



**PstI (7)**

**SdaI (7)**

1 CCTGCAGGCTTAGAAATATGGGGGTAGGGGTGGTGGTGGTAATTCTGTTTTCTCCCATAGGTGAGATAAGCATTGGGTTAAATGTGCTTTCTCTCTCTC  
101 CCTCTCCTTTCTTAAGAATTAAGGGACAGACTATGGGCTGGAGGACTTTGAGGATGTCTGTCTCATAACACTTGGGTTGTATCTGTTCTATGGGGCTTGT  
HindIII (205)  
201 TTTAAGCTTGGCAACTTGAACAGGGTTCACCTGACTTTCTCCCAGGCCAAGGACTGTCTCTTTTCATATCTGTTTTGGGGCCTCTGGGGCTTGAAT  
301 ATCTGAGAAAAATAAACATTTCAATAATGTTCTGTGGTGGATGAGATGAGATGAGAGATGTGTCATTTCATTTGTATCAATGAATGAATGAGGACAATTAGTG  
401 TATAAATCCTTAGTACAACAATCTGAGGGTAGGGGTGGTACTATTCAATTTCTATTTATAAAGATACTTATTTCTATTTATTTATGCTTGTGACAAATGT  
501 TTTGTTCCGGGACCACAGGAATCACAAGATGAGTCTTTGAATTTAAGAAGTTAATGGTCCAGGAATAATTACATAGCTTACAAATGACTATGATATACCA  
601 TCAAACAAGAGGTTCCATGAGAAAAATAATCTGAAAGGTTAATAAGTTGTCAAAGGTGAGAGGGCTCTTCTCTAGCTAGAGACTAATCAGAAAATACATTC  
701 AGGATAATTATTTGAATAGACCTTAAGGGTTGGGTACATTTTGTTCAGCATTGATGGAGAAGGAGAGTGAATATTTGAAAACATTTCAACTAACC  
801 CCACCAATCCAACAAAACAAAAAATGAAAAGAATCTCAGAAACAGTGAGATAAGAGAAGGAATTTCTCACAACCACACGTATAGCTCAACTGCTCTGA  
901 AGAAGTATATCTAATATTTAACTAACAATCATGCTAATAATGATAATAATTACTGTCTATTTTAAATGTCTATAAGTACCAGGCATTTAGAAGATAT  
1001 TATTCCATTTATATATCAAAATAAATCTGAGGGATAGATCATTTTCATGATATATGAGAAAAATAAAAATCAGATTGAATTTTGCCTGTCATACAG  
Swal (1131)  
1101 CTAATAATTGACCATAAGACAATTAGATTTAAATTAGTTTTGAATCTTTCTAATAACCAAAGTTCAGTTTACTGTTCCATGTTGCTTCTGAGTGGCTTCC  
1201 AGACTTATGAAAAAGTAAACGAATCAGAATTACATCAATGCAAAGCATTGCTGTGAACCTCTGTACTTAGGACTAACTTTGAGCAATAACACATATAG  
1301 ATTGAGGATTGTTGCTGTTAGTATACAACTCTGGTTCAAAGCTCCTCTTTATTGCTTGTCTTGAAAAATTTGCTGTTCTTCATGGTTCTCTTTTCC  
HindIII (1450)  
1401 TGCTATCTATTTTTCTCAACCACTCACATGGCTACAATAACTGTCTGCAAGCTTATGATTCCCAAATgTCTATCTCTAGCCTCAATCTTGTTCAGAAGA  
1501 TAAAAAGTAGTATTCAAATGCACATCAACGCTCTCCACTTGGAGGGCTTAAAGACGTTTCAACATACAAACCGGGGAGTTTTGCCTGGAATGTTTCTTAAA  
1601 ATGTGCTCTGTAGCACATAGGGTCCCTCTTGTTCCTTAAAAATCTAATTAATCTTTAGCCAGTGTCTATCCACCTATGGGGAGATGAGAGTGAAAAGGGAG  
1701 CCTGATTAATAATTACTAAGTCAATAGGCATAGAGCCAGGACTGTTTGGGTAACCTGGTCACTTTATCTTAACTAAATATATCCAAAACCTGAACATG  
1801 TACTTAGTTACTAAGTCTTTGACTTTATCTCATTACACACTCAGCTTTATCCAGGCCACTagAGTTTGGAGAGAATATTTGTTATATTTGCAAATAA  
1901 AATAAGTTTGCAAGTTTTTTTTTTCTGCCCAAAGAGCTCTGTGTCTTGAACATAAAAATACAAATAACCGCTATGCTGTTAATTTATGACAAATGTCCC  
2001 ATTTTCAACCTAAGGAAATACCATAAAGTAAACAGATATACCAACAAAAGGTTACTAGTTAACAGGCATTGCCTGAAAAGAGTATAAAGAATTTACAGCAT  
NcoI (2152)  
2101 GATTTTCCATATTGTGCTTCCACCCTGCCAATAACAAAATAACTAGCAACCCATGGGGGGTTCATCATCATCATCATGGTATGGCTAGCATGACT  
2201 GGTGGACAGCAAATGGGTGGGATCTGTACGACGATGACGATAAGGTACCTAAGGATCAGCTTGGAGTTGATCCCGTCCGTTTTACAACGTCGTGACTGGG  
17 GlyGlyGlnGlnMetGlyArgAspLeuTyrAspAspAspAspLysValProLysAspGlnLeuGlyValAspProValValLeuGlnArgArgAspTrpG  
