



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

101 AGGCCTGAGGTGCCCCACCTCACCCTCTTCTATTTTTGTGTAAAAATCCAGCTTCTTGTCAACCCTCAAGGAGGGGGAGGAGGAAGGCAGGT

201 TCCTCTAGGCTGAGCCGAATGCCCTCTGTGGTCCCACGCCACTGATCGCTGCATGCCACCACCTGGGTACACACAGTCTGTGATTCGGGAGCAGAAC

301 GGACCCTGCCACCCGGTCTTGTGTGCTACTCAGTGGACAGACCAAGGCAAGAAAGGGTGACAAGGACAGGGTCTTCCCAGGCTGGCTTTGAGTTCTTA

401 GCACCGCCCCGCCCAATCCTCTGTGGCACATGGAGTCTTGGTCCCCAGAGTCCCCAGCGGCCTCCAGATGGTCTGGGAGGGCAGTTCAGTGTGGCT

501 CGGCATAGCAGACATAACAACGGACGGTGGGCCAGACCCAGGCTGTGTAGACCCAGCCCCCGCCCGCAGTGCCTAGGTACCCACTAACGCCCCAGG

601 CCTGGTCTTGGCTGGGCGTGACTGTTACCCTCAAAGCAGGCAGCTCCAGGGTAAAAGGTGCCCTGCCCTGTAGAGCCACCTTCCTTCCCAGGGCTGGC

701 GCTGGGTAGGTTTGTAGCCTTCATCACGGGCCACCTCCAGCCACTGGACCGCTGGCCCTGCCCTGTCTGGGGAGTGTGGTCTCGGACTTCTAAGTGG

801 CCGAAGCCACCTGACTCCCCAACACCACACTTACTCTCAAGCCAGGTCTCTCCCTAGTGACCCACCAGCACATTTAGCTAGCTGAGCCCCACAG

901 CCAGAGTCTCAGGCCCTGCTTTCAGGGCAGTTGCTCTGAAGTCGGCAAGGGGGAGTACTGCCTGGCCACTCCATGCCCTCCAAGAGCTCCTTCTGCA

1001 GGAGCGTACAGAACCCAGGGCCTGGCACCCGTGCAGACCCTGGCCACCCCACTGGGCGCTCAGTGCCTAAGAGATGTCCACACCTAGGATGTCCCGC

1101 GGTGGGTGGGGGCCGAGAGACGGGCGGGGCGAGCCCTGGCCATGCGGGCCGAACCGGGCACTGCCAGCGTGGGGCGGGGGCCAGGGCCG

1201 GCGCCCCAGCCCCCGGCCAGACCCCAAGGGCGCAACGCCAAACTCTCCTCCTCTTCTCAATCTCGCTCTCGCTCTTTTTTTTTTTCGCA

1301 AAAGGAGGGGAGAGGGGGTAAAAAATGCTGCACTGTGCGGCAAGCCGGTGAAGTGGCGGGCCCAATCAGCGTGCGCCGTTCCGAAAGTTGCT

1401 TTTATGGCTCGAGCGGCGGGCGCCCTATAAACCCAGCGGGCGGACGGCCACCACCGCCGAGACCGCTCGCCCGCGGAGCACAGAGCCTCGC

1501 CTTTCCGATCCCGCCCGTCCAAAGCTTCGAGGGGCTCGCATCTCTCCTTACCGCGCCCGCCCTACCTGAGGCCGCATCCACGCCGTTGAGTGC

1601 CGTTCTGCGCCCTCCCGCCTGTGGTGCCTCTGAACTGGTCCGCCCTTAGGTAAGTTAAAGCTCAGGTCGAGACCGGGCCTTTGTCCGGCGCTCCCT

1701 TGGAGCCTACCTAGACTCAGCGGCTCTCCACGCTTTGCCCTGACCCTGCTTCAACTCTACGCTTTTGTTCGTTTTCTGTTCTGCGCGTTACAGAT

