



PvuI (7) SgfI (6) MfeI (82)
 1 GGATCTGCATCGCTCCGGTGCCCGTCAGTGGGCAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA
 101 GAGAAAGTGGCGCGGGTAAACTGGAAAGTGATGTCGTACTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC
 Psp1406I (203) HindIII (245) Bsu36I (291)
 201 GTGAACGTTCTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCCTTACGCGCCCGCCCTACCTGAGGCC
 301 GCCATCCACGCGGGTTGAGTCGCGTTTCTGCCGCCTCCCGCCTGTGGTGCCTCCTGAAGTGCCTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC
 NgoMIV (441) NgoMI (441) NaeI (441)
 401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCAACTCTACGTCTTTGTTTCGTTT
 KasI (535) AgeI (552) BspLU11I (560) NcoI (596)
 501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGGGCGCTACCTGAGATCACCGGTCAACATGTTTCAGCCAGCTGGGCACGGCCAGGACTGGGCCAT
 1 Me tPheGI nP roAI aGI yHi sGI yGI nAsP rPAl aMe
 SacII (607) Bsp120I (603) Eco47III (629) AfeI (629) EcoO109I (602)
 601 GGAGGGCCCGCGGGATGGCCTCAAGAAGGAGCGCTTGGTGGACGATCGCCACGACAGCGGCCTGGACTCCATGAAGGACGAGGAGTACGAGCAAATGGTG
 13 Me tGI uGI yP roArgAspGI yLeuLysLysGI uArgLeuVal AspAspArgHi sAspSer GI yLeuAspSer Me tLysAspGI uGI uTyrGI uGI nMe tVal
 KasI (735)
 701 AAGGAGCTGCGGGAGATCCGCTGCAGCCGAGGAGGCCGCTGGCCCGGAGCCCTGGAAGCAGCAGCTCACGGAGACGGAGACTCGTTCCTGCCT
 47 LysGI uLeuArgGI u l eArgLeuGI nP roGI nGI uAl aP roLeuAl aAl aGI uP roT rP LysGI nGI nLeuThr GI uAspGI yAspSer PheLeuHi sL
 NcoI (830)
 801 TGGCAATCATCCACGAAGAGAAGCCGCTGACCATGGAAGTCATTGGTCAAGTGAAGGGAGACCTGGCCTTCTCAACTCCAGAACAACCTGCAGCAGAC
 80 euAl a l e l eHi sGI uGI uLysP roLeuThr Me tGI uVal l l eGI yGI nVal l LysGI yAspLeuAl aPheLeuAsnPheGI nAsnAsnLeuGI nGI nTh
 SacI (973)
 901 TCCACTCCACTTGGCTGTGATCACCAACCAGCCAGGAATTGCTGAGGCACTTCTGAAAGCTGGCTGTGATCCTGAGCTCCGAGACTTTCGAGGAAATACC
 113 r P roLeuHi sLeuAl aVal l l eThrAsnGI nP roGI y l l eAl aGI uAl aLeuLeuLysAl aGI yCysAspP roGI uLeuArgAspPheArgGI yAsnThr
 SdaI (1086)
 1001 CCTCTACATCTTGCTGTGAGCAGGGCTGCTGGCCAGTGTAGCAGTCTTGACGAGACCTGCACACCCAGCATCTCCACTCCGCTCCTGCAGGCCACCA
 147 P roLeuHi sLeuAl aCysGI uGI nGI yCysLeuAl aSer ValAl aVal l LeuThr GI nThr CysThr P roGI nHi sLeuHi sSer Val l LeuGI nAl aThrA
 PmlI (1113) Eco72I (1113) BbrPI (1113) DraIII (1162)
 1101 ACTACAATGGCCACACGTGTCTGCACCTAGCCTCTAT CCACGGCTACCTGGCCATCGTGGAGCACTTGGTGACTTTGGGTGCTGATGTCAACGCTCAGGA
 180 snTyrAsnGI yHi sThr CysLeuHi sLeuAl aSer l l eHi sGI yTyrLeuAl a l l eVal GI uHi sLeuVal Thr LeuGI yAl aAspVal l AsnAl aGI nGI
 BstEII (1296)
 1201 GCCCTGCAATGGCCGGACAGCCCTCCACCTTGGCGTGGACCTGCAGAATCCTGACCTGGTTTTCGCTCTTGTGAAATGTGGGGCTGATGTCAACAGGGTA
 213 uP roCysAsnGI yArgThr Al aLeuHi sLeuAl aVal l AspLeuGI nAsnP roAspLeuVal l Ser LeuLeuLeuLysCysGI yAl aAspVal l AsnArgVal l
 1301 ACCTACCAAGGCTACTCCCCTACCAGCTTACCTGGGGCCGCCAAGTACCCGGATACAGCAGCAGCTGGCCAGCTGACCTGGAAAATCTCCAGATGC
 247 Thr TyrGI nGI yTyrSer P roTyrGI nLeuThr TrpGI yArgP roSer Thr Arg l l eGI nGI nGI nLeuGI yGI nLeuThr LeuGI uAsnLeuGI nMe tL
 EcoRI (1441)
 1401 TACCCGAGAGCGAGGATGAGGAGGCTATGACACGGAGTCAGAATTCACAGAGGATGAGCTGCCCTATGATGACTGTGTGTTGGAGGCCAGCGTCTGAC
 280 euP roGI uSer GI uAspGI uGI uSer TyrAspThr GI uSer GI uPheThr GI uAspGI uLeuP roTyrAspAspCysVal l PheGI yGI yGI nArgLeuTh
 NheI (1517)
 1501 ATTATAAGTGAAAAGTGGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGACAAACCACAACCTAGAATGCAGTGAAAAAATGCTTTATTTG
 313 rLeu●●●
 HpaI (1655) MfeI (1666)
 1601 TGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAAGTTAAACAACAACATTGCATTATTTTATGTTTCAGGTTTCAGGGG
 EcoRI (1751)
 1701 GAGGTGTGGGAGGTTTTTAAAGCAAGTAAACCTCTACAAATGTGGTATGGAATCTAAAATACAGCATAGCAAACCTTAACTCCAATCAAGCCTC
 1801 TACTTGAATCCTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTTGACGCCTCACCTTCTTTCATGGAGTTT
 SspI (1990)
 1901 AAGATATAGTGTATTTTCCCAAGGTTTGAAGTACTAGCTCTTCATTTCTTTATGTTTTAAATGCAGTACCTCCACATTCCCTTTTATGATAAATATTTCAGA
 SwaI (2004) EcoO109I (2065)
 2001 AATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGG
 2101 ACTTAGGGAACAAAGAACCTTTAATAGAAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTTCTGGTGTACTTGAGGGGATGAGTTCCTCAATG
 141 ●●●AsnArgThr TyrLysLeuP ro l l eLeuGI uGI u l eT
 BstXI (2294)
 2201 GTGGTTTTGACCAGCTTGCCATTCATCTCAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTCTGCACATGCCACAGGGGCTGACCACCC
 127 hr Thr LysVal l LeuLysGI yAsnMe tGI u l l eLeuVal l PheCysAspP roAl aTyrAspSer l l eLeuGI uArgCysMe tGI yCysP roSer Val l ValAr
 2301 TGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCTGACAGCCACAATGGTGTCAAAGTCTCTTCCGCCGTTGCTCACAGCAGACCAATGGCAATGGC
 94 gl l eSer ArgAspVal l GI uAspSer TyrP roHi sArgVal l Al aVal l l eThrAspPheAspLysGI nGI yAsnSer Val l Al aSer GI y l l eAl a l eAl a