2301 AAAACCTGGCGTTACCAACTAATCGCCTTGACGACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCGCCAGCATCGCCCTTCCCAACA  
50 luAsnProGlyValThrGlnLeuAsnArgLeuAlaAlaHisProProPheAlaSerTrpArgAsnSerGluGluAlaArgThrAspArgProSerGlnG  
2401 GTTGGCAGCCTGAATGGGAATGGCGCTTTGCCGTGTTTCCGGCACCAGAAGCGGTGCCGAAAGCTGGTGGAGTGGCATCTCTCGAGGCCGATACT  
83 nLeuArgSerLeuAsnGlyGluTrpArgPheAlaTrpPheProAlaProGluAlaValProGluSerTrpLeuGluCysAspLeuProGluAlaAspThr  
2501 GTCGTCGTCCTCAAACCTGGCAGATGCACGGTTACGATGCGCCATCTACACCAACGTAACCTATCCCATTACGGTCAATCCGCGGTTGTTCCACGG  
117 ValValValProSerAsnTrpGlnMetHisGlyTyrAspAlaProIeTyrThrAsnValThrTyrProlIeThrValAsnProProPheValProThrG  
2601 AGAATCCGACGGGTTGTTACTCGCTCACATTTAATGTTGATGAAAGCTGGCTACAGGAAGCCAGACGCGAATATTTTTGATGGCGTTAACTCGCGGTT  
150 luAsnProThrGlyCysTyrSerLeuThrPheAsnValAspGluSerTrpLeuGlnGluGlyGlnThrArgIleIePheAspGlyValAsnSerAlaPh  
2701 TCATCTGTGGTCAACGGGCGCTGGGTGGTTACGGCCAGGACAGTCTTTGCCGCTGGAATTTGACCTGAGCGCATTTTACGCGCGGGAGAAAACCGC  
183 eHisLeuTrpCysAsnGlyArgTrpValGlyTyrGlyGlnAspSerArgLeuProSerGluPheAspLeuSerAlaPheLeuArgAlaGlyGluAsnArg  
2801 CTCGCGGTGATGGTGGCTGGCTGGAGTGACGGCAGTTATCTGGAAGATCAGGATATGTGGCGGATGAGCGGCATTTCCGCTGACGCTCTCGTTCGCATA  
217 LeuAlaValMetValLeuArgTrpSerAspGlySerTyrLeuGluAspGlnAspMetTrpArgMetSerGlyIlePheArgAspValSerLeuLeuHisL  
2901 AACCGACTACAAATCAGCGATTTCCATGTTGCCACTCGCTTAAATGATGATTTACGCGCGCTGACTGGAGGCTGAAGTTACAGATGTCGGCGGAT  
250 ysProThrThrGlnIleSerAspPheHisValAlaThrArgPheAsnAspAspPheSerArgAlaValLeuGluAlaGluValGlnMetCysGlyGluLe  
3001 CGGTGACTACTACGGTAACAGTTTCTTTATGGCAGGGTGAACCGCAGGTCGCCAGCGGCCACCGCCCTTTCGGCGGTGAAATATCGATGAGCGTGGT  
283 uArgAspTyrLeuLeuIeGluAlaGluAlaCysAspValGlyPheArgGluValArgIleGluAsnGlyLeuLeuLeuAsnGlyLysProLeuLe  
3101 GGTATGCGGATCGGCTCACACTACGCTGAAACCTCGAAAACCCGAACTGTGGAGCGCGGAAATCCCGAATCTCTATCGTGGGTGGTGAAGTGCACA  
317 GlyTyrAlaAspArgValThrLeuArgLeuAsnValGluAsnProLysLeuTrpSerAlaGluIleProAsnLeuTyrArgAlaValValGluLeuHisT  
3201 CCGCCGACGGCAGCTGATTAAGCAGAAGCCTGCGATGTCGGTTTCCGCGAGGTGGGATGAAAATGGTCTGCTGCTGCTGAACCGCAAGCCGTTGCT  
350 hrAlaAspGlyThrLeuIeGluAlaGluAlaCysAspValGlyPheArgGluValArgIleGluAsnGlyLeuLeuLeuAsnGlyLysProLeuLe  
3301 GATTTCGAGCGTTAACCGTACGAGCATCTCTCTGCATGGTCAAGTATGGATGAGCAGACGATGGTGCAGGATATCTGCTGATGAAGCAGAACAAC  
383 ulIeArgGlyValAsnArgHisGluHisHisProLeuHisGlyGlnValMetAspGluGlnThrMetValGlnAspIleLeuLeuMetLysGlnAsnAsn  
3401 TTTAACGCGGTGCGCTGTTCCGATATCCGAACCATCCGCTGTGGTACACGCTGTGCGACCGCTACGGCCTGATGTGGTGGATGAAGCAATATTGAAA  
417 PheAsnAlaValArgCysSerHisTyrProAsnHisProLeuTrpTyrThrLeuCysAspArgTyrGlyLeuTyrValValAspGluAlaAsnIleGluT