1801 CCAAGCCACCATGGGGGTTCTCATCATCATCATCATGGTATGGTAGCATGACTGGTGACAGCAAATGGGTGGGATCTGTACGACGATGACGAT

1901 AAGGTACCTAAGGATCAGCTTGGAGTTGATCCCGCTGTTTACAACGTCGTGACTGGGAAAACCTGGCGTTACCCAACCTAATCGCCTTGCAGCACATC

2001 CCCCTTTCGCGAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAACAGTTGCGCAGCCTGAATGGCGAATGGCGCTTTCCTGGTTCC

2101 GGCACCAGAAGCGGTGCCGAAAGCTGGCTGGAGTGGATCTTCTGAGGCCGATCTGCTGCTGCCCTCAAACCTGGCAGATGCACGGTTACGATGGC

2201 CCCATCTACACCAACGTAACCTATCCCATACGGTCAATCCCGCTTTGTTCCACGGAGAATCCGACGGTGTACTCGCTCACATTTAATGTTGATG

2301 AAAGCTGGCTACAGGAAGGCCAGACGCGAATATTTTTGATGGCGTAACTCGCGCTTTCATCTGTGGTGAACGGGGCTGGTTCGGTACGGCCAGGA

2401 CAGTCGTTTGGCTCTGAATTTGACCTGAGCGCATTTTTACGCGCCGGAGAAAACCGCCTCGCGGTGATGGTGTGCGTTGGAGTGACGGCAGTTATCTG

2501 GAAGATCAGGATATGTGGCGGATGAGCGGCATTTTCCGTGACGCTCTCGTTGCTGCATAAACCGACTACACAAATCAGCGATTTCCATGTTGCCACTCGCT

2601 TTAATGATGATTTACGCCGCGCTGACTGGAGGCTGAAGTTCAGATGTGCGCGGAGTTGCGTGACTACCTACGGGTAACAGTTTCTTTATGGCAGGGTGA

2701 AACGCAGGTCCGACGGCCAGCCGCTTTCGCGCGTGAATATCGATGAGCGTGGTGGTTATGCCGATCGCGTCACACTACGCTGAACGTCGAAAAC

2801 CCGAACTGTGGAGCGCGAAATCCCGAATCTCTATCGTGGTGGTGAACGTCACACCGCGACGGCAGCTGATTGAAGCAGAAGCTGCGATGTGC

2901 GTTCCGCGAGGTGCGGATGAAAATGGTCTGCTGCTGAACGGCAAGCCGTTGCTGATTGAGGCGTTAACCGTACAGGATCATCCTCTGCATGG

3001 TCAGGTACATGGATGAGCAGACGATGGTGCAGGATATCCTGCTGATGAAGCAGAACTTTAACCGCGTGGCTGTTCCGATTATCCGAACCTCCGCTG

3101 TGTACAGCTGTCAGCCGCTACCGCTGATGTGGTGGATGAAGCAATATGAAACCCAGGCATGGTGCATGAATCGTCTACCGGATGATCCGC

3201 TrpTyrThrLeuCysAspArgTyrGlyLeuTyrValValAspGluAlaAsnIeGluThrHisGlyMetValProMetAsnArgLeuThrAspAspProA

AvrII (576)
AvrII (1087)
PstI (1001)
SmaI (1216)
NotI (1415)
XhoI (1409)
HindIII (1525)
NcoI (1810)
KpnI (1908)
Acc65I (1904)
EcoRV (3035)