StuI (2429)
Eco147I (2429)
 2401 TTCAGCACAGACAGTGCACCTGCCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCCAGTCTTGGCTCTGATGGCCGCCCGACATGGTGCTTG
 61 Gl uAl aCysVal Thr Val ArgGlyI l eTyrAl aGl ul l eHi sValAl aSer l l e l eGl uGl yThr LysThr Arg l eAl aAl aGl yVal Hi sHi sLysA

PagI (2579)
BspHI (2579)
XmnI (2571)
 2501 TTGCCTCATAGAGCATGGTGATCTTCTCAGTGGCGACCTCCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGGTCTTCATGATGGCCCTCTATAGT
 27 snAspGl uTyrLeuMetThr l l eLysGl uThr Al aVal Gl uVal l euGl uLeuAspGl nGl nSer l l eAsnPheThr LysMet

VspI (2637)
AseI (2637)
 2601 GAGTCGTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTTCCTAAACGAGCTC

SpeI (2792)
 2701 TGCTTATATAGACCTCCCACCGTACACGCCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTTACGACATTTTGAAAGTCCC GTTGATTTACTAGTC

2800 AAAACAAACTCCCATTGACGTCAATGGGGTGGAGACTTGAAATCCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTA CTGCCAAAACCGCATCAT

SnaBI (2920)
Eco105I (2920)
 2900 CATGGTAATAGCGATGACTAATACGTAGATGTACTGCCAAGTAGGAAAGTCCCATAAAGTGCATGTACTGGGCATAATGCCAGGCGGGCCATTTACCGTCA

NdeI (3025)
 3000 TTGACGTCAATAGGGGGCTACTTGGCATATGATACACTTGATGTACTGCCAAGTGGGCAGTTTACCGTAAATACTCCACCCATTGACGTCAATGAAAG

3100 TCCCTATTGGCGTACTATGGAACATACGTCATTATTGACGTCAATGGGGCGGGGTCGTTGGCGGTCAGCCAGGCGGGCCATTTACCGTAAGTTATGT

SdaI (3203) **PacI (3211)** **BspLU11I (3221)**
 3200 AACGCTG CAGGTT AA TTAAGAACATGTGAGCAAAGGCCAGCAAAGGCCAGGAACCGTAAAAAGGCCGCTTGTGGCGTTTTTCCATAGGCTCCG

3298 CCCCCCTGACGAGCATCACAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACAGGCGTTTTCCCTGGAAGCTCCCTC

3398 GTGCGCTCTCCTGTTCCGACCCTGCCGCTTACCGGATACCTGTCCGCCTTTCTCCCTTCGGAAGCGTGGCGCTTTCTCATAGCTCACGCTGTAGGTATC

ApaLI (3535)
 3498 TCAGTTCGGTGTAGGTCGTTGCTCCAAGCTGGGCTGTGTGCACGAACCCCCGTTACGCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTTGAGTC

3598 CAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTTCTTGAAGTGG

3698 TGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGAAAAAGAGTTGGTAGCTTTGATCCGGCA

3798 AACAAACCACCGCTGGTAGCGGTGTTTTTTTTGTTTGAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGG

EagI (3971)
PacI (3951) **Swal (3960)** **NotI (3970)**
 3898 GTCTGACGCTCAGTGAACGAAAACCTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATC AGCGGCCCAATAAAATATCTTTATTTT

3998 CATTACATCTGTGTGTTGGTTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAAACAAAACGAAACAAAACAAACTAGCAAATAGGCTGTCCC

4098 CAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA