



125

Bsp120I (7)
EcoO109I (7)
PstI (6)
SdaI (6) SpeI (13) EcoNI (35)

1 CCTGCAGGCCACTAGTCCACTCCAGAGCCTTGCCAGGCAGCTGCAATCACCAACCACAGCATCCTTTGGGTTTGACCCTGAGCACATGACCCCC

101 AATTAGTCTCTGGCAGCATCCCCTGCTCCTCCTGCTTACATCAGAGACAGAGTAGCCGATATAAATGCTACTGGATGCTGGAGGTGCAGAACAGACA

201 AGTCCACACAGCAGCTTGGTGACACCTAGCAGACACCATGGGGGTTCTCATCATCATCATCATGGTATGGCTAGCATGACTGGTGACAGAAATG
MetGl yGl ySer Hi sHi sHi sHi sHi sGl yMe tAl aSer Me tThr Gl yGl yGl nGl nMe t

NcoI (238) NheI (276)

303 GGTCCGGATCTGTACGACGATGACGATAAGGTACCTAAGGATCAGCTTGGAGTTGATCCCGTCTTTTACAACGTCGTGACTGGGAAAACCTGGCGTTACC
22 Gl yArg AspLeu Tyr Asp Asp Asp Asp Lys Val | Pro Lys Asp Gl nLeu Gl yVal Asp roVal | Val Leu Gl nArg Arg Asp Trp Gl uAsn Pro Gl yVal Thr

405 CAACTTAATCGCCTTGCAGCACATCCCCCTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAACAGTTGGCGAGCCTGAATGGC
56 Gl nLeu Asn ArgLeu Al aAl aHi sP roP roPhe Al aSer Trp Arg Asn Ser Gl uGl uAl aArg Thr Asp Arg P roSer Gl nGl nLeu Arg Ser Leu Asn Gl y

Bsu36I (337) Acc65I (332) FspI (492)

507 GAATGGCGCTTTGCTGGTTCCGGCACCAGAAGCGGTGCCGAAAGCTGGCTGGAGTGCAGTCTTCTGAGGCCGATACTGTGCTGCTCCCTCAAACCTGG
90 Gl uTrp Arg Phe Al aTrp Phe P roAl aP roGl uAl aVal P roGl uSer Trp Leu Gl uCys Asp Leu P roGl uAl aAsp Thr Val Val Val P roSer Asn Trp

609 CAGATGCACGGTTACGATGCGCCATCTACACCAACGTAACCTATCCCATTACGGTCAATCCGCCGTTTGTCCACGGAGAATCCGACGGGTTGTTACTCG
124 Gl nMe tHi sGl yTyr Asp Al aP roI l eTyr Thr Asn Val Thr Tyr P roI l eThr Val Asn P roP roPhe Val P roThr Gl uAsn P roThr Gl yCys Tyr Ser

711 CTCACATTTAATGTTGATGAAAGCTGGCTACAGGAAGGCCAGACGGAATATTTTTGATGGCGTAACTCGCGTTCATCTGTTGTCACACGGGCGCTGG
158 Leu Thr Phe Asn Val Asp Gl uSer Trp Leu Gl nGl uGl yGl nThr Arg l e l ePhe Asp Gl yVal Asn Ser Al aPhe Hi sLeu Trp Cys Asn Gl yA rg Trp

813 GTCGGTTACGGCCAGGACAGTCTTTGCCGCTGAATTTGACCTGAGCGCATTTTTACGCGCCGAGAAAACCGCTCGCGGTGATGGTCTGCGTTGGAGT
192 Val Gl yTyr Gl yGl nAsp Ser ArgLeu P roSer Gl uPhe Asp Leu Ser Al aPhe Leu Arg Al aGl yGl uAsn Arg Leu Al aVal Met Val Leu Arg Trp Ser

AatII (973)