3201 GCTGGCTACCGCGATGAGCGAACCGCTAACCGAATGGTGACGCGGATCGTAATCACCCGAGTGTGATCATCTGGTCGCTGGGAATGAATCAGGCCA
464 rgTrpLeuProAlaMetSerGluArgValThrArgMetValGlnArgAspArgAsnHisProSerVal I IeI leTrpSerLeuGlyAsnGluSerGlyHi
3301 CGGCGCTAATCACGACCGCTGTATCGCTGGATCAAATCTGTCCGATCTTCCCGCCCGGTGCAGTATGAAGCGCGGGAGCCGACACCACGGCCACCGAT
497 sGlyAlaAsnHisAspAlaLeuTyrArgTrpI leLysSerValAspProSerArgProValGlnTyrGluGlyGlyAlaAspThrThrAlaThrAsp
3401 ATTATTTGCCGATGTACGCGCGCTGGATGAAGACCAGCCCTTCCCGCTGTGCCAAATGGTCCATCAAAAAATGGCTTTCGCTACCTGGAGAGACGC
531 I IeI leCysProMetTyrAlaArgValAspGluAspGlnProPheProAlaValProLysTrpSerI leLysLysTrpLeuSerLeuProGlyGluThrA
3501 GCCCGCTGATCCTTTGCGAATACGCCACGCGATGGGTAACAGTCTTGGCGGTTTCGCTAAATACTGGCAGGCGTTCGTCAGTATCCCCGTTTACAGGG
564 rgProLeuI leLeuCysGluTyrAlaHisAlaMetGlyAsnSerLeuGlyGlyPheAlaLysTyrTrpGlnAlaPheArgGlnTyrProArgLeuGlnG
3601 CGGCTTCGTCTGGGACTGGGTGGATCAGCTCGTGAATAATATGATGAAAACGGCAACCCGTTGGTCCGCTTACGGCGGTGATTTGGCGATACGCCGAAC
597 yGlyPheValTrpAspTrpValAspGlnSerLeuI leLysTyrAspGluAsnGlyAsnProTrpSerAlaTyrGlyGlyAspPheGlyAspThrProAsn
3701 GATCGCCAGTTCGTATGAACGGTCTGGTCTTTGCCAGCCGACGCGCATCCAGCGCTGACGGAAGCAAACACCAGCAGCAGTTCCTCCAGTTCGGTT
631 AspArgGlnPheCysMetAsnGlyLeuValPheAlaAspArgThrProHisProAlaLeuThrGluAlaLysHisGlnGlnPhePheGlnPheArgL
3801 TATCCGGCAAACCATCGAAGTGACCAGCGAATACCTGTTCCGTCATAGCGATAACGAGCTCCTGCCTGGTGGTGGCGCTGGATGGTAAGCCGCTGGC
664 euSerGlyGlnThrI leGluValThrSerGluTyrLeuPheArgHisSerAspAsnGluLeuHisTrpMetValAlaLeuAspGlyLysProLeuAl
3901 AAGCGGTGAAGTGCTCTGGATGCTCCACAAGGTAACAGTGTGATTGAACTGCCTGAACACTACCGCAGCCGAGAGCGCCGGCAACTCTGGCTACA
697 aSerGlyGluValProLeuAspValAlaProGlnGlyLysGlnLeuI leGluLeuProGluLeuProGlnProGluSerAlaGlyGlnLeuTrpLeuThr
4001 GTACGCGTAGTGCAACCGACCGCAGCCGATGGTCAAGAAGCCGGGCACATCAGCGCCTGGCAGCAGTGGCGTCTGGCGGAAAACCTCAGTGTGACGCTCC
731 ValArgValValGlnProAsnAlaThrAlaTrpSerGlyAlaGlyHisI leSerAlaTrpGlnTrpArgLeuAlaGluAsnLeuSerValThrLeuP
4101 CCGCCGCTCCACGCCATCCCGCATCTGACCACCAGCGAAATGGATTTTGCATCGAGCTGGGTAATAAGCGTTGGCAATTTAACGCCAGTACGGCTT
764 roAlaAlaSerHisAlaI leProHisLeuThrThrSerGluMetAspPheCysI leGluLeuGlyAsnLysArgTrpGlnPheAsnArgGlnSerGlyPh
4201 TCTTTCACAGATGTGGATTGGCGATAAAAAACAACCTGCTGACGCCGCTGCGCGATCAGTTCACCCGTCACCCTGGATAACGACATTGGCGTAAGTGA
797 eLeuSerGlnMetTrpI leGlyAspLysLysGlnLeuLeuThrProLeuArgAspGlnPheThrArgAlaProLeuAspAsnAspI leGlyValSerGlu
4301 GCGACCCGATTGACCCTAACGCCCTGGGTCCAACGCTGGAAGCGCGGCGCATTACCAGCGCAAGCAGCGTTGTTGCAGTGCACGGCAGATACACTG
831 AlaThrArgI leAspProAsnAlaTrpValGluArgTrpLysAlaAlaGlyHisTyrGlnAlaGluAlaAlaLeuLeuGlnCysThrAlaAspThrLeuA
4401 CTGATGCGGTGCTGATTACGACCGCTCACGCGTGGCAGCATCAGGGGAAAACCTTATTTATCAGCCGAAAACCTACCGGATTGATGGTAGTGGTCAAAT
864 laAspAlaValLeuI leThrThrAlaHisAlaTrpGlnHisGlnGlyLysThrLeuPheI leSerArgLysThrTyrArgI leAspGlySerGlyGlnMe
4501 GCGGATTACCGTTGAGTTGAAGTGGCGAGCATACACCGCATCCGCGCGGATGGCTGAACTGCCAGCTGGCGAGGTAGCAGAGCGGGTAACTGG
897 tAlaI leThrValAspValGluValAlaSerAspThrProHisProAlaArgI leGlyLeuAsnCysGlnLeuAlaGluValAlaGluArgValAsnTrp
