



SdaI (7) SpeI (14)

1 CCTGCAGGGCCACTAGTCTGTAAGCTGGAAGTCTGGCAGTGTGAGCTGGCCAACCCCTCAGGACCTCCTCTTGTGCCACTGAATGACTCACCTTG
101 GCATAGACATAATGGTCAGGGCGGGCACACAGCCTGATTCCCGCTGCACTCCAGGCCCTTCAATGCTTTCCGAGAAGTCCATTGAGCTGGGAGCTTG
201 TACTGCACCAAGGGCTGACATCCTGGCAGCCAGGGATGAAAGCAGCCCATGGGGCTACCCTTGCCTATGCCTCACTGGCGGCAGAGAAACAAGGCTCTAT
301 TCAGCAAATGCCCTGGAGTAGACACCAGAAGTCCAAGCATGGGCAGAGGAAGGCAGGCGTTGGGGCTGGAGGGGAGCAGAGCTGTCTGTTTTCCAGAAG
401 CCCAAGGTACAGATGGCGCCTGGGGGGAAGTGAAGTGGAGGGGATAGATGGGCCTGAGATCTCAAACATCAACAGCCTCCTCCCCACCAACGATGAAGG
501 TGGAGGTTGGTTTCCAGACCTACATATCCCCAGAGACCTGGTGTATGAAAATTCAAAGGAGGTAAGTCTCCTGAGAGAACGGGGGCTCACAAATGAA
601 GCCAGCTGTCTTACCCTATCAGGACCTACGTGCATTCTTCTGTCTGCCCCCTAAACACACAGCCAGAGGCTCAAATTGATTCTGGAGTCAAAAGGGG
701 GCTTGAAACCCAGCCCCACTCCTGAACTCCAGGAATGAGAAGATAGTATTGGAGGGGTTAGAGGAGAGGGCTTGCACATCTGTTGAGAATGGGGG
801 TCCAGGAGAGTGAATTTAGGCTGATCCCGAGGAAGGAATAGGCTTCAAGATCTAGCATCTCACAGGCCACAGAGAAGTTCAGAGTTGGGGCA
901 GCCCTGGCTTACAGGCTCTAAGAACTGGAGGCAGTTTACCCAACCCAGCTGTGTGCATGTCTCCCTCTCTGTCTGTCTGTCTCTCTGTCTCTG
1001 TCTCTGT
1101 AGACACTGTTGACTTGGTTGTATGAGATAACATTTCCCCTGGGACCTGGGATTTGCCAATTAGTGTGACCCAGGAAGCCTACTTATTTTCATTCTCAG
1201 CACTGCAGTTACAAGTATGCACTGTCAAACCAGGCCTTTTTTTTTTTTTTTTTTCCAAACCAGGCCTTTTGTATTGCTCTGTGGCTAGAAGTGGGTCTC
1301 CATGCTTGACAGGCAAGCGATTTATGGACTAAGCTGTTTCTCGGCCCTCTCTTGACCCATTTACCAGAAATGGGGTTTCTTGATCAATGGTTAAGCCA
1401 GGCTGGTGTCCAGGAAACCCCTTACTCTGGGTACAGTGACCTTGGTGGGGTGAGAAGAGTTCTCTCCATAGCTGGGCTGGGGCCAGCTCCACCCCT
1501 CAGGCTATTCAATGGGGTGTGCCAGGAAGTCAGGGCAGATCCAGTCCAGCCGCTCCTCAATAAAGGCCCTGACATCCAGGAGCCAGCAGAAAGCAGG

BspHI (1605)

