



Bsp120I (8)  
**PstI (7)**  
**SdaI (7)**      **SpeI (14)** Bsp120I (22)

1 CCTGCAGGGCCCACTAGTCAGGGCCCCAACCCCCCAAGCCCCATTTACAACACGCTGGCGCTACAGGCGCGTGACTTCCCCTTGCTTTGGGGCGGGG

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BspEI (120)

101 GGCTGAGACTCCTATGTGTCCGGATTGGTCAGGCACGGCCTTCGGCCCCGCTCCTGCCACCGCAGATTGGCCGCTAGCCCTCCCCGAGCGCCCTGCCT

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NaeI (210)      SacII (267)

201 CCGAGGGCCGGCGCACCATAAAAGAAGCCGCCCTAGCCACGTCGCCCTCGCAGTTCGGCGGTCCCGCGGTCTGTCTCTTGCTTCAACAGTGTGGACGG

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301 AACAGATCCGGGACTCTTTCCAGCCTCCGACCGCCCTCCGATTTCTCTCCGCTTGAACCTCCGGGACCATCTTCTCGCCATCTCTGCTTCTGGG

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401 ACCTGCCAGCACGTTTTTGTGGTTAGCTCCTTCTTGCAACCAACCATGGGGGTTCTCATCATCATCATCATGGTATGGCTAGCATGACTGGTGG

1▶ MetGlyGlySerHisHisHisHisHisHisGlyMetAlaSerMetThrGlyGly

Bsu36I (546)  
**Acc65I (541)**

501 ACAGCAAATGGGTCCGGATCTGTACGACGATGACGATAAGGTACCTAAGGATCAGCTTGAGTTGATCCCGTCGTTTTACAACGTCGTGACTGGAAAC

18▶ yGlnGlnMetGlyArgAspLeuTyrAspAspAspAspLysValProLysAspGlnLeuGlyValAspProValValLeuGlnArgArgAspTrpGluAsn

**FspI (701)**

601 CCTGGCGTTACCAACTTAATCGCCTTGACGACATCCCCCTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATGCCCTTCCAACAGTTGC

52▶ ProGlyValThrGlnLeuAsnArgLeuAlaAlaHisProProPheAlaSerTrpArgAsnSerGluGluAlaArgThrAspArgProSerGlnGlnLeuA

Bsu36I (783)

701 GCAGCCTGAATGGCGAATGGCGTTTGCCTGGTTCCGGCACCAGAAGCGGTGCCGAAAGCTGGCTGGAGTGCATCTTCTGAGGCGGATACTGTCTG

85▶ rgSerLeuAsnGlyGluTrpArgPheAlaTrpPheProAlaProGluAlaValProGluSerTrpLeuGluCysAspLeuProGluAlaAspThrValVal

801 CGTCCCCCAAACCTGGCAGATGCACGGTTACGATGCGCCATCTACCCAAGCTAACCTATCCATTACGGTCAATCCCGCTTTGTCCCCCGGAGAA

118▶ lValProSerAsnTrpGlnMetHisGlyTyrAspAlaPro lTyrThrAsnValThrTyrPro lThrValAsnProProPheValProThrGluAsn

901 CCGACGGTTGTTACTCGCTCACATTTAATGTTGATGAAAGCTGGCTACAGGAAGCCAGACGCGAATTATTTTTGATGGCGTTAACTCGGCGTTTCATC

152▶ ProThrGlyCysTyrSerLeuThrPheAsnValAspGluSerTrpLeuGlnGluGlyGlnThrArg l lPheAspGlyValAsnSerAlaPheHisL

1001 TGTGGTGAACGGGCGCTGGTTCGGTTACGGCCAGGACAGTCGTTTGGCGTGAATTTGACCTGAGCGCATTTTTACGGCCGGAGAAAACCGCCTCGC

185▶ euTrpCysAsnGlyArgTrpValGlyTyrGlyGlnAspSerArgLeuProSerGluPheAspLeuSerAlaPheLeuArgAlaGlyGluAsnArgLeuAl

