



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

1 CCTGCAGGGCCCAGTGTATTTCCTTCATCCCTGGCACACGTCACAGGCAGTGTGCAATCCATCTCTGCTACAGGGGAAAAACAATAACATTTGAGTCC  
101 AGTGGAGACCGGGAGCAGAAGTAAAGGGAAGTGATAACCCACAGAGCCCGGAAGCCTCTGGAGGCTGAGACCTCGCCCCCTTGGTGATAGGGCCTACG  
XhoI (272)  
201 GAGCCACATGACCAAGGCACTGTCCCTCCGCACGTGTGAGAGTGCAGGGCCCAAGATGGCTGCCAGGCTCGAGGCGCTACTTCTATGTCACTTCC  
XhoI (369)  
301 GTACCGCGGAGAAAGCGGGCCCTCCAGCCAATGAGGCTGCGGGCGGGCCTTACCTTGATAGGCACTCGAGTTATCCAATGGTGCCTCGGGCGGGAG  
401 CGACTAGGAACCTAACGTCATGCCAGTTGCTGAGCGCCGGCAGGCGGGCGGGCGGCCAAACCAATGCGATGGCCGGGCGGAGTCGGGCGCTCTATA

**NeoI (542)**

501 AGTTGTGCGATAGCGGGGCACTCCGCCCTAGTTTCTAAGGACCATGGGGGTTCTCATCATCATCATCATGGTATGGCTAGCATGACTGGTGGACAGC  
1 MetGlyGlySerHisHisHisHisHisHisGlyMetAlaSerMetThrGlyGlyGlnG  
601 AAATGGGTCGGATCTGTACGACGATGACGATAAGGTACCTAAGGATCAGCTTGGAGTTGATCCCGCTGTTTTACACCGCTGCTGGGAAAAACCCTGG  
20 InMetGlyArgAspLeuTyrAspAspAspLysValProLysAspGlnLeuGlyValAspProValValLeuGlnArgArgAspTrpGluAsnProG  
701 CGTTACCAACTAATCGCCTTGCAGCACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCAACAGTTGCGCAGC  
53 yValThrGlnLeuAsnArgLeuAlaAlaHisProProPheAlaSerTrpArgAsnSerGluGluAlaArgThrAspArgProSerGlnGlnLeuArgSer  
801 CTGAATGGCGAATGGCGTTTCCGCTGGTTCCGGCACCAGAAGCGGTGGCGAAAGCTGGCTGGAGTGCATCTTCCCTGAGGCCGATCTGTCTGCTGCC  
87 LeuAsnGlyGluTrpArgPheAlaTrpPheProAlaProGluAlaValProGluSerTrpLeuGluCysAspLeuProGluAlaAspThrValValValP  
901 CCTCAAATGGCAGATGCAGGTTACGATGCGCCCTACTACCAACGTAACCTATCCCATACGGTCAATCGCCGTTTGTTCACCGGAGAATCCGAC  
120 roSerAsnTrpGlnMetHisGlyTyrAspAlaProIeTyrThrAsnValThrTyrProIeThrValAsnProProPheValProThrGluAsnProTh  
1001 GGGTTGTACTCGCTCACATTAATGTTGATGAAAGCTGGCTACAGGAAGCCAGCAGCGAATTATTTTTGATGGCGTAACTCGGCGTTTCTATCTGTGG  
153 rGlyCysTrpSerLeuThrPheAsnValAspGluSerTrpLeuGlnGlyGlnThrArgIleIePheAspGlyValAsnSerAlaPheHisLeuTrp  
1101 TGCAACGGGCGTGGTGGTTACGGCCAGGACAGTCTGTTTGGCGTCTGAATTTGACCTGAGCGCATTTTTACGCGCCGAGAAAAACCCCTCGCGTGA  
187 CysAsnGlyArgTrpValGlyTyrGlyGlnAspSerArgLeuProSerGluPheAspLeuSerAlaPheLeuArgAlaGlyGluAsnArgLeuAlaValM  
1201 TGGTGTGCTGGTGGAGTGACGGCAGTTATCTGGAAGATCAGGATATGTGGCGGATGAGCGGCATTTTCCGTGACGCTCGTTGCTGCATAAACCGACTAC  
220 etValLeuArgTrpSerAspGlySerTyrLeuGluAspGlnAspMetTrpArgMetSerGlyIlePheArgAspValSerLeuHisLysProThrTh  
1301 ACAATACAGGATTTCCATGTTGCCACTCGCTTAAATGATGATTTACAGCCGCGTGTACTGGAGGCTGAAGTTCAGATGTGCGCGAGTTGCGTGACTAC  
253 rGlnIleSerAspPheHisValAlaThrArgPheAsnAspAspPheSerArgAlaValLeuGluAlaGluValGlnMetCysGlyGluLeuArgAspTyr  
