



PvuI (7)
SgfI (6)
MfeI (82) **EcoNI (96)**

1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGGCAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA
 101 GAGAAGGTGGCGCGGGTAAACTGGAAAGTGATGTCGTGACTGGCTCCGCCTTTTCCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

Psp1406I (203)
Bsu36I (291)

HindIII (245) **EcoNI (287)**

201 GTGAACGTTCTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCTTACCGCGCCCGCCCTACCTGAGGCC
 301 GCCATCCACGCGGTTGAGTGCAGTTCTGCCGCTCCCGCCTGTGGTGCTCTGAACTGCGTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC
 401 GGGCCTTTGTCCGGGCTCCCTTGAGGCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTCTCAACTCTACGCTTTTGTTCGTTT

SphI (560)

KasI (535) **AgeI (552)**

501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGGGCGCTAAGCTGAGATCACCGGTACAGCATGCCAGTCCCGCGCTGCCAGAGAGTCCCGCGCCGA
 601 GCTAGGGGCTTGGGTTCCAGTGACCTCTTCCCTGTACTAACGGTCTCCAGGACCACAGATGAATTGGAAATCATCGACGAATACATTAAGGAGAAC
 13>uLeuGI yAl aLeuGI ySer Ser AspLeuSer Ser LeuSer LeuThr Val Ser ArgThr Thr AspGI uLeuGI uI l eI l e AspGI uTyrI l eLysGI uAsn

SacII (750)

701 GGCTTTGGCTGGACGGGACACAGCTGAGTGAGATGCCGCGCTGGTGGCCCGCGGGCCGCTCACTGAGCAGCGTACGCTGGGCCCTGCTGCACCAC
 47>GI yPheGI yLeuAspGI yThr GI nLeuSer GI uMe tP roArgLeuVal P roArgGI yProAl aSer LeuSer Ser Val Thr LeuGI yProAl aAl aP roP
 801 CGCTCCGCGCCACGCCGTCTGGAGCTGCACACTGGGAGGCTGGTGTACCCGCGCCGTGCCACGCGCGTACTGTCATCACAGAGCAGCCAAAGCA
 80>r oP roP roAl aThr ProSer TrpSer CysThr LeuGI yArgLeuVal Ser P roGI yProCysP roArgP roTyrLeuVal I l eThr GI uGI nP roLysGI

SphI (905)

901 GCGTGGCATGCGCTTCCGCTACGAGTGCAGGGCCGCTCGCCGGCAGCATCCTCGGGGAGAGCAGCACCGAAGCCAGCAAGACCCTGCCCGCCATCGAG
 113>nArgGI yMe tArgPheArgTyrGI uCysGI uGI yArgSer Al aGI ySer I l eLeuGI yGI uSer Ser Thr GI uAl aSer LysThr LeuP roAl aI l eGI u
 1001 CTTGAGACTGTGCGGGCTGCGGGAGGTGGAGGTGACGGCTGCCTGGTGTGGAAAGACTGGCCACACCGGGTACACCACATAGCCTCGTGGGAAAAG
 147>LeuArgAspCysGI yGI yLeuArgGI uVal GI uVal Thr Al aCysLeuVal TrpLysAspTrpP roHi sArgVal Hi sP roHi sSer LeuVal GI yLysA

Tth111I (1108)

1101 ACTGCACGGACGGCTGTCAGGGTGGGCTGCGGCTCACGTGAGCCCGGCACAGCTTAAACAACCTGGGCATCCAGTGTGTTAGGAAGAAGGAAAT
 180>spCysThrAspGI yVal CysArgVal A rgLeuArgP roHi sVal Ser P roArgHi sSer PheAsnAsnLeuGI yI l eGI nCysVal A rgLysLysGI uI l

SalI (1276)

1201 TGAAGCTGCCATTGAGCGGAAGATCCAGCTGGGAATTGACCCCTACAATGCTGGCTCCCTGAAGAACCATCAGGAGGTCGACATGAATGTCGTCAGGATC
 213>eGI uAl aAl aI l eGI uArgLysI l eGI nLeuGI yI l eAspP roTyrAsnAl aGI ySer LeuLysAsnHi sGI nGI uVal AspMe tAsnVal Val A rgI l e
 1301 TGCTTCCAGGCCCTCTATCGGGACCAGCAGGGACATCTGCACCGCATGGACCCATCTCTCTGAGCCTGTCTACGACAAGAAGTCCACCAACACATCGG
 247>CysPheGI nAl aSer TyrArgAspGI nGI nGI yHi sLeuHi sArgMe tAspP roI l eLeuSer GI uP roVal TyrAspLysLysSer ThrAsnThr Ser G
 1401 AGCTGCGGATTTGCCGAATCAACAAGGAGAGCGGGCCGTGCACAGGTGGTGGAGAGCTGACTTGTCTGTGACAAGGTGCAAAAAGAGGACATATCCGT
 280>I uLeuArgI l eCysArgI l eAsnLysGI uSer GI yProCysThr GI yGI yGI uGI uLeuTyrLeuLeuCysAspLysVal GI nLysGI uAspI l eSer Va
 1501 GGTGTTCAAGCAGCAGCTTCTGGGAAGGCGTGGCAGCTTCTCTCAAGCTGATGTGCACCGGAGATCGCCATTGTGTTCAAAAACGCCACCTACGAGGAC
 313>I Val PheSer Thr Al aSer TrpGI uGI yArgAl aAspPheSer GI nAl aAspVal Hi sArgGI nI l eAl aI l eVal PheLysThr ProP roTyrGI uAsp

