



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

1 CCTGCAGGGCCCACTAGTTCCCAACTTTCCCGCCTCTCAGCCTTTGAAAGAAAGAAAGGGGAGGGGCGAGCCGCTGCAGTCGCGAGCGGTGCTGGGC  
101 TCCGGCTCAATTCCCCATCTCAGTCGCTCCCAAAGTCCTTCTGTTTCATCCAAGCGTGAAGGGTCCCGTCCTTGACTCCCTAGTGTCTGCTGCCA  
201 CAGTCCAGTCTCGGGAACCAGCACCGATCACCTCCCATCGGGCAATCTCAGTCCCTTCCCCCTACGTCGGGGCCACACCGCTCGGTGCGTCCCAGTT  
301 GAACCAGGGCGGTGCGGAAAAAAGCGGGGAGAAAGTAGGGCCCGGCTACTAGCGGTTTTACGGGCGCACGTAGCTCAGGCCTCAAGACCTTGGGCT  
401 GGGACTGGCTGAGCCTGGCGGGAGCGGGGTCCGAGTCACCGCTGCCGCGGCCCGGTTTCTATAAATGAGCCCGCAGCCTCCCGCTCGCTCTC  
501 TGCTCCTCTGTTGACAGTCAGCCGATCTTCTTTTGGCTGCCAGgtgaagacggggcggagagaaacccgggaggctaggacggcctgaagcggcga  
601 ggggcgggcgagcggcggtgtgttcgcgccgctgccccggggcgccctccgcatgacggggcgggcgaggacgtgatcgggcgggcggtg  
701 ggcatggaggcctggtgggggaggggaggggagggcgtgggtgtcgccggggccactaggcgctcactgttctctccctccgcgagCCGAGCCACATCG

NcoI (810)

