



EcoRI (23)

NotI (2) XbaI (19) SdaI (38) SpeI (45)

1 CGCGCCGCTCGACGATATCTAGAAATTCGGATCCTGCAGGGCCACTAGTGGAGCCGAGAGTAATTCATACAAAAGGACTCGCCCTGCCTTGGGGAATC
101 CCAGGGACCGCTGTTAACTCCCACTAACCTAGAACCCAGAGATCGTGCCTCCCGCCCTCACCCGCCGCTCTCGTCATCACTGAGGTGGAGAAGA

AgeI (289)

MfeI (282)

201 GCATGCGTGAGGCTCCGTTCCCGTCACTGGGCGAGCGCACATCGCCACAGTCCCGACAAGTTGGGGGAGGGTCCGCAATTGAACCGGTGCCTAG
301 AGAAGTGGCGCGGGTAAACTGGGAAAGTGATGTCGTGTACTGGCTCCGCTTTTTCCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCCG

HindIII (445)

401 TGAACGTTCTTTTTCGAACGGGTTTCCCGTCAAGACGAGCTGAAGCTTCAGGGGCTCGCATCTCTCCTTACCGCGCCCGCCCTACTCTGAGGCCG
501 CCATCCACGCCGGTTGAGTCGCGTTCTGCCCTCCCGCTGTGGTGCCTCTGAATGCGTCCGCGCTAGGTAAGTTTAAAGCTCAGGTGCAGACCC
601 GGCCTTTGTCCGGCGCTCCCTTGGAGCTACCTAGACTCAGCCGGCTCCACGCTTTCCTGACCTGCTTGTCTCAACTCTACGCTTTTGTTCGTTTT

NcoI (730)

701 CTGTTCTCGCGCTTACAGATCAAGCCACCATGGTTCTGGGCCCTGCATGCTGCTGCTGCTGCTGGGCTGAGGCTACAGCTCTCCCTGGG
801 ATCATCCCAGTTGAGGAGGAGAACCCGACTTCTGGAACCGGAGGACCGGAGGCTGGTCCGCAAGAAGCTGCAGCTGCACAGACAGCCGCA
24 I le I leP roVa IG luG luG luAsnP roAspPheT rpAsnArgG luA laA laG luA laLeuG lyA laA laLysLysLeuG lnP roA laG lNTh rA laA laL
901 AGAACCTCATCATCTTCTGGCGATGGGATGGGGTGTCTACGGTGACAGCTGCCAGGATCTAAAAGGCGAGAAGAAGGACAACTGGGGCTGAGAT
57 ysAsnLeu I le I lePheLeuG lyAspG lyMe tG lyVa lSe rTh rVa lTh rA laA laArg I leLeuLysG lyG lNlysLysAspLysLeuG lyP roG lu I I

NdeI (1025)