1401 CTACGGGTAAACAGTTTCTTTATGGCAGGGTGAACCGCAGGTGCGCAGCGGCCACCGCGCTTTCGGCGGTGAATATCGATGAGCGTGGTGGTTATGCC  
287 LeuArgValThrValSerLeuTrpGlnGlyGluThrGlnValAlaSerGlyThrAlaProPheGlyGlyGluIleIeAspGluArgGlyGlyTrpAlaA  
1501 ATCCGCTCACACTCTGAAACGTCGAAAACCCGAACTGTGAGCGCCGAAATCCCGAATCTCTATCGTGGCGTGGTTGAACCTGACACCCCGCAGC  
320 spArgValThrLeuArgLeuAsnValGluAsnProLysLeuTrpSerAlaGluIleProAsnLeuTyrArgAlaValValGluLeuHisThrAlaAspG  
1601 CACGCTGATTGAAGCAGAAGCCTGCGATGTCCGTTTCCGCGAGGTGCGGATGAAAATGGTCTGCTGCTGCTGAACGGCAAGCCGTTGCTGATTGAGGC  
353 yThrLeuIleGluAlaGluAlaCysAspValGlyPheArgGluValArgIleGluAsnGlyLeuLeuLeuAsnGlyLysProLeuLeuIleArgGly  
1701 GTTAACCGTCACGAGCATCTCTGATGGTCAAGTATGAGCAGCAGTGGTGCAGGATATCCTGCTGATGAAGCAACAACCTTAAACCGCG  
387 ValAsnArgHisGlnHisHisProLeuHisGlyGlnValMetAspGluValMetAspGlnThrMetValGlnAspIleLeuLeuMetGlnAsnHisAlaV  
1801 TGCGCTGTTCCGATTATCCGAACCATCCGCTGTGGTACAGCTGTGGCAGCGCTACGGCCTGTATGTTGGTGGATGAAGCCAATATTGAACCCACGGCAT  
420 alArgCysSerHisTyrProAsnHisProLeuTrpTyrThrLeuCysAspArgTyrGlyLeuTyrValValAspGluAlaAsnIleGluThrHisGlyMe  
1901 GGTCCCAATGAATCGTCTGACCGATGATCCGCGTGGCTACCGCGATGAGCGAACCGGTAACCGCAATGGTGCAGCGCGATCGTAATCACCCGAGTGTG  
453 tValProMetAsnArgLeuThrAspAspProArgTrpLeuProAlaMetSerGluArgValMetValGlnArgAspArgMetValGlnArgAspSerVal  
2001 ATCATCTGGTCCGCTGGGAATGAATCAGGCCACGGCCTAATCAGCAGCGCTGTATCGCTGGATCAAACTGTGCTGATCTTCCCGCCCGGTGCAGTATG  
487 IleIleTrpSerLeuGlyAsnGluSerGlyHisGlyAlaAsnHisAspAlaLeuTyrArgTrpIleLysSerValAspProSerArgProValGlnTyrG  
2101 AAGCGCGGGAGCCGACACCAGGCCACCGATATATTGCCCCGATGACGCGCGGTGGATGAAGACCAGCCCTTCCCGCTGTGCCGAAATGGTCCAT  
520 luGlyGlyGlyAlaSerThrThrAlaThrAspIleIeCysProMetTyrAlaArgValAspGluAspGlnProPheProAlaValProLysTrpSerI  
2201 CAAAAATGGCTTTCGCTACCTGAGAGAGACCGCCGCTGATCTTTCGAAATACCGCCACCGGATGGGTAACAGTTCGCGGTTTCGCTAAATACTGG  
553 eLysLysTrpLeuSerLeuProGlyGluThrArgProLeuIleLeuCysGluTyrAlaHisAlaMetGlyAsnSerLeuGlyGlyPheAlaLysTyrTrp  
2301 CAGCGTTTCTGTCAGTATCCCGTTCACAGGGCGGCTTCTGCTGGGACTGGGTGGATAGTCCGCTGATTAATATGATGAAAACCGCAACCCGCTGGTCCG  
587 GlnAlaPheArgGlnTrpArgLeuGlnGlyPheValTrpAspTrpValAspGlnSerLeuIleLysTyrAspGlyAsnGlyAsnProTrpSerA  
2401 CTTACCGCGGTGATTTGGCGATACGCCAAGCATGCCAGTCTGTATPACAGGGTCTGGTCTTTCGCGACCGCCGATCCAGCGCTGACGGAAGC  
620 laTyrGlyGlyAspPheGlyAspThrProAsnAspArgGlnPheCysMetAsnGlyLeuValPheAlaAspArgThrProHisProAlaLeuThrGluAl  
2501 AAAACACCAGCAGCAGTTTTTCCAGTTCCGTTTATCCGGCAAACCATCGAAGTGACCAGCGAATACCTGTTCCGTCATAGCGATAACGAGCTCTGCAC  
653 aLysHisGlnGlnGlnPhePheGlnPheArgLeuSerGlyGlnThrIleGluValThrSerGluTyrLeuPheArgHisSerAspAsnGluLeuLeuHis  