1601 GCATCATGAGCGGTTCTCATCATCATCATCATCATGGTATGGCTAGCATGACTGGTGGACAGCAAATGGGTCGGATCTGTACGACGATGACGATAAGGT
MetSerGlySerHisHisHisHisHisHisGlyMetAlaSerMetThrGlyGlyGlnGlnMetGlyArgAspLeuTyrAspAspAspAspLysVa
1701 ACCTAAGGATCAGCTTGGAGTTGATCCCGTCTTTTTACAACGTCGTGACTGGGAAAACCCCTGGCGTTACCCAACCTAATCGCCTTGACAGACATCCCCCT
32 IProLysAspGlnLeuGlyValAspProValValLeuGlnArgArgAspTrpGluAsnProGlyValThrGlnLeuAsnArgLeuAlaAlaHisProPro
1801 TTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAACAGTTGGCAGCCTGAATGGCGAATGGCGCTTGGCTGGTTCCGGGCAC
66 PheAlaSerTrpArgAsnSerGluGluAlaArgThrAspArgProSerGlnGlnLeuArgSerLeuAsnGlyGluTrpArgPheAlaTrpPheProAlaP
1901 CAGAAGCGGTGCCGAAAAGCTGGCTGGAGTGGCATCTTCTGAGGCCGATACTGTCGTCGCCCTCAAACCTGGCAGATGCACGGTTACGATGGCCCAT
99 roGluAlaValProGluSerTrpLeuGluCysAspLeuProGluAlaAspThrValValValProSerAsnTrpGlnMetHisGlyTyrAspAlaProI
2001 CTACACCAACGTAACCTATCCATTACGGTCAATCCGCCGTTTGTTCACCGGAGAATCCGACGGGTTGTTACTCGCTCACATTTAATGTTGATGAAAGC
132 eTyrThrAsnValThrTyrProI leThrValAsnProProPheValProThrGluAsnProThrGlyCysTyrSerLeuThrPheAsnValAspGluSer
2101 TGGCTACAGGAAGGCCAGACCGAATATTTTTGATGGCGTTAACTCGGCTTTCATCTGTGGTGCAACGGGCGTGGGTCGGTTACGGCCAGGACAGTC
166 TrpLeuGlnGluGlyGlnThrArgI leI lePheAspGlyValAsnSerAlaPheHisLeuTrpCysAsnGlyArgTrpValGlyTyrGlyGlnAspSerA
2201 GTTTGCCGTCTGAATTTGACCTGAGCGCATTTTTACGCGCCGGAGAAAACCCCTCGCGGTGATGGTGTGCGTTGGAGTGACGGCAGTTATCTGGAAGA
199 rgLeuProSerGluPheAspLeuSerAlaPheLeuArgAlaGlyGluAsnArgLeuAlaValMetValLeuArgTrpSerAspGlySerTyrLeuGluAs
2301 TCAGGATATGTGGCGGATGAGCGGCATTTCCGCTGAGCTCTCGTTGCTGCATAAACCGACTACACAAATCAGCGATTTCATGTTGCCACTCGCTTAAAT
232 pGlnAspMetTrpArgMetSerGlyI lePheArgAspValSerLeuLeuHisLysProThrThrGlnI leSerAspPheHisValAlaThrArgPheAsn
2401 GATGATTTACGCCCGCTGTACTGGAGGCTGAAGTTACAGATGTGCGCGAGTTGCGTGACTACCTACGGGTAACAGTTCTTTATGGCAGGTTGAAACGC
266 AspAspPheSerArgAlaValLeuGluAlaGluValGlnMetCysGlyGluLeuArgAspTyrLeuArgValThrValSerLeuTrpGlnGlyGluThrG
2501 AGTTCGCCAGCGGCACCGCCCTTTCGGCGGTGAAATATCGATGAGCGTGGTGGTTATGCCGATCGCGTCACACTAGTCTGAACGTCGAAAACCCGAA
299 InValAlaSerGlyThrAlaProPheGlyGlyGluI leI leAspGluArgGlyGlyTyrAlaAspArgValThrLeuArgLeuAsnValGluAsnProLy