BglII (1604) **BspHI (1698)**

1601 CTGGAGATCTCAGAGCCCGTACTGTCAATGTGTTCTTGCAGCGGCTCACGGATGGGGTGTGCAGCGAGCCGCTGCCCTTACGTACCTGCCTCGGGATC
 347>LeuGI uI l eSer GI uP roVal Thr Val AsnVal PheLeuGI nArgLeuThrAspGI yVal CysSer GI uP roLeuP roPheThr TyrLeuP roArgAspH
 1701 ATGACAGCTACGGTGTGGACAAGAAGCGAAAGCGGGACTGCCTGATGTCTTGGAGAGTTGAGCAGCTCTGATCCACATGGAATCGAAAGCAAAACGAAG
 380>i sAspSer TyrGI yVal AspLysLysArgLysArgGI yLeuP roAspVal I LeuGI yGI uLeuSer Ser SerAspP roHi sGI yI l eGI uSer LysArgAr
 1801 GAAAAAGAAACAGTGTCTTGGACCACTTCTGCCTGCCACAGCTCAGGCCTGTTCTCCACCATCGGCTCTGCAGCCGGCAGACTCTGATTTCTTC
 413>gLysLysLysP roVal PheLeuAspHi sPheLeuP roGI yHi sSer Ser GI yLeuPheLeuP roP roSer Al aLeuGI nP roAl aAspSerAspPheP
 1901 CTGCTTCCATCCCTTCTGGGCTGGAGCCTCTGGTGGACCCGATCTCTGGAGCATGGCTTGGCCTATGATCCTTGCAGCCAGCCTTCACTA
 447>P roAl aSer I l eSer LeuP roGI yLeuGI uP roP roGI yGI yP roAspLeuLeuAspAspGI yPheAl aTyrAspP roSer Al aP roThr LeuPheThrM
 2001 TGTTGGACCTGCTGCCCCAGCACCACCACTTGCAGTGTGTGGTGGTAGCGGGGTGCAGGGGCCACCGTGTGGAGTCTTCTGCCCCAGAGCCCT
 480>etLeuAspLeuLeuP roP roAl aP roP roLeuAl aSer Al aVal Val GI ySer GI yGI yAl aGI yAl aThr Val Val GI uSer Ser GI yProGI uProLe

XmaI (2128) **SmaI (2128)** **NheI (2146)** **BspLU11I (2165)**

2101 ATCACTGGACTCTTTTGCAGCGCCGGGCCCCGGGGATGTTGGTACTGTAGCCTTGTGGGCAGCAACATGTTTCCCAACCAGTACCGAGAGGCAGCTTTC
 513>uSer LeuAspSer PheAl aAl aP roGI yProGI yAspVal GI yThr Al aSer LeuVal GI ySer AsnMe tPheP roAsnGI nTyrArgGI uAl aAl aPhe

NheI (2271) **EcoRI (2265)**

2201 GGGGGTGGCTCTATCTCCAGGGCTGAAGCCACGTAGCCTCTGAGGTAACAGAGGAGGCACTGGAATTCGCTAGCTGGCCAGACATGATAAGATACAT
 547>GI yGI yGI yLeuLeuSer P roGI yProGI uAl aThr ●●●

2301 TGATGAGTTTGGACAAACCACAACCTAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGC

HpaI (2409) **MfeI (2420)**

2401 AATAACAAGTTAACAACAACAATTGCATTCTTTTATGTTTCAGGTTTCAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAACCTCTACAAATGTG

EcoRI (2505)

2501 GTATGGAATCTAATAACAGCATAGCAAACTTAACCTCCAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGG
 2601 GCTGTTGCCAATGTGCATTAGCTGTTTGCAGCCTCACCTTCTTTCATGGAGTTAAGATATAGTGATTTTCCCAAGGTTTGAAGTACTCTTCACTTCT

