



EcoRI (23)

NotI (2) XbaI (19) SdaI (38) SpeI (45) HindIII (55)

1 CGCGCCGCTCGACGATATCTAGAAATTCGGATCCTGCAGGGCCACTAGTGCCCAAGCTTAGAAACATGACAAGTCCTGTGGGCAGCAGACAGGGGA
101 GAATTGGGTTTCAGTCTGGCAGTGGCTTCGGTGCCTTTCTGTGGCTGTGCAAGTCCAGACAGTACCTGGCTGCTTCCCCTCCCCACCCCTAC
201 TGCCCCAAGTGTCTAGCTCCCAATGGCACTTGCSCAAAATAGCTGCCATGTGAGGGCCAGAGAAAGGCAGAGATTAGACCCCTGGAGGGTTGAG
301 CACGGTAGCAGGAAGGCATGTGGCACCCAGTATCTGGCCAGACTAGCATCTGGGAAGGTATAAAAGCCCTTCAGGACCAGTGGCTCAAATCTCAG

NotI (447)

401 CTGACAGCCAGCCCACTCTCTCTTTTGTCTCTTAGAAGCCACCATGGTTCTGGGGCCCTGCATGCTGCTGCTGCTGCTGCTGGGCTGAGGC
1 Me tVa lLeuG lYp roCysMe tLeuLeuLeuLeuLeuLeuG lYLeuA rgl
501 TACAGCTCTCCCTGGGCATCATCCAGTTGAGGAGGAGAACCCGACTTCTGGAACCGCGAGGCAGCCAGGCCCTGGTGCCTCCGCAAGAGCTGCAGCC
18 euG lNLeuSe rLeuG lY l le l leP roVa lG luG luG luAsnP roAspPheT rpAsnA rG luA laA laG luA laLeuG lY laA laLysLysLeuG lNp r
601 TGACAGACAGCCGCAAGAACCTCATCTCTTCTGGCGATGGGATGGGGGTGTCTACGGTGACAGTGCAGGATCCTAAAAGGCAGAAAGGAC
51 oA laG lNTh rA laA laLysAsnLeu l le l lePheLeuG lYAspG lYMe tG lYVa lSe rTh rVa lTh rA laA laA rG l leLeuLysG lYg lNlYsLysAsp

NdeI (742)

701 AAAGTGGGCTGAGATACCCCTGGCTATGGACCGCTTCCCATATGTGGCTCTGCCAAGACATACAATGTAGACAAACATGTGCCAGACAGTGGAGCCA
85 LysLeuG lYp roG lu l leP roLeuA laMe tAspA rG PheP roTy rVa lA laLeuSe rLysTh rTy rAsnVa lAspLysH isVa lP roAspSe rG lY laT
801 CAGCCACGGCTACCTGTGCGGGGTCAAGGGCAACTTCCAGACCATTGGCTTGTAGTGCAGCCCGCTTTAACAGTGCACACGACACGCGCAACGA
118 h rA laTh rA laTy rLeuCysG lYVa lLysG lYAsnPheG lNTh r l leG lYLeuSe rA laA laA laA rG PheAsnG lNcysAsnTh rTh rA rG lYAsnG l
901 GGTTCATCTCCGTGATGAATCGGCCAAGAAGCAGGGAAGTCACTGGGAGTGGTAACACCACACGAGTGCAGCACGCTCGCCAGCCGGCACCTACCGC
151 uVa l l leSe rVa Me tAsnA rG laLysLysA laG lYLysSe rVa lG lYVa lVa lTh rTh rTh rA rG lYVa lG lN h isA laSe rP roA laG lYTh rTy rA la
1001 CACACGGTGAACCCCACTGGTACTCGGACCGCCAGCTGCCTCGCCCGCAGGAGGGTGCAGGACATCGTACGAGCTCATCTCCAACATGG
185 H isTh rVa lAsnA rGAsnT rpTy rSe rAspA laAspVa lP roA laSe rA laA rG lN h luG lYCysG lNAsp l leA laTh rG lNLeu l leSe rAsnMe tA
1101 ACATTGATGTGATCTGGGTGGAGCCGAAAGTACATGTTTCGCATGGAAACCCAGACCCTGAGTACCAGATGACTACAGCAAGTGGGACCAGGCT
218 sp l leAspVa l l leLeuG lYg lYg lYArGLysTy rMe tPheA rGMe tG lYTh rP roAspP roG luTy rP roAspAspTy rSe r lN h luG lYTh rA rG lE
1201 GGACGGGAAGAATCTGGTGCAGGAATGGCTGGCGAAGCGCCAGGGTGCCTGGTATGTGTGAACCCGACTGAGCTCATGCAGGCTTCCCTGGACCCGCTC
251 uAspG lYLysAsnLeuVa lG lN h luT rpLeuA laLysA rG lN h luA laA rG lY rVa lT rpAsnA rG lTh rG luLeuMe tG lN h laSe rLeuAspP roSe r
1301 GTGACCATCTCATGGTCTCTTTGAGCCTGGAGACATGAAATACGAGATCCACCGAGACTCCACACTGGACCCCTCCCTGATGGAGATGACAGAGGCTG
285 Va lTh r h isLeuMe tG lYLeuPheG luP roG lYAspMe tLysTy rG lu l le h isA rGAspSe rTh rLeuAspP roSe rLeuMe tG lMe tTh rG luA laA

