGTTCCCGGAGGTGGGATTGAAAATGCTGCTGCTGCTGTAACCG

1701 CAAGCCGTTGCTGATTCGAGGGCGTTAACCGTCACGAGCATCATCTCTGCATGGTCAAGGTCATGGATGAGCAGACGATGGTGCAGGATATCCTGCTGATG

1801 AAGCAGAACAACCTTAAACCGCGTGGCTGTCGATTATCCGAACCATCCGCTGTGGTACACGCTGTGGCAGCCGCTACGGCCTGATGTTGGATGAAG

1901 CCAATATTGAACCCACGGCATGGTGCCAATGAATCGTCTGACCGATGATCCGCGCTGGCTACCGGCGATGAGCGAACCAGCGAATGGTGCAGCG

2001 CGATCGTAATACCCGAGTGTGATCATCTGGTGGTGGGAATGAATCAGGCCACGGCGCTAATCAGCAGCGCTGTATCGCTGGATCAAAATCTGTCGAT

2101 CCTTCCCGCCCGTGCAGTATGAAGGCGCGGAGCCGACACCAGGCCACCGATATTATTTGCCGATGTACCGCGCGTGGATGAAGACCAGCCCTTCC

2201 CGGCTGTGCCGAAATGGTCAATCAAAAAATGGCTTTCGCTACCTGGAGAGACCGCCCGCTGATCCTTTGGCAATACGCCACCGCATGGGTAACAGTCT

2301 TGGCGGTTTCGCTAAATACTGGCAGCGTTTCGTCAGTATCCCGGTTTACAGGCGCGTTCGCTGGGACTGGGTGGATCAGTCTGATTAATATGAT

2401 GAAAACGGCAACCGTGGTCCGCTTACCGCGGTGATTTGGCGATACCGGAACGATCGCCAGTCTCTGATGAACGGTCTGGTCTTTCCGACCGCACCG

2501 CGCATCCAGCGTACGGAAAGCAAAACACCAGCAGCAGTTTTCAGTTCGGTTTACCGGGCAACCATCGAAGTGACCAGCGAATACCTGTTCCGCTCA

2601 TAGCGATAACGAGCTCCTGCACTGGATGGTGGCGCTGGATGGTAAGCCGCTGGCAAGCGGTGAAGTGCCTCTGGATGTCCGCTCCACAAGGTAACAGTTC

2701 ATGAACTGCCTGAACTACCGCAGCCGAGAGCGCCGCAACTCTGGCTCACAGTACCGTGTGCAACCGAACCAGCCGATGGTCCAGAGCCCGGGC

2801 ACATCAGCGCTGGCAGCAGTGGCGTCTGGCGGAAAACCTCAGTGTGACGCTCCCGCGCGTCCACGCCATCCCGCATCTGACCACCAGCGAAATGGA

2901 TTTTTCATCGAGCTGGGTAATAAGCGTTGGCAATTTAACCGCCAGTCAAGCTTCTTTTACAGATGTGGATTGGCGATAAAAAACAACTGCTGACGCCG

3001 CTGCGCGATCAGTTACCCGTCACCGCTGGATAACGACATTTGGCGTAAGTGAAGCGACCCCGCATTGACCCTAACCGCTGGGTCGAACCGTGGAAAGCGG

3101 CGGGCCATTACCAGCCGAAGCAGCGTGTGTCAGTGCACGGCAGATACACTTGTCTGATGCGGTGCTGATTACGACCGCTCACCGTGGCAGCATCAGGG

3201 GAAAACCTTATTTATCAGCCGAAAACCTACCGGATTTGATGGTGGTCAAAATGGCGATTACCGTGTGTTGAGTGGCGAGCGATACACCGCATCCG

3301 GCGCGGATTTGCGCTGAACTGCCAGCTGGCGCAGTAGCAGAGCGGGTAAACTGGCTCGGATTAGGGCCGCAAGAAAATATCCCGACCGCTTACTGCCG

913 AlaArgI leGlyLeuAsnGlnLeuAlaGlnValAlaGluArgValAsnTrpLeuGlyLeuGlyProGlnGluAsnTyrProAspArgLeuThrAlaA

SacI (2616)

2601 TAGCGATAACGAGCTCCTGCACTGGATGGTGGCGCTGGATGGTAAGCCGCTGGCAAGCGGTGAAGTGCCTCTGGATGTCCGCTCCACAAGGTAACAGTTC

2701 ATGAACTGCCTGAACTACCGCAGCCGAGAGCGCCGCAACTCTGGCTCACAGTACCGTGTGCAACCGAACCAGCCGATGGTCCAGAGCCCGGGC

2801 ACATCAGCGCTGGCAGCAGTGGCGTCTGGCGGAAAACCTCAGTGTGACGCTCCCGCGCGTCCACGCCATCCCGCATCTGACCACCAGCGAAATGGA

2901 TTTTTCATCGAGCTGGGTAATAAGCGTTGGCAATTTAACCGCCAGTCAAGCTTCTTTTACAGATGTGGATTGGCGATAAAAAACAACTGCTGACGCCG

3001 CTGCGCGATCAGTTACCCGTCACCGCTGGATAACGACATTTGGCGTAAGTGAAGCGACCCCGCATTGACCCTAACCGCTGGGTCGAACCGTGGAAAGCGG

3101 CGGGCCATTACCAGCCGAAGCAGCGTGTGTCAGTGCACGGCAGATACACTTGTCTGATGCGGTGCTGATTACGACCGCTCACCGTGGCAGCATCAGGG

3201 GAAAACCTTATTTATCAGCCGAAAACCTACCGGATTTGATGGTGGTCAAAATGGCGATTACCGTGTGTTGAGTGGCGAGCGATACACCGCATCCG

3301 GCGCGGATTTGCGCTGAACTGCCAGCTGGCGCAGTAGCAGAGCGGGTAAACTGGCTCGGATTAGGGCCGCAAGAAAATATCCCGACCGCTTACTGCCG

3401 CCTGTTTTGACCGCTGGGATCTGCCATTGTGACACATGTATACCCCGTACGTCTTCCCGAGCGAAAACGGTCTGCGCTGCGGGACGCGGAATTGAATTA
946▶ laCysPheAspArgTrpAspLeuProLeuSerAspMetTyrThrProTyrValPheProSerGluAsnGlyLeuArgCysGlyThrArgGluLeuAsnTy
3501 TGGCCACACACAGTGGCGCGGCGACTTCCAGTTC AACATCAGCCGTACAGTCAACAGCAACTGATGAAACCAGCCATCGCCATCTGCTGCACGCGGAA
979▶ rGlyProHisGlnTrpArgGlyAspPheGlnPheAsnI leSerArgTyrSerGlnGlnGlnLeuMetGluThrSerHisArgHisLeuLeuHisAlaGlu
3601 GAAGGCACATGGCTGAATATCGACGGTTCCATATGGGGATTGGTGGCGACGACTCCTGGAGCCCGTCAGTATCGGCGGAATTACAGCTGAGCGCCGGTC
1013▶ GluGlyThrTrpLeuAsnI leAspGlyPheHisMetGlyI leGlyGlyAspAspSerTrpSerProSerValSerAlaGluLeuGlnLeuSerAlaGlyA

EcoRI (3749)

3701 GCTACCATTACCAGTTGGTCTGGTGTCAAAAATAATAATCTAGTCGAGAATTCGCTAGCTCGACATGATAAGATACATTGATGAGTTTGGACAAACCACA
1046▶ rgTyrHisTyrGlnLeuValTrpCysGlnLys•••
3801 ACTAGAATGCAGTGA AAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTAT

MfeI (3929)