2601 ACTGTGGAGCGCGAAATCCCAATCTCTATCGTGGCGTGGTGAAGTGCACACCGCCGACGGCAGCGTATTGAAGCAGAAGCCTGGATGTCGGTTTC
332 sLeuTrpSerAlaGluI leProAsnLeuTyrArgAlaValValGluLeuHisThrAlaAspGlyThrLeuI leGluAlaGluAlaCysAspValGlyPhe
2701 CGCGAGGTGGGATTGAAAATGGTCTGCTGCTGCTGAACGGCAAGCCGTTGCTGATTGAGGCGTTAACCGTCACGAGCATCATCTCTGCATGGTCAGG
366 ArgGluValArgI leGluAsnGlyLeuLeuLeuLeuAsnGlyLysProLeuLeuI leArgGlyValAsnArgHisGluHisHisProLeuHisGlyGlnV
2801 TCATGGATGAGCAGACGATGGTGCAGGATATCCTGCTGATGAAGCAGAACTTTAACCGCGTGGCGTGTTCGCATTATCCGAACCATCCGCTGTGGTA
399 alMetAspGluGlnThrMetValGlnAspI leLeuLeuMetLysGlnAsnAsnPheAsnAlaValArgCysSerHisLeuTrpProAsnHisProLeuTrpTy
2901 CACGCTGTGGCAGCTACCGCCCTGTATGTGGTGAAGCAATATGAAACCCAGCCATGGTGGCAATGAATCTGCTGACCGATGATCCGCGCTGG
432 rThrLeuCysAspArgTyrGlyLeuTyrValValAspGluAlaAsnI leGluThrHisGlyMetValProMetAsnArgLeuThrAspAspProArgTrp
3001 CTACCGCGATGAGCGAACCGTAACCGAATGGTGCAGCGGATCGTAATCCCGAGTGTGATCATCTGGTGGTGGGAAATGAATCAGGCCACGGCG
466 LeuProAlaMetSerGluArgValThrArgMetValGlnArgAspArgAsnHisProSerValI leI leTrpSerLeuGlyAsnGluSerGlyHisGlyA
3101 CTAATCACGACGCGCTGATCGCTGGATCAAATCTGTCGATCCTTCCCGCCGGTGCAGTATGAAGGCGGGAGCCGACACCACGGCCACCGATATTA
499 laAsnHisAspAlaLeuTyrArgTrpI leLysSerValAspProSerArgProValGlnTyrGluGlyGlyAlaAspThrThrAlaThrAspI leI
3201 TTGCCGATGTACGCGCGCTGGATGAAGACCAGCCCTTCCCGGCTGTGCCGAAATGGTCCATCAAAAAATGGCTTTTCGCTACCTGGAGAGACGGCCCG
532 eCysProMetTyrAlaArgValAspGluAspGlnProPheProAlaValProLysTrpSerI leLysLysTrpLeuSerLeuProGlyGluThrArgPro
3301 CTGATCCTTTGGCAATACGCCACCGGATGGGTAACAGTCTTGGCGGTTTCCGTAATACTGGCAGGCGTTTCGTCAGTATCCCGTTTACAGGGCGGCT
566 LeuI leLeuCysGlyThrAlaHisAlaMetGlyAsnSerLeuGlyAlaLysTyrTrpGlnAlaPheAlaAspThrThrAlaThrAspI leGlyP
3401 TCGTCTGGAGTGGGTGATCAGTCCGTGATTAATAATGATGAAACCCGCAACCCGTCGGCTTACGGCGGTGATTTGGCGATACGCGAACGATCG
599 heValTrpAspTrpValAspGlnSerLeuI leLysTyrAspGluAsnGlyAsnProTrpSerAlaTyrGlyGlyAspPheGlyAspThrProAsnAspAr
3501 CCAGTCTGTATGAACGCTGTGTCTTTGCCAGCCGACGGCATCCAGCGCTGACGGAAGCAAAACACCAGCAGAGTTTTTCCAGTTCGGTTTATCC
632 gGlnPheCysMetAsnGlyLeuValPheAlaAspArgThrProHisProAlaLeuThrGluAlaLysHisGlnGlnGlnPhePheGlnPheArgLeuSer

