



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

1 CCTGCAGGGCCACTAGTCGGGAGCGGTACTTCTTCCGAGTGAGAGACAGAAAGAGAGGCCGAGTCTCACAGCCCTGAGGGAAGTACACGCAGACC  
101 CCACTCCAGTCCCCGGGGCCCAACGTGAGGGGAGGACTGGACGGTTACCGCGGAAACGGTTTCCAGGTGAGAGGTCACCCGAGGGACAGGCAGCTGC  
201 TCAACCAATAGGACCAGCTCTCAGGGCGGATGCTGCCTCTCATTGGCGGCGGTTAAGAATGACCAGTAGCCAATGAGTCGGCCTGGGGGGGTACCAGTG  
301 ACGTGAGTTGCGGAGGAGGCGCTTCCAATCGGCAGCGGCCAGCTTGGTGGCATGAACCAACCAGCGGCCTCCAACGAGTAGCGAGTTCACCAATCGGAG  
401 GCCTCCACGACGGGGCTGCGGGGAGGATATATAAGCCGAGTCGGCGACCGGCGCTCGATACTGGCTGTGACTACACTGACTTGGACACTTGGCCTTTT  
501 GCGGGTTTGAGAGGTAAGCGTTCGGGCGCTGCTTCCAGGCCTACCCTGATTTTGGTTCGTGGCTCCTCTGACCTGAGACCTCTGTCCGCTCAGATCAG  
601 AACCGTCGTCGGGTTTCGGGGTACAGCCTGTGCTGGACTCTGTGAGACACCTGACCGACCGCTGAGCGACTGACTGGTCCACAGCGCCGGCACCATGGG  
NcoI (696)  
MetG  
701 GGGGTTCTCATCATCATCATCATGGTATGGCTAGCATGACTGGTGGACAGCAAAATGGGTGCGGATCTGTACGACGATGACGATAAGGTACCTAAGGA  
2 lyGlySerHisHisHisHisHisHisGlyMetAlaSerMetThrGlyGlyGlnGlnMetGlyArgAspLeuTyrAspAspAspLysValProLysAs  
801 TCAGTTGGAGTTGATCCCGTCGTTTACAACGTCGTGACTGGGAAAACCCCTGGCGTTACCCAACCTAATCGCCTTGCAGCACATCCCCCTTTCGCCAGC  
35 pGlnLeuGlyValAspProValValLeuGlnArgArgAspTrpGluAsnProGlyValThrGlnLeuAsnArgLeuAlaAlaHisProProPheAlaSer  
901 TGGCGTAATAGCGAAGAGGCGCCGACCGATCGCCCTTCCAACAGTTGGCGAGCCTGAATGGCGAATGGCGCTTTCCTGGTTTCGGCCACCAGAGCGG  
69 TrpArgAsnSerGluGluAlaArgThrAspArgProSerGlnGlnLeuArgSerLeuAsnGlyGluTrpArgPheAlaTrpPheProAlaProGluAlaV  
1001 TGCCGAAAGCTGGCTGGAGTGGCATCTTCTGAGGCGGATACTGTCGTCGTCCTCAAACCTGGCAGATGCACGGTTACGATGGCCCATCTACACCAA  
102 alProGluSerTrpLeuGluCysAspLeuProGluAlaAlaAspThrValValValProSerAsnTrpGlnMetHisGlyTyrAspAlaPro leTyrThrAs  
1101 CGTAACCTATCCATTACGGTCAATCCGCGTTGTGTTCCACGGGAATCCGACGGGTGTTACTCGCTCACATTTAATGTTGATGAAAGCTGGCTCAG  
135 nValThrTyrProI leThrValAsnProProPheValProThrGluAsnProThrGlyCysTyrSerLeuThrPheAsnValAspGluSerTrpLeuGln  
1201 GAAGCCAGACGCGAATATTTTGTAGTGGCGTAACTCGGCGTTTCACTGTGGTGCACGGGCGCTGGGTCGGTTACGGCCAGGACAGTCGTTTCCCGT  
169 GluGlyGlnThrArgI leI lePheAspGlyValAsnSerAlaPheHisLeuTrpCysAsnGlyArgTrpValGlyTyrGlyGlnAspSerArgLeuProS  
1301 CTGAATTTGACCTGAGCGCATTTTACGCGCCGGAGAAAACCGCCTCGGCGTATGGTGTGCTGGTGGAGTGCAGGCAGTTATCTGGAAGATCAGGATAT  
202 erGluPheAspLeuSerAlaPheLeuArgAlaGlyGluAsnArgLeuAlaValMetValLeuArgTrpSerAspGlySerTyrLeuGluAspGlnAspMe  
1401 GTGGCGGATGAGCGCATTTTCCGTGACGTCCTGTTGCTGCATAAACCAGCTACACAAATCAGCGATTTCCATGTTGCCACTCGCTTAAATGATGATTTT  
235 tTrpArgMetSerGlyI lePheArgAspValSerLeuLeuHisLysProThrThrGlnI leSerAspPheHisValAlaThrArgPheAsnAspAspPhe  
1501 AGCCGCGCTGACTGGAGGCTGAAGTTCAGATGTGCGCGGAGTTGCGTGACTACCTACGGGTAACAGTTTCTTTATGGCAGGGTGAACCGCAGGTCGCCA  
269 SerArgAlaValLeuGluAlaGluValGlnMetCysGlyGluLeuArgAspTyrLeuArgValThrValSerLeuTrpGlnGlyGluThrValAlaS  
1601 GCGGCACCGCGCTTTCGGCGGTGAAATTATCGATGAGCGTGGTGGTTATGCGCATCGCGTACACTACGCTGAACGCTGAAAACCCGAAACTGTGGAG  
302 erGlyThrAlaProPheGlyGlyGluI leI leAspGluArgGlyGlyTyrAlaAspArgValThrLeuArgLeuAsnValGluAsnProLysLeuTrpSe  
1701 CGCGAAATCCCGAATCTCTATCGTGGCGTGTGAACTGCACACCGCCGACGGCAGCTGATTGAAGCAGAAGCCTCGCATGTCGGTTTCCGCGAGGTG  
335 rAlaGluI leProAsnLeuTyrArgAlaValValGluLeuHisThrAlaAspGlyThrLeuI leGluAlaGluAlaCysAspValGlyPheArgGluVal  
1801 CGGATGAAAATGGTCTGCTGCTGAACGGCAACCGTGGCTGATTTCGAGGCGTTAACCGTCACGAGCATCATCTGCTGATGGTCAGGTCATGGATG  
369 ArgI leGluAsnGlyLeuLeuAsnGlyLysProLeuLeuI leGlyGlyValAsnArgHisProLeuHisHisProLeuHisGlyGlnValMetAspG  
1901 AGCAGACGATGGTGCAGGATATCTGCTGATGAAGCAGAACAACCTTAAACCGCGTGGCTGTTCGCATTATCCGAACCATCCGCTGTGGTACACGCTGTG  
402 luGlnThrMetValGlnAspI leLeuLeuMetLysGlnAsnAsnPheAsnAlaValArgCysSerHisTyrProAsnHisProLeuTrpTyrThrLeuCy  
2001 CGACCGCTACGGCCTGTATGTTGGTGAAGCCAATATTGAAACCCACGGCATGGTGCCAATGAATCGTCTGACCGATGATCCGCGCTGGCTACCGCGG  
435 sAspArgTyrGlyLeuThrValValAspGluAlaAsnI leGluThrHisGlyMetValProMetAsnArgLeuThrAspProArgTrpLeuProAla  
2101 ATGAGCGAACCGTAACCGAATGGTGCAGCGCATCGTAATCACCCGAGTGTATCATCTGGTCCGTTGGGAATGAATCAGGCCACGGCGCTAATCAGC  
469 MetSerGluArgValThrArgMetValGlnArgAspArgAsnHisProSerVal I leI leTrpSerLeuGlyAsnGluSerGlyHisGlyAlaAsnHisA  
2201 ACGCGCTGATCGCTGGATCAAATCTGCTGATCCTTCCGCGCGGTGAGTATGAAGCGCGGGAGCCGACACCACCGCCACCGATATTATTGCCCGAT  
502 spAlaLeuTyrArgTrpI leLysSerValAspProSerArgProValGlnTyrGluGlyGlyAlaAspThrThrAlaThrAspI leI leCysProMe  
2301 GTACGCGCGTGGATGAAGACAGCCCTTCCGCGTGTGCCAAATGGTCCATAAAAAATGGCTTTCGCTACCTGGAGAGACGGCCCGCTGATCCTT  
535 tTyrAlaArgValAspGluAspGlnProPheProAlaValProLysTrpSerI leLysLysTrpLeuSerLeuProLeuThrArgProLeuI leLeu  
2401 TGCGAATACGCCACCGCATGGTACAGTCTTGGCGGTTTCGCTAAATACTGGCAGGCGTTTCGTCAGTATCCCGTTTACAGGGCGGCTTCGCTGGG  
569 CysGluTyrAlaHisAlaMetGlyAsnSerLeuGlyGlyPheAlaLysTyrTrpGlnAlaPheArgGlnTyrProArgLeuGlnGlyGlyPheValTrpA  
2501 ACTGGGTGGATCAGTCGCTGATTAATATGATGAAAACGGCAACCCGTGGTTCGGCTTACGGCGGTGATTTTGGCGATACGCCAAGCATCGCCAGTTCG  
602 spTrpValAspGluThrLeuI leLysTyrAspGluAsnGlyAsnProTrpSerAlaTyrGlyAlaTyrGlyAspPheGlyAspThrProArgTrpLeuGlnPheCy  
2601 TATGAACGGTCTGGTCTTTGGCGACCGCACCGCATCCAGCCGTGACCGGAAGCAAAACACCAGCAGCATTTTCCAGTTCGCTTATCCGGGCAAAAC  
635 sMetAsnGlyLeuValPheAlaAspArgThrProHisProAlaLeuThrGluAlaLysHisGlnGlnGlnPhePheGlnPheArgLeuSerGlyGlnThr  
2701 ATCGAAGTGACCAGCAATACCTGTTCCGCTATAGCGATAACGAGCTCCTGCACTGGATGGTGGCGCTGGATGGTAAGCCGCTGGCAAGCGGTGAAGTGC  
669 I leGluValThrSerGluTyrLeuPheArgHisSerAspAsnGluLeuLeuHisTrpMetValAlaLeuAspGlyLysProLeuAlaSerGlyGluValP  
2801 CTCTGGATGTCGCTCCACAAGTAAACAGTTGATTGAACCTGCTGCACTACCGCAGCGGAGAGCGCCGGCAACTCGGCTCACAGTACCGGTAGTGC  
702 roLeuAspValAlaProGlnGlyLysGlnLeuI leGluLeuProGluLeuProGlnProGlnProGlnProGlnProGlnProGlnProGlnProGlnProGln  
2901 ACCGAACCGCACCGCATGGTCAAGCCGGGCACATCAGCCCTGGCAGCAGTGGCGTCTGGCGGAAAACCTCAGTGTGACGCTCCCGCGCGTCCAC  
735 nProAsnAlaThrAlaTrpSerGluAlaGlyHisI leSerAlaTrpGlnGlnTrpArgLeuAlaGluAsnLeuSerValThrLeuProAlaAlaSerHis  
3001 GCCATCCCGCATCTGACCACGCGAAATGGATTTTTCATCGAGCTGGGTAATAAGCGTTGGCAATTTAACCGCCAGTCAGGCTTCTTTTCACAGATGT  
769 AlaI leProHisLeuThrLeuMetAspPheCysI leGluLeuThrHisGlyAsnLysArgTrpGlnPheAsnArgGlnHisGlyLeuSerGlnMetT  
3101 GGATTGGCGATAAAAAACAACCTGCTGACGCGCTGCGGATCAGTTTCAACCGCTGACCGCTGGATAACGACATTGGCGTAAGTGAAGCGACCCGATTA  
802 rpl leGlyAspLysLysGlnLeuLeuThrProLeuArgAspGlnPheThrArgAlaProLeuAspAsnAspI leGlyValSerGluAlaThrArgI leAs  
3201 CCCTAACGCGTGGTTCGACCGTGAAGGCGCGGGCCATTACCAGCCGAAGCAGCGTGTGTCAGTGCACGGCAGATACACTTGCATGCGGTGCTG  
835 pProAsnAlaTrpValGluArgTrpLysAlaAlaGlyHisTyrGlnAlaGluAlaAlaLeuLeuGlnCysThrAlaAspThrLeuAlaAspAlaValLeu  
3301 ATTACGACCGCTACCGGTGGCAGCATCAGGGAAAACCTTATTTATCAGCCGAAAACCTACCGGATGATGGTAGTGGTCAAATGGCGATTACCGTTG  
869 I leThrThrAlaHisAlaTrpGlnHisGlnGlyLysThrLeuPheI leSerArgLysThrTyrArgI leAspGlySerGlyGlnMetAlaI leThrValA  
3401 ATGTTGAAGTGGCGAGCGATACCCGCATCCGGCGGGATTGGCCTGAACCTGCCAGCTGGCGCAGTAGCAGAGCGGTAACCTGGCTCGGATTAGGGCC  
902 spValGluValAlaSerAspThrProHisProAlaArgI leGlyLeuAsnCysGlnLeuAlaGlnValAlaGluArgValAsnTrpLeuGlyLeuGlyPr  
3501 GCAAGAAAACCTATCCGACCGCTTACTGCGCGCTGTTTACCAGCTGGGATCTGCCATTGTGACACATGTATACCCCGTACGCTTCCCGAGCGAAAAC  
935 oGlnGluAsnTyrProAspArgLeuThrAlaAlaCysPheAspArgTrpAspLeuProLeuSerAspMetTyrThrProTyrValPheProSerGluAsn

3601 GGTCTGCGCTGCGGGACGCGCAATTGAATTATGGCCACACCAAGTGGCGGGGACTTCCAGTTCAACATCAGCCGTACAGTCAACAGCAACTGATGG  
969▶ GlyLeuArgCysGlyThrArgGluLeuAsnTyrGlyProHisGlnTrpArgGlyAspPheGlnPheAsnI leSerArgTyrSerGlnGlnGlnLeuMetG  
3701 AAACCAGCCATCGCCATCTGCTGCACGCGGAAGAAGGCACATGGCTGAATATCGACGGTTTCCATATGGGGATTGGTGGCGAGACTCTGGAGCCCGTC  
1002▶ luThrSerHisArgHisLeuLeuHisAlaGluGluGlyThrTrpLeuAsnI leAspGlyPheHisMetGlyI leGlyGlyAspAspSerTrpSerProSe  
EcoRI (3881)  
3801 AGTATCGCGGAATTACAGCTGAGCGCGGTCTGCTACCATTACCAGTTGGTCTGGTGTCAAAAAATAATAATCTAGTCGAGAATTCGCTAGCTCGACATGA  
1035▶ rValSerAlaGluLeuGlnLeuSerAlaGlyArgTyrHisTyrGlnLeuValTrpCysGlnLys•••  
3901 TAAGATACATTGATGAGTTTGGACAAACCACAACCTAGAATGCAGTGAATAAATGCTTTATTGTGAAATTTGTGATGCTATTGCTTTATTTGTGAAATT  
4001 TGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAAGTTAACAACAACAATTGCATTCTTTATGTTTCAGGTTTCAGGGGGAGGTGT  
PacI (4162)  
4101 GGGAGGTTTTTTAAAGCAAGTAAACCTCTACAAATGTGGTAGATCCATTTAAATGTTAATTAAGTACCCATGACCAAAATCCCTTAACGTGAGTTTTCG  
4201 TTCCACTGAGCGTCAGACCCCGTAGAAAAGATCAAAGGATCTTCTTGAGATCCTTTTTTCTGCGCGTAATCTGCTGCTTGC AAACAAAAAACCCGCG  
4301 TACCAGCGGTGGTTTGTGGCCGATCAAGAGCTACCAACTCTTTTTCCGAAGGTAAGTGGCTTCCAGAGCGCAGATACCAATACTGTTCTTCTAGT  
4401 GTAGCCGTAGTTAGCCACCCTTCAAGAACTCTGTAGCACCCTACATACCTCGCTCTGCTAATCCTGTTACCAGTGGCTGCTGCCAGTGGCGATAAG  
4501 TCGTGTCTTACC GGTTGGACTCAAGACGATAGTTACCGGATAAGGCGCAGCGGTGCGGGCTGAACGGGGGGTTCTGTGCACACAGCCAGCTTGGAGCGAA  
4601 CGACCTACACCGAACTGAGATACTACAGCGTGAGCTATGAGAAAGCGCCACGCTTCCCGAAGGGAGAAAGGCGGACAGGTATCCGGTAAGCGGCAGGGT  
4701 CGGAACAGGAGAGCGCACGAGGGAGCTTCCAGGGGAAACGCCTGGTATCTTTATAGTCTGTGCGGGTTTCGCCACCTTGACTTGAGCGTCGATTTTTG  
PacI (4902)  
4801 TGATGCTCGTCAGGGGGCGGAGCCTATGAAAAACGCCAGCAACGCGGCCTTTTTACGGTTCCTGGCCTTTTGCTGCCTTTTGCTCACATGTTCTTAA  
4901 TTAATTTTTCAAAGTAGTTGACAATTAATCATCGGCATAGTATATCGGCATAGTATAATACGACTCACTATAGGAGGGCCATCATGGCCAAGTTGAC  
1▶MetAlaLysLeuTh  
5000 CAGTGTGTCCAGTGTCTCACAGCCAGGGATGTGGCTGGAGCTGTTGAGTTCTGGACTGACAGGTTGGGGTTCCTCCAGAGATTTTGGGAGGATGACTTT  
5▶rSerAlaValProValLeuThrAlaArgAspValAlaGlyAlaValGluPheTrpThrAspArgLeuGlyPheSerArgAspPheValGluAspAspPhe  
5100 GCAGGTGTGGTCAGAGATGATGTCACCCTGTTTCATCTCAGCAGTCCAGGACCAGGTGGTGCCTGACAACACCCTGGCTTGGGTGAGAGGACTGG  
39▶AlaGlyValValArgAspAspValThrLeuPheI leSerAlaValGlnAspGlnValValProAspAsnThrLeuAlaTrpValTrpValArgGlyLeuA  
5200 ATGAGCTGTATGCTGAGTGGAGTGAGGTGCTCCACCACTCAGGGATGCCAGTGGCCCTGCCATGACAGAGATTGGAGAGCAGCCCTGGGGGAGAGA  
72▶spGluLeuTyrAlaGluTrpSerGluValValSerThrAsnPheArgAspAlaSerGlyProAlaMetThrGluI leGlyGluGlnProTrpGlyArgGlu  
5300 GTTGCCCTGAGAGACCAGCAGGCAACTGTGTGCACCTTGTGGCAGAGGAGCAGGACTGAGGATAAGAATTGTAACAAAAACCCCGCCCGGGGGT  
105▶uPheAlaLeuArgAspProAlaGlyAsnCysValHisPheValAlaGluGluGlnAsp•••  
PacI (5411)  
5400 TTTTTGTTAATTAA  
▶