4601 CTCGGATTAGGGCCGAAGAAAACCTATCCCGACCGCTTACTGCCGCTGTTTTGACCGCTGGGATCTGCCATTGTCAGACATGTATACCCCGTACGCT
931 LeuGlyLeuGlyProGlnGluAsnTyrProAspArgLeuThrAlaAlaCysPheAspArgTrpAspLeuProLeuSerAspMetTyrThrProTyrValP
4701 TCCCGAGCGAAAACGGTCTGCGCTGCGGGACGCGCAATGAATTATGGCCACACCAGTGGCGGGCGACTTCCAGTTCACATCAGCCGCTACAGTCA
964 heProSerGluAsnGlyLeuArgCysGlyThrArgGluLeuAsnTyrGlnTrpProHisGlnTrpArgGlyAspPheGlnPheAsnI leSerArgTyrSerG
4801 ACAGCAACTGATGAAACAGCCATCGCCATCTGCTGCACGCGGAAGAAGGCACATGGCTGAATATCGACGGTTTCCATATGGGGATTGGTGGCGACGAC
997 nGlnGlnLeuMetGluThrSerHisArgHisLeuLeuHisAlaGluGluGlyThrTrpLeuAsnI leAspGlyPheHisMetGlyI leGlyGlyAspAsp
EcoRI (4995)
4901 TCCTGGAGCCCGTCACTATCGCGGAATTACAGCTGAGCGCGGCTCGTACCATTACCAGTGGTCTGGTGTCAAAAATAATAATCTAGTCGAGAATTCG
1031 SerTrpSerProSerValSerAlaGluLeuGlnLeuSerAlaGlyArgTyrHisTyrGlnLeuValTrpCysGlnLys•••
5001 CTAGCTCGACATGATAAGATAACATTGATGAGTTTGGACAAACCAACTAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCT
5101 TTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAAACAAGTTAACAACAACAATTGCATTTCATTTTATGTTTCAGGT
SwaI (5266)
5201 TCAGGGGAGGTGTGGGAGTTTAAAAAGCAAGTAAAACCTCTACAAATGTGGTAGATCCATTTAAATGTTAATTAAGTCCATGACCAAAATCCCTT
5301 AACGTGAGTTTTCTGTTCCACTGAGCGTCAGACCCCGTAGAAAAGATCAAAGGATCTTCTTGAGATCCTTTTTTCTGCGCGTAATCTGCTGCTTCAAAC
5401 AAAAAACCACCGCTACCAGCGGTGGTTTGTGGCCGATCAAGAGCTACCAACTCTTTTTCCGAAGGTAAGTGGCTTCAGCAGAGCGCAGATACCAAT
5501 ACTGTTCTTCTAGTGTAGCCGTAGTTAGGCCACCACTTCAAGAAGTCTGTAGCACCCTACATACCTCGCTCTGCTAATCCTGTTACCAGTGGCTGCTG
5601 CCAGTGGCGATAAGTCTGCTTACCAGGTTGGACTCAAGACGATAGTTACCGGATAAGGGCAGCGGTGGGCTGAACGGGGGTTCTGTGCACACAGCC
5701 CAGCTGGAGCGAACGACCTACACCGAAGTACCTACAGCGTGGCTATGAGAAAAGCGCCAGCTTCCCGAAGGGAGAAAAGGGGACAGGTATCCG
5801 GTAAGCGGAGGTCGGAACAGGAGAGCGCACGAGGAGCTTCCAGGGGAAACGCCTGGTATCTTTATAGTCTGCGGTTTCCGCCACTCTGACTTG
5901 AGCGTCGATTTTTGTGATGCTCGTACGGGGGCGGAGCCTATGGA AAAACGCCAGCAACCGCGCCTTTTACGGTTCCTGGCCTTTTGTGCGCCTTTTGC
AseI (6042)
6001 TCACATGTTCTTAATTAATTTTCAAAAGTAGTTGACAATTAATCATCGGCATAGTATATCGGCATAGTATAATACGACTCACTATAAGGAGGCCATCA
6101 TGGCCAAGTTGACCAGTGTCTCCAGTGTCCAGCCAGGGATGTGGCTGGAGCTGTTGAGTCTGGACTGACAGGTTGGGGTTCTCCAGAGATTTTGT
1 etAlaLysLeuThrSerAlaValProValLeuThrAlaArgAspValAlaGlyAlaValGluPheTrpThrAspArgLeuGlyPheSerArgAspPheVa
6201 GAGGATGACTTTGACGGTGTGGTCAGAGATGATGCACCTGTTTCATCTCAGCAGCTCAGGACCGGTTGGTGCACAAACCCCTGGCTGGGTGTGG
34 IGluAspAspPheAlaGlyValValArgAspAspValThrLeuPheI leSerAlaValGlnAspGlnValValProAspAsnThrLeuAlaTrpValTrp
6301 GTGAGAGGACTGATGAGCTGTATGCTGAGTGGAGTGGAGTGGTCTCCACCAACTTCCAGGGATGCCAGTGGCCCTGCCATGACAGAGATTGGAGAGCAGC
68 ValArgGlyLeuAspGluLeuTyrAlaGluTrpSerGluValValSerThrAsnPheArgAspAlaSerGlyProAlaMetThrGluI leGlyGluGlnP
6401 CTTGGGGAGAGGTTTGGCCAGAGACCCAGCAGCACTGTGTGCACTTTTGGCAGGAGGAGCAGGACTGAGGATAAGAATTGTAACAAAAACCC
101 roTrpGlyArgGluPheAlaLeuArgAspProAlaGlyAsnCysValHisPheValAlaGluGlnAsp•••
6501 GCCCGCGGGGTTTTTTGTTAATTA