915 GACGGCAGTTATCTGGAAGATCAGGATATGTGGCGGATGAGCGGCATTTCCGTGACGCTCTGTTGCTGCATAAACCGACTACACAAATCAGCGATTTCCAT
226 Asp Gl ySer Tyr Leu Gl uAsp Gl nAsp Me tTrp Arg Me tSer Gl y l ePhe Arg Asp Val Ser Leu Leu Hi sLys P roThr Thr Gl n l eSer Asp Phe Hi s

1017 GTTGCCACTCGCTTAAATGATGATTTACGCCGCTGTACTGGAGGCTGAAGTTCAGATGTGCGGCGAGTTGCGTGACTACCTACGGGTAACAGTTTCTTTA
260 Val Al aThr Arg Phe Asn Asp Asp Phe Ser Arg Al aVal Leu Gl uAl aGl uVal Gl nMe tCys Gl yGl uLeu Arg Asp Tyr Leu Arg Val Thr Val Ser Leu

ClaI (1174)

1119 TGGCAGGGTAAACGCAGGTCCGACGGCACCGCCCTTTCGGCGGTGAAATATCGATGAGCGTGGTGTATGCCGATCGGTCACACTACGCTCTGAAC
294 Trp Gl nGl yGl uThr Gl nVal Al aSer Gl yThr Al aP roPhe Gl yGl yGl u l e l eAsp Gl uArg Gl yGl yTyr Al aAsp Arg Val Thr Leu Arg Leu Asn

1221 GTCGAAAACCCGAACTGTGGAGCGCGAAATCCCGAATCTCTATCGTGCGGTGGTGAAGTGCACACCGCCGACGGCAGCGCTGATTGAAGCAGAAGCCTGC
328 Val Gl uAsn P roLys Leu Trp Ser Al aGl u l eP roAsn Leu Tyr Arg Al aVal Val Gl uLeu Hi sThr Al aAsp Gl yThr Leu l eGl uAl aGl uAl aCys

1323 GATGTCGGTTCCGCGAGGTGCGGATTGAAATGGTCTGCTGCTGCTGAACGGCAAGCGTGTGCTGATTGAGGCGTTAACCGTCACGAGCATCATCCTCTG
362 Asp Val Gl yPhe Arg Gl uVal A rg l eGl uAsn Gl yLeu Leu Leu Leu Asn Gl yLys P roLeu Leu l eArg Gl yVal Asn Arg Hi sGl uHi sHi sP roLeu

EcoRV (1463)

1425 CATGGTCAGTTCATGGATGAGCAGACGATGGTGAGGATATCTGCTGATGAAGCAGAACAACCTTAACGCCGTGGCTGTTCCGATTATCCGAACCATCCG
396 Hi sGl yGl nVal Me tAsp Gl uGl nThr Me tVal Gl nAsp l eLeu Leu Me tLys Gl nAsn Asn Phe Asn Al aVal Arg Cys Ser Hi sTyr P roAsn Hi sP ro

DraIII (1540) SspI (1580)

1527 CTGTGGTACACGCTGTGCGACCGCTACGGCCTGTATGTGGTGGATGAAGCCAATATTGAAACCCACGGCATGGTGCCAATGAATCGTCTGACCGATGATCCG
430 Leu Trp Tyr Thr Leu Cys Asp Arg Tyr Gl yLeu Tyr Val Val Asp Gl uAl aAsn l eGl uThr Hi sGl yMe tVal P roMe tAsn Arg Leu Thr Asp Asp P ro

BsaBI (1676)

1629 CGTGGCTACCGCGATGAGCGAACCGGTAACGCGAATGGTGCAGCGCATCTGAATCACCCGAGTGTGATCATCTGGTCTGGGGAATGAATCAGGCCAC
464 Arg Trp Leu P roAl aMe tSer Gl uArg Val Thr Arg Me tVal Gl nArg Asp Arg Asn Hi sP roSer Val l e l eTrp Ser Leu Gl yAsn Gl uSer Gl yHi s