3501 CCCACGGCATGGTGCCAATGAATCGTCTGACCGATGATCCGGCTGGCTACCGGGATGAGCGAACCGTAACGCGAATGGTGCAGCGCGATCGTAATCA  
450▶ hrHisGlyMetValProMetAsnArgLeuThrAspAspProArgTrpLeuProAlaMetSerGluArgValThrArgMetValGlnArgAspArgAsnHi  
3601 CCCGAGTGTGATCATCTGGTCGCTGGGAATGAATCAGGCCACGGCGCTAATCAGCAGCGCTGTATCGCTGGATCAAATCTGTCGATCCCTCCCGCCG  
483▶ sProSerValIleIeIleTrpSerLeuGlyAsnGluSerGlyHisGlyAlaAsnHisAspAlaLeuTyrArgTrpIleLysSerValAspProSerArgPro  
3701 GTGCAGTATGAAGGGCGGAGCCGACACCAGCCACCGATATTATTTGCCGATGTACGGCGCGTGGATGAAGACCAGCCCTCCCGGCTGTGCCGA  
517▶ ValGlnTyrGluGlyGlyGlyAlaAspThrThrAlaThrAspIleIleCysProMetTyrAlaArgValAspGluAspGlnProPheProAlaValProL  
3801 AATGGTCCATCAAAAAATGGCTTTCCGCTACCTGGAGAGACGCGCCCGCTGATCCTTTGGCAATACGCCACGCGATGGGTAACAGTCTTGGCGGTTTCG  
550▶ ysTrpSerIleLysLysTrpLeuSerLeuProGlyGluThrArgProLeuIleLysCysGluTyrAlaHisAlaMetGlyAsnSerLeuGlyGlyPheAl  
3901 TAAATACGTGGCAGGCGTTTCGTCAGTATCCCGCTTACAGGGCGGCTTCGCTGGGACTGGGTGGATCAGTCGCTGATTAATATGATGAAAACGGCAAC  
583▶ aLysTyrTrpGlnAlaPheArgGlnTyrProArgLeuGlnGlyGlyPheValTrpAspTrpValAspGlnSerLeuIleLysTyrAspGluAsnGlyAsn  
4001 CCGTGGTCGGCTACGGCGGTGATTTTGGCGATACGCCAACGATCGCCAGTCTGTATGAACGGTCTGGTCTTTGCCGACCGCACGCCGCATCCAGCC  
617▶ TrpTrpSerAlaTyrGlyGlyAspPheGlyAspThrProAsnAspArgGlnPheCysMetAsnGlyLeuValPheAlaAspArgThrProHisProAlaL  
4101 TGACGGAAAGCAAAAACCCAGCAGCAGTTTTTCCAGTTCCTGTTTACCGGGCAAACCATCGAAGTGACCAGCGAATACCTGTTCCGTCATAGCGATAACGA  
650▶ euThrGluAlaLysHisGlnGlnGlnPhePheGlnPheArgLeuSerGlyGlnThrIleGluValThrSerGluTyrLeuPheArgHisSerAspAsnG  
4201 GCTCCTGCACTGGATGGTGGCGTGGATGGTAAGCCGCTGGCAAGCGGTGAAGTGCCTTGGATGTCGCTCCACAAGGTAACAGTTGATGAATGCCT  
683▶ uLeuLeuHisTrpMetValAlaLeuAspGlyLysProLeuAlaSerGlyGluValProLeuAspValAlaProGlnGlyLysGlnLeuIleGluLeuPro  
4301 GAACTACCGCAGCCGAGAGCGCCGGCAACTCTGGCTCACAGTACGCGTAGTGAACCGAACCGCAGCCGATGGTCAGAAGCCGGGCACATCAGCGCT  
717▶ GluLeuProGlnProGluSerAlaGlyGlnLeuTrpLeuThrValArgValMetValGlnProAsnAlaThrAlaTrpSerGluAlaGlyHisIleSerAlaT  
