



SdaI (7) SpeI (14)

1 CCTGCAGGGCCACTAGTCTGTAAGCTGGAAGTCTGGCAGTGTGAGCTGGCCAACCCCTCAGGACCTCCTCTTGTGCCACTGAATGACTCACCTTG
101 GCATAGACATAATGGTCAGGGCGGGCACACAGCCTGATTCCCGCTGCACTCCAGGCCCTTCAATGCTTTCCGAGAAGTCCATTGAGCTGGGAGCTTG
201 TACTGCACCAAGGGCTGACATCCTGGCAGCCAGGGATGAAAGCAGCCCATGGGGCTACCCTTGCCTATGCCTCACTGGCGGCAGAGAAACAAGGCTCTAT
301 TCAGCAAATGCCCTGGAGTAGACACCAGAAGTCCAAGCATGGGCAGAGGAAGGCAGGCGTTGGGGCTGGAGGGGAGCAGAGCTGTCTGTTTTCCAGAAG
401 CCCAAGGTACAGATGGCGCCTGGGGGGAAGTGAAGTGGAGGGGATAGATGGGCCTGAGATCTCAAACATCAACAGCCTCCTCCCCACCAACGATGAAGG
501 TGGAGGTTGGTTTCCAGACCTACATATCCCCAGAGACCTGGTGTATGAAAATTCAAAGGAGGTAAGTCTCCTGAGAGAACGGGGGCTCACAAATGAA
601 GCCAGCTGTCTTACCCTATCAGGACCTACGTGCATTCTTCTGTCTGCCCCCTAAACACACAGCCAGAGGCTCAAATTGATTCTGGAGTCAAAAGGGG
701 GCTTGAAACCCAGCCCCACTCCTGAACTCCAGGAATGAGAAGATAGTATTGGAGGGGTTAGAGGAGAGGGCTTGCACATCTGTTGAGAATGGGGG
801 TCCAGGAGAGTGAATTTAGGCTGATCCGGAGGAAGGAATAGGCTTCCAAGATCTAGCATCTCACAGGCCACAGAGAAGTTCAGAGTTGGGGCA
901 GCCCTGGCTTACAGGCTAAGAAGTGGAGGCAGTTTACCCAACCCAGCTGTGTGCATGTCTCCCTCTCTGTCTGTCTGTCTCTCTGTCTCTG
1001 TCTCTGT
1101 AGACACTGTTGACTTGGTTGTATGAGATAACATTTCCCCTGGGACCTGGGATTTGCCAATTAGTGTGACCCAGGAAGCCTACTTATTTTCATTCTCAG
1201 CACTGCAGTTACAAGTATGCACTGTCAAACCAGGCCTTTTTTTTTTTTTTTTTTCCAAACCAGGCCTTTTGTATTGCTCTGTGGCTAGAACTGGGTCTC
1301 CATGCTTGACAGGCAAGCGATTTATGGACTAAGCTGTTTCTCGGCCCTCTCTTGACCCATTTACCAGAAATGGGGTTTCTTGATCAATGGTTAAGCCA
1401 GGCTGGTGTCCAGGAAACCCCTTACTCTGGGTACAGTGACCTTGGTGGGGTGAGAAGAGTTCTCTCCATAGCTGGGCTGGGGCCAGCTCCACCCCT
1501 CAGGCTATTCAATGGGGTGCTGCCAGGAAGTCAGGGCAGATCCAGTCCAGCCCGTCCCTCAATAAAGGCCCTGACATCCAGGAGCCAGCAGAAAGCAGG

BspHI (1605)

1601 GCATCATGAGCGGTTCTCATCATCATCATCATCATGGTATGGCTAGCATGACTGGTGGACAGCAAATGGGTCGGGATCTGTACGACGATGACGATAAGGT
MetSerGlySerHisHisHisHisHisHisGlyMetAlaSerMetThrGlyGlyGlnGlnMetGlyArgAspLeuTyrAspAspAspAspLysVa
1701 ACCTAAGGATCAGCTTGGAGTTGATCCCGTCTGTTTTACAACGTCGTGACTGGGAAAACCCCTGGCGTTACCCAACCTAATCGCCTTGACAGACATCCCCCT
32 IProLysAspGlnLeuGlyValAspProValValLeuGlnArgArgAspTrpGluAsnProGlyValThrGlnLeuAsnArgLeuAlaAlaHisProPro
1801 TTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAACAGTTGGCGAGCCTGAATGGCGAATGGCGCTTGGCTGGTTCCGGGCAC
66 PheAlaSerTrpArgAsnSerGluGluAlaArgThrAspArgProSerGlnGlnLeuArgSerLeuAsnGlyGluTrpArgPheAlaTrpPheProAlaP
1901 CAGAAGCGGTGCCGAAAAGCTGGCTGGAGTGGCATCTTCTGAGGCCGATACCTGCTGCTGCCCTCAAACCTGGCAGATGCACGGTTACGATGGCCCAT
99 roGluAlaValProGluSerTrpLeuGluCysAspLeuProGluAlaAspThrValValValProSerAsnTrpGlnMetHisGlyTyrAspAlaProI
2001 CTACACCAACGTAACCTATCCATTACGGTCAATCCGCCGTTTGTCCACGGAGAATCCGACGGGTTGTTACTCGCTCACATTTAATGTTGATGAAAGC
132 eTyrThrAsnValThrTyrProI leThrValAsnProProPheValProThrGluAsnProThrGlyCysTyrSerLeuThrPheAsnValAspGluSer
2101 TGGCTACAGGAAGGCCAGACCGAATATTTTTGATGGCGTTAACTCGGCGTTTCATCTGTGGTGCAACGGGCGTGGGTCGGTTACGGCCAGGACAGTC
166 TrpLeuGlnGluGlyGlnThrArgI leI lePheAspGlyValAsnSerAlaPheHisLeuTrpCysAsnGlyArgTrpValGlyTyrGlyGlnAspSerA
2201 GTTTGCCGTCTGAATTTGACCTGAGCGCATTTTTACGCGCCGGAGAAAACCCCTCGCGGTGATGGTGTGCGTTGGAGTGACGGCAGTTATCTGGAAGA
199 rgLeuProSerGluPheAspLeuSerAlaPheLeuArgAlaGlyGluAsnArgLeuAlaValMetValLeuArgTrpSerAspGlySerTyrLeuGluAs
2301 TCAGGATATGTGGCGGATGAGCGGCATTTCCGCTGAGCTCTCGTTGCTGCATAAACCCGACTACACAAATCAGCGATTTCATGTTGCCACTCGCTTAAAT
232 pGlnAspMetTrpArgMetSerGlyI lePheArgAspValSerLeuLeuHisLysProThrThrGlnI leSerAspPheHisValAlaThrArgPheAsn
2401 GATGATTTACGCCGCTGTACTGGAGGCTGAAGTTACAGATGTGCGCGAGTTGCGTGACTACCTACGGGTAACAGTTCTTTATGGCAGGTTGAAACGC
266 AspAspPheSerArgAlaValLeuGluAlaGluValGlnMetCysGlyGluLeuArgAspTyrLeuArgValThrValSerLeuTrpGlnGlyGluThrG
2501 AGTTCGCCAGCGGCACCGCCCTTTCGGCGGTGAAATATCGATGAGCGTGGTGGTTATGCCGATCGCGTCACACTAGCTCTGAACGTCGAAAACCCGAA
299 InValAlaSerGlyThrAlaProPheGlyGlyGluI leI leAspGluArgGlyGlyTyrAlaAspArgValThrLeuArgLeuAsnValGluAsnProLy