**AatII (1182)**

1101 GGTGATGGTGTGCGTTGGAGTGACGGCAGTTATCTGGAAGATCAGGATATGTGGCGGATGAGCGGCATTTTCCGTGACGTCGTTGCTGCATAAACCG

218▶ aValMetValLeuArgTrpSerAspGlySerTyrLeuGluAspGlnAspMetTrpArgMetSerGly lPheArgAspValSerLeuLeuHisLysPro

1201 ACTACACAAATCAGCGATTTCCATGTTGCCACTCGCTTAAATGATGATTTACGCGCGCTGTACTGGAGGCTGAAGTTCAGATGTGCGGCGAGTTGCGTG

252▶ ThrThrGln lSerAspPheHisValAlaThrArgPheAsnAspAspPheSerArgAlaValLeuGluAlaGluValGlnMetCysGlyGluLeuArgA

**ClaI (1383)**

1301 ACTACCTACGGTAACAGTTTCTTTATGGCAGGGTGAACGCAGGTCGCCAGCGGCACCGCGCTTTCGGCGGTGAAATTATCGATGAGCGGTGGTGT

285▶ spTyrLeuArgValThrValSerLeuTrpGlnGlyGluThrGlnValAlaSerGlyThrAlaProPheGlyGlyGlu l l lAspGluArgGlyGlyTy

1401 TGCCGATCGCGTCACACTACGTCTGAACGTCGAAAACCCGAACTGTGGAGCGCCGAAATCCCGAATCTCTATCGTGCGGTGGTTGAACTGCACACCGC

318▶ rAlaAspArgValThrLeuArgLeuAsnValGluAsnProLysLeuTrpSerAlaGlu lProAsnLeuTyrArgAlaValValGluLeuHisThrAla

1501 GACGGCACGCTGATTGAAGCAGAAGCCTGCGATGTCGGTTTCCGCGAGGTGCGGATTGAAAATGGTCTGCTGCTGCTGAACGGCAAGCGTTGCTGATC

352▶ AspGlyThrLeu lGluAlaGluAlaCysAspValGlyPheArgGluValArg lGluAsnGlyLeuLeuLeuLeuAsnGlyLysProLeuLeu l l lA

**EcoRV (1672)**

1601 GAGGCGTTAACCGTCACGAGCATCATCTCTGCATGGTCAGGTCATGGATGAGCAGACGATGGTGCAGGATATCCTGCTGATGAAGCAGAACAACCTTAA

385▶ rgGlyValAsnArgHisGluHisHisProLeuHisGlyGlnValMetAspGluGlnThrMetValGlnAsp lLeuLeuMetLysGlnAsnAsnPheAs

DraIII (1749)      **SpeI (1789)**

1701 CGCCGTGCGCTGTTTCGATTATCCGAACCATCCGCTGTGGTACACGCTGTGCCACCGCTACGGCCTGTATGTGGTGGATGAAGCCAATATTGAAACCCAC

418▶ nAlaValArgCysSerHisTyrProAsnHisProLeuTrpTyrThrLeuCysAspArgTyrGlyLeuTyrValValAspGluAlaAsn lGluThrHis

**BsaBI (1885)**

1801 GGCATGGTGCAATGAATCGTCTGACCGATGATCCGCGCTGGCTACCGCGATGAGCGAACGCGTAACGCGAATGGTGCAGCGCGATCGTAATCACCCGA

452▶ GlyMetValProMetAsnArgLeuThrAspAspProArgTrpLeuProAlaMetSerGluArgValThrArgMetValGlnArgAspArgAsnHisProS

1901 GTGTGATCATCTGGTCGCTGGGAATGAATCAGGCCACGGCGCTAATCAGCAGCGCTGTATCGCTGGATCAAATCTGTCGATCCTTCCC GCCCGGTGCA

485▶ erVal l l l lTrpSerLeuGlyAsnGluSerGlyHisGlyAlaAsnHisAspAlaLeuTyrArgTrp l lLysSerValAspProSerArgProValGl