1001 ACCCTGGCTATGGACCGTCCATATGTGGCTCTGTCCAAGACATACAATGTAGACAAAACATGTGCCAGACAGTGGAGCCACAGCCACGGCTACTCG
90 eP roLeuA laMe tAspArgPheP roTy rVa IA laLeuSe rLysTh rTy rAsnVa lAspLysH isVa lP roAspSe rG lyA laTh rA laTh rA laTy rLeu
1101 TGCGGGTCAAGGGCACTCCAGACCATTGGCTTGTAGTGCAGCCGCCGCTTAAACAGTGAACACGACACCGGCAACGAGGTGCATCTCCGTGATGA
124 CysG lyVa lLysG lyAsnPheG lNTh r I leG lyLeuSe rA laA laA rG PheAsnG lNcysAsnTh rTh rA rG lyAsnG luVa I I leSe rVa Me tA
1201 ATCGGGCAAGAAAGCAGGGAAGTCACTGGGAGTGGTAACCACACAGAGTGCAGCAGCCCTCGCCAGCCGGCCTACGCCACACCGTGAACCGCAA
157 snArgA laLysLysA laG lyLysSe rVa IG lyVa Ma lTh rTh rTh rA rG Va IG lNh isA laSe rP roA laG lyTh rA laH isTh rVa lAsnA rGAs
1301 CTGTAAGTACTGGACCGGACGCTGCTCCGCTCCGCGCCGAGGAGGCGCAGGACATCGCTACGACAGTCTCCAACATGGACATGATGTGATGCTG
190 nT rpTy rSe rAspA laSpVa lP roA laSe rA laA rG lN lG lyCysG lNAsp I leA laTh rG lNLeu I leSe rAsnMe tAsp I leAspVa I I leLeu
1401 GGTGGAGCCGAAAGTACATGTTTCGATGGGAACCCAGACCTGAGTACCCAGATGACTACAGCAAGGTGGGACAGGCTGGACGGGAAAGATCTGG
224 G lyG lyG lyA rG LysTy rMe tPheArgMe tG lyTh rP roAspP roG luTy rP roAspAspTy rSe rG lN lG lyG lyTh rA rG LeuAspG lyLysAsnLeuV
1501 TGCAGGAATGGCTGGCAAGCGCCAGGCTGCCGGTATGTGTGAACCGCACTGAGCTCATGCAGGCTTCCCTGGACCCGCTGTGACCCATCTCATGG
257 a IG lN lG lU tP roLeuA laLysArgG lN lG lyA laArgTy rVa lT rpAsnArgTh rG luLeuMe tG lN laSe rLeuAspP roSe rVa lTh rH isLeuMe tG l
1601 TCTCTTTGAGCCTGGAGACATGAAATACGAGATCCACCGAGACTCCACTGGACCCCTCCCTGATGGAGATGACAGAGGCTGCCCTGCGCTGCTGAGC
290 yLeuPheG luP roG lyAspMe tLysTy rG lu I leH isA rGAspSe rTh rLeuAspP roSe rLeuMe tG luMe tTh rG luA laA laLeuArgLeuLeuSe r

SacII (1712)

1701 AGGAACCCCGCGCTTCTCTCTCTCGTGGAGGGTGGTGCATCGACCACGGTGCATCACGAAAGCAGGGCTTACCGGGCACTGACTGAGACGATCATGT
324 A rGAsnP roA rG lyPhePheLeuPheVa IG luG lyG lyArg I leAspH isG lyH isH isG luSe rA rG laTy rA rG laLeuTh rG luTh r I leMe tP
1801 TCGACGACGCCATTGAGAGGGCGGCCAGCTCACCAGCAGGAGGACACGCTGAGCCTCGTCACTGCCACCACTCCACGCTTCTCTCTCGGAGGCTA
357 heAspAspA la I leG luA rG laG lyG lNLeuTh rSe rG luG luAspTh rLeuSe rLeuVa lTh rA laAspH isSe rH isVa lPheSe rPheG lyG lyTy
1901 CCCCCTGCGAGGGAGCTCATCTTCCGGCTGGCCCTGGCAAGGCCGGGACAGGAAGGCTACACGGTCTCTATACGGAACCGTCCAGGCTATGTG
390 rP roLeuArgG lySe rSe r I lePheG lyLeuA laP roG lyLysA laA rGAspA rG LysA laTy rTh rVa lLeuLeuTy rG lyAsnG lyP roG lyA l
2001 CTCGAAGACGGCGCCCGGATGTTACCGAGAGCGAGAGCGGGAGCCGAGTATCGCAGCAGTCAAGTGCAGTGCCTGGAGGAGGAGACCCAGCAG
424 LeuLysAspG lyA laA rG roAspVa lTh rG luSe rG luSe rG lySe rP roG luTy rA rG lN lNSe rA laVa lP roLeuAspG luG luTh rH isA laG
2101 GCGAGGACGTGGCGGTGTTCCGCGCGGCCGCGAGGCGCACCTGTTACGCGCTGCAAGGAGCAGACCTTCATAGCGCACGTATGGCTTCCGCGCTG
457 lyG luAspVa lA laVa lPheA laA rG lyP roG lN laH isLeuVa lH isG lyVa IG lN lG lNTh rPhe I leA laH isVa Me tA laPheA laA lC

NheI (229)

2201 CCTGGAGCCCTACACCGCTGCGACCTGGCGCCCCCGCGCACACCGAGCGCGCACCCGGGGGCTCCCGTCCAAGCTGTGGATTGAAGCTAG
490 sLeuG luP roTy rTh rA laCysAspLeuA laP roP roA laG lyTh rTh rAspA laA laH isP roG lyA rGSe rA rGSe rLysA rGLeuAsp
2301 CTGGCCAGACATGATAAGATACATTGATGAGTTGGACAAAACCAACTAGAATGCAGTGAATAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCT

MfeI (2445)

2401 TTATTTGAACCATTATAAGCTGCAATAAAACAAGTTAAACAACAACAAATTCATTATTTATGTTTCAGGTTTCAGGGGAGGTGTGGGAGGTTTTTAA
2501 GCAAGTAAAACCTCTACAAATGTGGTATGGAAATTAATTCTAAAATACAGCATAGCAAAACTTAACTCCAATCAAGCCTCACTTGAATCCTTTCTG

2601 AGGGATGAATAAGGCATAGGCATCAGGGCTGTTGCCAATGTGCATTAGCTGTTTGCAGCCTACCTTCTTTCATGGAGTTAAGATATAGTGTATTTTC
2701 CCAAGGTTTGAAGTACTTCTTATTTCTTTATGTTTAAATGCACTGACCTCCACATTCCCTTTTTAGTAAATATTAGAAATAATTTAAATACATCA
2801 TTGCAATGAAATAAATGTTTTTATTAGGAGAATCCAGATGCTCAAGGCCCTTATAATATCCCCAGTTTAGTAGTTGGACTTAGGAAACAAAGGAA
2901 CCTTTAATGAAATTTGACAGCAAGAAAGCGAGCTTCTAGCTTATCTCAGTCTGCTCCTGCCACAAGTGACGAGTTGCCGCGGGTCCGCGCA

125 ●●●AspG lN lG luA laVa lPheH isVa lCysAsnG lyA laP roAspA rGLe

3001 GGGCGAACTCCCGCCCCACGGCTGCTCGCCGATCGTGCATCGCCGGCCGCGGAGGCGTCCCGGAAGTTCTGGACACGACCTCCGACCACTCGGCGTA
107 uA laPheG luA rG lyT rpP roG lN lG ly I leG luTh rMe tA laP roG lySe rA laAspA rG PheAsnTh rSe rVa Ma IG luSe rT rpG luA laTy r
3101 CAGCTCGTCCAGGCGCGCACCCACCCAGGCGAGGTTGTGCTCCGACACCTGGTCTGACCGCGCTGATGAACAGGTCACGTCGTCGCGGACC
74 LeuG luAspLeuG lyArgVa lT rpVa lT rpA laLeuTh rAsnAspP roVa Ma IG lNAspG lNva lA laSe r I lePheLeuTh rVa lAspAspA rG Va lV
SgrAI (3203)

3201 ACACCGCGAAGTCTGCTCCACGAAGTCCCGGGAGAACCAGCGGTCGGTCCGAACTCGACCGCTCCGCGACGTCGCGCGGTTGAGCACCGGAA
40 a IG lyA laPheAspAspG luVa lPheAspA rGSe rPheG lyLeuArgAspTh rT rpPheG luVa lA laG lyA laVa lAspA rG laTh rLeuVa lP roVa

MfeI (3366)

3301 CGGCACTGGTCAACTGGCCATGATGGCTCCTCCTGTCAGGAGAGGAAAGAGAAGGTTAGTACAATTTGCTATAGTGTGATTTATACTATGACAGA
7 lA laSe rTh rLeuLysA laMe t
3401 TATACTATGCAATGATTAATTGTCAAAGTGGGCTGCAGGTTAATTAAGAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGCCGC

3501 GTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAGATAC
3601 CAGGCGTTTCCCCTGGAAGTCCCTCGTGCGCTCTCTGTTCGACCCTGCCGCTTACCGGATACCTGTCCGCCTTCTCCCTTCGGGAAGCGTGGCGC
3701 TTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTTCGCTCCAAGCTGGGCTGTGTGCACGAACCCCGTTTCAGCCCGACCGCTGCGC
3801 CTTATCCGGTAACTATCGTCTTGAGTCAACCCGTAAGACACGACTTATGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTA
3901 GGCGGTGCTACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAA
4001 AAAGAGTTGGTAGCTCTTGATCCGGCAAACAACCACCGCTGGTAGCGGTGGTTTTTTTGTTCGCAAGCAGCAGATTACGCCAGAAAAAAGGATCTCA
4101 AGAAGATCCTTTGATCTTTTCTACGGGTCTGACGCTCAGTGAACGAAAACCTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATCA