



EcoRI (23)

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

1 CGCGCCGCGTCGACGATATCTAGAAATTCGGATCCTGCAGGCCACTAGTGGAGCCGAGAGTAATTCATACAAAAGGACTCGCCCTGCCTTGGGGAATC
101 CCAGGGACCGCTGTTAACTCCACTAACCTAGAACCCAGAGATCGTGGCTTCCGCCCTCACCCGCCGCTCTCGTCATCACTGAGGTGGAGAAGA

AgeI (289)

MfeI (282)

201 GCATGCGTGAGGCTCCGGTCCCGTCAGTGGGCGAGCGCACATCGCCACAGTCCCGACAAGTTGGGGGAGGGGTCGGCAATTGAACCGGTGCCTAG
301 AGAAGGTGGCGCGGGTAAACTGGGAAAGTGATGTCGTGACTGGCTCCGCTTTTTCCCGAGGTTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

SacII (465)

401 TGAACGTTCTTTTTCGCAACGGTTTCCGCCAGAACACAGtaagtgcctgtgtgggtcccgcggtcctggcctctttacgggttatggcccttgcgt
501 gccttgaattacttccatgcccctggctgcagtcagtgattcttgatcccagcctcgggttgaagtgggtgggagagttcgaggccttgcgcttaagg
601 agcccccttcgctcgtgcttgagttgaggcctgcttggcgctggggcccgccgctgtaactctggtggcaccttcgctcgtctcgtgcttctcgct

BglII (781)

SacII (816)

701 aagtctctagccatttaaaatTTTTgataaccagctgcgacgctTTTTTctggcgagatagcttctgtaaatgcgggccaagatctgcacactggtattt
801 cggtTTTTGGGGCCGCGGGCGCGGACGGGGCCCGTGCCTCCAGCGCACATgTTCGGCGAGGCGGGGCTGCAGCGCGCCACCgagaatcgagcgggg
901 gtagtctcaaaatggccgctcgtctggtgctgcccctgcgcccgtgtatcgccccctggcggaaggctggcccggctggcaccagttgcg
1001 tgagcggaaagatggccgcttcccgccctgctgcaggagctcaaaatggaggacgcgcccgggagagcggcggtgagtcaccacacaaagga

XhoI (1180)

1101 aaagggccttctctctcatcctcgcttctgactccagggagtagccggcgccgctccaggcacctcgattagttctcgagcttcttggagtagctc
1201 gtctttaggttgggggaggggtttatgcatggagtttccccacactgagtggtggagactgaagagtttagccagcttggcacttgatgtaattct
1301 ccttggaaatggccttcttggatcttgcctcattctcaagcctcagacagctggttcaaggttcttccatttcagGTGTCGTGAAAAAT

NcoI (1415)

1401 ACCCTAAAGCCACCATGGTTCTGGGGCCTGCATGCTGCTGCTGCTGCTGCTGGGCTGAGGCTACAGCTCTCCCTGGGCATCATCCCAGTTGAG
1501 GAGGAGAACCCGGACTTCTGGAACCCGAGGCAGCCGAGCCCTGGTGCCCAAGAAGCTGCAGCTGCACAGACGCCCAAGAACCTCATCATCT
1601 TCCTGGCGATGGGATGGGGTGTCTACGGTGACAGCTGCCAGGATCTAAAAGGGCAGAAGAAGGACAAAATGGGCTGAGATACCCCTGGCTATGGA
299 G luG luAsn roAspPheT rpAsn rArg luA laA laG luA laLeuG lYA laA laLysLysLeuG lNP roA laG lNTh rA laA laLysAsnLeu l le l lEP
62 heLeuG lYAspG lYMe tG lYVa lSe rTh rVa lTh rA laA laArg l leLeuLysG lYG lNlYsLysAspLysLeuG lYP roG lu l lEP roLeuA laMe tAS

NdeI (1710)

1701 CCGTTCATATGTGGCTCTGTCCAAGACATACAATGTAGACAAAACATGTGCCAGACAGTGGAGCCACAGCCACGGCCTACTGTGCGGGTCAAGGGC
1801 AACTTCCAGACATTGGCTTGAGTGCAGCCGCCCTTAAACAGTGAACACGACACCGCGCAACGAGGTGCATCTCCGTGATGAATCGGGCCAGAAAG
1901 CAGGGAAGTCAGTGGGAGTGGTAACCACACAGTGCAGCAGCCCTGCCAGCCGGCACCTACGCCACACGGTGAACCGCAACTGGTACTCGGACCG
2001 CGACGTGCCTGCCCGCCAGGAGGGTGCAGGACATCGTACGACGTCTCAACATGGACATTGATGTGATCCTGGTGGAGGCGGAAAG
2101 TACATGTTCCGATGGGAACCCAGACCCCTGAGTACCCAGATGACTACAGCCAAGTGGGACCAAGCTGGACGGGAAGAATCTGGTGGAGGAGG
2201 CGAAGCGCCAGGTTGCCCGTATGTGTGGAACCGCACTGAGCTCATGCAGGCTTCCCTGGACCCGTCTGTGACCCATCTCATGGTCTCTTTGAGCCTGG
2301 AGACATGAAATACGAGATCCACCGAGACTCCACTGGACCCCTCCCTGATGGAGATGACAGAGGCTGCCCTGCGCTGCTGAGCAGGAACCCCGCGGC

SacII (2397)