2601 ACTGTGGAGCGCGAAATCCCAATCTCTATCGTGGCGTGGTGAAGTGCACACCGCCGACGGCAGCTGATTGAAGCAGAAGCCTGGATGTCGGTTTC
332 sLeuTrpSerAlaGluI leProAsnLeuTyrArgAlaValValGluLeuHisThrAlaAspGlyThrLeuI leGluAlaGluAlaCysAspValGlyPhe
2701 CGCGAGGTGGGATTGAAAATGGTCTGCTGCTGCTGAACGGCAAGCCGTTGCTGATTGAGGCGTTAACCGTCACGAGCATCATCTCTGCATGGTCAGG
366 ArgGluValArgI leGluAsnGlyLeuLeuLeuLeuAsnGlyLysProLeuLeuI leArgGlyValAsnArgHisGluHisHisProLeuHisGlyGlnV
2801 TCATGGATGAGCAGACGATGGTGCAGGATATCCTGCTGATGAAGCAGAACTTTAACCCGCTGCGCTGTTGCGATTATCCGAACCATCCGCTGTGGTA
399 alMetAspGluGlnThrMetValGlnAspI leLeuLeuMetLysGlnAsnAsnPheAsnAlaValArgCysSerHisLeuTrpProAsnHisProLeuTrpTy
2901 CAGCTGTGGCAGCTGATCGCCCTGTATGTGGTGAAGCAATATGAAACCCAGCCATGGTGGCAATGAATCTGCTGACCGATGATCCGCGCTGG
432 rThrLeuCysAspArgTyrGlyLeuTyrValValAspGluAlaAsnI leGluThrHisGlyMetValProMetAsnArgLeuThrAspAspProArgTrp
3001 CTACCGCGATGAGCGAACCGTAACCGAATGGTGCAGCGGATCGTAATCCCGAGTGTGATCATCTGGTGGTGGGAAATGAATCAGGCCACGGCG
466 LeuProAlaMetSerGluArgValThrArgMetValGlnArgAspArgAsnHisProSerValI leI leTrpSerLeuGlyAsnGluSerGlyHisGlyA
3101 CTAATCAGCAGCGCTGATCGCTGGATCAAATCTGTCGATCCTTCCGCCCCGTCAGTATGAAGGCGGGAGCCGACACCACGGCCACCGATATTA
499 laAsnHisAspAlaLeuTyrArgTrpI leLysSerValAspProSerArgProValGlnTyrGluGlyGlyAlaAspThrThrAlaThrAspI leI
3201 TTGCCGATGTACGCGCGCTGGATGAAGACCAGCCCTTCCGGCTGTGCCGAAATGGTCCATCAAAAAATGGCTTTTCGCTACCTGGAGAGACGGCCCG
532 eCysProMetTyrAlaArgValAspGluAspGlnProPheProAlaValProLysTrpSerI leLysLysTrpLeuSerLeuProGlyGluThrArgPro
3301 CTGATCCTTTGGCAATACGCCACCGGATGGGTAACAGTCTTGGCGGTTTCCGTAATACTGGCAGGCGTTTTCGTCAGTATCCCGTTTACAGGGCGGCT
566 LeuI leLeuCysGluTyrAlaHisAlaMetGlyAsnSerLeuGlyGlyPheAlaLysTyrTrpGlnAlaPheAlaAspThrThrAlaThrAspI leI
3401 TCGTCTGGAGTGGGTGATCAGTCCGCTGATTAATAATGATGAAACCCGCAACCCGCTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGG
599 heValTrpAspTrpValAspGlnSerLeuI leLysTyrAspGluAsnGlyAsnProTrpSerAlaTyrGlyGlyAspPheGlyAspThrProAsnAspAr
3501 CCAGTTCTGATGAACGGTCTGGTCTTTGCCAGCCGACGGCATCCAGCGCTGACGGAAGCAAAACACCAGCAGAGTTTTTCCAGTTCCGTTTATCC
632 gGlnPheCysMetAsnGlyLeuValPheAlaAspArgThrProHisProAlaLeuThrGluAlaLysHisGlnGlnGlnPhePheGlnPheArgLeuSer