**BssHIII (2057)**

2001 GTATGAAGCGCGGAGCCGACACCACGGCCACCGATATTATTTGCCGATGTACGCGCGCTGGATGAAGACCAGCCCTTCCC GGCTGTGCCGAAATGG

518▶ nTyrGluGlyGlyGlyAlaAspThrThrAlaThrAsp l l l lCysProMetTyrAlaArgValAspGluAspGlnProPheProAlaValProLysTrp

2101 TCCATCAAAAAATGGCTTCGCTACCTGGAGAGACGCCCGCTGATCCTTTGCGAATACGCCACGCGATGGTAACAGTCTTGGCGGTTTCGCTAAAT  
552 SerI leLysLysTrpLeuSerLeuProGlyGluThrArgProLeuI leLeuCysGluTyrAlaHisAlaMetGlyAsnSerLeuGlyGlyPheAlaLysT  
2201 ACTGGCAGGCGTTTTCTGTCAGTATCCCCGTTTACAGGGCGGCTTCGTCTGGGACTGGTGGATCAGTCGCTGATTAATATGATGAAAACGGCAACCCGTC  
585 yrTrpGlnAlaPheArgGlnTyrProArgLeuGlnGlyGlyPheValTrpAspTrpValAspGlnSerLeuI leLysTyrAspGluAsnGlyAsnProTr  
Eco47III (2394)  
2301 GTCGGCTTACGGCGGTGATTTTGGCGATACGCCGAACGATCGCCAGTCTGTATGAACGGTCTGGTCTTTGCCGACCGCACGCCGATCCAGCGCTGACG  
618 pSerAlaTyrGlyGlyAspPheGlyAspThrProAsnAspArgGlnPheCysMetAsnGlyLeuValPheAlaAspArgThrProHisProAlaLeuThr  
SacI (2499)  
2401 GAAGCAAAACACCAGCAGCAGTTTTTCCAGTTCGGTTATCCGGGCAAACCATCGAAGTGACCAGCGAATACCTGTTCCGTCATAGCGATAACGAGCTCC  
652 GluAlaLysHisGlnGlnGlnPhePheGlnPheArgLeuSerGlyGlnThrI leGluValThrSerGluTyrLeuPheArgHisSerAspAsnGluLeuL  
2501 TGCACTGGATGGTGGCGCTGGATGGTAAGCCGCTGGCAAGCGGTGAAGTGCCCTCTGGATGTCGCTCCACAAGGTAACAGTTGATTGAACCTGCTGAACT  
685 euHisTrpMetValAlaLeuAspGlyLysProLeuAlaSerGlyGluValProLeuAspValAlaProGlnGlyLysGlnLeuI leGluLeuProGluLe  
2601 ACCGACCCGGAGAGCGCCGGCAACTCTGGCTCACAGTACGCGTAGTGCAACCGAACCGACCGCATGGTCAGAAGCCGGGCACATCAGCGCTGGCAG  
718 uProGlnProGluSerAlaGlyGlnLeuTrpLeuThrValArgValValGlnProAsnAlaThrAlaTrpSerGluAlaGlyHisI leSerAlaTrpGln  
2701 CAGTGGCGTCTGGCGAAAACCTCAGTGTGACGCTCCCCCGCGCTCCACGCCATCCCGCATCTGACCACCAGCGAAATGGATTTTGCATCGAGCTGG  
752 GlnTrpArgLeuAlaGluAsnLeuSerValThrLeuProAlaAlaSerHisAlaI leProHisLeuThrThrSerGluMetAspPheCysI leGluLeuG  
2801 GTAATAAGCGTTGGCAATTTAACGCCAGTCAGGCTTTCTTTCACAGATGTGGATTGGCGATAAAAAACAACCTGCTGACGCCGCTGCGCGATCAGTTCAC  
785 lyAsnLysArgTrpGlnPheAsnArgGlnSerGlyPheLeuSerGlnMetTrpI leGlyAspLysLysGlnLeuLeuThrProLeuArgAspGlnPheTh  
2901 CCGTGCACCGCTGGATAACGACATTGGCGTAAGTGAAGCGACCCGATTGACCTAACGCTGGTGAACGCTGGAAGCGGGCGGCCATTACCAGGCC  
818 rArgAlaProLeuAspAsnAspI leGlyValSerGluAlaThrArgI leAspProAsnAlaTrpValGluArgTrpLysAlaAlaGlyHisTyrGlnAla  
3001 GAAGCAGCGTTGTTGCAGTGCACGGCAGATACACTTGGCTGATGCGGTGCTGATTACGACCGCTCACGCGTGGCAGCATCAGGGGAAAACCTTATTTATCA  
852 GluAlaAlaLeuLeuGlnCysThrAlaAspThrLeuAlaAspAlaValLeuI leThrThrAlaHisAlaTrpGlnHisGlnGlyLysThrLeuPheI leS  
3101 GCCGAAAACCTACCGATTGATGGTAGTGGTCAAATGGCGATTACCGTTGATGTTGAAGTGCGAGCGATACCCGATCCGGCGGGATTGCGCTGAA  
885 erArgLysThrTyrArgI leAspGlySerGlyGlnMetAlaI leThrValAspValGluValAlaSerAspThrProHisProAlaArgI leGlyLeuAs  
3201 CTGCCAGCTGGCGCAGGTAGCAGAGCGGGTAAACTGGCTCGATTAGGGCCGCAAGAAAACCTATCCCGACCGCTTACTGCCGCTGTTTTGACCGCTGG  
918 nCysGlnLeuAlaGlnValAlaGluArgValAsnTrpLeuGlyLeuGlyProGlnGluAsnTyrProAspArgLeuThrAlaAlaCysPheAspArgTrp  
Bst1107I (3321)  
BspLU11I (3318) BsiWI (3329)  
3301 GATCTGCCATTGTCAGACATGTATACCCGTCAGCTCTCCCGAGCGAAAACGGTCTGCGCTGCGGGACGCGCAATTGAATTATGGCCACACCACTGGC  
952 AspLeuProLeuSerAspMetTyrThrProTyrValPheProSerGluAsnGlyLeuArgCysGlyThrArgGluLeuAsnTyrGlyProHisGlnTrpA  
3401 GCGGCGACTTCCAGTTCACATCAGCCGCTACAGTCAACAGCAACTGATGAAAACGACCCATCGCCATCTGCTGCACGCGGAAGAAGGCACATGGCTGAA  
985 rgGlyAspPheGlnPheAsnI leSerArgTyrSerGlnGlnGlnLeuMetGluThrSerHisArgHisLeuLeuHisAlaGluGluGlyThrTrpLeuAs  
NdeI (3516)  
3501 TATCGACGGTTCCATATGGGGATTGGTGGCGACGACTCCTGGAGCCGTCAGTATCGGGGAATTACAGCTGAGCGCCGGTCGCTACCATTACCAGTTG  
1018 nl leAspGlyPheHisMetGlyI leGlyGlyAspAspSerTrpSerProSerValSerAlaGluLeuGlnLeuSerAlaGlyArgTyrHisTyrGlnLeu  
EcoRI (3632)  
3601 GTCTGGTGTCAAAAATAATAATCTAGTCGAGAATTGCTAGCTGACATGATAAGATACATTGATGAGTTTGGACAAACCACAACCTAGAATGCACTGAAA  
1052 ValTrpCysGlnLys ●●●  
3701 AAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAG  
MfeI (3812) DraI (3861) DraI (3900) SwaI (3903)  
3801 TTAACAACAACAATTGCATTCTTTTATGTTTCAGGTTCCAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAAACCTCTACAATGTGGTAGATCCAT  
3901 TTAATGTTAATTAAGTACCATGACCAAAATCCCTTAACGTGAGTTTTCTGTTCCACTGAGCGCTCAGACCCCGTAGAAAAGATCAAAGGATCTTCTTGAG  
4001 ATCCTTTTTTTCTGCGGTAATCTGCTGTTGCAACAAAAAAACCACCGCTACCAGCGGTGGTTTTGTTTGGCGGATCAAGAGCTACCAACTCTTTTTCC  
4101 GAAGGTAAGTGGCTTCAGCAGAGCGCAGATACCAAACTACTGTTCTTCTAGTGTAGCCGTAGTTAGGCCACCCTTCAAGAACTCTGTAGCACCAGCTACA  
4201 TACCTCGCTCTGCTAATCTGTTACCAGTGGCTGCTGCCAGTGGCGATAAGTCTGTCTTACCAGGTTGGACTCAAGACGATAGTTACCAGGATAAGGCGC  
4301 AGCGGTGCGGCTGAACGGGGGTTCTGTCACACAGCCAGCTTGAGCGAACGACCTACACCGAACTGAGATACCTACAGCGTGAGCTATGAGAAAAGCGC  
4401 CACGCTTCCCGAAGGGAGAAAGCGGACAGGTATCCGGTAAGCGGCAGGGTCCGGAACAGGAGAGCGCACGAGGGAGCTTCCAGGGGAAACGCTGGTAT  
4501 CTTTATAGTCTGTGCGGTTTTGCCACCTCTGACTTGAGCGTCGATTTTTGTGATGCTGTCAGGGGGCGGAGCCTATGAAAAACGCCAGCAACGCGG  
BspLU11I (4641) AseI (4679)  
4601 CCTTTTTACGGTTCCTGGCCTTTTGTGGCCTTTTGTCTCACATGTTCTTAATTAATTTTTCAAAGTAGTTGACAATTAATCATCGGCATAGTATATCG