1731 GGCCTAATCAGCAGCGCTGTATCGCTGGATCAAATCTGTCGATCTTCCGCCCGGTGCGATGAAAGCGCGCGGAGCCGACACCAGCCGACCGATATT
498 Gl yAl aAsn Hi sAsp Al aLeu Tyr Arg Trp l eLys Ser Val Asp P roSer Arg P roVal Gl nTyr Gl uGl yGl yAl aAsp Thr Thr Al aThr Asp l e

BssHIII (1848)

1833 ATTTGCCGATGTACGCGCGTGGATGAAGACCAGCCCTTCCCGCTGTGCCGAAATGGTCCATCAAAAAATGGCTTTCGCTACCTGGAGAGACGCGCCG
532 l e l eCys P roMe tTyr Al aArg Val Asp Gl uAsp Gl nP roPhe P roAl aVal P roLys Trp Ser l eLys Lys Trp Leu Ser Leu P roGl yGl uThr Arg P ro

1935 CTGATCCTTTGCGAATACGCCACGCGATGGGTAAACAGTCTTGCGGTTTCGCTAAATACTGGCAGGCGTTCGTCAGTATCCCCGTTTACAGGGCGGCTTC
566 Leu l eLeu Cys Gl uTyr Al aHi sAl aMe tGl yAsn Ser Leu Gl yGl yPhe Al aLys Tyr Trp Gl nAl aPhe Arg Gl nTyr P roArg Leu Gl nGl yGl yPhe

2037 GTCCTGGACTGGTGGATCAGTCTGATTAATATGATGAAAACGGCAACCGTGGTGGCTTACGGCGGTGATTTGGCGATACGCCGACCGACCGATCCGCGAG
600 Val Trp Asp Trp Val Asp Gl nSer Leu l eLys Tyr Asp Gl uAsn Gl yAsn P roTrp Ser Al aTyr Gl yGl yAsp Phe Gl yAsp Thr P roAsn Asp Arg Gl n

Eco47III (2185)

2139 TTCTGATGAACGGTCTGGTCTTTGCCAGCCGACGCCGATCCAGCGCTGACGGAAGCAAAACACCAGCAGCAGTTTTTCCAGTTCCTGTTTATCCGGGCAA
634 Phe Cys Me tAsn Gl yLeu Val Phe Al aAsp Arg Thr P roHi sP roAl aLeu Thr Gl uAl aLys Hi sGl nGl nGl nPhe Phe Gl nPhe Arg Leu Ser Gl yGl n

SacI (2290)

2241 ACCATCGAAGTGACCAGCAATACCTGTTCCGTCATAGCGATAACGAGCTCCTGCACTGGATGGTGGCGCTGGATGGTAAAGCCGCTGGCAAGCGGTGAAGTG
668 Thr l eGl uVal Thr Ser Gl uTyr Leu Phe Arg Hi sSer Asp Asn Gl uLeu Leu Hi sTrp Me tVal Al aLeu Asp Gl yLys P roLeu Al aSer Gl yGl uVal

2343 CCTCTGGATGTCGCTCCACAAGTAAACAGTTGATTAAGTCCGCTGAATACCCGACGCCGAGAGCGCCGGGCAACTTGCTCACAGTACGCGTAGTGCAA
702 P roLeu Asp Val Al aP roGl nGl yLys Gl nLeu l eGl uLeu P roGl nLeu P roGl nP roGl nP roGl nP roGl nP roGl nP roGl nP roGl nP roGl nP roGl n

2445 CCGAACGCGACCGCATGGTCAGAAGCCGGGCACATCAGCGCCTGGCAGCAGTGGCGTCTGGCGAAAACCTCAGTGTGACGCTCCCGCCGCGTCCACGCC
736 P roAsn Al aThr Al aTrp Ser Gl uAl aGl yHi s l eSer Al aTrp Gl nGl nTrp Arg Leu Al aGl uAsn Leu Ser Val Thr Leu P roAl aAl aSer Hi sAl a

2547 ATCCCGCATCTGACCACAGCGAAATGGATTTTGCATCGAGCTGGGTAATAAGCGTTGGCAATTAACCGCCAGTCAGGCTTCTTTACAGATGTGGATT
770 l eP roHi sLeu Thr Thr Ser Gl uMe tAsp Phe Cys l eGl uLeu Gl yAsn Lys Arg Trp Gl nPhe Asn Arg Gl nSer Gl yPhe Leu Ser Gl nMe tTrp l e

2649 GCGGATAAAAAACAACTGACGCCGCTGCGCATCAGTTCCACCTGCACCCTGGATAACGACATGGCGTAAGTGAAGCGACCCGATGACCTAAC
804 Gl yAsp Lys Lys Gl nLeu Leu Thr P roLeu Arg Asp Gl nPhe Thr Arg Al aP roLeu Asp Asn Asp l eGl yVal Ser Gl uAl aThr Arg l eAsp P roAsn

2751 GCCTGGTTCGAACGCTGGAAGCGCGGCCATTACCAGCGCAAGCAGCGTGTGGCAGTGCACGGCAGATACTTGTGATGCGGTGCTGATTACGACC
838 Al aTrp Val Gl uArg Trp Lys Al aAl aGl yHi sTyr Gl nAl aGl uAl aAl aLeu Leu Gl nCys Thr Al aAsp Thr Leu Al aAsp Al aVal Leu l eThr Thr

2853 GCTCACGCGTGGCAGCATCAGGGGAAAACCTTATTTATCAGCCGAAAACCTACCGGATTGATGGTAGTGGTCAAATGGCGATTACCGTTGATGTTGAAGTG

2955 GCGAGCGATACACCGCATCCGGCGCGGATTGGCCCTGAACTGCCAGCTGGCGCAGGTAGCAGAGCGGGTAAACTGGCTCGGATTAGGGCCGCAAGAAAACCTAT
906▶Al aSerAspThr ProHisProAl aArgI l eGl yLeuAsnCysGl nLeuAl aGl nValAl aGl uArgVal AsnTrpLeuGl yLeuGl yProGl nGl uAsnTyr

Bst1107I (3112)

BspLU11I (3109) **BsiWI (3120)**

3057 CCCGACCGCCTTACTGCCGCTGTTTTGACCGCTGGGATCTGCCATTGTCCAGACATGTATACCCCGTACGTCTTCCCGAGCGAAAACGGTCTGCGCTGCGGG
940▶ProAspArgLeuThr Al aAl aCysPheAspArgTrpAspLeuP roLeuSerAspMetTyrThrProTyrVal PheProSer Gl uAsnGl yLeuArgCysGl y
3159 ACGCGCAATTGAATTATGGCCACACCACTGGCGCGGCGACTTCCAGTTC AACATCAGCCGCTACAGTCAACAGCAACTGATGGAAACCAGCCATCGCCAT
974▶ThrArgGl uLeuAsnTyrGl yProHisGl nTrpArgGl yAspPheGl nPheAsnI l eSerArgTyrSer Gl nGl nGl nLeuMetGl uThr SerHisArgHis

NdeI (3307)

3261 CTGCTGCACGCGGAAGAAGGCACATGGCTGAATATCGACGGTTTCATATGGGGATTGGTGGCGACGACTCCTGGAGCCCGTCAGTATCGCGGAATTACAG
1008▶LeuLeuHisAl aGl uGl uGl yThr TrpLeuAsnI l eAspGl yPheHisMe tGl yI l eGl yGl yAspAspSer TrpSerProSerVal SerAl aGl uLeuGl n

NheI (3429)

EcoRI (3423)

3363 CTGAGCGCCGGTCTGCTACCACTACCAGTTGGTCTGGTGTCAAAAAATAATAATCTAGTCGAGAATTCGCTAGCTCGACATGATAAGATACATTGATGAGTTTG
1042▶LeuSerAl aGl yArgTyrHisTyrGl nLeuVal TrpCysGl nLys•••
3465 GACAAACCACAAC TAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGT

MfeI (3603)

DraI (3652)