801 CTGAGACCATGGGGTTCATCATCATCATCATCATGGTATGGTATGACTGGTGGACGAAATGGGTCCGGATCTGTACGACGATGACGAT  
MetGlyGlySerHisHisHisHisHisHisGlyMetAlaSerMetThrGlyGlyGlnGlnMetGlyArgAspLeuTyrAspAspAspAsp  
901 AAGGTACCTAAGGATCAGCTTGGAGTTGATCCCGTCGTTTTACAACGCTGCTGACTGGGAAAACCTGGCGTTACCCAACCTAATCGCCTTCAGCACATC  
31 LysValProLysAspGlnLeuGlyValAspProValValLeuGlnArgArgAspTrpGluAsnProGlyValThrGlnLeuAsnArgLeuAlaAlaHisP  
1001 CCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAACAGTTGCGCAGCCTGAATGGCGAATGGCGCTTTCCTGTTTC  
64 roProPheAlaSerTrpArgAsnSerGluGluAlaArgThrAspArgProSerGlnGlnLeuArgSerLeuAsnGlyGluTrpArgPheAlaTrpPhePr  
1101 GGACCAGAAGCGGTGCGGAAAGCTGGCTGGAGTGGCATCTTCTGAGGCGGATACGTCGCTCGTCCCTCAAACCTGGCAGATGCACGGTTACGATCGG  
97 oAlaProGluAlaValProGluSerTrpLeuGluCysAspLeuProGluAlaAspThrValValValProSerAsnTrpGlnMetHisGlyTyrAspAla  
1201 CCATCTACACCAACGTAACCTATCCCATACGGTCAATCCGCGGTTTGTCCACGCGAGAATCCGACGGGTTGTTACTCGCTCACATTTAATGTTGATG  
131 ProlIeTyrThrAsnValThrTyrProlIeThrValAsnProProPheValProThrGluAsnProThrGlyCysTyrSerLeuThrPheAsnValAspG  
1301 AAAGCTGGTACAGGAAGGCCAGACCGAATTATTTTGGATGGCGTTAACTCGGCGTTTCATCTGTGGTGAACGGGCGCTGGGTCGGTTACGGCCAGGA  
164 luSerTrpLeuGlnGluGlyGlnThrArgIleIePheAspGlyValAsnSerAlaPheHisLeuTrpCysAsnGlyArgTrpValGlyTyrGlyGlnAs  
1401 CAGTCGTTTGGCGTCTGAATTTGACCTGAGCGCATTTTTACGCGCGGAGAAAACCGCTCGCGGTGATGGTGTGCGTGGAGTGACGGCAGTTATCTG  
197 pSerArgLeuProSerGluPheAspLeuSerAlaPheLeuArgAlaGlyGluAsnArgLeuAlaValMetValLeuArgTrpSerAspGlySerTyrLeu  
1501 GAAGATCAGGATATGGCGGATGAGCGGCATTTTCCGTCAGCTCTGTTGCTGCATAAACCGACTACACAAATCAGCGATTTCCATGTTGCCACTCGCT  
231 GlyAspGlnAspMetTrpArgMetSerGlyIlePheArgAspValSerLeuGlyGlnLeuAsnGlyProThrThrGlnIleSerLeuAsnHisProArgP  
1601 TTAATGATGATTTACAGCGCGCTGACTGAGGCTGAAGTTACAGATGTGCGCGAGTTGCGTACTACTACGGGTAACAGTTTCTTTATGGCAGGGTGA  
264 heAsnAspAspPheSerArgAlaValLeuGluAlaGluValGlnMetCysGlyGluLeuArgAspTyrLeuArgValThrValSerLeuTrpGlnGlyG  
1701 AACGCAGTTCGCCAGCGGCACCGCGCCTTTCGCGGTTGAAATATCGATGAGCGGTGGTGGTTATGCCGATCGCGTCACACTAGCTCTGAACGTCGAAAC  
297 uThrGlnValAlaSerGlyThrAlaProPheGlyGlyGluIleIeAspGluArgGlyGlyTyrAlaAspArgValThrLeuArgLeuAsnValGluAsn  
1801 CCGAACTGTGGAGCGCGAAATCCGAATCTCTATCGTGGCGTGAAGTTGACACCGCGCAGCGCTGATTGAAGCAGAAGCGCTGGCATCGGATCG  
331 ProLysLeuTrpSerAlaGluIleProAsnLeuTyrArgAlaValGluLeuHisThrAlaAspGlyThrLeuIleGluAlaGluAlaCysAspValG  
1901 GTTTCGCGAGGTGGGATTGAAAATGGTCTGCTGCTGCTGAACGGCAAGCCGTTGCTGATTCGAGGCGTTAACCGTCACGAGCATCATCTCTGCATGG  
364 lyPheArgGluValArgIleGluAsnGlyLeuLeuLeuLeuAsnGlyLysProLeuLeuIleArgGlyValAsnArgHisGluHisHisProLeuHisG  
2001 TCAGTTCATGGATGAGCAGACGATGGTGCAGGATATCCTGCTGATGAAGCAGAACTTTAACCGCGTGGCGTGTTCGCATTATCCGAACCATCCGCTG  
397 yGlnValMetAspGlnGlnThrMetValGlnAspIleLeuLeuMetLysGlnAsnHisPheAsnAlaValArgCysSerHisThrProAsnHisProA  
2101 TGTACAGCTGTGCGACGCTACCGCCTGTATGTGGTGAAGCCAATTTGAAACCCAGCGCATGGTGGCAATCGTCTGACCGATGATCCGC  
431 TrpTyrThrLeuCysAspArgTyrGlyLeuTyrValValAspGluAlaAsnIleGluThrHisGlyMetValProMetAsnArgLeuThrAspAspProA  
2201 GCTGGCTACCGCGATGAGCGAACCGCTAACCGAATGGTGCAGCGCATCGTAATCACCCGAGTGTGATCATCTGCTCGCTGGGGAATGAATCAGGCCA  
464 rgTrpLeuProAlaMetSerGluArgValThrArgMetValGlnArgAspArgAsnHisProSerValIleIleTrpSerLeuGlyAsnGluSerGlyHi  
2301 CGGCTAATACAGCAGCGCTGATCGCTGGATCAAATCTGTCGATCCTTCCCGCCGGTGCAGTATGAAGCGCGGAGCCGACACCCAGCCACCGATCG  
497 sGlyAlaAsnHisAspAlaLeuTyrArgTrpIleLysSerAlAspProSerArgProValGlnTyrGluGlyGlyGlyAlaAspThrAlaThrAsp  
2401 ATTATTTGCCGATGTACGCGCGTGGATGAAGACCAGCCCTTCCCGGCTGTGCCGAAATGGTCCATCAAAAAATGGCTTTCGCTACCTGGAGAGACGC  
531 IleIleCysProMetTyrAlaArgValAspGluAspGlnProPheProAlaValProLysTrpSerIleLysLysTrpLeuSerLeuProGlyGluThrA  
2501 GCCCGCTGATCTTTGCGAATACGCCACCGGATGGTAAACAGTCTTGGCGGTTTCGCTAAATACTGGCAGGCGTTTCGCTAGTATCCCGCTTACAGGG  
564 rgProLeuIleLeuCysGluThrAlaHisAlaMetGlyAsnAlaMetGlyAsnLeuHisAlaGlyLysTyrTrpGlnAlaPheArgGlnTyrProArgLeuGlnI  
2601 CGGCTTCTGCTGGGACTGGGTGGATCAGTCGCTGATTAATATGATGAAACGGCAACCCGTTGGTTCGCTTACGGCGGTGATTTGGCGATACGCCGAAC  
597 yGlyPheValTrpAspTrpValAspGlnSerLeuIleLysTyrAspGluAsnGlyAsnProTrpSerAlaTyrGlyGlyAspPheGlyAspThrProAsn  
2701 GATCGCCAGTTCGTATGAACGGTCTGGTCTTTGCGGACCGCACCGCATCCAGCGCTGACGGAAGCAAAACACCAGCAGAGTTTTTCCAGTTCGGTT  
631 AspArgGlnPheCysMetAsnGlyLeuValPheAlaAspArgThrProHisProAlaLeuThrGluAlaLysHisGlnGlnPhePheGlnPheArgL  
2801 TATCCGGGAAACCATCGAAGTGACCGCAATACCTGTTCCGTCATAGCGATAACGAGTCCCTGCAGTGGTGGCGCTGGATGGTAAGCCGCTGGC  
664 euSerGlyGlnThrIleGluValThrSerGluThrLeuPheArgHisSerAspAsnGluLeuLeuLeuHisTrpMetValAlaLeuAspGlyLysProLeuAl  
2901 AAGCGTGAAGTGCCTCTGGATGTCGCTCCACAAGGTAACAGTTGATTGAAGTGCCTGAACACCGCAGCCGAGAGCGCCGGCAACTCTGGCTCAC  
697 aSerGlyGluValProLeuAspValAlaProGlnGlyLysGlnLeuIleGluLeuProGluLeuProGlnProGluSerAlaGlyGlnLeuTrpLeuThr  
3001 GTACCGTAGTGAACCGAACCGACCGCATGGTCAGAAGCCGGGCACATCAGCGCTGGCAGCAGTGGCGTCTGGCGGAAAACCTCAGTGTGACGCTCC  
731 ValArgValValGlnProAsnAlaTrpValGluArgTrpLysAlaAlaGlyHisIleSerArgTrpGlnGlnTrpArgLeuAlaLeuAsnLeuSerValThrLeuP  
3101 CCGCGGTCACCGCATCCCGCATCTGACCACCGGAAATGGATTTTTGATCGAGCTGGGTAATAAGCGTTGGCAATTTAACCGCATCAGGCTT  
764 roAlaAlaSerHisAlaIleProHisLeuThrThrSerGluMetAspPheCysIleGluLeuGlyAsnLysArgTrpGlnPheAsnArgGlnSerGlyPh  
3201 TCTTTCACAGATGTGGATTGGCGATAAAAAACAATGCTGACCGCGTGCAGCATCAGTTACCCCGTGCACCGCTGGATAACGACATTTGGCGTAAGTGAA  
797 eLeuSerGlnMetTrpIleGlyAspLysLysGlnLeuLeuGluGluProLeuArgAspGlnPheThrArgAlaProLeuAspAsnAspIleGlyValSerGlu  
3301 CGGACCCGATGACCTAACCGCTGGTCCGAGCGTGAAGCGCGGGCCATTACAGCCGAAGCAGCGTTGTTGACGTGCACGGCAGATACACTTG  
831 AlaThrArgIleAspProAsnAlaTrpValGluArgTrpLysAlaAlaGlyHisThrGlnAlaGluAlaAlaLeuLeuGlnCysThrAlaAspThrLeuA  
3401 CTGATGGCGTCTGATTACGACCGCTACCGGTGGCAGCATCAGGGAAAACCTTATTTATCAGCCGAAAACCTACCGGATGATGGTACTGGTCAAAT  
864 laAspAlaValLeuIleThrThrAlaHisAlaTrpGlnHisGlnGlyLysThrLeuPheIleSerArgLysThrTyrArgIleAspGlySerGlyGlnMe  
3501 GCGGATTACCGTTGATTTGAAGTGGCGAGGATACCCGCATCCGCGCGGATTGGCTGAACTGCCAGCTGGCGCAGGTAGCAGAGCGGGTAAACTGG  
897 tAlaIleThrValAspValGluValAlaSerAspThrProHisProAlaArgIleGlyLeuAsnCysGlnLeuAlaGlnValAlaGluArgValAsnTrp

