



150

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

1 CCTGCAGGGCCCACTAGTTGATTACTGAATTTGCCATGTTGCTTCTCGCAATACCAATGACCCACATTACTAACATTTGGTAATTTGCCCTCAGTGTAG
101 GCACAAGACATGAGTGAAGCTTGGCTGACATTAAGACTTAAACTGGCTGGGTATGGTGGCGCAAGCCTTAAATCCAGCATTCTGCCGGAGGCAGAAGCAGG
201 TGGATTTCTGAGTTCGAGGCTAGCCTGGTCTACAAAAGTGAAGTTCAGGACAGCCAAGGCTACACAAAATACCTGTCTTAAAAACCAAAAAAAAAAAAA

StuI (320)

301 ATTCAACTGGTTGGTTAGGCCTAGCCAGATGATGTAGGTGCAACTCACCTTGGGGATGTAGGGAGATGGTTGTTCTGTAGCTCTTCTGTCTGCAAC
401 TAAATAAATAGGCTAAGCTGACCTCTTACATCTGCCCTTCGGCCTCTGTCTAGGATTGGAGTGCATGGGTGGGTTGCATTCTTACCAATGAGGAAAG
501 GGCTTCCCATTTCTGTCTGCATTGTAAGCTCCCAAGTAGAGCAAGTTTGGCTTAGGTAAGTTCCTGTGAGTGCAGTGCCTCATTCTCACGAGGTAACC
601 AAGGCTTTGTACCGCCCACTGAGAACGCTCACTGCCAATCACAGCCTAATTGTGAAAACCAATGGCTTGTAGTGGGTTGCTAAAAGCTGAGGTGTCTGAGTCA
701 GGTGGGGTGGGATTATTTTAGTTAAGGGAAGTGAAGGCTTTTCATTCTCTTCCAAGAGAAGGCAAAGGGGATTGGATTGAGGAAGGAACTGGTGTAG

NcoI (825)

801 CCTAGCTGGTCTGAGCATCTCTGCCATGGGGGGTCTCATCATCATCATCATGGTATGGCTAGCATGACTGGTGACAGCAAATGGGTGGGATCTG
MetGlyGlySerHisHisHisHisHisHisGlyMetAlaSerMetThrGlyGlyGlnGlnMetGlyArgAspLeu

Bsu36I (924)

KpnI (923)

Acc65I (919)

901 TACGACGATGACGATAAGGTACCTAAGGATCAGCTTGGAGTTGATCCCGTCTGTTTACAACGTCGTGACTGGGAAAACCTGGCGTTACCCAACCTAATC
26 TyrAspAspAspAspLysValProLysAspGlnLeuGlyValAspProValValLeuGlnArgArgAspTrpGluAsnProGlyValThrGlnLeuAsnA
1001 GCCTTGCAGCACATCCCCTTTCCGACGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAACAGTTGCGCAGCCTGAATGGCGAATGGCG
59 rgLeuAlaAlaHisProProPheAlaSerTrpArgAsnSerGluGluAlaArgThrAspArgProSerGlnGlnLeuArgSerLeuAsnGlyGluTrpAr

Bsu36I (1161)