SspI (2744) **SwaI (2758)**

2701 TTATGTTTTAAATGCACTGACCTCCACATTCCCTTTTGTAGTAAATATTCAGAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTTATTA

2801 GGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTTAATAGAAATTGGACAGCAAGAAA
2901 GCGAGCTTCTAGCTTTAGTTCTGGTACTTTGAGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGTTGCCATTCATCTCAATGAGCACAAAGCAGT
141 ••AsnArgThr TyrLysLeuProl l eLeuGl uGl u l eThr Thr LysVal l eLeuLysGl yAsnMetGl u l eLeuVal PheCysAs
SacI (3019)
3001 CAGGAGCATAGTCAGAGATGAGCTCTGACATGCCACAGGGGCTGACCACCCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCTGACAGCCAC
112 pProAl aTyrAspSer l l eLeuGl uArgCysMetGl yCysProSer Val l eVal rgl l eSerArgAspVal l e uAspSer TyrP roHi sArgVal l eVal
3101 AATGGTGTCAAAGTCTTCTGCCGTTGCTCACAGCAGACCAATGGCAATGGCTTCAGCACAGACAGTGACCCTGCCAATGTAGGCCTCAATGTGGACA
79 l l eThrAspPheAspLysGl nGl yAsnSer Val l eAl a l eAl aGl uAl aCysVal l eVal rgl y l eTyrAl aGl u l eHi sVal l e
3201 GCAGAGATGATCTCCCAGTCTTGGTCTGATGGCCGCCGACATGGTGCTTGTGTCTCATAGAGCATGGTGATCTTCTCAGTGGCGACCTCCACCA
45 l aSer l l e l eGl uGl yThrLysThrArg l l eAl aAl aGl yVal l eHi sHi sLysAsnAspGl uTyrLeuMetThr l l eLysGl uThrAl aVal l eVal l e
BspHI (3333) VspI (3391)
XmnI (3325) AseI (3391)
3301 GCTCCAGATCCTGCTGAGAGATGTTGAAGGTCTTCATGATGGCCCTCTATAGTGAGTCGTATTATACATGCGGATATACTATGCCGATGATTAATTGT
12 uGl uLeuAspGl nGl nSer l l eAsnPheThr LysMet
SacI (3448)
3401 CAAAACAGCGTGGATGGCGTCTCCAGT TATCTGACGGTTCATAACGAGCTCTGCTTATATAGACCTCCACCGTACACGCCTACCGCCCATTTGCGT
SpeI (3546)
3501 CAATGGGGCGGAGTTGTTACGACATTTTGAAAGTCCCGTTGATTA C T A G T C A A A A C A A A C T C C C A T T G A C G T C A A T G G G G T G G A G A C T T G G A A A T C C
SnaBI (3674)
Eco105I (3674)
3600 CCGTGAGTCAAACCGCTATCCACGCCATTGATGTACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTACTGCCAAGTAGGA
NdeI (3779)
3700 AAGTCCATAAAGTCATGTACTGGGCATAATGCCAGGCGGGCCATTTACCCTCATTGACGTCAATAGGGGGCGTACTTGGCATATGATACACTTGATGTA
3800 CTGCCAAGTGGGCAGTTTACCGTAAATACTCCACCCATTGACGTCAATGGAAAGTCCCTATTGGCGTTACTATGGGAACATACGTCATTATTGACGTCAA
SdaI (3957) PacI (3965) BspLU11I (3975)
3900 TGGGCGGGGTCGTTGGGCGGTACGCCAGGCGGGCCATTTACCCTAAGTTATGTAACGCC T G C A G G T T A A T T A A G A A C A T G T G A G C A A A A G G C C A G C A
3998 AAAGGCCAGGAACCGTAAAAAGGCCGCGTTGCTGGCGTTTTTCCATAGCTCCGCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGGTGG
4098 CGAAACCCGACAGGACTATAAAGATACCAGGCGTTTTCCCCTGGAAGCTCCCTCGTGGCTCTCCTGTTCCGACCCTGCCGCTTACCGGATACCTGTCCG
4198 CCTTCTCCCTTCGGAAGCGTGGCGTTTTCTCATAGCTCAGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCAAGCTGGGCTGTGTGCACGA
4298 ACCCCCGTTTACGCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCG
4398 AACAGATTAGCAGAGCGAGGTATGTAGGCGGTGTACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCG
4498 CTCTGCTGAAGCCAGTTACCTTCGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAACCACCGCTGGTAGCGGTGTTTTTTTTGTTGCAAGCAGCA
4598 GATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGTCTGACGCTCAGTGAACGAAAACCTCACGTTAAGGGATTTTGGTC
PacI (4705) SwaI (4714) NotI (4724)
4698 ATGGCTAGTTAATTAACATTTAAATC AGCGGCCGCAATAAAATATCTTTATTTTTCATTACATCTGTGTGTTGTTTTTGTGTAATCGTAACTAACATA
4798 CGCTCTCCATCAAAAACAAACGAAAACAAACAACTAGCAAAATAGGCTGTCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA