



PstI (7) SpeI (14)

1 C**CTG**CAGGGCCCACTAGTTTCATCACCACCGCCACCCCCCGCCCGCCCATCTGAAAGGGTTCTAGGGGATTTGCAACCTCTCTCGTGTGTTTCTTC
101 TTCCGAGAAGCGCCGCCACACGAGAAAGCTGGCCGCGAAAGTCGTGCTGGAATCACTTCCAACGAAACCCAGGCATAGATGGGAAAGGGTGAAGAACA
201 CGTTGCCATGGCTACCGTTTCCCGGTCACGGAATAAACGCTCTCTAGGATCCGGAAGTAGTTCCGCGCGACCTCTCTAAAAGGATGGATGTTTCTCT
301 GCTTACATTCATTGGACGTTTTCCCTTAGAGGCCAAGGCCGCCAGGCAAAGGGGGCGTCCACGCGTGAGGGGCCCGGAGCCATTTGATTGGAGAAA
401 AGCTGCAAACCCTGACCAATCGGAAGGAGCCACGCTTCGGGCATCGGTACCCGACCTGGACAGCTCCGATTGGTGGACTTCCGCCCCCTCACGAATC
501 CTCATTGGGTGCGGTGGGTGCGTGGTGGCGCGATTGGTGGGTTATGTTTCCCGTCCCGCCCGCGAGAAGTGGGGGTGAAAGCGGCCCGACCTGC
601 TTGGGGTGTAGTGGGCGACCGCGCGGCTGGAGGTGTGAGGATCCGAACCCAGGGGTGGGGGTGGAGGCGGCTCTCGCATCGAAGGGGACTTGAGACT

BspHI (715)

