



PstI (2)  
SdaI (1) SpeI (13)

1 CCTGCAGGGCCCActagTACATTGTTTGTGCACGTTGGATTTTGAATGCTAGGAACTTTGGGAGACTCATATTTCTGGGCTAGAGGATCTGTGGACCACAAG  
106 ATCTTTTTATGATGACAGTAGCAATGTATCTGTGGAGCTGGATTCTGGGTTGGGAGTGAAGGAAAAGAATGTAATAATGCCAAGACATCTATTTTCAGGAGCAT  
211 GAGGAATAAAAGTTCTAGTTTCTGGTCTCAGAGTGGTGCAGGGATCAGGGAGTCTCACAATCTCTGAGTGTGGTGTCTTAGGGCACACTGGGTCTGGAGTGC  
316 AAAGGATCTAGGCACGTGAGGCTTTGTATGAAGAATCGGGGATCGTACCACCCCCTGTTTCTGTTTCATCCTGGGCGTGTCTCTCTGCTTTGTCCCCTAGAT  
421 GAAGTCTCCATGAGCTACAGGGCTGGTGCATCCAGGGTGTAGTAATTGAGAAGCAAGTGCTAGCTCTCCCTCCCTTCCACAGCTCTGGGTGTGGGAG  
526 GGGGTTGTCCAGCTCCAGCAGCATGGGAGGGCCTTGGTCAAGCTCTGGTGCAGAGGGCAGGGGGGAGTCTGGGGAATGAAGGTTTATAGGGCTCTGT

NeoI (683)