2601 TGGATGGTGGCGCTGGATGGTAAGCCGCTGGCAAGCGGTGAAGTGCCCTGGATGTCGCTCCACAAGGTAACAGTTGATTGAAGTGCCTGAAGTACCCG  
687 TrpMetValAlaLeuAspGlyLysProLeuAlaSerGlyGluValProLeuAspValAlaProGlnGlyLysGlnLeuIleGluLeuProGluLeuProG  
2701 AGCCGGAGAGCCCGGCAACTCTGGCTCACAGTACGCGTAGTGCAACCGAACCGACCGCATGGTGCAGAAGCCGGGCACATCAGCGCTGGCAGCAGT  
720 InProGluSerAlaGlyGlnLeuTrpLeuThrValArgValValGlnProAsnAlaThrAlaTrpSerGluAlaGlyHisIleSerAlaTrpGlnGlnTr  
2801 CGCTTGGCGGAAACCTCAGTGTGACGCTCCCGCCGCTCCACGCCATCCCGCATCTGACCACCAGCGAAATGGATTTTTGCATCGAGCTGGGTAAT  
753 pArgLeuAlaGluAsnSerValThrLeuProAlaAlaSerHisAlaIleProHisLeuThrThrSerGluMetAspPheCysIleGluLeuProGlyAsn  
2901 AAGCGTTGGCAATTTAACCGCCAGTCAGGCTTCTTTCACAGATGTGGATTGGCGATAAAAAACAAGTCTGACGCGCTGCGGATCAGTTCACCCGCT  
787 LysArgTrpGlnPheAsnArgGlnSerGlyPheLeuSerGlnMetTrpIleGlyAspLysLysGlnLeuLeuThrProLeuArgAspGlnPheThrArgA  
3001 CACCGCTGGATAACGACATTGGCGTAAGTGAAGCCACCCGATGACCTAACGCGCTGGTGCAGCGCTGGAAGCGCGGGCCATTACCAGGCCGAAGC  
820 laProLeuAspAsnAspIleGlyValSerGluAlaThrArgIleAspProAsnAlaTrpValGluArgTrpLysAlaAlaGlyHisTyrGlnAlaGluAl  
3101 AGCGTTGTCAGTGCAGCGCAGATACACTGCTGATCGCGGTGCTGATTACGACCCTCAGCGTGGCAGCATCAGGGGAAAAACCTTATTATCAGCCGG  
853 aAlaLeuLeuGlnCysThrAlaAspThrLeuAlaAspAlaValLeuIleThrThrAlaHisAlaTrpGlnHisGlnGlyLysThrLeuPheIleSerArg  
3201 AAAACCTACCGGATTGATGGTGTGTTCAATGGCGATTACCGTTGATGTTGAAGTGGCGAGCGATACCCGCATCCGGCCGGATTGGCCTGAACTGCC  
887 LysThrTyrArgIleAspGlySerGlyGlnMetAlaIleThrValAspValGluValAlaSerAspThrProHisProAlaArgIleGlyLeuAsnCysG  
3301 AGCTGGCGAGGTAGCAGGGGTAACCTGGCTGGATTAGGCGCGCAAGAACTATCCCGACCCTTACTCGCCGTTTGTGACCGCTGGGATCT  
920 InLeuAlaGlnValAlaGluArgValAsnTrpLeuGlyLeuGlyProGlnGluAsnTyrProAspArgLeuThrAlaAlaCysPheAspArgTrpAspLe  
3401 GCCATTGTCAGACATGTATCCCGTACGCTTCCCGAGCGAAAAACCGTCTGCGCTGCGGGACGCGGAATTGAATTATGGCCACACCAGTGGCGGGC  
953 uProLeuSerAspMetTyrThrProTyrValPheProSerGluAsnGlyLeuArgCysGlyThrArgGluLeuAsnTyrGlyProHisGlnTrpArgGly  
3501 GACTTCCAGTTCAACATCAGCCGCTACAGTCAACAGCACTGATGAAACCAGCCATCCCATCTGCTGCACGGGAAGAAGGCATGGCTGAATATCG  
987 AspPheHisAsnIleSerArgTyrSerGlnGlnGlnMetGluThrSerHisArgHisLeuLeuHisAlaGluGlyThrArgTrpLeuAsnIleA

3601 ACGGTTTCCATATGGGGATTGGTGGCGAGACTCCTGGAGCCCGTCAGTATCGGCGGAATTACAGCTGAGCGCCGGTCCGCTACCATTACCAGTTGGTCTG  
1020▶ spGlyPheHisMetGlyI leGlyGlyAspAspSerTrpSerProSerValSerAlaGluLeuGlnLeuSerAlaGlyArgTyrHisTyrGlnLeuValTr  
EcoRI (3727)  
3701 GTGTCAAAAATAATAATCTAGTCGAGAATTCGCTAGCTCGACATGATAAGATACATTGATGAGTTTGGACAAACCACAACCTAGAATGCAGTGAAAAAAT  
1053▶ pCysGlnLys . . .  