3567 AACCAATTATAAGCTGCAATAAACAAAGTTAACAAACAACCAATTGCATTCATTTTTATGTTTCAGGTTCCAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAAA

DraI (3691)

SwaI (3694)

3669 CCTCTACAAATGTGGTAGATCCATTTAAATGTTAATTAAGTCCATGACCAAAATCCCTTAACGTGAGTTTTTCGTTCCACTGAGCGTCAGACCCCGTAGAA

3771 AAGATCAAAGGATCTTCTTGAGATCCTTTTTTCTGCGCGTAATCTGCTGCTTGCAAAACAAAAAACACCGCTACCAGCGGTGTTTGTTCGCCGATCAA

3873 GAGCTACCAACTCTTTTTCCGAAGGTAAGTGGCTTCAGCAGAGCGCAGATACCAAACTACTGTTCTTAGTGTAGCCGTAGTTAGGCCACCACTTCAAGAAC

3975 TCTGTAGCACCGCTACATACCTCGCTCTGCTAATCTGTTACCAGTGGCTGCTGCCAGTGCCGATAAGTCGTGTCTTACCGGTTGGACTCAAGACGATAG

4077 TTACCGGATAAGGCGCAGCGGTGCGGCTGAACGGGGGTTCTGTCACACAGCCAGCTTGAGCGAACGACCTACCCGAACTGAGATACCTACAGCGTGA

4179 CTATGAGAAAGCGCCACGCTTCCCGAAGGAGAAAGGCGGACAGGTATCCGGTAAGCGGCAGGGTCGGAACAGGAGCGCACGAGGGAGCTTCCAGGGGGA

4281 AACGCCTGGTATCTTTATAGTCCTGTCGGGTTTCGCCACCTCTGACTTGAGCGTCGATTTTTGTGATGCTCGTACGGGGGCGGAGCCTATGGAAAAACGCC

BspLU11I (4432)

AseI (4470)

4383 AGCAACGCGGCCTTTTTACGGTTCTGGCCTTTTCTGTCACATGTTCTTAATTAATTTTTCAAAAGTAGTTGACAATTAATCATCGGCATA

SfiI (4521) MscI (4532)

4485 GTATATCGGCATAGTATAATACGACTCACTATAGGAGGGCCATCATGGCCAAGTTGACCAGTGTCTCCAGTGTCCAGTGCTCACAGCCAGGGATGTGGCTGGAGCTG

1▶MetAl aLysLeuThr SerAl aValProVal LeuThrAl aArgAspValAl aGl yAl aV

4587 TTGAGTTCGGACTGACAGGTTGGGTTCTCCAGAGATTTTGTGGAGGATGACTTTGCAGGTGTGGTCAGAGATGATGTACCCTGTTTCATCTCAGCAGTCC

4689 AGGACCAGGTGGTGCCTGACAACACCCTGGCTTGGGTGTGGTGAGAGGACTGGATGAGCTGTATGCTGAGTGGAGTGAGGTGGTCTCCACCACTTACAGGG

54▶InAspGl nVal ValProAspAsnThr LeuAl aTrpVal TrpValArgGl yLeuAspGl uLeuTyrAl aGl uTrpSer Gl uVal ValSer ThrAsnPheArgA

DraIII (4882)

4791 ATGCCAGTGGCCCTGCCATGACAGAGATTGGAGAGCAGCCCTGGGGAGAGAGTTTGCCTGAGAGACCCAGCAGGCAACTGTGTGCACTTTGTGGCAGAGG

88▶spAl aSer Gl yProAl aMetThr Gl uI l eGl yGl uGl nProTrpGl yArgGl uPheAl aLeuArgAspProAl aGl yAsnCysVal HisPheValAl aGl uG

SfiI (4930)

EcoO109I (4930)

4893 AGCAGGACTGAGGATAAGAATTGAGTTTCAGAAAAGGGGCGCTGAGTGGCCCTTTTTCAACTTAATTA

122▶IuGl nAsp•••