4401 GGCAGCAGTGGCTTGGCGGAAAACCTCAGTGTGACGCTCCCGCGCGTCCACGCCATCCCGCATCTGACCACCAGCGAAATGGATTTTGCATCGA  
750▶ rpGlnGlnTrpArgLeuAlaGluAsnLeuSerValThrLeuProAlaAlaSerHisAlaIleProHisLeuThrThrSerGluMetAspPheCysIleG  
4501 GCTGGTAATAAGCGTTGGCAATTTAACCCGAGTCAGGCTTTCTTTACAGATGTGGATTGGCGATAAAAAAACAACCTGCTGACGCCGCTGGCGGATCAG  
783▶ uLeuGlyAsnLysArgTrpGlnPheAsnArgGlnSerGlyPheLeuSerGlnMetTrpIleGlyAspLysLysGlnLeuThrProLeuArgAspGln  
4601 TTCACCCGTCACCGCTGGATAACGACATTTGGCGTAAGTGAAGCGACCCGATTGACCTAACCGCTGGTGAACGCTGGAAGCGCGGGGCCATTACC  
817▶ PheThrArgAlaProLeuAspAsnAspIleGlyValSerGluAlaThrArgIleAspProAsnAlaTrpValGluArgTrpLysAlaAlaGlyHisTyrG  
4701 AGGCCGAAGCAGCGTTTGTGACGTGCACGGCAGATACACTTGTCTGATGCGGTGCTGATTACGACCGCTCACGCGTGGCAGCATCAGGGGAAAACCTTATT  
850▶ InAlaGluAlaAlaLeuLeuGlnCysThrAlaAspThrLeuAlaAspAlaValLeuIleThrThrAlaHisAlaTrpGlnHisGlnGlyLysThrLeuPh  
4801 TATCAGCCGAAAACCTACCGGATTGATGGTAGTGGTCAAATGGCGATTACCGTTGATGTGAAGTGGCGAGCGATACCCGATCCCGCGGATGGC  
883▶ elIleSerArgLysThrTyrArgIleAspGlySerGlyGlnMetAlaIleThrValAspValGluValAlaSerAspThrProHisProAlaArgIleGly  
4901 CTAACTGCCAGCTGGCGCAGGTAGCAGAGCGGGTAAACTGGCTCGGATTAGGGCCGCAAGAAAACCTATCCCGACCGCTTACTGCGCCTGTTTGACC  
917▶ LeuAsnCysGlnLeuAlaGlnValAlaGluArgValAsnTrpLeuGlyLeuGlyProGluLeuAsnTyrProAspArgLeuThrAlaAlaCysPheAspA  
5001 GCTGGATCTGCCATTGTCAGACATGTATACCCGTCAGTCTCCCGAGCGAAAACGCTGCGCTGCGGGAGCGCGAATTGAATATGGCCACACCA  
950▶ rgTrpAspLeuTrpSerAspMetTyrThrProTyrValPheProSerGluAsnGlyLeuArgCysGlyThrArgLeuAsnTyrGlyProHisG  
5101 GTGGCGCGGCACTTCCAGTTCAACATCAGCCGCTACAGTCAACAGCACTGATGGAACCAGCCATCGCCATCTGCTGCACGGGAAGAAGGCATGG  
983▶ nTrpArgGlyAspPheGlnPheAsnIleSerArgTyrSerGlnGlnGlnLeuMetGluThrSerHisArgHisLeuLeuHisAlaGluGluGlyThrTrp  
5201 CTGAATATCGACGGTTTCCATATGGGATTGGTGGCGAGACTCCTGGAGCCGTCAGTATCGGGGAATTACAGCTGAGCGCGGCTGCTACCATTACC  
1017▶ LeuAsnIleAspGlyPheHisMetGlyIleGlyGlyAspAspSerTrpSerProSerValSerAlaGluLeuGlnLeuSerAlaGlyArgTyrHisTyrG

