



150

Bsp120I (8)
PstI (7) MscI (21)
SdaI (7) **SpeI (14)** **HindIII (24)**

1 CCTGCAGGGCCACTAGTGGCCAAGCTTAGAAACATGACAGGTCCTCTTGGGAGGGCTGACCGCAGGGAGCGTTGGGTTTCAGGCTGCTGGCGTCGGCTT
101 CTGTGGTGCCTTTCTGTGCGGTATGAGAGTCCAGACAGTGCCAACCTCTCCCTTCTTTCCACACGCACAACCACCCACCCCTGTGGCTGAGCT
201 GTCCTGCCTCGCCACAATGGCACCTGCCCTAAATAGCTTCCCATGTGAGGGCTAGAGAAAGGAAAAGATTAGACCTCCCTGGATGAGAGAGAGAAAAGT
301 GAAGGAGGGCAGGGGAGGGGGACAGCGCATTGAGCGATCTTTGTCAAGCATCCCAGAAGGTATAAAAACGCCCTTGGGACCAGGCAGCCTCAAACCC
401 CAGCTGTTGGGGCCAGGACACCCAGTGAGCCATACTTGCTCTTTTTGTCTTCTTCAGACTGCGCCATGGGGGGTTCTCATCATCATCATCATCATGGTA
NcoI (466)
1▶ MetGlyGlySerHisHisHisHisHisHisGlyM

NheI (504) Bsu36I (565)
Acc65I (560)

501 TGGCTAGCATGACTGGTGGACAGCAAATGGGTCGGGATCTGTACGACGATGACGATAAGGTACCTAAGGATCAGCTTGGAGTTGATCCCGTCGTTTTACA
12▶ etAlaSerMetThrGlyGlyGlnGlnMetGlyArgAspLeuTyrAspAspAspAspLysValProLysAspGlnLeuGlyValAspProValValLeuGly
601 ACGTCGTGACTGGGAAAACCTGGCGTTACCCAATTAATCGCCTTGACGACATCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCAGT
45▶ nArgArgAspTrpGluAsnProGlyValThrGlnLeuAsnArgLeuAlaAlaHisProProPheAlaSerTrpArgAsnSerGluGluAlaArgThrAsp
701 CGCCCTTCCAACAGTTGCGCAGCCTGAATGGCGAATGGCGCTTTCCTGGTTCCGGCACCAGAAGCGGTGCCGAAAGCTGGCTGGAGTGCGATCTTC
FspI (720) Bsu36I (802)

79▶ ArgProSerGlnGlnLeuArgSerLeuAsnGlyGluTrpArgPheAlaTrpPheProAlaProGluAlaValProGluSerTrpLeuGluCysAspLeuP
801 CTGAGGCCGATACTGTCGTGTCCTCCCTCAAATGGCAGATGCACGGTTACGATGCGCCATCTACACCAACGTAACCTATCCATTACGGTCAATCCGCC
112▶ roGluAlaAspThrValValValProSerAsnTrpGlnMetHisGlyTyrAspAlaProI leTyrThrAsnValThrTyrProI leThrValAsnProPr
901 GTTTGTTCCACGAGAATCCGACGGGTTGTTACTCGCTCACATTAATGTTGATGAAAGCTGGCTACAGGAAGGCCAGACGCGAATTATTTTTGATGGC
145▶ oPheValProThrGluAsnProThrGlyCysTyrSerLeuThrPheAsnValAspGluSerTrpLeuGlnGluGlyGlnThrArgI leI lePheAspGly
1001 GTTAACCTCGCGTTTTCTCTGTGGTGCACGGGCGCTGGGTCGGTTACGGCCAGGACAGTCGTTTCCGCTCTGAATTTGACCTGAGCGCATTTTTACCGG
179▶ ValAsnSerAlaPheHisLeuTrpCysAsnGlyArgTrpValGlyTyrGlyGlnAspSerArgLeuProSerGluPheAspLeuSerAlaPheLeuArgA
1101 CCGGAGAAAACCGCCTCGCGGTGATGGTGCTGCGTTGGAGTGACGGCAGTTATCTGGAAGATCAGGATATGTGGCGGATGAGCGCATTTTCCGTGACGT
AatII (1201)

212▶ laGlyGluAsnArgLeuAlaValMetValLeuArgTrpSerAspGlySerTyrLeuGluAspGlnAspMetTrpArgMetSerGlyI lePheArgAspVa
1201 CTCGTTGCTGCATAAACCGACTACACAATCAGCGATTTCCATGTTGCCACTCGCTTAATGATGATTTAGCCGCGCTGTACTGGAGGCTGAAGTTACG
245▶ lSerLeuLeuHisLysProThrThrGlnI leSerAspPheHisValAlaThrArgPheAsnAspAspPheSerArgAlaValLeuGluAlaGluValGln
1301 ATGTGCGGCGAGTTGCGTGACTACCTACGGTAAACAGTTTCTTTATGGCAGGGTAAACGCAGGTCGCCAGCGGCACCGCGCTTTCCGGCGTGAAATTA
ClalI (1402)

279▶ MetCysGlyGluLeuArgAspTyrLeuArgValThrValSerLeuTrpGlnGlyGluThrGlnValAlaSerGlyThrAlaProPheGlyGlyGluI leI
1401 TCGATGAGCGTGGTGGTTATGCCGATCGCTCACACTACGTCTGAACGTCGAAAACCCGAAACTGTGGAGCGCCGAAATCCCGAATCTCTATCGTGGGT
312▶ leAspGluArgGlyGlyTyrAlaAspArgValThrLeuArgLeuAsnValGluAsnProLysLeuTrpSerAlaGluI leProAsnLeuTyrArgAlaVa
1501 GGTGAACTGCACACCGCCGACGGCAGCTGATTGAAGCAGAAGCCTGCGATGTCGTTTCCGCGAGGTGCGGATTGAAATGGTCTGCTGCTGCTGAAC
345▶ lValGluLeuHisThrAlaAspGlyThrLeuI leGluAlaGluAlaCysAspValGlyPheArgGluValArgI leGluAsnGlyLeuLeuLeuLeuAsn
1601 GGCAAGCCGTTGCTGATTGAGGGCTAACCGTCACGAGCATCATCCTCTGCATGGTCAGGTCATGGATGAGCAGACGATGGTGCAGGATATCTGCTGA
EcoRV (1691)

379▶ GlyLysProLeuLeuI leArgGlyValAsnArgHisGluHisHisProLeuHisGlyGlnValMetAspGluGlnThrMetValGlnAspI leLeuLeuM
1701 TGAAGCAGAACAACCTTAAACCCGTGCGCTGTTCCGATTATCCGAACCATCCGCTGTGGTACACGCTGTGCGACCGCTACGGCCTGTATGTTGGTGGATGA
412▶ etLysGlnAsnAsnPheAsnAlaValArgCysSerHisTyrProAsnHisProLeuTrpTyrThrLeuCysAspArgTyrGlyLeuTyrValValAspGly
1801 AGCCAATATTGAAACCCACGGCATGGTCCAATGAATCGTCTGACCGATGATCCGCGCTGGCTACCGCGATGAGCGAACCGGTAACCGAATGGTGCAG
445▶ uAlaAsnI leGluThrHisGlyMetValProMetAsnArgLeuThrAspAspProArgTrpLeuProAlaMetSerGluArgValThrArgMetValGln
1901 CGCGATCGTAATCACCCGAGTGTGATCATCTGGTCGCTGGGGAATGAATCAGGCCACGGCGCTAATCACGACGCGCTGTATCGCTGGATCAAATCTGTCTG
BsaBI (1904)