701 CACCGCGCCGACG**T**ATGAGCGGTTCTCATCATCATCATCATGGTATGGCTAGCATGACTGGTGGACGAAATGGGTGGGATCTGTACGACGATG
MetSerGlySerHisHisHisHisHisHisGlyMetAlaSerMetThrGlyGlyGlnGlnMetGlyArgAspLeuTyrAspAspA
801 ACGATAAGGTACCTAAGGATCAGCTTGGAGTTGATCCCGTGGTTTACAACGCTGCTGACTGGGAAAACCCCTGGCGTTACCCAACCTAATCGCCTTGCAGC
29 spAspLysValProLysAspGlnLeuGlyValAspProValValLeuGlnArgAspTrpGluAsnProGlyValThrGlnLeuAsnArgLeuAlaAl
901 ACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCGACCGATCGCCCTTCCAACAGTTGCGCAGCCTGAATGGCGAATGGCGCTTTCCTGG
62 aHisProProPheAlaSerTrpArgAsnSerGluGluAlaArgThrAspArgProSerGlnGlnLeuArgSerLeuAsnGlyGluTrpArgPheAlaTrp
1001 TTTCCGGCACCAGAAGCGGTGGCGGAAAGCTGGCTGGAGTGGCATCTTCTGAGGCCGATATGTCGTCGTCGCCCTCAAACCTGGCAGATGCACGGTTACG
96 PheProAlaProGluAlaValProGluSerTrpLeuGluCysAspLeuProGluAlaAspThrValValValProSerAsnTrpGlnMetHisGlyTyrA
1101 ATGCGCCCATCTACACCAACGTAACCTATCCCATACGGTCAATCCGCGGTTTGTCCACGGAGAATCCGACGGGTTGTTACTCGCTCACATTTAATGT
129 spAlaProIeTyrThrAsnValThrTrpProIeThrValAsnProPheValProThrGluAsnProThrGlyCysTyrSerLeuPheAsnVa
1201 TGATGAAAGCTGGCTACAGGAAGGCCAGACGCGAATATTTTTGATGGCGTTAACTCGGCGTTTCATCTGTGGTGCAACGGCGCTGGGTTCGGTTACGGC
162 lAspGluSerTrpLeuGlnGluGlyGlnThrArgIleIePheAspGlyValAsnSerAlaPheHisLeuTrpCysAsnGlyArgTrpValGlyTyrGly
1301 CAGGACAGTCGTTTGGCGTCTGAATTTGACCTGAGCGCATTTTTACGGCCCGGAGAAAACCGCCTCGCGGTGATGGTGTGCGGTTGGAGTGACGGCAGTT
196 GlnAspSerArgLeuProSerGluPheAspLeuSerAlaPheLeuArgAlaGlyLeuAsnArgLeuAlaValMetValLeuArgTrpSerAspGlySerT
1401 ATCTGGAAGATCAGGATATGTGGCGGATGAGCGGCATTTCCGTGACGCTCTGTTGCTGCATAAACCGACTACAAAATCAGCGATTTCATGTTGCCAC
229 yrLeuGluAspGlnAspMetTrpArgMetSerGlyIlePheArgAspValSerLeuLeuHisLysProThrThrGlnIleSerAspPheHisValAlaTh
1501 TCGTTTTAATGATGATTTTCAGCCGCGTGTACTGGAGGCTGAAGTTCAGATGTGCGCGGAGTTGCGTGACTACCTACGGGTAACAGTTTCTTTATGGCAG
262 rArgPheAsnAspAspPheSerArgAlaValLeuGluAlaGluValGlnMetCysGlyGluLeuArgAspTyrLeuArgValThrValSerLeuTrpGln
1601 GGTGAAACGCGAGTCCGACGGCACCAGCGCCTTTCGGCGGTGAAATATCGATGAGCGTGGTGGTTATGCCGATCCGCTCACACTACGCTGAACGCTCG
296 GlyGluThrGlnValAlaSerGlyThrAlaProPheGlyGlyGluIleIeAspGluGlyGlyTyrAlaAspArgValThrLeuArgLeuAsnValG
1701 AAAACCCGAACTGTGGAGCGCGAAATCCCGAATCTCTATCGTGGCGTGGTGAACGACACCGCGACGGCAGCGTATTGAAGCAGAAGCCTGCCGA
329 luAsnProLysLeuTrpSerAlaGluIleProAsnLeuTyrArgAlaValValGluLeuHisThrAlaAspGlyThrLeuIleGluAlaGluAlaCysAs
1801 TGTCGGTTTCCGCGAGTGGCGATTGAAAATGGTCTGCTGCTGCTGAACGGCAAGCGGTTGCTGATTTCGAGGCGTTAACCGTACGAGCATCATCTCTG
362 pValGlyPheArgGluValArgIleGluAsnGlyLeuLeuLeuAsnGlyLysProLeuLeuIleArgGlyValAsnArgHisHisHisProLeu
1901 CATGGTACGGTCATGGATGAGCAGCATGGTGCAGGATATCTGCTGATGAAGCAGAACTTAACCGCGTGGCTGTTTCGCTATTCCGAACCATC
396 HisGlyGlnValMetAspGluGlnThrMetValGlnAspIleLeuLeuMetLysGlnAsnAsnPheAsnAlaValArgCysSerHisTyrProAsnHisP
2001 CGCTGTGTACAGCTGTGCGACCGCTACGGCCTGTATGTGGTGGATGAAGCAATATTGAAACCCAGGCATGGTGCCAATGAATCGTCTGACCGATGA
429 roLeuTrpTyrThrLeuCysAspArgTyrGlyLeuTyrValValAspGluAlaAsnIleGluThrHisGlyMetValProMetAsnArgLeuThrAspAs
2101 TCCGCGCTGGCTACCGCGATGAGCGAACCGTAACCGAATGGTGCAGCGCGATCGTAATCACCGAGTGTGATCATCTGGTCCGTTGGGAATGAATCA