3601 CTCGGATTAGGGCCGCAAGAAAATATCCCGACCGCCTTACTGCCGCTGTTTTGACCGCTGGGATCTGCCATTGTCAGACATGTATACCCCGTACGTCT  
 931▶ LeuGlyLeuGlyProGlnGluAsnTyrProAspArgLeuThrAlaAlaCysPheAspArgTrpAspLeuProLeuSerAspMetTyrThrProTyrValP  
 3701 TCCCGAGCGAAAACGGTCTGCGCTGCGGGACGCGGAATTGAATTATGGCCACACCAGTGGCGGGGACTTCCAGTTCAACATCAGCCGCTACAGTCA  
 964▶ heProSerGluAsnGlyLeuArgCysGlyThrArgGluLeuAsnTyrGlyProHisGlnTrpArgGlyAspPheGlnPheAsnI leSerArgTyrSerGI  
 3801 ACAGCAACTGATGGAACACGCCATCGCCATCTGCTGCACCGGAAGAAGGCACATGGCTGAATATCGACGGTTTTCCATATGGGGATTGGTGGCGACGAC  
 997▶ nGlnGlnLeuMetGluThrSerHisArgHisLeuLeuHisAlaGluGluGlyThrTrpLeuAsnI leAspGlyPheHisMetGlyI leGlyGlyAspAsp  
EcoRI (3995)

