



150  
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**Bsp120I (8)**  
**PstI (7)**  
**SdaI (7)**      **SpeI (14)**      **BssHII (29)**      **NotI (47)**      **SmaI (74)**

1 CCTGCAGGGCCACTAGTTCGCCAGAGCGCGCAGGGCCTCCACGGCCGCCCTCCCCACAGCAGGGGCGGGTCCCGGCCACCGGAAGGAGCGG  
101 GCTCGGGGCGGGCGGGCTGATTGGCCGGGGCGGCTGACGCCGACGGCTATAAGAGACCACAAGCAGCCGACGGGCCAGACGTTCTTCGCCGAGA

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201 GTCGTGGGGTTTCTGCTTCAACAGTGCTTGGACGGAACCCGGCGCTCGTTCCCCACCCGGCCGGCCGCATAGCCAGCCCTCCGTACCTCTTCAC

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301 CGCACCTCGGACTGCCCAAGGCCCCCGCCGCGCTCCAGCGCCGCGAGCCACCGCCGCCGCCGCTCTCTTAGTCGCCGCATGGGGGGTTCT

**NeoI (388)**  
1 MetGlyGlySer  
**Bsu36I (487)**  
**Acc65I (482)**

401 CATCATCATCATCATCATGGTATGGCTAGCATGACTGGTGGACAGCAAAATGGTTCGGGATCTGTACGACGATGACGATAAGGTACCTAAGGATCAGCTTG

5 HisHisHisHisHisHisGlyMetAlaSerMetThrGlyGlyGlnGlnMetGlyArgAspLeuTyrAspAspAspLysValProLysAspGlnLeuG  
501 GAGTTGATCCCGTCTGTTTACAACGTCGTGACTGGGAAAACCTGGCGTTACCAACTAATCGCCTTGACGACATCCCCCTTCGCCAGCTGGCGTAA

38 lyValAspProValValLeuGlnArgArgAspTrpGluAsnProGlyValThrGlnLeuAsnArgLeuAlaAlaHisProProPheAlaSerTrpArgAs

601 TAGCGAAGAGGCCCGCACCGATCGCCCTCCCAACAGTTGCCGAGCTGAATGGCGAATGGCGCTTTCCTGCTGTTCCGGCACCAGAAGCGGTGCCGAA

71 nSerGluGluAlaArgThrAspArgProSerGlnGlnLeuArgSerLeuAsnGlyGluTrpArgPheAlaTrpPheProAlaProGluAlaValProGlu

701 AGCTGGCTGGAGTGCATCTTCTGAGGCCGATACTGTCGTCGTCCTCAAACCTGGCAGATGCACGGTTACGATGCCCCATCTACCAACGTAACCT

105 SerTrpLeuGluCysAspLeuProGluAlaAspThrValValValProSerAsnTrpGlnMetHisGlyTyrAspAlaProl leTyrThrAsnValThrT  
801 ATCCATTACGGTCAATCCGCGTGTTCACGAGAAATCCGACGGGTTGTTACTCGCTCACATTAATGTTGATGAAAGCTGGTACAGGAAGGCCA

138 yrProl leThrValAsnProProPheValProThrGluAsnProThrGlyCysTyrSerLeuThrPheAsnValAspGluSerTrpLeuGlnGluGlyGl  
901 GACGCGAATTATTTTTGATGGCGTAACTCGCGTTCATCTGTGGTGAACGGGCGCTGGGTGCGTTACGGCCAGGACAGTCGTTTCCGCTCTGAATTT

171 nThrArgI leI lePheAspGlyValAsnSerAlaPheHisLeuTrpCysAsnGlyArgTrpValGlyTyrGlyGlnAspSerArgLeuProSerGluPhe  
1001 GACCTGAGCGCATTTTTACGCGCCGGAGAAAACCGCTCGCGGTGATGGTGTGCGTTGGAGTGACGGCAGTTATCTGGAAGATCAGGATATGTGGCGGA