1101 CTTTGCCTGGTTTCCGGCACCAGAAGCGGTGCCGAAAGCTGGTGGAGTGCATCTTCTGAGGCCGATACTGTCTGCTCCCTCAAACCTGGCAGATG
92 gPheAlaTrpPheProAlaProGluAlaValProGluSerTrpLeuGluCysAspLeuProGluAlaAspThrValValValProSerAsnTrpGlnMet
1201 CACGGTTACGATGCGCCCATCTACACCAACGTAACCTATCCATTACGGTCAATCCGCGGTTTGTCCACGGAGAAATCCGACGGGTTGTACTCGCTCA
126 HisGlyTyrAspAlaProIeTyrThrAsnValThrTyrProIeThrValAsnProPheValProThrGluAsnProThrGlyCysTyrSerLeuT
1301 CATTAAATGTTGATGAAAGCTGGCTACAGGAAGGCCAGCAGCAATATTTTGGATGGCGTTAACTCGCGCTTTCATCTGTGGTGCACGGGCGCTGGGT
159 hrPheAsnValAspGluSerTrpLeuGlnGluGlyGlnThrArgIleIePheAspGlyValAsnSerAlaPheHisLeuTrpCysAsnGlyArgTrpVa
1401 CCGTTACGGCCAGGACAGTCTGTTGGCGTCTGAATTTGACTGAGCGCATTTTTACGGCCGGAGAAAACCGCCTCGCGGTGATGGTGTGCGTGGAGT
192 lGlyTyrGlyGlnAspSerArgLeuProSerGluPheAspLeuSerAlaPheLeuArgAlaGlyGluAsnArgLeuAlaValMetValLeuArgTrpSer
1501 GACGGCAGTTATCTGGAAGATCAGGATATGTGGCGGATGAGCGGCATTTTCCGTGACGTCCTCGTGTGCATAAACCGACTACACAAATCAGCGATTTC
226 AspGlySerTyrLeuGluAspGlnAspMetTrpArgMetSerGlyIlePheArgAspValSerLeuLeuHisLysProThrThrGlnIleSerAspPheH
1601 ATGTTGCCACTCGCTTAAATGATGATTTAGCCCGCTGTACTGGAGGCTGAAGTTCAGATGTGGCGGAGTTGCGTACTACTACGGTAACAGTTTC
259 isValAlaThrArgPheAsnAspAspPheSerArgAlaValLeuGluAlaGluValGlnMetCysGlyGluLeuArgAspTyrLeuArgValThrValSe
1701 TTTATGGCAGGTTGAAACCGAGGTCGCCAGCGCCACCGCCTTTCCGCGGTGAAATATCGATGAGCGTGGTGGTTATGCCGATCGCGTCACTACGT
292 rLeuTrpGlnGlyGluThrGlnValAlaSerGlyThrAlaProPheGlyGlyGluIleIeAspGluArgGlyGlyTyrAlaAspArgValThrLeuArg
1801 CTGAACGTCGAAAACCGGAAACTGTGGAGCGCCGAAATCCCGAATCTCTATCGTGGGTGGTGAAGTGCACACCGCCGACGGCAGCTGATTGAAGCAG
326 LeuAsnValGluAsnProLysLeuTrpSerAlaGluIleProAsnLeuTyrArgAlaValValGluLeuHisThrAlaAspGlyThrLeuIleGluAlaG
1901 AAGCCTGCGATGTCGGTTTCCGCGAGGTGCGGATTGAAAATGGTCTGCTGCTGTAACGGCAAGCCGTTGCTGATTCGAGGCGTTAACCGTCAAGGCA
359 luAlaCysAspValGlyPheArgGluValArgIleGluAsnGlyLeuLeuLeuLeuAsnGlyLysProLeuLeuIleArgGlyValAsnArgHisGluHi

EcoRV (2050)