3901 AAGCTGCAATAACAAGTTAACACAACA AATTGCATTCA TTTTATGTTTCAGGTTCA GGGGGAGGTGTGGGAGGTTTTTTAAAGCAAGTAAACCTCTAC

SwaI (4020)

4001 AAATGTGGTAGATCCATTTAAATGTTAATTA AACTAGCCATGACCAAAATCCCTTAACGTGAGTTTTCGTTCCACTGAGCGTCAGACCCCGTAGAAAAGAT
4101 CAAAGGATCTTCTTGAGATCCTTTTTTTCTGCGCGTAATCTGCTGCTTGCAAAACAAAAAACACCGCTACCAGCGGTGGTTTTGTTGCCGGATCAAGAG
4201 CTACCAACTCTTTTTCCGAAGGTA AACTGGCTTCAGCAGAGCGCAGATACCAATACTGTTCTTCTAGTGTAGCCGTAGTTAGGCCACCACTTCAAGAACT
4301 CTGTAGCACCCCTACATACTCGCTCTGCTAATCTGTTACCAGTGGCTGCTGCCAGTGGCGATAAGTCGTGTCTTACCGGGTTGGACTCAAGACGATA
4401 GTTACCGGATAAGGCGCAGCGGTCCGGCTGAACGGGGGGTTCGTGCACACAGCCAGCTTGGAGCGAACGACCTACACCGAACTGAGATACCTACAGCGT
4501 GAGCTATGAGAAAGCGCCACGCTTCCCGAAGGGAGAAAGGCGGACAGGTATCCGGTAAGCGGCAGGGTCGGAACAGGAGAGCGCACGAGGGAGCTTCCAG
4601 GGGGAAACCGCTGGTATCTTTATAGTCTGTGCGGTTTCGCCACCTCTGACTTGAGCGTCGATTTTTGTGATGCTCGTCAGGGGGCGGAGCCTATGGAA

AseI (4796)

4701 AAACGCCAGCAACGCGGCCTTTTTACGGTTCCTGGCCTTTTGTGCGCCTTTTGTCTCACATGTTCTTAATTA AATTTTTCAAAGTAGTTGACAATTAATC
4801 ATCGGCATAGTATATCGGCATAGTATAATACGACTCACTATAGGAGGGCCATCATGGCCAAGTTGACCAGTGTGTCCAGTGTCTCACAGCCAGGGATGT
4901 GGCTGGAGCTGTTGAGTTCTGGACTGACAGGTTGGGGTTCTCCAGAGATTTTGTGGAGGATGACTTTGCAGGTGTGGTCAGAGATGATGTCACCCTGTTT
16▶ lAlaGlyAlaValGluPheTrpThrAspArgLeuGlyPheSerArgAspPheValGluAspAspPheAlaGlyValValArgAspAspValThrLeuPhe
5001 ATCTCAGCAGTCCAGGACCAGGTGGTGCCTGACAACACCCTGGCTTGGGTGTGGGTGAGAGGACTGGATGAGCTGTATGCTGAGTGGAGTGAGGTGGTCT
50▶ l leSerAlaValGlnAspGlnValValProAspAsnThrLeuAlaTrpValTrpValArgGlyLeuAspGluLeuTyrAlaGluTrpSerGluValValS
5101 CCACCAACTTCAGGGATGCCAGTGGCCCTGCCATGACAGAGATTGGAGAGCAGCCCTGGGGGAGAGAGTTTGCCTGAGAGACCCAGCAGGCAACTGTGT
83▶ erThrAsnPheArgAspAlaSerGlyProAlaMetThrGluI leGlyGluGlnProTrpGlyArgGluPheAlaLeuArgAspProAlaGlyAsnCysVa
5201 GCAC TTGTGCGAGGAGCAGGACTGAGGATAAGAATTGAGTTTCAGAAAAGGGGGCTGAGTGGCCCTTTTTTCAACTTAATTAA
116▶ lHisPheValAlaGluGluGlnAsp•••