205 AspLeuSerAlaPheLeuArgAlaGlyGluAsnArgLeuAlaValMetValLeuArgTrpSerAspGlySerTyrLeuGluAspGlnAspMetTrpArgM

1101 TGAGCGGCATTTTCCGTGACGTCCTGTTGCTGCATAAACCGACTACACAAATCAGCGATTTCCATGTTGCCACTCGCTTAAATGATGATTTACGCCGCGC

238 etSerGlyI lePheArgAspValSerLeuLeuHisLysProThrThrGlnI leSerAspPheHisValAlaThrArgPheAsnAspAspPheSerArgAl  
1201 TGTAAGGAGGCTGAAGTTCAGATGTGCGCGGAGTTGCTGACTACCTACGGGTAACAGTTTCTTTATGGCAGGGTGAACCGCAGGTCGCCAGCGGCACC

271 aValLeuGluAlaGluValGlnMetCysGlyGluLeuArgAspTyrLeuArgValThrValSerLeuTrpGlnGlyGluThrGlnValAlaSerGlyThr

1301 GCGCCTTTCGGCGGTGAAATTATCGATGAGCGTGGTGGTTATGCCGATCGCGTCACACTACGCTGAACGTCGAAAACCCGAAACTGTGGAGCGCCGAAA

305 AlaProPheGlyGlyGluI leI leAspGluArgGlyGlyTyrAlaAspArgValThrLeuArgLeuAsnValGluAsnProLysLeuTrpSerAlaGluI  
1401 TCCGAATCTCTATCGTGGTGGTGAAGTGCACACGCCGACGGCAGCGCTGATTGAAGCAGAAGCCTGCGATGTCGGTTCGCGAGGTGGCGATTGA

338 leProAsnLeuTyrArgAlaValValGluLeuHisThrAlaAspGlyThrLeuI leGluAlaGluAlaCysAspValGlyPheArgGluValArgI leGl  
1501 AAATGGTCTGCTGCTGTAACGGCAAGCCGTTGCTGATTGAGGCGTTAACGTCACGAGCATCATCTCTGCATGGTCAGGTCATGGATGAGCAGACG

371 uAsnGlyLeuLeuLeuLeuAsnGlyLysProLeuLeuI leArgGlyValAsnArgHisGluHisHisProLeuHisGlyGlnValMetAspGluGlnThr

1601 ATGGTGCAGGATATCCTGCTGATGAAGCAGAACAACCTTAAACGCCGTGCGCTGTTGCAATTATCCGAACCATCCGCTGTTGGTACACGCTGTGCGACCGCT

405 MetValGlnAspI leLeuLeuMetLysGlnAsnAsnPheAsnAlaValArgCysSerHisTyrProAsnHisProLeuTrpTyrThrLeuCysAspArgT

1701 ACGGCCTGATGTGGTGGTGAAGCCAATATTGAAACCCACGGCATGGTCCCAATGAATCGTCTGACCGATGATCCGCGCTGGCTACCGCGATGAGCGA

438 yrGlyLeuTyrValValAspGluAlaAsnI leGluThrHisGlyMetValProMetAsnArgLeuThrAspAspProArgTrpLeuProAlaMetSerGl  
1801 ACGGTAACGCGAATGGTGCAGCGGATCGTAATCACCCGAGTGTGATCATCTGGTCGCTGGGAATGAATCAGGCCACGGCGTAATCACGACGGCGCTG

471 uArgValThrArgMetValGlnArgAspArgAsnHisProSerVal I leI leTrpSerLeuGlyAsnGluSerGlyHisGlyAlaAsnHisAspAlaLeu