631 GGGGAGGCTCCCGAGCCCAAGCTTACCACCTGCACCCGGAGAGCTGTGTACACCATGGGGGTTTCTCATCATCATCATCATGGTATGGCTAGCATGACTGGT  
736 GGACAGCAAATGGGTCGGGATCTGTACAGCATGACGATAAGGTACCTAAGGATCAGCTTGGAGTTGATCCCGTCTGTTTACACCGTCTGACTGGGAAAACCTT  
181 GlyGlnGlnMetGlyArgAspLeuTyrAspAspAspLysValProLysAspGlnLeuGlyValAspProValValLeuGlnArgArgAspTrpGluAsnPro  
841 GCGCTTACCAACTTAATCGCCTTGCAGCACATCCCCTTTCGCGAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAACAGTTGGCGAGCCTG  
531 GlyValThrGlnLeuAsnArgLeuAlaAlaHisProPheAlaSerTrpArgAsnSerGluGluAlaArgThrAspArgProSerGlnGlnLeuArgSerLeu  
946 AATGGCGAATGGCGCTTTGCTGGTTCGGCCACCAGAAGCGGTGCCGGAAGCTGGCTGGAGTGGATCTTCTGAGGCCGATACTGTCTGCTGCCCTCAAAC  
881 AsnGlyGluTrpArgPheAlaTrpPheProAlaProGluAlaValProGluSerTrpLeuGluCysAspLeuProGluAlaAspThrValValValProSerAsn  
1051 TGGCAGATGCACGGTTACGATCGCCCATCTACACCAACGTAACCTATCCCATTACGGTCAATCCGCGCTTTGTTCCACGGAGAATCCGACGGGTTGTTACTCG  
1231 TrpGlnMetHisGlyTyrAspAlaProIleTyrThrAsnValThrTyrProIleThrValAsnProProPheValProThrGluAsnProThrGlyCysTyrSer  
1156 CTCACATTTAATGTTGATGAAAGCTGGCTACAGGAAGCCAGACCGCAATATTTTTGATGGCGTTAACTCCGCGTTTCATCTGTGGTGCACAGCCCGCTGGGTC  
1581 LeuThrPheAsnValAspGluSerTrpLeuGlnGluGlyGlnThrArgIleIlePheAspGlyValAsnSerAlaPheHisLeuTrpCysAsnGlyArgTrpVal  
1261 GGTACGGCCAGGACAGTCTGTTGCCCTCTGAATTTGACCTGAGCGCATTTTTACGGCCCGGAGAAAACCCCTCGCGGTGATGGTGTCTGCGTTGGAGTGACGGC  
1931 GlyTyrGlyGlnAspSerArgLeuProSerGluPheAspLeuSerAlaPheLeuArgAlaGlyGluAsnArgLeuAlaValMetValLeuArgTrpSerAspGly  
1366 AGTTATCTGGAAGATCAGGATATGTGGCGGATGAGCGGCATTTCCGTGACGTTCTCGTTGCTGCATAAACCGACTACACAATCAGCGATTTCCATGTTGCCACT  
2281 SerTyrLeuGluAspGlnAspMetTrpArgMetSerGlyIlePheArgAspValSerLeuLeuHisLysProThrThrGlnIleSerAspPheHisValAlaThr  
1471 CGCTTAATGATGATTTACGCGCGCTGTACTGGAGGCTGAAGTTCAGATGTGGCGGAGTTGCGTGACTACCTACGGGTAACAGTTTCTTTATGCCAGGGTGAA  
2631 ArgPheAsnAspAspPheSerArgAlaValLeuGluAlaGluValGlnMetCysGlyGluLeuArgAspTyrLeuArgValThrValSerLeuTrpGlnGlyGlu  
1576 ACGCAGTTCGCCAGCGCCACCGCGCTTTCCGCGGTGAAATTCATCGATGAGCGTGGTGGTTATGCCGATCGCGTACACTACGTTGAAACGTCGAAAACCCGAAA  
2981 ThrGlnValAlaGlnThrAlaProPheGlyGlyGluIleIleAspGluArgGlyGlyTyrAlaAspArgValThrLeuGluAsnValAsnProLys  
1681 CTGTGGAGCGCGAAATCCCGAATCTCTATCGTGGTGGTGAAGTGCACACCGCCGACCGGATGATTGAAGCAGAAGCTGCGATGTCGTTTCCCGGAG  
3331 LeuTrpSerAlaGluIleProAsnLeuTyrArgAlaValValGluLeuHisThrAlaAspGlyThrLeuIleGluAlaGluAlaCysAspValGlyPheArgGlu  
1786 GTCCGGATTGAAATGCTGCTGCTGCTGAAGCGCAAGCCGTTGCTGATTCCAGGGCTTAACCGTCCAGGATCATCCTCTGCGATGGTCAAGGTCATGGATGAG  
3681 ValArgIleGluAsnGlyLeuLeuLeuLeuAsnGlyLysProLeuLeuIleArgGlyValAsnArgHisGluHisHisProLeuHisGlyGlnValMetAspGlu  
1891 CAGACGATGGTCAGGATATCTGCTGATGAAGCAGAACAACCTTAAACGCGTGGCTTCCGATTCATCCGAACCTCCGCTGTGGTACACGCTGTGGCAGCCG  
4031 GlnThrMetValGlnAspIleLeuLeuMetLysGlnAsnAsnPheAsnAlaValArgCysSerHisTyrProAsnHisProLeuTrpTyrThrLeuGlyCysAspArg  
1996 TACGGCTGTATGTGGTGGATGAAGCAATATTGAACCCACGGCATGGTGCAATGAATCGTCTGACCGATGATCCGCGTGGCTACCGCGATGAGCGAACCG  
4381 TyrGlyLeuTyrValValAspGluAlaAsnIleGluThrHisGlyMetValProMetAsnArgLeuThrAspAspProArgTrpLeuProAlaMetSerGluArg  
2101 GTAACGCAATGGTGCAGCGGATCGTAATCACCCGAGTGTGATCATCTGGTCTGGGGAATGAATCAGGCCACCGCGCTAATCAGCAGCGCTGTATCGCTGG  
4731 ValThrArgMetValGlnArgAspArgAsnHisProSerValIleIleTrpSerLeuGlyAsnGluSerGlyHisGlyAlaAsnHisAspAlaLeuTyrArgTrp  