2001 TCATCTCTGCATGGTCAGGTCATGGATGAGCAGACGATGGTGCAGGATATCTGTGTATGAAGCAGAACAACCTTAAACCGCGTGGCTGTTCCGATTAT
392 sHisProLeuHisGlyGlnValMetAspGluGlnThrMetValGlnAspIleLeuLeuMetLysGlnAsnAsnPheAsnAlaValArgCysSerHisTyr
2101 CCGAACCATCCGCTGTGGTACACGCTGTGGACCGCTACCGCCTGTATGTGGTGGATGAAGCCAATATTGAAACCCAGCGCATGGTGCCAAATGAATCGTC
426 ProAsnHisProLeuTrpTyrThrLeuCysAspArgTyrGlyLeuTyrValValAspGluAlaAsnIleGluThrHisGlyMetValProMetAsnArgL
2201 TGACCGATGATCCGCGTGGCTACCGGCGATGAGCGAAGCGGTAACCGAATGGTGCAGCGCGATCGTAATCACCGAGTGTGATCATCTGGTGGCTGGG
459 euThrAspAspProArgTrpLeuProAlaMetSerGluArgValThrArgMetValGlnArgAspArgAsnHisProSerValIleIeTrpSerLeuGI
2301 GAATGAATCAGGCCACCGCGCTAATCAGCAGCGCTGTATCGCTGGATCAAATCTGTGATCCTTCCCGCCCGGTGACGATGAAGGCGCGGAGCCGAC
492 yAsnGluSerGlyHisGlyAlaAsnHisAspAlaLeuTyrArgTrpIleLysSerValAspProSerArgProValGlnTyrGluGlyGlyAlaAsp
2401 ACCACGGCCACCGATATTTTGGCCGATGTACCGCGCGGTGGATGAAGACCAGCCCTTCCCGCTGTGCCGAAATGGTCCATCAAAAAATGGCTTCCG
526 ThrThrAlaThrAspIleIeCysProMetTyrAlaArgValAspGluAspGlnProPheProAlaValProLysTrpSerIleLysLysTrpLeuSerL
2501 TACCTGGAGAGACCGCCCGCTGATCCTTTGCGAATACGCCACGCGATGGGTAAACAGTCTTGGCGGTTTCCGCTAAATCTGGCAGGCGTTTCCGTCAGTA
559 euProGlyGluThrArgProLeuIleLeuCysGluTyrAlaHisAlaMetGlyAsnSerLeuGlyGlyPheAlaLysTyrTrpGlnAlaPheArgGlnTy
2601 TCCCGTTACAGGCGGCTCGTCTGGGACTGGGTGGATCAGTGCATTAATAATGATGAAAACGGCAACCCGTGGTGGCTTACGGCGGTGATTTT
592 rProArgLeuGlnGlyGlyPheValTrpAspTrpValAspGlnSerLeuIleLysTyrAspGluAsnGlyAsnProTrpSerAlaTyrGlyGlyAspPhe
2701 GCGGATACCGGAACGATCGCCAGTCTGTATGAACGCTGTGCTTTTCCGACCGCAGCCGATCCAGCGCTGACGGAAGCAAAACACCAGCAGCAGT
626 GlyAspThrProAsnAspArgGlnPheCysMetAsnGlyLeuValPheAlaAspArgThrProHisProAlaLeuThrGluAlaLysHisGlnGlnGlnP
2801 TTTTCCAGTCCGTTTATCCGGGCAACCATCGAAGTGACCAGCGAATACCTGTTCCGTCATAGCGATAACGAGCTCCTGCACTGGATGGTGGCGCTGGA
659 hePheGlnPheArgLeuSerGlyGlnThrIleGluValThrSerGluTyrLeuPheArgHisSerAspAsnGluLeuLeuHisTrpMetValAlaLeuAs
2901 TGGTAAGCCGCTGGCAAGCGGTGAAGTGCCTCTGGATGTCGCTCCACAAGTAAACAGTTGATTGAACTGCCTGAACTACCGCAGCCGGAGAGCGCCGG
692 pGlyLysProLeuAlaSerGlyGluValProLeuAspValAlaProGlnGlyLysGlnLeuIleGluLeuProGluLeuProGlnProGluSerAlaGly
3001 CAACTCTGGCTCAGTACCGGTAGTGAACCGAAGCGGACCGCATGGTCAGAAAGCCGGGCACATCAGCGCCTGGCAGCAGTGGCGTCTGGCGGAAAAAC
726 GlnLeuTrpLeuValArgValValGlnProAsnAlaThrAlaTrpSerGlyHisIleSerAlaTrpGlnTrpArgLeuAlaGluAlaLeuAs
3101 TCAGTGTGACGCTCCCGCGCGTCCACGCCATCCCGCATCTGACCACCGGAAATGGATTTTTCATCGAGCTGGGTAATAAGCGTTGGCAATTTAA
759 euSerValThrLeuProAlaAlaSerHisAlaIleProHisLeuThrThrSerGluMetAspPheCysIleGluLeuGlyAsnLysArgTrpGlnPheAs
3201 CCGCAGTACAGCTTCTTTACAGATGTGGATTGGCGATAAAAAACAACCTGCTGACCGCGTGGCGGATCAGTTCAACCGTGCACCGCTGGATAACGAC
792 nArgGlnSerGlyPheLeuSerGlnMetTrpIleGlyAspLysGlnGlnLeuThrProLeuArgAspGlnPheThrArgAlaProLeuAspAsnAs
3301 ATTGGCGTAAGTGAAGCAGCCGATGACCCATGACCCCTAAGCCCTGGTGCAGCCTGGAAGCGCGCGCCATTACCGCCGAAAGCAGCTGGTGTGACATGCA
826 IleGlyValSerGluAlaThrArgIleAspProAsnAlaTrpValGluArgTrpLysAlaAlaGlyHisTyrGlnAlaGluAlaAlaLeuLeuGlnCysT

3401 CGGCAGATACACTTGCTGATGCGGTGCTGATTACGACCGCTCACGCGTGGCAGCATCAGGGGAAAACCTTATTTATCAGCCGGAAAACCTACCGGATTGA
859▶ hrAlaAspThrLeuAlaAspAlaValLeuI leThrThrAlaHisAlaTrpGlnHisGlnGlyLysThrLeuPheI leSerArgLysThrTyrArgI leAs
3501 TGGTAGTGGTCAAATGGCGATTACCGTTGATGTTGAAGTGGCGAGCGATACCCGCATCCGGCGCGGATTGGCCTGAACTGCCAGCTGGCGCAGGTAGCA
892▶ pGlySerGlyGlnMetAlaI leThrValAspValGluValAlaSerAspThrProHisProAlaArgI leGlyLeuAsnCysGlnLeuAlaGlnValAla

BspLUI11 (3696)

3601 GAGCGGTAACCTGGCTGGATTAGGGCCGAAGAAAATATCCCGACCGCCTTACTGCCGCTGTTTTGACCGTGGGATCTGCCATTGTCCAGACATGT
926▶ GluArgValAsnTrpLeuGlyLeuGlyProGlnGluAsnTyrProAspArgLeuThrAlaAlaCysPheAspArgTrpAspLeuProLeuSerAspMetT
3701 ATACCCGTACGCTTCCCGAGCGAAAACGGTCTGCGCTGCGGGACGCGGAATTGAATTATGGCCACACCAGTGGCGCGGCGACTTCCAGTTCAACAT
959▶ yrThrProTyrValPheProSerGluAsnGlyLeuArgCysGlyThrArgGluLeuAsnTyrGlyProHisGlnTrpArgGlyAspPheGlnPheAsnI
3801 CAGCCGTACAGTCAACGCAACTGATGAAACCAGCCATCGCCATCTGCTGCACGCGGAAGAAGGCACATGGCTGAATATCGACGGTTTCCATATGGGG
992▶ eSerArgTyrSerGlnGlnGlnLeuMetGluThrSerHisArgHisLeuLeuHisAlaGluGluGlyThrTrpLeuAsnI leAspGlyPheHisMetGly
3901 ATTGGTGGCGAGCTCCTGGAGCCCGTCAGTATCGCGGAATTACAGCTGAGCGCGGTCGCTACCATTACCAGTTGGTCTGGTGTCAAAAATAAAT
1026▶ I leGlyGlyAspSerSerProSerValSerAlaGluLeuGlnLeuSerAlaGlyArgTyrHisTyrGlnLeuValTrpCysGlnLys•••

EcoRI (4010)

4001 CTAGTCGAGAATTCGCTAGCTCGACATGATAAGATACATTGATGAGTTTGGACAACCACAACCTAGAAATGCAGTGAAAAAATGCTTTATTTGTGAAATT

4101 TGTGATGCTATTGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAAGTTAACAACAACAATTGCATTCA

SwaI (4281)

4201 TTTTATGTTTCAGGTTACGGGGAGGTGTGGGAGGTTTTTTAAAGCAAGTAAAACCTCTACAAATGTGGTAGATCCATTTAAATGTTAATTAAGTACCA

4301 TGACCAAAATCCCTTAACGTGAGTTTTCTGTTCCACTGAGCGTCAGACCCGTAGAAAAGATCAAAGGATCTTCTTGAGATCCTTTTTTTCGCGGTAAT

4401 CTGCTGCTTGCAAAACAAAAAACCCCGCTACCAGCGGTGGTTTTGTTTCCGGATCAAGAGTACCAACTCTTTTTCCGAAGGTAAGTGGCTTCAGCAGA

4501 CGGCAGATACCAAACTACTGTTCTTCTAGTGTAGCCGTAGTTAGGCCACCACTTCAAGAACTCTGTAGCACCCGCTACATACCTCGCTCTGCTAATCCTGT

4601 TACCAGTGGCTGCTGCCAGTGGCGATAAGTCGTGCTTACCAGGTTGGACTCAAGACGATAGTTACCGGATAAGGCCGAGCGGTGGGCTGAACGGGGG

4701 TTCGTGCACACAGCCAGCTTGGAGCGAACGACCTACCCGAAGTGGATACCTACAGCGTGGCTATGAGAAAGCGCCACGCTTCCCGAAGGGAGAAAG

4801 CGCGACAGGTATCCGTAAGCGGCAGGTCGGAACAGGAGCGCACAGGGAGCTTCCAGGGGAAACGCCTGGTATCTTTATAGTCTGTGCGGTTTC

4901 GCCACCTCTGACTTGAGCGCTGATTTTTGTGATGCTCGTCAGGGGGGCGGAGCCTATGGAAAAACGCCAGCAACCGGCCTTTTTACGGTTCCTGGCCTT

BspLUI11 (5019)

AseI (5057)

5001 TTGCTGGCCTTTTGTCTCACATGTTCTTAATTAATTTTTCAAAAAGTAGTTGACAATTAATCATCGGCATAGTATATCGGCATAGTATAATACGACTCACT

5101 ATAGGAGGGCCATCATGGCCAAGTTGACCAGTGTGTCAGTGTCCAGTGTCTCACAGCCAGGGATGTGGCTGGAGCTGTTGAGTCTGGACTGACAGGTTGGGGTT

▶ 1▶ MetAlaLysLeuThrSerAlaValProValLeuThrAlaArgAspValAlaGlyAlaValGluPheTrpThrAspArgLeuGlyPh

5201 CTCCAGAGATTTTGTGGAGGATGACTTTCAGGTGTGGTCAGAGATGATGTCACCCCTGTCATCTCAGCAGTCCAGGACCAGGTGGTGCCTGACAACCC

29▶ eSerArgAspPheValGluAspAspPheAlaGlyValValArgAspAspValThrLeuPheI leSerAlaValGlnAspGlnValValProAspAsnThr

5301 CTGGCTTGGGTGTGGGTGAGAGGACTGGATGAGCTGATGCTGAGTGGAGTGGTGGTCTCCACCAACTTCAGGGATGCCAGTGGCCCTGCCATGACAG

63▶ LeuAlaTrpValTrpValArgGlyLeuAspGluLeuTyrAlaGluTrpSerGluValValSerThrAsnPheArgAspAlaSerGlyProAlaMetThrG

5401 AGATTGGAGAGCAGCCCTGGGGGAGAGATTGCCCTGAGAGACCAGCAGGCAACTGTGTGCACCTTGTGGCAGAGGAGCAGGACTGAGGATAAGAATT

96▶ IuI leGlyGluGlnProTrpGlyArgGluPheAlaLeuArgAspProAlaGlyAsnCysValHisPheValAlaGluGluGlnAsp•••

5501 GAGTTTCAGAAAAGGGGGCCTGAGTGGCCCTTTTTTCAACTTAATTA