1901 TATCGCTGGATCAAATCTGTCGATCTTCCGCCCGGTGCAGTATGAAGGGCGGGAGCCGACACCACGGCCACCGATATTATTTGCCCGATGTACGGCGC

505 TyrArgTrpI leLysSerValAspProSerArgProValGlnTyrGluGlyGlyGlyAlaAspThrThrAlaThrAspI leI leCysProMetTyrAlaA  
2001 GCGTGGATGAAGACCAGCCCTTCCGGCTGTGCCAAATGGTCCATCAAAAATGGCTTTCGCTACCTGGAGAGACGCGCCCGCTGATCCTTTGCGAATA

538 rgValAspGluAspGlnProPheProAlaValProLysTrpSerI leLysLysTrpLeuSerLeuProGlyGluThrArgProLeuI leLeuCysGluTy

**BssHII (1998)**

2101 CGCCACGCGATGGGTAACAGTCTTGGCGGTTTCGCTAAATACTGGCAGCGTTCGTCAGTATCCCGTTTACAGGGCGGCTTCGTCTGGACTGGGTG  
571▶ rAlaHisAlaMetGlyAsnSerLeuGlyGlyPheAlaLysTyrTrpGlnAlaPheArgGlnTyrProArgLeuGlnGlyGlyPheValTrpAspTrpVal  
2201 GATCAGTCGCTGATTAATATGATGAAAACGGCAACCCGTGGTTCGGCTTACGGCGGTGATTTTGGCGATACGCCGAACGATGCCAGTTCTGTATGAACG  
605▶ AspGlnSerLeuI leLysTyrAspGluAsnGlyAsnProTrpSerAlaTyrGlyGlyAspPheGlyAspThrProAsnAspArgGlnPheCysMetAsnG  
Eco47III (2335)  
2301 GTCTGGTCTTTGCCGACCCGACGCCGATCCAGCGCTGACGGAAGCAAAACACCAGCAGCAGTTTTTCCAGTTCCGTTTATCCGGGCAAACCATCGAAGT  
638▶ lYLeuValPheAlaAspArgThrProHisProAlaLeuThrGluAlaLysHisGlnGlnGlnPhePheGlnPheArgLeuSerGlyGlnThrI leGluVa  
SacI (2440)  
2401 GACCAGCAATACCTGTTCCGTCATAGCGATAACGAGCTCCTGCACTGGATGGTGGCGCTGGATGGTAAGCCGCTGGCAAGCGGTGAAGTGCCTCTGGAT  
671▶ lThrSerGluTyrLeuPheArgHisSerAspAsnGluLeuLeuHisTrpMetValAlaLeuAspGlyLysProLeuAlaSerGlyGluValProLeuAsp  
2501 GTCGCTCCACAAGGTAACAGTTGATTGAAGTGCCTGAAGTACCAGCGCCGAGAGCGCCGGCAACTCTGGCTCACAGTACGCGTAGTGCAACCGAAGC  
705▶ ValAlaProGlnGlyLysGlnLeuI leGluLeuProGluLeuProGlnProGluSerAlaGlyGlnLeuTrpLeuThrValArgValValGlnProAsnA  
2601 CGACCGCATGGTCAGAAGCCGGGCACATCAGCGCCTGGCAGCAGTGGCGTCTGGCGGAAAACCTCAGTGTGACGCTCCCGCCGCTCCACGCCATCCC  
738▶ laThrAlaTrpSerGluAlaGlyHisI leSerAlaTrpGlnGlnTrpArgLeuAlaGluAsnLeuSerValThrLeuProAlaAlaSerHisAlaI lePr  
2701 GCATCTGACCACCAGCGAAATGGATTTTGCATCGAGCTGGTAATAAGCGTTGGCAATTTAACCGCCAGTCAGGCTTCTTTCACAGATGTGGATTGGC  
771▶ oHisLeuThrThrSerGluMetAspPheCysI leGluLeuGlyAsnLysArgTrpGlnPheAsnArgGlnSerGlyPheLeuSerGlnMetTrpI leGly  
2801 GATAAAAAACAACCTGCTGACGCCGCTGCGGATCAGTTCACCCGTGCACCGCTGGATAACGACATTGGCGTAAGTGAAGCGACCCGCATTGACCCTAACG  
805▶ AspLysLysGlnLeuLeuThrProLeuArgAspGlnPheThrArgAlaProLeuAspAsnAspI leGlyValSerGluAlaThrArgI leAspProAsnA  
2901 CCTGGTTCGAACGCTGGAAGCGCGGGCCATTACCAGGCCGAGCAGCGTTGTTGAGTGCACGGCAGATACACTTGTGTGCGGTGCTGATTACGAC  
838▶ laTrpValGluArgTrpLysAlaAlaGlyHisTyrGlnAlaGluAlaAlaLeuLeuGlnCysThrAlaAspThrLeuAlaAspAlaValLeuI leThrTh  