2206 ATCAATCTGTGATCCTTCCGCGCGCTGAGTATGAGCGCGGACCGACCCAGCCGATATTATTTGCCGATGTACGCGCGCTGGATGAAGAC  
5081 IleLysSerValAspProSerArgProValGlnTyrGluGlyGlyGlyAlaAspThrThrAlaThrAspIleIleCysProMetTyrAlaArgValAspGluAsp  
2311 CAGCCCTTCCCGCTGTGCCAAATGCTCCATCAAAAATGGCTTTCGCTACCTGGAGAGACGCGCCGCTGATCCTTTGCGAATACGCCACCGGATGGGTAAAC  
5431 GlnProPheProAlaValProLysTrpSerIleLysLysTrpLeuSerLeuProGlyGluThrArgProLeuIleLeuCysGluTyrAlaHisAlaMetGlyAsn  
2416 AGTCTGGCGTTTCGTAATACTGGCAGCGTTCGTCAGTATCCCGCTTACAGGGCGGCTTCGCTGGGACTGGGTGGATCAGTCTGATTAATAATGAT  
5781 SerLeuGlyPheAlaLysTyrTrpGlnAlaPheArgGlnTyrProArgLeuGlnGlyPheValTrpAspTrpValAspTrpValSerLeuIleLysTyrAsp  
2521 GAAAACGGCAACCCGTTGGTTCGGCTTACGGCGGTGATTTGGCGATACCGCAACGATCGCCAGTTCTGTATGAACGGTCTGGTCTTTGCCGACCGCACCGCGCAT  
6131 GluAsnGlyAsnProTrpSerAlaTyrGlyGlyAspPheGlyAspThrProAsnAspArgGlnPheCysMetAsnGlyLeuValPheAlaAspArgThrProHis  
2626 CCAGCGTACGGGAAGCAAAACACCAGCAGCAGTTTTTCCAGTTCGTTTATCCGGGCAACCATCGAAGTGACCAGCGAATACCTGTTCCGTCATAGCGATAAC  
6481 ProAlaGluLeuGlyHisGlnGlnPheGlnPheGlnPheArgLeuSerGlyGlnIleIleGluValThrSerGlyThrLeuAlaThrAlaAlaLeuGln  
2731 GAGCTCTGCACGTGGATGGTGGCGCTGGATGTAAGCCGCTGGAAGCGGCTGAAGTCCCTGGATGTCGCTCCACAAGGTAACAGTGTGTTGAACTGCCTGAA  
6831 GluLeuLeuHisTrpMetValAlaLeuAspGlyLysProLeuAlaSerGlyGluValProLeuAspValAlaProGlnGlyLysGlnLeuIleGluLeuProGlu  
2836 CTACCGACCGCGAGAGCGCCGGCAACTCTGGCTCACAGTACGCGTATGCAACCGAACCGGACCGCATGGTCAGAAGCCGGGCACATCAGCGCCTGGCAGCAG  
7181 LeuProGlnProGluSerAlaGlyGlnLeuTrpLeuThrValArgValValGlnProAsnAlaThrAlaTrpSerGluAlaGlyHisIleSerAlaTrpGlnGln  
2941 TGGCGTGGCGGAAAACCTCAGTGTGACGCTCCCGCGCTCCACCGCATCTGACCCAGCGAAATGGATTTTTCATCGAGCTGGGTAATAAG  
7531 TrpArgLeuAlaGluAsnLeuSerValThrLeuLeuAlaAlaSerHisAlaIleProHisLeuThrThrSerGluMetAspPheCysIleGluLeuGlyAsnLys  
3046 CGTTGGCAATTTAACCGCCAGTCAAGCTTTCTTTACAGATGTGGATTGGCGATAAAAAACAACCTGTGACGCGCTGCGGATCAGTTACCCGTCACCGCTG  
7881 ArgTrpGlnPheAsnArgGlnSerGlyPheLeuSerGlnMetTrpIleGlyAspLysLysGlnLeuLeuThrProLeuArgAspGlnPheThrArgAlaProLeu  
3151 GATAACGACATTTGGCGTAAGTGAAGCGACCCGATTTGACCCCTAACGCTGGTTCGAACGCTGGAAGCGCGGGCCATTACCAGGCCAAGCAGCGTTGTTGCAG  
8231 AspAsnAspIleGlyValSerAlaThrArgIleAspProAsnAlaTrpValGluArgTrpLysAlaAlaGlyHisTyrGlnAlaAlaAlaLeuGln  
3256 TGCACGGCAGATACACTTGTGATGCGGTGCTGATTACGACCGCTCAGCGCTGCGGAGCAGTACAGGGGAAAACCTATTATCAGCCGGAACCTACCAGATTGAT  
8581 CysThrAlaAspThrLeuAlaAspAlaValLeuIleThrThrAlaHisAlaTrpGlnHisGlnGlyLysThrLeuPheIleSerArgLysThrTyrArgIleAsp  
3361 GTAGTGGTCAAATGGCGATTACCGTTGATGTTGAAGTGGCGAGCGATACCCGATCCGCGCGGATGGCTGAACTGCCAGCTGGCGCAGGTAGCAGAGCGG  
8931 GlySerGlyGlnMetAlaIleThrValAspValGluValAlaSerAspThrProHisProAlaArgIleGlyLeuAsnCysGlnLeuAlaGlnValAlaGluArg  
3466 GTAACCTGGCTCGGATTAGGGCCGCAAGAAAACCTATCCGACCGCTTACTCCGCGCTTTTACCAGCGTGGATCTGCCATTGTGACAGATGTATACCCGCTAC  
9281 ValAsnTrpLeuGlyLeuGlyProGlnGluAsnTyrProAspArgLeuThrAlaAlaCysPheAspArgTrpAspLeuProLeuSerAspMetTyrThrProTyr  
3571 GTCTCCCGAGCGAAAACGGTCTGGCTGGCGGACCGCGAATTGAATTATGGCCACACCACTGGCGCGGCGACTTCCAGTTCAACATCAGCCGCTACAGTCAA  
9631 ValPheProSerGluAsnGlyLeuArgCysGlyThrArgGluLeuAsnTyrGlyProHisGlnTrpArgGlyAspPheGlnPheAsnIleSerArgTyrSerGln  
3676 CAGCAACTGATGGAACCCAGCCATCGCATCTGCTGCACGGGAAGAAGGCACATGGCTGAATATCGACGGTTTCCATATGGGGATTGGTGGCGAGCACTCTGG  
9981 GlnGlnLeuMetGluThrSerHisArgHisLeuLeuHisAlaGluGluGlyThrTrpLeuAsnIleAspGlyPheHisMetGlyIleGlyGlyAspAspSerTrp