SfiI (4730) MscI (4741)

4701 GCATAGTATAATACGACTCACTATAGGAGGGCCATCATGGCCAAGTTGACCAGTGCTGTCCCAGTGCTCACAGCCAGGGATGTGGCTGGAGCTGTTGAGT  
1 MetAlaLysLeuThrSerAlaValProValLeuThrAlaArgAspValAlaGlyAlaValGluP

4801 TCTGGACTGACAGGTTGGGTTCTCCAGAGATTTTGTGGAGGATGACTTTGCAGGTGTGGTCAGAGATGATGTCACCCTGTTTCATCTCAGCAGTCCAGGA  
22 heTrpThrAspArgLeuGlyPheSerArgAspPheValGluAspAspPheAlaGlyValValArgAspAspValThrLeuPheIeSerAlaValGlnAs

4901 CCAGGTGGTGCCTGACAACACCTGGCTTGGGTGTGGGTGAGAGGACTGGATGAGCTGATGCTGAGTGGAGTGAGGTGGTCTCCACCACTTCAGGGAT  
55 pGlnValValProAspAsnThrLeuAlaTrpValTrpValArgGlyLeuAspGluLeuTyrAlaGluTrpSerGluValValSerThrAsnPheArgAsp  
DraIII (5091)

5001 GCCAGTGGCCCTGCCATGACAGAGATTGGAGAGCAGCCCTGGGGGAGAGAGTTTGCCTGAGAGACCCAGCAGGCAACTGTGTGCACTTTGTGGCAGAGG  
89 AlaSerGlyProAlaMetThrGluIeGlyGluGlnProTrpGlyArgGluPheAlaLeuArgAspProAlaGlyAsnCysValHisPheValAlaGluG

SfiI (5139)

5101 AGCAGGACTGAGGATAAGAATTGAGTTTCAGAAAAGGGGCGCTGAGTGGCCCTTTTTTCAACTTAATTAA  
122 luGlnAsp•••