3601 GGGCAAACCATCGAAGTGACCAGCGAATACCTGTTCCGTCATAGCGATAACGAGCTCTGCACTGGATGGTGGCGCTGGATGTTAAGCCGCTGGCAAGCG
 666 GlyGlnThrI leGluValThrSerGluTyrLeuPheArgHisSerAspAsnGluLeuLeuHisTrpMetValAlaLeuAspGlyLysProLeuAlaSerG
 3701 GTGAAGTGCTCTGGATGTCGCTCCACAAGGTAACAGTTGATTGAACTGCCTGAACTACCCGAGCCGGAGAGCGCCGGCAACTCTGGCTCACAGTACG
 699 l yGluValProLeuAspValAlaProGlnGlyLysGlnLeuI leGluLeuProGluLeuProGlnProGluSerAlaGlyGlnLeuTrpLeuThrValAr
 3801 CGTAGTGAACCGAACCGACCGCATGGTCTAGAAGCCGGGCACATCAGCGCTGGCAGCAGTGGCGTCTGGCGGAAAACCTCAGTGTGACGCTCCCCGC
 732 gValValGlnProAsnAlaThrAlaTrpSerGluAlaGlyHisI leSerAlaTrpGlnGlnTrpArgLeuAlaGluAsnLeuSerValThrLeuProAla
 3901 GCGTCCCACGCCATCCCGCATCTGACCACCAGCGAAATGGATTTTTGCATCGAGCTGGGTAATAAGCGTTGGCAATTTAACGCCAGTCAGGCTTTCTTT
 766 AlaSerHisAlaI leProHisLeuThrThrSerGluMetAspPheCysI leGluLeuGlyAsnLysArgTrpGlnPheAsnArgGlnSerGlyPheLeuS
 4001 CACAGATGTGGATTGGCGATAAAAAACAACCTGCTGACGCCGCTGCGCGATCAGTTACCCCGTGCACCCTGGATAACGACATTGGCGTAAGTGAAGCGAC
 799 erGlnMetTrpI leGlyAspLysLysGlnLeuLeuThrProLeuArgAspGlnPheThrArgAlaProLeuAspAsnAspI leGlyValSerGluAlaTh
 4101 CCGCATTGACCCTAACGCTGGGTGCAACGCTGGAAGGCGGGCCATTACCAGGCCGAGCAGCGTTGTTGCAGTGCACGGCAGATACACTTGCTGAT
 832 rArgI leAspProAsnAlaTrpValGluArgTrpLysAlaAlaGlyHisTyrGlnAlaGluAlaAlaLeuLeuGlnCysThrAlaAspThrLeuAlaAsp
 4201 GCGGTGCTGATTACGACCGCTCAGCGTGGCAGCATCAGGGAAAACCTTATTTATCAGCCGAAAACCTACCGGATTGATGGTAGTGGTCAAATGGCGA
 866 AlaValLeuI leThrThrAlaHisAlaTrpGlnHisGlnGlyLysThrLeuPheI leSerArgLysThrTyrArgI leAspGlySerGlyGlnMetAlaI
 4301 TTACCGTTGATGTTGAAGTGGCGAGGATACACCGCATCCGGCGGGATTGGCTGAACTGCCAGCTGGCGCAGGTAGCAGAGCGGGTAAACTGGCTCGG
 899 l eThrValAspValGluValAlaSerAspThrProHisProAlaArgI leGlyLeuAsnCysGlnProAlaGlnValAlaGluArgValAsnTrpLeuG
 4401 ATTAGGGCCGCAAGAAAATATCCCGACCGCCTTACTGCCGCTGTTTTGACCGCTGGGATCTGCCATTGTCAGACATGTATACCCCGTACGCTTCCCG
 932 yLeuGlyProGlnGluAsnTyrProAspArgLeuThrAlaAlaCysPheAspArgTrpAspLeuProLeuSerAspMetTyrThrProTyrValPhePro
 4501 AGCGAAAACGGTCTGCGCTGCGGGACGCGCAATTGAATTATGGCCACACCACTGGCGCGGCGACTCCAGTTCAACATCAGCCGCTACAGTCAACAGC
 966 SerGluAsnGlyLeuArgCysGlyThrArgGluLeuAsnTyrGlyProHisGlnTrpArgGlyAspPheGlnPheAsnI leSerArgTyrSerGlnGlnG
 4601 AACTGATGGAAACCGCATCGCCATCTGCTGCACGGGAAGAGGCACATGGCTGAATATCGACGGTTTCCATATGGGGATTGGTGGCGACGACTCTG
 999 InLeuMetGluThrSerHisArgHisLeuLeuHisAlaGluGluGlyThrTrpLeuAsnI leAspGlyPheHisMetGlyI leGlyGlyAspAspSerTr
EcoRI (4790)
 4701 GAGCCCGTCAGTATCGGCGAATTACAGCTGAGCGCCGGTCTACCATTACCAGTTGGTCTGGTGTCAAAAATAATAATCTAGTCCGAGAATTCGCTAGC
 1032 pSerProSerValSerAlaGluLeuGlnLeuSerAlaGlyArgTyrHisTyrGlnLeuValTrpCysGlnLys•••
 4801 TCGACATGATAAGATACATTGATGAGTTTGGACAAACCACAACCTAGAATGCACTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATT

 4901 TGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAAGTTAAACAACAACAATTGCATTCAATTTATGTTTCAGGTTCCAGG

PacI (5071)
 5001 GGGAGGTGTGGGAGGTTTTTTAAAGCAAGTAAAACCTCTACAAATGTGGTAGATCCATTTAAATGTTAATTAAGTACGATGACCAAAATCCCTTAACGT

 5101 GAGTTTTCGTTCCACTGAGCGTCAGACCCCGTAGAAAAGATCAAAGGATCTTCTTGAGATCCTTTTTTCTGCGCGTAATCTGCTGCTGCAACAAAAA

 5201 AACCAACCGTACCAGCGGTGTTTTGTTTCCGGATCAAGAGCTACCAACTCTTTTTCCGAAGGTAAGTGGCTTCAGCAGAGCGCAGATACCAATACTGT

 5301 TCTTCTAGTGTAGCCGTAGTTAGGCCACCACTTCAAGAACTCTGTAGCACCGCTACATACCTCGCTCTGCTAATCTGTTACCAGTGGCTGCTGCCAGT

 5401 GCGGATAAGTCTGTCTTACCGGGTTGGACTCAAGACGATAGTTACCGGATAAGGCGCAGCGGTGCGGCTGAACGGGGGTTTCGTGCACACAGCCAGCT

 5501 TGGAGCGAACGACCTACACCGAACTGAGATACCTACAGCGTGAGCTATGAGAAAGCGCCACGCTTCCCGAAGGGAGAAAGCGGACAGGTATCCGGTAA

 5601 CGGCAGGGTCGGAACAGGAGAGCGCACGAGGGAGCTTCCAGGGGAAACGCCTGGTATCTTTATAGTCTGTCGGGTTTCGCCACCTCTGACTTGAGCGT

 5701 CGATTTTTGTGATGCTCGTCAGGGGGCGGAGCCTATGGAAAAACGCCAGCAACCGGCCTTTTTACGGTTCCTGGCCTTTTGTGGCCTTTTGTCTCACA

PacI (5811)
 5801 TGTCTTAATTAATTTTCAAAGTAGTTGACAATTAATCATCGGCATAGTATATCGGCATAGTATAATACGACTCACTATAGGAGGGCCATCATGGCC

 5901 AAGTTGACCAGTGTCTCCAGTGTCTCACAGCCAGGGATGTGGCTGGAGCTGTGAGTTCTGGACTGACAGGTTGGGGTTCTCCAGAGATTTTGTGGAGG
 3 LysLeuThrSerAlaValProValLeuThrAlaArgAspValAlaGlyAlaValGluPheTrpThrAspArgLeuGlyPheSerArgAspPheValGluA
 6001 ATGACTTTGACGGTGTGGTCAGAGATGATGTACCCTGTTTCATCTCAGCAGTCCAGGACCAGGTGGTGCCTGACAACACCCTGGCTTGGGTGTGGGTGAG
 36 spAspPheAlaGlyValValArgAspAspValThrLeuPheI leSerAlaValGlnAspGlnValValProAspAsnThrLeuAlaTrpValTrpValAr
 6101 AGGACTGGATGAGCTGTATGCTGAGTGGAGTGGTGGTCTCCACCAACTTCAGGGATGCCAGTGGCCCTGCCATGACAGAGATTGGAGAGCAGCCCTGG
 69 gGlyLeuAspGluLeuTyrAlaGluTrpSerGluValValSerThrAsnPheArgAspAlaSerGlyProAlaMetThrGluI leGlyGluGlnProTrp
 6201 GGGAGAGAGTTTGCCTTGAGAGACCCAGCAGGCAACTGTGTGCACTTTGTGGCAGAGGAGCAGGACTGAGGATAAGAATTGAGTTTCAGAAAAGGGGGCC
 103 GlyArgGluPheAlaLeuArgAspProAlaGlyAsnCysValHisPheValAlaGluGluGlnAsp•••
PacI (6327)
 6301 TGAGTGGCCCTTTTTTCAACTTAATTAA