479▶ ArgAspArgAsnHisProSerValI leI leTrpSerLeuGlyAsnGluSerGlyHisGlyAlaAsnHisAspAlaLeuTyrArgTrpI leLysSerValA
2001 ATCCTTCCCGCCCGGTGAGTATGAAGGCGGGGAGCCGACACCACGGCCACCGATATTATTTGCCCGATGTACGCGCGCTGGATGAAGACCAGCCCTT
BssHII (2076)

512▶ spProSerArgProValGlnTyrGluGlyGlyGlyAlaAspThrThrAlaThrAspI leI leCysProMetTyrAlaArgValAspGluAspGlnProPh
2101 CCCGGCTGTGCCGAAATGGTCCATCAAAAATGGCTTTCGCTACCTGGAGAGACGCGCCGCTGATCCTTTGCGAATACGCCACGCGATGGGTAACAGT
545▶ eProAlaValProLysTrpSerI leLysLysTrpLeuSerLeuProGlyGluThrArgProLeuI leLeuCysGluTyrAlaHisAlaMetGlyAsnSer

2201 CTTGGCGGTTTCGCTAAATACTGGCAGGCGTTTCGTGATATCCCCGTTTACAGGGCGGCTTCGTCTGGACTGGTGGATCAGTCGCTGATTAATATG
579▶ LeuGlyGlyPheAlaLysTyrTrpGlnAlaPheArgGlnTyrProArgLeuGlnGlyGlyPheValTrpAspTrpValAspGlnSerLeuI leLysTyrA
2301 ATGAAAACGGCAACCCCTGGTCGGCTTACGGCGGTGATTTTGGCGATACGCCGAACGATCGCCAGTTCTGTATGAACGGTCTGGTCTTTGCCACCCGAC
612▶ spGluAsnGlyAsnProTrpSerAlaTyrGlyGlyAspPheGlyAspThrProAsnAspArgGlnPheCysMetAsnGlyLeuValPheAlaAspArgTh
Eco47III (2413)
2401 GCCGCATCCAGCGCTGACGGAAGCAAACACCAGCAGAGTTTTTCCAGTTCGGTTTATCCGGGCAAACCATCGAAGTGACCAGCAATACCTGTTCCGT
645▶ rProHisProAlaLeuThrGluAlaLysHisGlnGlnGlnPhePheGlnPheArgLeuSerGlyGlnThrI leGluValThrSerGluTyrLeuPheArg
SacI (2518)
2501 CATAGCGATAACGAGCTCCTGCACTGGATGGTGGCGCTGGATGGTAAGCCGCTGGCAAGCGGTGAAGTGCCTCTGGATGTCCTCCACAAGGTAAACAGT
679▶ HisSerAspAsnGluLeuLeuHisTrpMetValAlaLeuAspGlyLysProLeuAlaSerGlyGluValProLeuAspValAlaProGlnGlyLysGlnL
2601 TGATTGAACTGCCTGAACTACCGCAGCCGGAGAGCGCCGGGCAACTCGGCTCACAGTACCGGTAGTGAACCGAACCGCACCAGCATGGTCAGAAGCCGG
712▶ eul leGluLeuProGluLeuProGlnProGluSerAlaGlyGlnLeuTrpLeuThrValArgValValGlnProAsnAlaThrAlaTrpSerGluAlaGl
2701 GCACATCAGCGCTGGCAGCAGTGGCTGTCGGGAAACCTCAGTGTGACGCTCCCGCCGCTCCACGCCATCCCGCATCTGACCACCAGCGAAATG
745▶ yHisI leSerAlaTrpGlnGlnTrpArgLeuAlaGluAsnLeuSerValThrLeuProAlaAlaSerHisAlaI leProHisLeuThrThrSerGluMet
2801 GATTTTTGCATCGAGCTGGTAATAAGCGTTGGCAATTAACCGCCAGTCAGGCTTTCTTTCACAGATGTGGATTGGCGATAAAAAACAAGTCTGACGC
779▶ AspPheCysI leGluLeuGlyAsnLysArgTrpGlnPheAsnArgGlnSerGlyPheLeuSerGlnMetTrpI leGlyAspLysLysGlnLeuLeuThrP
2901 CGCTGCGCATCAGTTCACCCGTGCACCGCTGGATAACGACATTGGCGTAAGTGAAGCGACCCGATTGACCCTAACGCTGGGTCGAACGCTGGAAGGC
812▶ roLeuArgAspGlnPheThrArgAlaProLeuAspAsnAspI leGlyValSerGluAlaThrArgI leAspProAsnAlaTrpValGluArgTrpLysAl
3001 GCGGGCCATTACCAGGCCAAGCAGCGTTGTTGCGAGTGCACGGCAGATACACTTGTGTATGCGGTGCTGATTACGACCCTCACGGTGGCAGCATCAG
845▶ aAlaGlyHisTyrGlnAlaGluAlaAlaLeuLeuGlnCysThrAlaAspThrLeuAlaAspAlaValLeuI leThrThrAlaHisAlaTrpGlnHisGln
3101 GGGAAAACCTTATTTATCAGCCGAAAACCTACCGGATTGATGGTAGTGGTCAAATGGCGATTACCGTTGATGTTGAAGTGGCGAGCGATACCCGCATC
879▶ GlyLysThrLeuPheI leSerArgLysThrTyrArgI leAspGlySerGlyGlnMetAlaI leThrValAspValGluValAlaSerAspThrProHisP
3201 CGCGCGGATTGCCTGAACTGCCAGTGGCGCAGGTAGCAGAGCGGTAAACTGGCTCGGATTAGGCGCGCAAGAAAACCTCCCGACCGCTTACTGC
912▶ roAlaArgI leGlyLeuAsnCysGlnLeuAlaGlnValAlaGluArgValAsnTrpLeuGlyLeuGlyProGlnGluAsnTyrProAspArgLeuThrAl
Bst1107I (3340)
BspLU11I (3337) BsiWI (3348)
3301 CGCCTGTTTTGACCGCTGGATCTGCCATTGTGACACATGTATACCCGTAGCTCTTCCGAGCGAAAACGGTCTGCGCTGCGGGACGCGCAATTGAAT
945▶ aAlaCysPheAspArgTrpAspLeuProLeuSerAspMetTyrThrProTyrValPheProSerGluAsnGlyLeuArgCysGlyThrArgGluLeuAsn
3401 TATGGCCACACAGTGGCGCGGACTTCCAGTTCAACATCAGCCGCTACAGTCAACAGCAACTGATGAAACAGCCATGCCATCTGCTGCACGCGG
979▶ TyrGlyProHisGlnTrpArgGlyAspPheGlnPheAsnI leSerArgTyrSerGlnGlnGlnLeuMetGluThrSerHisArgHisLeuLeuHisAlaG
NdeI (3535)
3501 AAGAAGGCACATGGCTGAATATCGACGGTTTCCATATGGGGATTGGTGGCGAGACTCCTGGAGCCGTCAGTATCGGCGGAATTACAGCTGAGCGCCG
1012▶ luGluGlyThrTrpLeuAsnI leAspGlyPheHisMetGlyI leGlyGlyAspAspSerTrpSerProSerValSerAlaGluLeuGlnLeuSerAlaGl
NheI (3657)
EcoRI (3651)
3601 TCCTACCATTACCAGTTGGTCTGGTGTCAAAAATAATAATCTAGTCGAGAATTCGCTAGCTCGACATGATAAGATACATTGATGAGTTTGGACAAACCA
1045▶ yArgTyrHisTyrGlnLeuValTrpCysGlnLys•••
3701 CAACTAGAATGCAGTGAATAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATT
MfeI (3831) DraI (3880)
3801 ATAAGCTGCAATAAACAAGTTAACAACAACAATTGCATTCAATTTATGTTTTAGGTTTCAAGGTTGAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAACCTCT
DraI (3919)
SwaI (3922)
3901 ACAATGTGGTAGATCCATTTAAATGTTAATTAAGTACGATGACCAAAATCCCTTAACGTGAGTTTTGTTCCACTGAGCGTCAGACCCCGTAGAAAAG
4001 ATCAAAGGATCTTCTTGAGATCCTTTTTTCTGCGCGTAATCTGCTGCTTCAAACAACAAAAACACCAGCTACCAGCGGTGGTTTGTGGCGGATCAAG
4101 AGCTACCAACTCTTTTTCCGAAGTAACTGGCTTACGAGAGCGCAGATACCAATACTGTTCTTCTAGTGTAGCCGTAGTTAGGCCACCACCTCAAGAA
4201 CTCTGTAGCACCCTACATACCTCGCTCTGCTAATCCTGTTACCAGTGGCTGCTGCCAGTGGCGATAAGTCGTGCTTACCGGTTGGACTCAAGACGA
4301 TAGTTACCGGATAAGGCGCAGCGTGGGCTGAACGGGGGTTCTGTGCACACAGCCAGCTTGGAGCGAACGACCTACACCGAAGTACCTACAGC
4401 GTGAGCTATGAGAAAGCGCCAGCTTCCCGAAGGAGAAAGGCGGACAGGTATCCGTAAGCGGCAGGGTCGGAACAGGAGAGCGCACGAGGGAGCTTCC
4501 AGGGGAAACGCTGGTATCTTTATAGTCTGTGGGTTTCGCCACCTCTGACTTGAGCGTCGATTTTTGTGATGCTGTCAGGGGGCGGAGCCTATGG
BspLU11I (4660) AseI (4698)
4601 AAAACGCCAGCAACGCGGCTTTTTACGGTTCCTGGCCTTTTGTGCTTCTTCAATTAATTTTTCAAAGTAGTTGACAATTA

SfiI (4749) MscI (4760)

4701 TCATCGGCATAGTATATCGGCATAGTATAATACGACTCACTATAGGAGGGCCATCATGGCCAAGTTGACCAGTGCTGTCCCAGTGCTCACAGCCAGGGA
1▶MetAlaLysLeuThrSerAlaValProValLeuThrAlaArgAs
4800 TGTGGCTGGAGCTGTTGAGTTCTGGACTGACAGGTTGGGGTTCTCCAGAGATTTTGTGGAGGATGACTTTGCAGGTGTGGTCAGAGATGATGTCACCCCTG
15▶pValAlaGlyAlaValGluPheTrpThrAspArgLeuGlyPheSerArgAspPheValGluAspAspPheAlaGlyValValArgAspAspValThrLeu
4900 TTCATCTCAGCAGTCCAGGACCAGGTGGTGCCTGACAACACCCCTGGCTTGGGTGTGGGTGAGAGGACTGGATGAGCTGTATGCTGAGTGGAGTGAGGTGG
49▶PheI leSerAlaValGlnAspGlnValValProAspAsnThrLeuAlaTrpValTrpValArgGlyLeuAspGluLeuTyrAlaGluTrpSerGluValV
5000 TCTCCACCAACTTCAGGGATGCCAGTGCCCTGCCATGACAGAGATTGGAGAGCAGCCCTGGGGGAGAGAGTTTGCCTGAGAGACCCAGCAGGCAACTG
82▶alSerThrAsnPheArgAspAlaSerGlyProAlaMetThrGluI leGlyGluGlnProTrpGlyArgGluPheAlaLeuArgAspProAlaGlyAsnCy
SfiI (5158)
5100 TGTGCACTTTGTGGCAGAGGAGCAGGACTGAGGATAAGAATTGAGTTTCAGAAAAGGGGCGCTGAGTGGCCCCTTTTTCAACTTAATTAA
115▶sValHisPheValAlaGluGluGlnAsp•••