**EcoRI (5337)**

5301 AGTTGGTCTGGTGTCAAAAATAATAATCTAGTTCGAGAATTGGCTAGCTCGACATGATAAGATACATTGATGAGTTTGACAAAACCAACTAGAAATGCAG  
1050▶ InLeuValTrpCysGlnLys•••  
5401 TGAATAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGAAATTTGTGATGCTATTGCTTTATTTGTAACATTATAAGCTGCAATAA

5501 ACAAGTTAAACAACAACAATTGCATTCATTTTATGTTTCAGGTTCCAGGGGAGGTGTGGGAGGTTTTTTAAAGCAAGTAAACCTCTACAATGTGGTAGA

Swal (5608) PacI (5618)

5601 TCCATTTAAATCTTAATTAACAGTACCCATGACCAAAATCCCTTAACGTGAGTTTTTCGTTCCACTGAGCGTCAGACCCCGTAGAAAAGATCAAAGGATCTTC

5701 TTGAGATCCTTTTTTCTGCGCGTAATCTGCTGCTTGCAAAACAAAAACCACCGCTACCAGCGGTGTTTTGTTGCCGGATCAAGAGCTACCAACTCTT

5801 TTTCCGAAGGTAAGTGGCTTCCAGAGCGCAGATACCAATACTGTTCTTCTAGTGTAGCCGTAGTTAGGCCACCACTTCAAGAACTCTGTAGCACCGC

5901 CTACATACCTCGCTCTGTAATCCTGTTACCAGTGGCTGCTGCCAGTGGCGATAAGTCTGTCTTACCGGTGGACTCAAGACGATAGTTACCGGATAA

6001 GGCGCAGCGGTCCGGCTGAACGGGGGTTCTGTCACACAGCCAGCTTGGAGCGAACGACCTACACCGAACTGAGATACCTACAGCGTGAGCTATGAGAA

6101 AGCCACCAGCTTCCCGAAGGAGAAAGCGGACAGGTATCCGGTAAGCGGCAGGTCGGAACAGGAGCGCACGAGGGAGCTTCCAGGGGAAACGCCCT

6201 GGTATCTTTATAGTCTGTCGGGTTTCGCCACCTCTGACTTGAGCGTCGATTTTTGTGATGCTGTCAGGGGGCGGAGCCTATGGAAAAACGCCAGCAA

PacI (6358)

6301 CGCGCCCTTTTTACGGTTCCTGGCCTTTTGTGGCCTTTTGCTCACATGTTCTTAATTAATTTTCAAAGTAGTTGACAATTAATCATCGGCATAGTA

6401 TATCGGCATAGTATAATCAGACTCACTATAGGAGGGCCATCATGGCCAAGTTGACCAGTGTGCTGCCAGTGTCCAGTGTCCAGCCAGGGATGTGGCTGGAGCTGT

▶ MetAlaLysLeuThrSerAlaValProValLeuThrAlaArgAspValAlaGlyAlaVa

6501 TGAGTTCTGGACTGACAGGTTGGGTTCTCCAGAGATTTTGTGGAGGATGACTTTGACGGTGTGGTCAGAGATGATGTCACCCTGTTATCTCAGCAGTC

20▶ IGluPheTrpThrAspArgLeuGlyPheSerArgAspPheValGluAspAspPheAlaGlyValValArgAspAspValThrLeuPheIleSerAlaVal

6601 CAGGACCAGGTGGTGCCTGACAACCCCTGGCTTGGGTGTTGGTGGAGGACTGGATGAGCTGTATGCTGAGTGGAGTGGTGGTCTCCACCAACTTCA

54▶ GlnAspGlnValValProAspAsnThrLeuAlaTrpValTrpValArgGlyLeuAspGluLeuTyrAlaGluTrpSerGluValValSerThrAsnPheA

6701 GGGATGCCAGTGGCCCTGCCATGACAGAGATTGGAGAGCAGCCCTGGGGAGAGAGTTTGCCTGAGAGACCCAGCAGGCAACTGTGTGCACTTTGTGGC

87▶ rgAspAlaSerGlyProAlaMetThrGluIleGlyGluGlnProTrpGlyArgGluPheAlaLeuArgAspProAlaGlyAsnCysValHisPheValAl

PacI (6874)

6801 AGAGGAGCAGACTGAGGATAAGAATTGAGTTTCAGAAAAGGGGCGCTGAGTGGCCCTTTTTTCAACTTAATTA

120▶ aGluGluGlnAsp•••