3781 AGCCCGTCAGTATCGGCGGAATTACAGCTGAGCGCCGGTCGCTACCATTACCAGTTGGTCTGGTGTCAAAAATAATAATCTAGTCGAGAATTCGCTAGCTCGACA  
1033▶ SerProSerValSerAlaGluLeuGlnLeuSerAlaGlyArgTyrHisTyrGlnLeuValTrpCysGlnLys•••

3886 TGATAAGATACATTGATGAGTTTGGACAAACCACAAC TAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTGAAATTTG

3991 TGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAAGTTAACAAACAATTCATTTCATTTTATGTTTCAGGTTTCAGGGGGAGGTGTGGGAGGT

*PacI (4145)*

4096 TTTTAAAGCAAGTAAACCTCTACAAATGTGGTAGATCCATTTAAATGTTAATTAAGTACCATGACCAAAATCCCTTAACGTGAGTTTTTCGTTCCACTGAGCG

4201 TCAGACCCCGTAGAAAAGATCAAAGGATCTTCTTGAGATCCTTTTTTCTGCGGTAATCTGCTGCTTGCAAAACAAAAAACCCAGCTACCAGCGGTGGTTTGT

4306 TTGCCGGATCAAGAGCTACCAACTCTTTTTCCGAAGGTAAGTGGCTTCAGCAGAGCGCAGATACCAAATACTGTTCTTCTAGTGTAGCCGTAGTTAGGCCACCAC

4411 TTCAAGAACTCTGTAGCACCGCCTACATACCTCGCTCTGCTAATCCTGTTACCAGTGGCTGCTGCCAGTGGCGATAAGTCGTGTCTTACCGGGTTGGACTCAAGA

4516 CGATAGTTACCGGATAAGGCGCAGCGGTGGGCTGAACGGGGGTTCTGTGCACACAGCCAGCTTGGAGCGAACGACCTACACCGAACTGAGATACCTACAGCGT

4621 GAGCTATGAGAAAGCGCCACGCTTCCGAAGGGAGAAAGCGGACAGGTATCCGGTAAGCGGCAGGGTCGGAACAGGAGAGCGCACGAGGGAGCTTCCAGGGGGA

4726 AACGCCTGGTATCTTTATAGTCTGTGCGGTTTCGCCACCTCTGACTTGAGCGTCGATTTTTGTGATGCTCGTCAGGGGGCGGAGCCTATGAAAAACGCCAGC

*PacI (4885)*

4831 AACCGGGCCTTTTTACGGTTCCTGGCCTTTTGCTGCCCTTTTGCTCACATGTTCTTAATTAATTTTTCAAAGTAGTTGACAATTAATCATCGGCATAGTATAT

4936 CGGCATAGTATAATACGACTCACTATAGGAGGGCCATCATGGCCAAGTTGACCAGTGTGTCCCAGTGTCCACAGCCAGGGATGTGGCTGGAGCTGTTGAGTTCT

1▶ MetAlaLysLeuThrSerAlaValProValLeuThrAlaArgAspValAlaGlyAlaValGluPheT

5041 GGACTGACAGGTTGGGGTCTCCAGAGATTTTGTGGAGGATGACTTTGCAGGTGTGGTCAGAGATGATGTCACCCTGTTTCATCTCAGCAGTCCAGGACCAGGTGG

5146 TGCCTGACAACACCCTGGCTTGGGTGTGGGTGAGAGGACTGGATGAGCTGTATGCTGAGTGGAGTGAGGTGGTCTCCACCAACTTCAGGGATGCCAGTGGCCCTG

5251 CCATGACAGAGATTGGAGAGCAGCCCTGGGGGAGAGAGTTTGCCTGAGAGACCCAGCAGGCAACTGTGTGCACTTTGTGGCAGAGGAGCAGGACTGAGGATAAG

93▶ IaMetThrGluIeGlyGluGlnProTrpGlyArgGluPheAlaLeuArgAspProAlaGlyAsnCysValHisPheValAlaGluGluGlnAsp•••

*PacI (5394)*

5356 AATTGTAACAAAAACCCCGCCCGGGGGTTTTTTGTTAATTAA