3001 CGCTCACGCGTGGCAGCATCAGGGGAAAACCTTATTTATCAGCCGAAAACCTACCGGATTGATGGTAGTGGTCAAATGGCGATTACCGTTGATGTTGAA  
871▶ rAlaHisAlaTrpGlnHisGlnGlyLysThrLeuPheI leSerArgLysThrTyrArgI leAspGlySerGlyGlnMetAlaI leThrValAspValGlu  
3101 GTGGCGAGCGATACCCGCATCCGGCGGATTGGCCTGAAGTCCAGCTGGCGCAGGTAGCAGAGCGGGTAAACTGGCTCGGATTAGGGCCCAAGAAA  
905▶ ValAlaSerAspThrProHisProAlaArgI leGlyLeuAsnCysGlnLeuAlaGlnValAlaGluArgValAsnTrpLeuGlyLeuGlyProGlnGluA  
Bst1107I (3262)  
BspLU11I (3259) BsiWI (3270)  
3201 ACTATCCCAGCCGCTTACTGCCGCTGTTTTGACCGCTGGGATCTGCCATTGTCAGACATGTATACCCCGTACGCTTCCCGAGCGAAAACGGTCTGGC  
938▶ snTyrProAspArgLeuThrAlaAlaCysPheAspArgTrpAspLeuProLeuSerAspMetTyrThrProTyrValPheProSerGluAsnGlyLeuAr  
3301 CTGCGGGACCGCGAATTGAATTATGGCCACACCAGTGGCGCGGACTTCCAGTTCAACATCAGCCGCTACAGTCAACAGCAACTGATGGAAACCAGC  
971▶ gCysGlyThrArgGluLeuAsnTyrGlyProHisGlnTrpArgGlyAspPheGlnPheAsnI leSerArgTyrSerGlnGlnGlnLeuMetGluThrSer  
NdeI (3457)  
3401 CATCGCCATCTGCTGCACGCGGAAGAAGGCACATGGCTGAATATCGACGTTTCCATATGGGGATTGGTGGCGACTCCTGGAGCCGTCAGTATCGG  
1005▶ HisArgHisLeuLeuHisAlaGluGluGlyThrTrpLeuAsnI leAspGlyPheHisMetGlyI leGlyGlyAspAspSerTrpSerProSerValSerA  
NheI (3579)  
EcoRI (3573)  
3501 CGGAATTACAGCTGAGCGCGGTGCTACCATTACAGTTGGTCTGGTGTCAAAAATAATAATCTAGTCGAGAATTCGCTAGCTCGACATGATAAGATA  
1038▶ laGluLeuGlnLeuSerAlaGlyArgTyrHisTyrGlnLeuValTrpCysGlnLys•••  
3601 ATTGATGAGTTTGACAAACCACTAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTGAAATTTGTGATGC  
MfeI (3753)  
3701 TATTGCTTTATTTGTAACCATTATAAGCTGCAATAAAACAAGTTAACAACAACAATTGCATTCATTTTATGTTTCAGGTTTCAGGGGAGGTGTGGGAGGTT  
DraI (3802)  
DraI (3841)  
SwaI (3844)  
3801 TTTTAAAGCAAGTAAAACCTCTACAAATGTGGTAGATCCATTTAAATGTTAATTAAGTACGATGACCAAAATCCCTAACGTGAGTTTTCGTTCCACTG  
3901 AGCGTCAGACCCCGTAGAAAAGATCAAAGGATCTTCTTGAGATCCTTTTTTCTGCGGTAATCTGCTGCTTGCAAACAAAAAACCCAGCTACCAGCG  
4001 GTGGTTTGTGGCGGATCAAGAGCTACCAACTCTTTTTCCGAAGGTAAGTGGCTTACGAGAGCGCAGATACCAAATACTGTTCTTCTAGTGTAGCCGT  
4101 AGTTAGGCCACCACTTCAAGAAGTCTGTAGCACCAGCTACATACCTCGCTCTGCTAATCCTGTTACCAGTGGCTGCTGCCAGTGGCGATAAGTCTGTCT  
4201 TACCGGTTGGACTCAAGACGATAGTTACCGGATAAGGCGCAGCGGTGGGCTGAACGGGGGTTTCGTGCACACAGCCAGCTTGGAGCGAACGACCTAC  
4301 ACCGAAGTGAATACCTACAGCGTGAGCTATGAGAAAGCGCCAGCTTCCCGAAGGGAGAAAGCGGACAGGTATCCGGTAAGCGGCAGGGTCGGAACAG  
4401 GAGAGCGCAGAGGGAGCTTCCAGGGGAAACGCTGGTATCTTTATAGTCTGTGGGTTTCGCCACCTCTGACTTGAGCGTCGATTTTGTGATGCTC  
BspLU11I (4582)  
4501 GTCAGGGGGCGGAGCCTATGAAAAACGCCAGCAACGCGGCCTTTTTACGGTTCCTGGCCTTTTGGCTGGCCTTTTGGCTCACATGTTCTTAATTAATTT