462 pProArgTrpLeuProAlaMetSerGluArgValThrArgMetValGlnArgAspArgAsnHisProSerValIleIeTrpSerLeuGlyAsnGluSer
2201 GGCCACGGCGTAATCACGACGCGCTGTATCGCTGGATCAAATCTGTCGATCCTTCCCGCCCGTGCAGTATGAAGCGCGGAGCCGACACCAGGCCA
496 GlyHisGlyAlaAsnHisAspAlaLeuTyrArgTrpIleLysSerValAspProSerArgProValGlnTyrGluGlyGlyAlaAspThrThrAlaT
2301 CCGATATATTTGCCCGATGTACGCGCGCGTGGATGAAGACCAGCCCTTCCCGGCTGTGCCGAAATGGTCCATCAAAAAATGGCTTTCGCTACCTGGAGA
529 hrAspIleIeCysProMetTyrAlaArgValAspGluAspGlnProPheProAlaValProLysTrpSerIleLysLysTrpLeuSerLeuProGlyGly
2401 ACAGCGCCCGCTGATCTTTGGCAATACGCCACCGCATGGTGAACGATCTTGGCGGTTTCGCTAAATACTGGCAGGCGTTTCGTCAGTATCCCGTTA
562 uThrArgProLeuIleLeuCysGluTyrAlaHisAlaMetGlyAsnSerLeuGlyGlyPheAlaLysTyrTrpGlnAlaPheArgGlnTyrProArgLeu
2501 CAGGGCGGCTTCGTCTGGGACTGGGTGGATCAGTCTGATTAATATGATGAAACGGCAACCCGTTGGTGGCTTACGGCGGTGATTTGGCGATAGCC
596 GlnGlyGlyPheValTrpAspTrpValAspGlnSerLeuIleLysTyrAspGluAsnGlyAsnProTrpSerAlaTyrGlyGlyAspPheGlyAspThrP
2601 CGAACGATCGCCAGTCTGTATGAACGGTCTGGTCTTTGCCGACCGCAGCCGATCCAGCGCTGACGGAAGCAAAACACCAGCAGCAGTTTTCCAGTT
629 roAsnAspArgGlnPheCysMetAsnGlyLeuValPheAlaAspArgThrProHisProAlaLeuThrGluAlaLysHisGlnGlnPhePheGlnPh
2701 CCGTTTTATCCGGGCAAACCATCGAAGTGACCAGCAATACCTGTTCCGTCATAGCGATAACGAGCTCCTGCAGTGGTGGCGCTGGATGGTAAAGCCG
662 eArgLeuSerGlyGlnThrIleGluValThrSerGluTyrLeuPheArgHisSerAspAsnGluLeuLeuHisTrpMetValAlaLeuAspGlyLysPro
2801 CTGGCAAGCGGTGAAGTGCCTCTGGATGTCGCTCCACAAGGTAACAGTTGATTGAACTGCCTGAACTACCGCAGCCGAGAGCGCCGGCAACTCTGGC
696 LeuAlaSerGlyGluValProLeuAspValAlaProGlnGlyLysGlnLeuIleGluLeuProGluLeuGlnProGluSerAlaGlyGlnTrpL
2901 TCACAGTACCGCTAGTGCACCGAACCGCAGCCGATGGTCAGAAAGCGGACATCAGCGCCTGGCAGCAGTGGCGCTGGCGGAAAACCTCAGTGTGAC
729 euThrValArgValValGlnProAsnAlaThrAlaTrpSerGluAlaGlyHisIleSerAlaTrpGlnGlnTrpArgLeuAlaGluAsnLeuSerValTh
3001 GCTCCCCGCGCGTCCACGCCATCCCGCATCTGACCACCAGCGAAATGGATTTTTGCATCGAGCTGGGTAATAAGCGTTGGCAATTAACCGCAGTCA
762 rLeuProAlaAlaSerHisAlaIleProHisLeuThrThrSerGluMetAspPheCysIleGluLeuGlyAsnLysArgTrpGlnPheAsnArgGlnSer
3101 GGCTTTCTTTCACAGATGTGGATTGGCGATAAAAAACAATGCTGACCGCGCTGCGCGATCAGTTTACCCGTCACCGCTGGATAACGACATTGGCGTAA
796 pProPheLeuSerGlnMetTrpIleGlyAspLysLysGlnLeuLeuThrProLeuArgAspGlnPheThrArgAlaProLeuAspAsnAspIleGlyValS
3201 GTGAAGCGACCCGATTAACCTAACCGCTGGGTGGAACCGTGAAGCGCGCGGCCATTACCAGGCCGAGCAGCGTTGTTGACGTGCACGGCAGATAAC
829 erGluAlaThrArgIleAspProAsnAlaTrpValGluArgTrpLysAlaAlaGlyHisTyrGlnAlaGluAlaAlaLeuLeuGlnCysThrAlaAspTh
3301 ACTTGCTGATGGGTGCTGATTACGACCGCTACCGCTGCGCAGCATAGGGGAAAACCTTATTTATCAGCCGAAAACCTACCGGATTGATGGTAGTGGT
862 rLeuAlaSerAlaValAlaIleThrThrAlaHisAlaTrpGlnHisGlnGlyLysThrLeuPheIleSerArgLysThrTyrArgIleAspGlySerGly
3401 CAAATGGCGATTACCGTTGATGTTGAAGTGGCGAGCATACACCGCATCCGCGCGGATTGGCCGTAACCTGCACTGGCAGCTGGCGAGCAGAGCGGGTAA
896 GlnMetAlaIleThrValAspValGluValAlaSerAspThrProHisProAlaArgIleGlyLeuAsnCysGlnLeuAlaGlnValAlaGluArgValA
3501 ACTGGCTCGGATTAGGCGCGAAGAAAATATCCCGACCGCCTTACTGCGCGCTGTTTTGACCGCTGGGATCTGCCATTGTACAGACATGTATACCCCGTA
929 snTrpLeuGlyLeuGlyProGlnGluAsnTyrProAspArgLeuThrAlaAlaCysPheAspArgTrpAspLeuProLeuSerAspMetTyrThrProTy

3601 CGTCTTCCGAGCGAAAAACGGTCTGCGCTGCGGGACGCGGAATTGAATTATGGCCACACCAGTGGCGGGCGACTTCCAGTTCAACATCAGCCGCTAC
962▶ rValPheProSerGluAsnGlyLeuArgCysGlyThrArgGluLeuAsnTyrGlyProHisGlnTrpArgGlyAspPheGlnPheAsnI leSerArgTyr
3701 AGTCAACAGCAACTGATGGAAACCAGCCATCGCCATCTGCTGCACGGGAAGAGGCACATGGTGAATATCGACGGTTTCCATATGGGATTGGTGGCG
996▶ SerGlnGlnGlnLeuMetGluThrSerHisArgHisLeuLeuHisAlaGluGluGlyThrTrpLeuAsnI leAspGlyPheHisMetGlyI leGlyGlyA
EcoRI (3900)

3801 ACGACTCCTGGAGCCCCTCAGTATCGGCGGAATTACAGCTGAGCGCCGGTCTGCTACCATTACCAGTTGGTCTGGTGTCAAAAATAATAATCTAGTCGAGA
1029▶ spAspSerTrpSerProSerValSerAlaGluLeuGlnLeuSerAlaGlyArgTyrHisTyrGlnLeuValTrpCysGlnLys•••
3901 ATTGCTAGCTCGACATGATAAGATACATTGATGAGTTTGGACAAACCACAACCTAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTA

4001 TTGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAAACAAGTTAACAACAACAATTGCATTCATTTTATGTTT

Pacl (4181)

4101 CAGGTTCCAGGGGAGGTGTGGGAGGTTTTTTAAAGCAAGTAAACCTCTACAAATGTGGTAGATCCATTTAAATGTTAATTAAGTAGCCATGACCAAAAT

4201 CCCTTAACGTGAGTTTTTCGTTCCACTGAGCGTCAGACCCCGTAGAAAAGATCAAAGGATCTTCTTGAGATCCTTTTTTCTGCGCGTAATCTGCTGCTTG

4301 CAAACAAAAAACACCCTACCAGCGGTGTTTGTGTTGCCGATCAAGAGCTACCAACTCTTTTTCCGAAGGTAACCTGGCTTCAGCAGAGCCGAGATAC

4401 CAAATACTGTTCTTCTAGTGTAGCCGTAGTTAGGCCACCACTTCAAGAACTCTGTAGCACCGCTACATACCTCGCTCTGCTAATCCTGTTACCAGTGGC

4501 TGCTGCCAGTGGCGATAAGTCGTGCTTACCAGGTTGGACTCAAGACGATAGTTACCAGGATAAGCGGCAGCGGTGCGGCTGAAACGGGGGTTTCGTGCACA

4601 CAGCCCAGCTTGGAGCGAACGACCTACACCGAACTGAGATACCTACAGCGTGAGCTATGAGAAAGCGCCACGCTTCCCGAAGGGAGAAAGCGGACAGGT

4701 ATCCGGTAAGCGGCAGGGTCGGAACAGGAGAGCGCACGAGGGAGCTTCCAGGGGAAACGCCTGGTATCTTTATAGTCTGTGCGGTTTCGCCACCTCTG

4801 ACTTGAGCGTCGATTTTTGTGATGCTCGTCAGGGGGCGGAGCCTATGGAAAAACGCCAGCAACCGCGCCTTTTTACGGTTCCTGCCCTTTTGTGCGCT

Pacl (4921)

4901 TTTGCTCACATGTTCTTAATTAATTTTCAAAAGTAGTTGACAATTAATCATCGGCATAGTATATCGGCATAGTATAATACGACTCACTATAGGAGGGC

5001 CATCATGGCCAAGTTGACCAGTGTGTCACAGCCAGGGATGTGGCTGGAGCTGTTGAGTTCTGGACTGACAGGTTGGGGTTCTCCAGAGAT
1▶ MetAlaLysLeuThrSerAlaValProValLeuThrAlaArgAspValAlaGlyAlaValGluPheTrpThrAspArgLeuGlyPheSerArgAsp
5101 TTTGTGGAGGATGACTTTGCAGGTGTGGTCAGAGATGATGTCACCCTGTTTCATCTCAGCAGTCCAGGACCAGGTGGTGCCTGACAACACCCTGGCTTGGG
33▶ PheValGluAspAspPheAlaGlyValValArgAspAspValThrLeuPheI leSerAlaValGlnAspGlnValValProAspAsnThrLeuAlaTrpV
5201 TGTGGGTGAGAGGACTGGATGAGCTGTATGCTGAGTGGAGTGAGGTGGTCTCCACCAACTTCAGGGATGCCAGTGGCCCTGCCATGACAGAGATTGGAGA
66▶ alTrpValArgGlyLeuAspGluLeuTyrAlaGluTrpSerGluValValSerThrAsnPheArgAspAlaSerGlyProAlaMetThrGluI leGlyGl
5301 GCAGCCCTGGGGGAGAGAGTTTGCCTGAGAGACCCAGCAGGCAACTGTGTGCACTTGTGGCAGAGGAGCAGGACTGAGGATAAGAAATTGAGTTTCAGA
99▶ uGlnProTrpGlyArgGluPheAlaLeuArgAspProAlaGlyAsnCysValHisPheValAlaGluGluGlnAsp•••

Pacl (5437)

5401 AAAGGGGGCCTGAGTGGCCCTTTTTTCAACTTAATTAA