3801 GCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTGTAACCATTATAAGCTGCAATAAACAAGTTAAC  
SwaI (3998)  
3901 AACACAATTGCATTCATTTTATGTTTCAGGTTTCAGGGGGAGGTGTGGGAGGTTTTTTAAAGCAAGTAAAACCTCTACAAATGTGGTAGATCCATTAAA  
PacI (4008)  
4001 TGTTAATTAACAGCCATGACCAAAATCCCTAACGTGAGTTTTTCGTTCCACTGAGCGTCAGACCCCGTAGAAAAGATCAAAGGATCTTCTTGAGATCCT  
4101 TTTTTTCTGCGCGTAATCTGCTGCTTGCAACAAAAAAACCACCGCTACCAGCGGTGGTTTGTTTGCCGGATCAAGAGCTACCAACTCTTTTTCCGAGG  
4201 TAACTGGCTTCAGCAGAGCGCAGATACCAATACTGTTCTTCTAGTGTAGCCGTAGTTAGGCCACCCTTCAAGAACTCTGTAGCACCGCTACATACT  
4301 CGCTCTGCTAATCCTGTTACCAGTGGCTGCTGCCAGTGGCGATAAGTCGTGCTTACCGGTTGGACTCAAGACGATAGTTACCGGATAAGGCCAGCGG  
4401 TCGGGCTGAACGGGGGGTTCGTGCACACAGCCAGCTTGGAGCGAACGACCTACACCGAACTGAGATACCTACAGCGTGAGCTATGAGAAAGCGCCACGC  
4501 TTCCCGAAGGGAGAAAGCGGCAGGTATCCGGTAAGCGGCAGGGTCGGAACAGGAGAGCGCACAGGGAGCTTCCAGGGGAAACGCCTGGTATCTTTA  
4601 TAGTCCTGTCGGGTTTCGCCACCTCTGACTTGAGCGTCGATTTTTGTGATGCTCGTCAGGGGGCGGAGCCTATGGAAAAACGCCAGCAACGCGGCTTT  
PacI (4748)  
4701 TTACGGTTCCTGGCCTTTTGCTGGCCTTTTGCTCACATGTTCTTAATTAATTTTCAAAGTAGTTGACAATTAATCATCGGCATAGTATATCGGCATA  
4801 GTATAATACGACTCACTATAGGAGGGCCATCATGGCCAAGTTGACCAGTGTCTCCAGTGCTCACAGCCAGGGATGTGGCTGGAGCTGTTGAGTTCTGG  
4901 ACTGACAGGTTGGGGTTCTCCAGAGATTTTGTGGAGGATGACTTTGAGGTGTGGTCAGAGATGATGTCACCCTGTTTCATCTCAGCAGTCCAGGACCAGG  
5001 TGGTGCTGACAACACCCTGGCTGGGTGTGGGTGAGAGGACTGGATGAGCTGTATGCTGAGTGGAGTGAGGTGGTCTCCACCACTTCAGGGATGCCAG  
5101 TGGCCCTGCCATGACAGAGATTGGAGAGCAGCCCTGGGGAGAGAGTTTGCCTGAGAGACCAGCAGGCAACTGTGTGCACCTTTGTGGCAGAGGAGCAG  
PacI (5257)  
5201 GACTGAGGATAAGAATTGTAACAAAAACCCGCCCCGGGGTTTTTTGTGTAATTAA  
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