3601 GGGCAAACCATCGAAGTGACCAGCGAATACCTGTTCCGTCATAGCGATAACGAGCTCTGCACTGGATGGTGGCGCTGGATGTAAGCCGCTGGCAAGCG
 666 GlyGlnThrI leGluValThrSerGluTyrLeuPheArgHisSerAspAsnGluLeuLeuHisTrpMetValAlaLeuAspGlyLysProLeuAlaSerG
 3701 GTGAAGTGCTCTGGATGTCGCTCCACAAGGTAACAGTTGATTGAACTGCCTGAACTACCCGAGCCGGAGAGCGCCGGCAACTCTGGCTCACAGTACG
 699 l yGluValProLeuAspValAlaProGlnGlyLysGlnLeuI leGluLeuProGluLeuProGlnProGluSerAlaGlyGlnLeuTrpLeuThrValAr
 3801 CGTAGTGAACCGAACCGACCGCATGGTCTAGAAGCCGGGCACATCAGCGCCTGGCAGCAGTGGCGTCTGGCGGAAAACCTCAGTGTGACGCTCCCCGC
 732 gValValGlnProAsnAlaThrAlaTrpSerGluAlaGlyHisI leSerAlaTrpGlnGlnTrpArgLeuAlaGluAsnLeuSerValThrLeuProAla
 3901 GCGTCCCACGCCATCCCGCATCTGACCACCAGCGAAATGGATTTTTGCATCGAGCTGGGTAATAAGCGTTGGCAATTTAACGCCAGTCAGGCTTTCTTT
 766 AlaSerHisAlaI leProHisLeuThrThrSerGluMetAspPheCysI leGluLeuGlyAsnLysArgTrpGlnPheAsnArgGlnSerGlyPheLeuS
 4001 CACAGATGTGGATTGGCGATAAAAAACAACCTGCTGACGCCGCTGCGCGATCAGTTACCCCGTGCACCCTGGATAACGACATTGGCGTAAGTGAAGCGAC
 799 erGlnMetTrpI leGlyAspLysLysGlnLeuLeuThrProLeuArgAspGlnPheThrArgAlaProLeuAspAsnAspI leGlyValSerGluAlaTh
 4101 CCGCATTGACCCTAACGCTGGGTGCAACGCTGGAAGGCGGGCCATTACAGGCCGAAGCAGCGTTGTTGCAGTGCACGGCAGATACACTTGTCTGAT
 832 rArgI leAspProAsnAlaTrpValGluArgTrpLysAlaAlaGlyHisTyrGlnAlaGluAlaAlaLeuLeuGlnCysThrAlaAspThrLeuAlaAsp
 4201 GCGGTGCTGATTACGACCGCTCAGCGTGGCAGCATCAGGGAAAACCTTATTTATCAGCCGAAAACCTACCGATTGATGGTAGTGGTCAAATGGCGA
 866 AlaValLeuI leThrThrAlaHisAlaTrpGlnHisGlnGlyLysThrLeuPheI leSerArgLysThrTyrArgI leAspGlySerGlyGlnMetAlaI
 4301 TTACCGTTGATGTTGAAGTGGCGAGGATACACCGCATCCGGCGGGATTGGCCTGAACTGCCAGCTGGCGCAGGTAGCAGAGCGGGTAAACTGGCTCGG
 899 leThrValAspValGluValAlaSerAspThrProHisProAlaArgI leGlyLeuAsnCysGlnProAlaGlnValAlaGluArgValAsnTrpLeuG
 4401 ATTAGGGCCGCAAGAAAATATCCCGACCGCCTTACTGCCGCTGTTTTGACCGCTGGGATCTGCCATTGTCAGACATGTATACCCCGTACGCTTCCCG
 932 yLeuGlyProGlnGluAsnTyrProAspArgLeuThrAlaAlaCysPheAspArgTrpAspLeuProLeuSerAspMetTyrThrProTyrValPhePro
 4501 AGCGAAAACGGTCTGCGCTGCGGGACGCGCAATTGAATTATGGCCACACCAAGTGGCGCGGCGACTCCAGTTCAACATCAGCCGCTACAGTCAACAGC
 966 SerGluAsnGlyLeuArgCysGlyThrArgGluLeuAsnTyrGlyProHisGlnTrpArgGlyAspPheGlnPheAsnI leSerArgTyrSerGlnGlnG
 4601 AACTGATGGAAACCGCCATCGCCATCTGCTGCACGGGAAGAGGCACATGGCTGAATATCGACGGTTTCCATATGGGGATTGGTGGCGACGACTCGT
 999 InLeuMetGluThrSerHisArgHisLeuLeuHisAlaGluGluGlyThrTrpLeuAsnI leAspGlyPheHisMetGlyI leGlyGlyAspAspSerTr
EcoRI (4790)
 4701 GAGCCCGTCAGTATCGGCGAATTACAGCTGAGCGCCGGTCCGTACCATTACCAGTTGGTCTGGTGTCAAAAATAATAATCTAGTCCGAGAATTCGCTAGC
 1032 pSerProSerValSerAlaGluLeuGlnLeuSerAlaGlyArgTyrHisTyrGlnLeuValTrpCysGlnLys•••
 4801 TCGACATGATAAGATACATTGATGAGTTTGGACAAACCACAACCTAGAATGCAAGTGAATAAATAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATT

 4901 TGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAAGTTAAACAACAACAATTGCATTCAATTTATGTTTCAGGTTCCAGG

PacI (5071)
 5001 GGGAGGTGTGGGAGGTTTTTTAAAGCAAGTAAACCTCTACAAATGTGGTAGATCCATTTAAATGTTAATTAAGTACGATGACCAAAATCCCTTAACGT

 5101 GAGTTTTCGTTCCACTGAGCGTCAGACCCCGTAGAAAAGATCAAAGGATCTTCTTGAGATCCTTTTTTCTGCGCGTAATCTGCTGCTGCAACAAAAA

 5201 AACCAACCGTACCAGCGGTGTTTTGTTTCCGGATCAAGAGCTACCAACTCTTTTTCCGAAGGTAAGTGGCTTCAGCAGAGCGCAGATACCAATACTGT

 5301 TCTTCTAGTGTAGCCGTAGTTAGGCCACCACTTCAAGAACTCTGTAGCACCGCTACATACCTCGCTCTGCTAATCTGTTACCAGTGGCTGCTGCCAGT

 5401 GCGGATAAGTCTGTCTTACCGGGTTGGACTCAAGACGATAGTTACCGGATAAGGCGCAGCGGTGCGGCTGAACGGGGGGTTCGTGCACACAGCCAGCT

 5501 TGGAGCGAACGACCTACACCGAACTGAGATACCTACAGCGTGAGCTATGAGAAAGCGCCACGCTTCCCGAAGGGAGAAAGCGGACAGGTATCCGGTAA

 5601 CGGCAGGGTCGGAACAGGAGAGCGCACGAGGGAGCTTCCAGGGGAAACGCCTGGTATCTTTATAGTCTGTCGGGTTTCGCCACCTCTGACTTGAGCGT

 5701 CGATTTTTGTGATGCTCGTCAGGGGGCGGAGCCTATGGAAAAACGCCAGCAACCGGCCTTTTTACGGTTCCTGGCCTTTTGTGGCCTTTTGTCTCACA

PacI (5811)
 5801 TGTCTTAATTAATTTTCAAAAGTAGTTGACAATTAATCATCGGCATAGTATATCGGCATAGTATAATACGACTCACTATAGGAGGGCCATCATGGCC

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