3901 TCCTGGAGCCCGTCAGTATCGGCGGAATTACAGCTGAGCGCCGGTGCCTACCATTACCAGTGGTCTGGTGTCAAAAATAATAATCTAGTCGAGAATTGG  
 1031▶ SerTrpSerProSerValSerAlaGluLeuGlnLeuSerAlaGlyArgTyrHisTyrGlnLeuValTrpCysGlnLys•••

4001 CTAGCTCGACATGATAAGATACATTGATGAGTTTGGACAAACCACAACCTAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCT  


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 4101 TTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAAACAAGTTAAACAACAACAATTGCATTCATTTTATGTTTCAGTT  


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 4201 TCAGGGGGAGGTGTGGGAGGTTTTTTAAAGCAAGTAAACCTCTACAAATGTGGTAGATCCATTTAAATGTTAATTAAGTCCATGACCAAAATCCCTT  
PacI (4276)

4301 AACGTGAGTTTTCTGTTCCACTGAGCGTCAGACCCCGTAGAAAAGATCAAAGGATCTTCTTGAGATCCTTTTTTTCTGCGCGTAATCTGCTGCTTGCACAA  


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 4401 AAAAAAACACCGCTACCAGCGGTGGTTTGTGTTGCCGGATCAAGAGCTACCAACTCTTTTTCCGAAGGTAACCTGGCTTCAGCAGAGCGCAGATACCAAA  


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 4501 ACTGTTCTTCTAGTGTAGCCGTAGTTAGGCCACCACTTCAAGAACTCTGTAGCACCGCTACATACCTCGCTCTGCTAATCCTGTTACCAGTGGCTGCTG  


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 4601 CCAGTGGCGATAAGTCGTGCTTACCAGGTTGGACTCAAGACGATAGTTACCGGATAAGGCGCAGCGGTCCGGCTGAACGGGGGGTTCGTGCACACAGCC  


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 4701 CAGCTTGGAGCGAACGACCTACACCGAACTGAGATACCTACAGCGTGAGCTATGAGAAAAGCCACGCTTCCCGAAGGAGAAAAGGCGGACAGGTATCCG  


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 4801 GTAAGCGGCAGGTCGGAACAGGAGAGCGCAGGGAGCTTCCAGGGGAAACGCCTGGTATCTTTATAGTCTGTGCGGTTTCGCCACCTCTGACTTG  


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 4901 AGCGTCGATTTTTGTGATGCTCGTCAGGGGGCGGAGCCTATGGAAAAACGCCAGCAACCGGCCTTTTTACGGTTCCTGGCCTTTTGTGCGCCTTTTGC  


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PacI (5016)
 5001 TCACATGTTCTTAATTAATTTTTCAAAGTAGTTGACAATTAATCATCGGCATAGTATATCGGCATAGTATAATACGACTCACTATAGGAGGGCCATCA  
1▶M

5101 TGGCCAAGTTGACCAGTGTCTCCAGTGTCCAGCCAGGGATGTGGCTGGAGCTGTTGAGTTCTGGACTGACAGGTTGGGTTCTCCAGAGATTTTGT  
 1▶ etAlaLysLeuThrSerAlaValProValLeuThrAlaArgAspValAlaGlyAlaValGluPheTrpThrAspArgLeuGlyPheSerArgAspPheVa  
 5201 GGAGGATGACTTTGCAGGTGTGGTCAGAGATGATGTCACCCTGTTCTCAGCAGTCCAGGACCAGGTGGTGCCTGACAACACCCTGGCTTGGGTGTGG  
 34▶ lGluAspAspPheAlaGlyValValArgAspAspValThrLeuPheI leSerAlaValGlnAspGlnValValProAspAsnThrLeuAlaTrpValTrp  
 5301 GTGAGAGGACTGGATGAGCTGTATGCTGAGTGGAGTGAGGTGGTCTCCACCAACTTCAGGGATGCCAGTGGCCCTGCCATGACAGAGATTGGAGAGCAGC  
 68▶ ValArgGlyLeuAspGluLeuTyrAlaGluTrpSerGluValValSerThrAsnPheArgAspAlaSerGlyProAlaMetThrGluI leGlyGluGlnP  
 5401 CCTGGGGGAGAGAGTTTGCCTGAGAGACCCAGCAGGCAACTGTGTCACTTTGTGGCAGAGGAGCAGGACTGAGGATAAGAATTGAGTTTCAGAAAAGG  
 101▶ roTrpGlyArgGluPheAlaLeuArgAspProAlaGlyAsnCysValHisPheValAlaGluGluGlnAsp•••

PacI (5532)
 5501 GGGCCTGAGTGGCCCTTTTTCAACTTAATTAA  


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