2301 AGACATGAAATACGAGATCCACCGAGACTCCACTGGACCCCTCCCTGATGGAGATGACAGAGGCTGCCCTGCGCTGCTGAGCAGGAACCCCGCGGC
2401 TTCTTCCTCTTGTGGAGGTTGTCGCATCGACCACGGTTCATCAGAAAGCAGGGCTTACCGGGCACTGACTGAGACGATCATGTTGACGACGCCATTG
2501 AGAGGGCGGGCAGCTCACCGAGGAGGACACGCTGACCTCGTCACTGCCGACCACTCCACGCTTCTCTCTTCCGGAGGCTACCCCTGCGAGGGGAG
2601 CTCCATCTTCCGGCTGGCCCTGGCAAGGCCCGGACAGGAAGCCCTACAGGCTCCTCTATACGAAACGGTCCAGGCTATGTGCTCAAGGACGGCGCC
2701 CGGCCGGATGTTACCGAGGAGGAGCGGGAGCCCGAGTATCGGCAGTGCAGCAGTCCCTGGCAGGAGACCCACGAGGCGAGGACGTGGCGG
2801 TGTTGCGCGCGGCCCGCAGGCGCACCTGGTTCACGGCTGCAGGAGCAGACCTTCATAGCGCAGTCTGCGCTTCGCCGCTGCCTGGAGCCCTACAC
2901 CGCCTGCGACCTGGCCCGCCCGCCGACACCGACGCGCCGACCCCGGGCGGTCCCGGTCCAAGCTGTGATTGAAGCTAGCTGGCCAGACATGAT

NheI (2981)

2901 rA laCysAspLeuA laP roP roA laG lYTh rTh rAspA laA laH isP roG lYArgSe rArgSe rLysArgLeuAsp
3001 AAGATACATTGATGAGTTGGACAAACCACAACCTAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTGTAACCAT

MfeI (3130)

3101 ATAAGCTGCAATAAACAAAGTTAACAAACAACAAATTCATTTATGTTTCAGGTTGAGGGGAGGTGGGAGGTTTTTAAAGCAAGTAAACCTCT
3201 ACAAATGTGATGGAATTAATTCTAAAATACAGCATAGCAAACTTAACTCCAATCAAGCCTCTACTTGAATCCTTTCTGAGGGATGAATAAGGC

3301 ATAGGCATCAGGGGCTGTGCAATGTGCATTAGCTGTTGCGAGCCTCACCTTCTTTCATGGAGTTAAGATATAGTGATTTTCCCAAGTTTGAECTA
3401 GCTCTTCATTTCTTTATGTTTTAAATGCACCTGACCTCCACATTCCTTTTTAGTAAAATATTCAGAAAATAATTTAAATACATCATTGCAATGAAAATAA
3501 ATGTTTTTATTAGGCAGAAATCCAGATGCTCAAGGCCCTTATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTTAATAGAAATT
3601 GGACAGCAAGAAAGCGAGCTTCTAGCTTATCTCAGTCTGCTCCTCTGCCACAAAGTGACGCAGTTGCCGGCCGGTCCGCGCAGGGCGAACTCCCGCC
125 ◀ ●●●AspG lnG luG luA laVa lPheH isVa lCysAsnG lyA laP roAspA rgLeuA laPheG luA rgG l
3701 CCCACGGCTGCTCGCCGATCTCGGTATGGCCGGCCGGAGGCGTCCCGAAAGTTCTGTGGACACGACCTCCGACCACTCGGCGTACAGCTCGTCCAGGCC
102 ◀ yT rpP roG lnG luG ly l leG luTh rMe tA laP roG lySe rA laAspA rgPheAsnTh rSe rVa Ma lG luSe rT rpG luA laTy rLeuG luAspLeuG ly
SgrAI (3888)
3801 GCGACCCACCCAGGCCAGGGTGTGTCCGGCACCACTGGTCTGGACCGCTGATGAACAGGGTCACGTCGTCGCCGACCACCCGGCGAAGTCG
69 ◀ ArgVa lT rpVa lT rpA laLeuTh rAsnAspP roVa Ma lG lnAspG lnVa lA laSe r l lePheLeuTh rVa lAspAspA rgVa Ma lG lyA laPheAsp
3901 TCCTCCACGAAGTCCCGGAGAACCCGAGCCGGTCCGAACTCGACCGCTCCGGCGACGTCGCGCGGGTGAACCCGGAACGGCACTGGTCAACT
35 ◀ spG luVa lPheAspA rgSe rPheG lyLeuArgAspTh rT rpPheG luVa lA laG lyA laVa lAspA rgA laTh rLeuVa lP roVa lA laSe rTh rLeuLy
MfeI (4051)
4001 TGGCCATGATGGCTCCTCCTGTCAGGAGAGAAAGAGAAGAAGGTTAGTACAATTGCTATAGTGAGTTGTATTATACTATGCAGATATACTATGCCAATG
2 ◀ sA laMe t
4101 ATTAATTGTCAA◀ACTAGGGCTGCAGGTTAATTAAGAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGCCCGCTTGCTGGCGTTTTT
4201 CCATAGGCTCCGCCCCCTGACGAGCATCACAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAGATACCAGCGTTTTCCCCCT
4301 GGAAGCTCCCTCGTGCCTCCTCTGTTCCGACCTGCCGTTACCGGATACCTGTCCGCCTTCTCCCTTCGGGAAGCGTGGCGTTTTCTCATAGCTCAC
4401 GCTGTAGGTATCTCAGTTCGGTGTAGGTGTTCTGCTCCAAGCTGGGTGTGTGCACGAACCCCGTTCCAGCCGACCGCTGCGCCTTATCCGGTAACTA
4501 TCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGCGGTGCTACAGAG
4601 TTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCT
4701 CTTGATCCGGCAAAACCAACCACCCTGGTAGCGGTGTTTTTTTTGTTGCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAGATCCTTTGAT
4801 CTTTCTACGGGTCTGACGCTCAGTGAACGAAAACCTCACGTTAAGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATCA