



PstI (7)  
SdaI (7)      SpeI (14)

1 CCTGCAGGGCCACTAGTCGCTACAATATTTTCCTGAACGGAAGAATAAATAAAACTTGTCTCGTAAAGAAAACCCAGGTAAGGAAAGTGGCAGTCCAG  
101 ACTGCCCGGAAGTTCCTGGAGGCTAAGGCCCTACCCCCGTCGCTTGTATAGGACCTGCTGAGCCACATGACTAAGGCACGATCGCCTCCGCACGTGTAAG  
201 GTGCTGGGTTCCAAGATGGCTGCCCGCCGCGAGGCCGACTTAAGTATGTCACCTCCGCACCAGCGAGAAAGGCGGACCTTCAGCCAATGAGGCCATA  
301 GGGCGGGCTAGGCCATGATGGGCTTCAAACCTACCCAATAGGGCGTCCGAACATAAAGCCCTACAAAGTAACTGACGTCAGTTCAGAGCGCCGGCA

NeoI (500)

401 GGGCGGGCAGAGGTGGCCAAGCCAATGCGATGGCTGGGCGGGTGGCAGCGCTATAAAGTTGTCGATAGGCGGGCCTCCGCCCTAGATTCTAAGGACC  
501 ATGGGGGTTCTCATCATCATCATCATCATGGTATGGCTAGCATGACTGGTGGACAGCAAAATGGGTGGGATCTGTACGACGATGACGATAAGGTAC2TA  
1▶MetGlyGlySerHisHisHisHisHisHisGlyMetAlaSerMetThrGlyGlyGlnGlnMetGlyArgAspLeuTyrAspAspAspAspLysValProL  
601 AGGATCAGCTTGGAGTTGATCCCGTCGTTTTACAACGTCGTGACTGGGAAAACCTGGCGTTACCCAACCTAATCGCCTTGACGACATCCCCCTTCCGC  
34▶ysAspGlnLeuGlyValAspProValValLeuGlnArgArgAspTrpGluAsnProGlyValThrGlnLeuAsnArgLeuAlaAlaHisProProPheAl  
701 CAGCTGGCGTAATAGCGAAGAGGCCCGCACCATCGCCCTCCCAACAGTTGGCAGCCTGAATGGCGAATGGCGCTTTCCTGGTTCCGGCACCAGAA  
67▶aSerTrpArgAsnSerGluGluAlaArgThrAspArgProSerGlnGlnLeuArgSerLeuAsnGlyGluTrpArgPheAlaTrpPheProAlaProGlu  
801 GCGGTGCCGAAAGCTGGCTGGAGTGCATCTTCTGAGGCCGATACTGCTGCTGCCCTCAAACCTGGCAGATGCACGGTTACGATGCGCCCATCTACA  
101▶AlaValProGluSerTrpLeuGluCysAspLeuProGluAlaAspThrValValValProSerAsnTrpGlnMetHisGlyTyrAspAlaProI leTyrT  
901 CCAACGTAACCTATCCATTACGGTCAATCCGCCGTTTGTTCACGGAGAATCCGACGGGTGTTACTCGCTCACATTTAATGTTGATGAAAGCTGGCT  
134▶hrAsnValThrTyrProI leThrValAsnProProPheValProThrGluAsnProThrGlyCysTyrSerLeuThrPheAsnValAspGluSerTrpLe  
1001 ACAGGAAGGCCAGACGCAATTATTTTGTATGGCGTTAACTCGCGCTTTCATCTGTGGTGCAACGGGCGCTGGGTGGTTACGGCCAGGACGTCGTTG  
167▶uGlnGluGlyGlnThrArgI leI lePheAspGlyValAsnSerAlaPheHisLeuTrpCysAsnGlyArgTrpValGlyTyrGlyGlnAspSerArgLeu  
1101 CCGTCTGAATTTGACCTGAGCGCATTTTTACGCGCCGGAGAAAACCGCCTCGCGGTGATGGTCTGCGTTGGAGTGACGGCAGTTATCTGGAAGATCAGG  
201▶ProSerGluPheAspLeuSerAlaPheLeuArgAlaGlyGluAsnArgLeuAlaValMetValLeuArgTrpSerAspGlySerTyrLeuGluAsnGlnA  
1201 ATATGTGGCGGATGAGCGCATTTCCGTGACGTCCTGTTGCTGCATAAACCGACTACACAAATCAGCGATTCCATGTTGCCACTCGCTTAAATGATGA  
234▶spMetTrpArgMetSerGlyI lePheArgAspValSerLeuLeuHisLysProThrThrGlnI leSerAspPheHisValAlaThrArgPheAsnAspAs  
1301 TTTGAGCCGCGTGTACTGGAGGCTGAAGTTCAGATGTGCGCGGAGTTGCGTGACTACTACGGGTAACAGTTTCTTATGGCAGGGTGAACCGCAGGTC  
267▶pPheSerArgAlaValLeuGluAlaGluValGlnMetCysGlyGluLeuArgTrpTyrLeuArgValThrValSerLeuTrpGlnGlyGluThrGlnVal  
1401 GCCAGCGCACCGCGCTTTCGGCGGTGAAATATCGATGAGCGTGGTGGTTATGCCATCGCGTCACTACGCTGAACGTCGAAAACCCGAAACTGT  
301▶AlaSerGlyThrAlaProPheGlyGlyGluI leI leAspGluArgGlyGlyTyrAlaAspArgValThrLeuArgLeuHisGlnHisGlnValMet  
1501 GGAGCGCGAAATCCCGAATCTCTATCGTGGCGTGGTTGAACTGCACCCGCGGACGCGCAGCTGATTGAAGCAGAAGCCTGGCATGCGGTTCCGCGA  
334▶rpSerAlaGluI leProAsnLeuTyrArgAlaValValGluLeuHisThrAlaAspGlyThrLeuI leGluAlaGluAlaCysAspValGlyPheArgG  
1601 GGTGCGGATTGAAATGGTCTGCTGCTGCTGAACGGCAAGCCGTGCTGATTGAGGCGGTTAACCGTCACGAGCATCATCTCTGCATGGTCAGGTCATG  
367▶uValArgI leGluAsnGlyLeuLeuLeuLeuAsnGlyLysProLeuLeuI leArgGlyValAlaAsnArgHisGluHisHisProLeuHisGlnValMet  
1701 GATGAGCAGACGATGGTGCAGGATATCTGCTGATGAAGCAGAACAACCTTAAACCGCGTGGCTGTTGCGATTATCCGAACCATCCGCTGTTGTTACCGC  
401▶AspGluGlnThrMetValGlnAspI leLeuLeuMetLysGlnAsnAsnPheAsnAlaValArgCysSerHisTyrProAsnHisProLeuTrpTyrThrL  
1801 TGTGCGACCGCTACGGCTGTATGTTGGTGAAGCCTAATTTGAAACCCACGGCATGGTGCCAATGAATCGTCTGACCGATGATCCGCGCTGGCTACC  
434▶euCysAspArgTyrGlyLeuValValAspGluAlaAsnI leGluThrHisGlyMetValProMetAlaAsnArgLeuTrpMetAlaAspArgTrpLeuPr  
1901 GCGATGAGCGAATCGCAATGAGCAGCAGCCCTCCCGGCTGGCGCAATGGTCCATCAACCCGAGTGTGATCTCGCTCGCTGGGAATGAATCAGGCCAGCGCGCTAAT  
467▶oAlaMetSerGluArgValThrArgMetValGlnArgAspArgAsnHisProSerValI leI leTrpSerLeuGlyAsnGluSerGlyHisGlyAlaAsn  
2001 CACGACCGCTGTATCCCTGGATCAATCTGCTGATCCTCCCGCCCGGTGCAGTATGAAGCGCGGAGCCGACACCACCGCCACCGATATTATTTGCC  
501▶HisAspAlaLeuTyrArgTrpI leLysSerValAspProSerArgProValGlnTyrGluGlyGlyAlaAspThrThrAlaThrAspI leI leCysP  
2101 CGATGTACGCGCGCTGATGAAGACCAGCCCTCCCGGCTGGCGCAATGGTCCATCAAAAATGGCTTTCGCTACCTGGAGAGACCGCCCGCTGAT  
534▶roMetTyrAlaArgValAspGluAspGlnProPheProAlaValProLysTrpSerI leLysLysTrpLeuSerLeuProGlyGluThrArgProLeuI  
2201 CCTTGGCAATACGCCACGGATGGTAACAGTCTTGGCGGTTTCGCTAAATACTGGCAGGCGTTTCGTCAGTATCCCGTTTACAGGGCGGCTTCGTC  
567▶eLeuCysGluTyrAlaHisAlaMetGlyAsnSerLeuGlyGlyPheAlaLysTyrTrpGlnAlaPheArgGlnTyrProArgLeuGlnGlyGlyPheVal  
2301 TGGACTGGTGGATCAGTCTGATTAATATGATGAAAACCGCAACCCGTTGGTTCGCTTACGGCGGTGATTTGGCGATACCGCAACGATCGCCAGT  
601▶TrpAspTrpValSerLeuI leLysTyrAspGluAsnGlyAsnGlyAlaAsnI leGluThrHisGlyMetValProMetAlaAsnArgLeuTrpMetAlaAspArgGlnP  
2401 TCTGTATGAACGCTGGTCTTTGCGCAGCCGACCGCATCCAGCGTGCAGGAAGCAAAACACCAGCAGCTTTTCCAGTTCGGTTATCCGGCA  
634▶heCysMetAsnGlyLeuValPheAlaAspArgThrProHisProAlaLeuThrGluAlaLysHisGlnGlnGlnPhePheGlnPheArgLeuSerGlyG  
2501 AACCTCGAAGTGACCAGCAATACCTGTTCCGTCATAGCGATAACGAGCTCCTGCAGTGGATGGTGGCGCTGGATGGTAAGCCGCTGGCAAGCGGTGAA  
667▶nThrI leGluValThrSerGluTyrLeuPheArgHisSerAspGlnLeuLeuLeuLeuValAlaLeuAsnArgLeuValAlaLeuAsnTrpLeuAlaSer  
2601 GTGCCCTGGATGCTGCCACAAGGTAACAGTTGATTGAACCTGCTGAACTACCGCAGCCGAGAGCGCCGGCAACTCTGGCTCACAGTACGCGTAG  
701▶ValProLeuAspValAlaProGlnGlyLysGlnLeuI leGluLeuProGluLeuProGlnProGluSerAlaGlyGlnLeuTrpLeuThrValArgValV  
2701 TGCAACCGAAGCCGACCGCATGGTCAAGAGCCGGGCACATCAGCGCCTGGCAGCAGTGGCGTGGCGGAAAACCTCAGTGTGACGCTCCCCCGCGCT  
734▶alGlnProAsnAlaThrAlaTrpSerGluAlaGlyHisI leSerAlaTrpGlnGlnTrpArgLeuAlaGluAsnLeuSerValThrLeuProAlaAlaSe  
2801 CCACGCCATCCCGCATCTGACCACCGCAAAATGGATTTTGCATCGAGCTGGGTAATAAGCGTTGGCAATTAACCGCCAGTCCAGGCTTCTTCCACAG  
767▶rHisAlaI leProHisLeuThrThrSerGluMetAspPheCysI leGluLeuGlyAsnLysArgTrpGlnPheAsnArgGlnSerGlyPheLeuSerGln  
2901 ATGTGGATTGGCGATAAAAAACAACTGCTGACGCCGCTCGCGGATCAGTTACCCGTCGACCGCTGGATAACGACATTGGCGTAAGTGAAGCGACCCGCA  
801▶MetTrpI leGlyAspLysLysGlnLeuLeuThrProAlaAspGlnPheThrArgAlaProLeuAspAsnAspI leGlyValSerGluAlaThrArgI  
3001 TTGACCTAACCGCTGGTGCAGCGCTGGAAGCGCGGGCCATTACCGCCGAGCAGCGTGTTCGAGTGCACGGCAGATACACTGCTGATGCGGT  
834▶I leAspProAsnAlaTrpValGluArgTrpLysAlaAlaGlyHisTyrGlnAlaGluAlaLeuLeuGlnCysThrAlaAspThrLeuGluAspAlaVa  
3101 GCTGATTACGACCGCTACCGGTGGCAGCATCAGGGAAAACCTTATTTATCAGCGGAAAACCTACCGGATTGATGGTAGTGGTCAAATGGCGATTACC  
867▶I leLeuI leThrThrAlaHisAlaTrpGlnHisGlnGlyLysThrLeuPheI leSerArgLysThrTyrArgI leAspGlySerGlyGlnMetAlaI leThr  
3201 GTTGATGTTAAGTGGCGAGCGATACCCGATCCGGCGGATTTGGCTGAACTCCGACGCTGGCGCAGGTAGCAGAGCGGGTAAACTGGCTCGGATTAG  
901▶ValAspValGluValAlaSerAspThrProHisProAlaArgI leGlyLeuAsnCysGlnLeuAlaGlnValAlaGluArgValAsnTrpLeuGlnLeuG  
3301 GGCCGCAAGAAAACCTATCCGACCGCTTACTGCCGCTGTTTTGACCGCTGGGATCTGCCATTGTCAGACATGTATAACCCGTCAGCTTCCCGAGCGA  
934▶lyProGlnGluAsnTyrProAspArgLeuThrAlaAlaCysPheAspArgTrpAspLeuProLeuSerAspMetTyrThrProTyrValPheProSerG  
3401 AAACGGTCTCGCTCGGGACCGCGCAATGAATATGGCCACACCAGTGGCGCGGCGACTCCAGTTCACATCAGCCGCTACAGTCAACAGCAACTG  
967▶uAsnGlyLeuArgCysGlyThrArgGluLeuAsnTyrProHisGlnTrpArgProHisGlnTrpMetValAlaLeuAsnTrpLeuGlnGlnLeuG  
3501 ATGGAACCGACCATCGCATCTGCTGCACGCGGAAGAGGCACATGGCTGAATATCGACGCTTCCATATGGGATTTGGTGGCGCAGCTCCTGGAGCC  
1001▶MetGluThrSerHisArgHisLeuLeuHisAlaGluGluGlyThrTrpLeuAsnI leAspGlyPheHisMetGlyI leGlyGlyAspAspSerTrpSerP

EcoRI (3685)

3601 CGTCAGTATCGGGCAATTACAGCTGAGCGCGGTCGCTACCATTACCAGTTGGTCTGGTGTCAAAAATAATAATCTAGTCGAGAATTCGCTAGCTCGAC  
1034▶roSerValSerAlaGluLeuGlnLeuSerAlaGlyArgTyrHisTyrGlnLeuValTrpCysGlnLys•••  
3701 ATGATAAGATACATTGATGAGTTGGACAAACCACAACCTAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTGA  
3801 AATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAAACAAGTAAACAACAACAATTGCATTTCATTTTATGTTTCAGGTTTCAGGGGGAG  
PacI (3966)  
3901 GTGTGGGAGGTTTTTTAAAGCAAGTAAAACCTCTACAAATGTGGTAGATCCATTTAAATGTTAATTAAGTCCATGACCAAAATCCCTTAACGTGAGTT  
4001 TTCGTTCCACTGAGCGTCAGACCCCGTAGAAAAGATCAAAGGATCTTCTTGAGATCCTTTTTTTCTGCGCGTAATCTGCTGCTTGCAAACAAAAAACCA  
4101 CCGCTACCAGCGGTGGTTGTTTGGCGGATCAAGAGCTACCAACTCTTTTTCCGAAGGTAACCTGCTTCAGCAGAGCGCAGATACAAATACTGTTCTTC  
4201 TAGTGTAGCCGTAGTTAGGCCACCACTTCAAGAACTCTGTAGCACCAGCTACATACCTCGCTCTGCTAATCCTGTTACCAGTGGCTGCTGCCAGTGGCGA  
4301 TAAGTCGTGCTTACCGGGTTGACTCAAGACGATAGTTACCGGATAAGGCGCAGCGGTCGGGCTGAACGGGGGGTTCGTGCACACAGCCAGCTTGGAG  
4401 CGAACGACCTACACCGAACTGAGATACCTACAGCGTGAGCTATGAGAAAGCGCCACGCTTCCCGAAGGGAGAAAGGCGGACAGGTATCCGGTAAGCGGCA  
4501 GGGTCGGAACAGGAGAGCGCAGAGGGAGCTTCCAGGGGAAACGCCTGGTATCTTTATAGTCTGTGGGTTTCGCCACCTCTGACTTGAGCGTCGATT  
4601 TTTGTGATGCTCGTCAGGGGGCGGAGCCTATGAAAAACGCCAGCAACGCGGCCTTTTTACGGTTCCTGGCCTTTTGTGCGCTTTTGTCCACATGTTTC  
PacI (4706)  
4701 TTAATTAATTTTCAAAAGTAGTTGACAATTAATCATCGGCATAGTATATCGGCATAGTATAATACGACTCACTATAGGAGGGCCATCATGGCCAAGTT  
1▶MetAlaLysLe  
4801 GACCAGTGTGTCCAGTGTCTACAGCCAGGGATGTGGCTGGAGCTGTTGAGTTCTGGACTGACAGGTTGGGGTTCCTCCAGAGATTTTGTGGAGGATGAC  
4▶uThrSerAlaValProValLeuThrAlaArgAspValAlaGlyAlaValGluPheTrpThrAspArgLeuGlyPheSerArgAspPheValGluAspAsp  
4901 TTTGCAGGTGTGGTCAGAGATGATGTCACCCGTTCATCTCAGCAGTCCAGGACCAGGTGGTGCCTGACAACCCCTGGCTGGGTGTGGGTGAGAGGAC  
38▶PheAlaGlyValValArgAspAspValThrLeuPheIleSerAlaValGlnAspGlnValValProAspAsnThrLeuAlaTrpValTrpValArgGlyL  
5001 TGGATGAGCTGTATGCTGAGTGGAGTGGTGTCTCCACCACTTCAGGGATGCCAGTGGCCCTGCCATGACAGAGATTGGAGAGCAGCCCTGGGGGAG  
71▶euAspGluLeuTyrAlaGluTrpSerGluValValSerThrAsnPheArgAspAlaSerGlyProAlaMetThrGluIleGlyGluGlnProTrpGlyAr  
5101 AGAGTTTGGCCTGAGAGACCCAGCAGGCAACTGTGTGACTTTGTGGCAGAGGAGCAGGACTGAGGATAAGAATTGTAACAAAAAACCCCGCCCGGGG  
104▶gGluPheAlaLeuArgAspProAlaGlyAsnCysValHisPheValAlaGluGluGlnAsp•••  
PacI (5215)  
5201 GGTTTTTTGTAAATTA