SacII (1429)

1401 CCCTGCGCTCTGAGCAGGAACCCCGGGCTTCTTCTCTTCTGAGGGTGGTGCATCGACCAGGTCATCAGAAAGCAGGGCTTACCGGGCACT
318 laLeuArgLeuLeuSe rA rGAsnP roA rG lY PhePheLeuPheVa lG luG lYg lYArg l leAspH isG lY h isH isG luSe rA rG laTy rA rG laLe
1501 GACTGAGACGATCATGTTCCAGCAGCCATTGAGAGGGCGGGCCAGCTCACCAGCAGGAGGACACGCTGAGCCTCGTCACTGCCAGCACTCCACAGTC
351 uTh rG luTh r l leMe tPheAspAspA la l leG luA rG laG lYg lNLeuTh rSe rG luG luAspTh rLeuSe rLeuVa l lTh rA laAspH isSe rH isVa l
1601 TTCTCCTCGAGGCTACCCCTGCGAGGAGCTCCATCTTCCGGCTGGCCCTGGCAAGGCCGGGACAGGAAGGCCTACACGGTCTCTATACGGAA
385 PheSe rPheG lYg lYTy rP roLeuA rG lYSe rSe r l lePheG lYLeuA laP roG lYLysA laA rGAspA rG lYsA laTy rTh rVa l leLeuLeuTy rG lY
1701 ACGTCCAGGCTATGTCTCAAGGACGGCCCGCCGGATGTTACGAGAGCGAGAGCGGGAGCCCGAGTATCGCAGCAGTACAGTGCCTGGA
418 snG lYp roG lYTy rVa l leLeuLysAspG lY laA rG P roAspVa lTh rG luSe rG luSe rG lYSe rP roG luTy rA rG lN h lNSe rA laVa lP roLeuAs
1801 CGAAGAGACCCACGAGGCGAGGACGTGGCGGTGTTCCGCGCGCCCGCAGGCGCACCTGGTTCACGGCGTGCAGGAGCAGACCTCATAGGCGACGTC
451 pG luG luTh r h isA laG lYg luAspVa lA laVa lPheA laA rG lYp roG lN h la h isLeuVa lH isG lYVa lG lN h luG lNTh rPhe l leA laH isVa l
1901 ATGGCCTTCCGCGCTGCTGGAGCCCTACACCGCTGCGACTGGGCGCCCGCCCGCAGCACCAGCGCGCCGCGCACCCGGGGGCTCCGCTGCAAGC
485 Me tA laPheA laA laCysLeuG luP roTy rTh rA laCysAspLeuA laP roP roA laG lYTh rTh rAspA laA laH isP roG lYArGSe rA rGSe rLysA

NheI (2013)

2001 GTCTGGATTGAAGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTGGACAAACCACAACCTAGAATGCAGTGAATAAATGCTTTATTTGTGAAA
518 rgLeuAsp...

MfeI (2162)

2101 TTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGTGAATAAACAGTTAAACAACAATTGCATTCATTTATGTTTCAGGTTCAAGGGGAGGT
2201 GTGGGAGGTTTTTAAAGCAAGTAAAACCTCTACAAATGTGGTATGGAATTAATTCTAAAATACAGCATAGCAAAACTTTAACCTCCAAATCAAGCCTCT

2301 ACTTGAATCCTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTTGACGCTCACCTTCTTTCATGGAGTTTA
2401 AGATATAGTGTATTTTCCAAGTGTGAAGTCTTTCATTTCTTTATGTTTAAATGCACTGACCTCCACATTCCTTTTATGATAAATATTCAGAA
2501 ATAATTTAAATACATCATTGCAATGAAATAAATGTTTTTATTAGGCAGAAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTATGATGTTGGA
2601 CTTAGGGAACAAGGAACCTTTAATAGAAATGGACAGCAAGAAAGCGAGCTTCTAGCTTATCCTCAGTCTGCTCTGCCACAAGTGACCGCAGTT
125 ...AspG lN h luG luA laVa lPheH isVa lCysAsn
2701 GCGGCGGGTGCAGCAGGGCAACTCCCGCCCCAGGCTGCTCGCCGATCTCGGTATGGCCGGCCGGAGCGTCCCGAAGTCTGGACAGCAGC
113 G lY laP roAspA rG lY laPheG luA rG lY rP roG lN h luG lY l leG luTh rMe tA laP roG lYSe rA laAspA rG PheAsnTh rSe rVa lVa lG
2801 TCCGACCACTCGCGTACAGCTGCTCCAGGCGCGCACCCACACCCAGGCGAGGGTGTTCGCGCACCACTGTCTGACCGCGCTGATGAACAGGG
79 luSe rT rP roG luA laTy rLeuG luAspLeuG lYArG lY lT rpVa lT rpA laLeuTh rAsnAspP roVa lVa lG lNAspG lN h lA laSe r l lePheLeuTh

SgrAI (2920)

2901 TCACGTCGTCGCGGACCAACCGGCAAGTCTCTCCACGAAGTCCCGGAGAACCCGAGCCGGTTCGTTCCAGAACTCGACCGCTCCGGCGACTCGCG
46 rVa lAspAspA rG lY Va lG lY laPheAspAspG luVa lPheAspA rGSe rPheG lYLeuA rGAspTh rT rpPheG luVa lA laG lY laVa lAspA rG
MfeI (3083)

3001 CGCGGTGAGACCGGAACGGCACTGGTCAACTTGGCCATGATGGCTCCTCTGTGAGGAGGAAAGAGAAGGTTAGTACAATTGCTATAGTGTGAT
13 A laTh rLeuVa lP roVa lA laSe rTh rLeuLysA laMe t
3101 GTATTACTATGCAGATATACTATGCCAATGATTAATTGTCAAAGTGGGCTGCAGGTTAATTAAGAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGG

3201 AACCGTAAAAGGCCGCTTCTCCATAGGCTCCGCCCCCTGACGAGCATCACAATAATCGACGCTCAAGTCAGAGTGGCGAAACCCGA

3301 CAGGACTATAAGATACCAGCGCTTCCCTGGAAGCTCCCTGTCGCTCTCTGTTCCGACCTGCCGCTTACCGGATACCTGTCCGCTTTCTCCC

3401 TTCGGGAAGCGTGGCGCTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCAAGTGGGCTGTGTGCAGAACCCCGCTT

3501 CAGCCCGACCGCTGCGCTTATCCGGTAACTATCGTCTTGTAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAAACAGGATTA

3601 GCAGAGCGAGGTATGTAGCGGTGCTACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAA

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3701 GCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAACCACCGCTGGTAGCGGTGGTTTTTTGTTTGCAAGCAGCAGATTACGCGC

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3801 AGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTCTACGGGTCTGACGCTCAGTGGAACGAAACTCACGTTAAGGGATTTGGTCATGGCTAGTT

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3901 AATTAACATTTAAATCA