AseI (4620)
SfiI (4671) MscI (4682)

4601 TTCAAAGTAGTTGACAATTAATCATCGGCATAGTATATCGGCATAGTATAATACGACTCACTATAGGAGGGCCATCATGGCCAAGTTGACCAGTGCTG  
—————▶
1▶ MetAlaLysLeuThrSerAlaV

4700 TCCCAGTGCTCACAGCCAGGGATGTGGCTGGAGCTGTTGAGTTCTGGACTGACAGTTGGGGTTCTCCAGAGATTTTGTGGAGGATGACTTTGCAGGTGT  
8▶ alProValLeuThrAlaArgAspValAlaGlyAlaValGluPheTrpThrAspArgLeuGlyPheSerArgAspPheValGluAspAspPheAlaGlyVa

4800 GGTCAGAGATGATGTCACCCTGTTTCATCTCAGCAGTCCAGGACCAGGTGGTGCCTGACAACACCCTGGCTTGGGTGTGGGTGAGAGGACTGGATGAGCTG  
41▶ lValArgAspAspValThrLeuPheI leSerAlaValGlnAspGlnValValProAspAsnThrLeuAlaTrpValTrpValArgGlyLeuAspGluLeu

4900 TATGCTGAGTGGAGTGGGTGGTCTCCACCACTTCAGGGATGCCAGTGGCCCTGCCATGACAGAGATTGGAGAGCAGCCCTGGGGGAGAGAGTTTGGCC  
75▶ TyrAlaGluTrpSerGluValValSerThrAsnPheArgAspAlaSerGlyProAlaMetThrGluI leGlyGluGlnProTrpGlyArgGluPheAlaL

DraIII (5032)
SfiI (5080)

5000 TGAGAGACCCAGCAGGCAACTGTGTGCACTTTGTGGCAGAGGAGCAGGACTGAGGATAAGAATTGAGTTTCAGAAAAGGGGGCCTGAGTGGCCCTTTT  
108▶ euArgAspProAlaGlyAsnCysValHisPheValAlaGluGluGlnAsp•••
—————▶

5100 TCAACTTAATTAA  
▶