



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

1 GGATCTGCGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA
 101 GAGAAGGTGGCGCGGGTAAACTGGAAAGTGATGTCGTGACTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

HindIII (245)
EcoNI (287)

201 GTGAACGTTCTTTTTCGCAACGGGTTTGCCGCCAGAACACAGTGAAGCTTCGAGGGCTCGCATCTCTCCTTACGCGCCCGCCCTACCTGAGGCC
 301 GCCATCCACGCGGGTTGAGTCGCGTTTCTGCCGCCTCCCGCCTGTGGTGCCTCCTGAAGTGCCTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMI (441)
NaeI (441)

401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCTAACTCTACGCTTTTGTTCGTTT

KasI (535)
AgeI (552)
BspLU11I (560)

501 TCTGTTCTGCGCGCTTACAGATCCAAGCTGTGACCGCGCCTACCTGAGATCACCGGTCAACATGTTGGGGCAAGCTGTTCTGTTCAACGTTTCTGCT
1▶ M L G Q A V L F T T F L L

StuI (679)
Eco147I (679)

601 CCTCAGGGCTCATCAGGGCCAAGACTGCTCAGATTCTCCTGAAGAAGTGGTGGTGTCTCAGGAAAGCCTGTCGGCTGAGGCCTTCCAACATACAGACA
 13▶ L R A H Q G Q D C S D S P E E V V G V S G K P V R L R P S N I Q T
 701 AAAGATGTTTCTGTTCAATGGAAGAAGAAAGTACAGGGCTCACACACAAACACTGAGATCCTGATTTCTGTAATAATAATGCTTCCAGATGCTCAACTG
 47▶ K D V S V Q W K K K V Q G S H T N T E I L I S C N N N A S R C S T

EcoRV (811)
Eco32I (811)
PshAI (871)

801 TGGTTTCTAGTGATATCTATGGCTTTGATTATGGGGATTTTGCTTTAGTATCAAGTCAGCTCAGCTGCAAGACAGTGGTCACTACCTGCTGGAGCTCAC
 80▶ V V S S D I Y G F D Y G D F A L S I K S A Q L Q D S G H Y L L E L T

ApaLI (918)

901 CTACAGAAACGGAACAGTGTGCACTAAGAACTTCCAGATTCTTATACTTGATCATGTTGAGACACCTCACCTGAAGGCCAGTGAACGCTGGACTAAT
 113▶ Y R N G T V C T K N F Q I L I L D H V E T P H L K A Q W N A W T N

BsrGI (1061)

1001 GGGACTTGTCAACTGTTTTGTCTGCTCGGTGCCAAGGATGACAATGTGAGCTATGCTTTGTACAGAGGGAGCAGCTGATCTCAAATCAAAGGAATA
 147▶ G T C Q L F L S C S V P K D D N V S Y A L Y R G S T L I S N Q R N
 1101 GTACCCACTGGGAGAACCAGACTGATGCCAGCAGCCTGCACACATATACTGCAACGTTAGCAACAGAGCCAGCTGGGCAAACACACCCTGAACCTCAC
 180▶ S T H W E N Q T D A S S L H T Y T C N V S N R A S W A N H T L N F T

NcoI (1200)

1201 CCATGGCTGTAGGGCCTCTGGATCTCCCTCAGATGTCCAGGAAGATGGGAGGGGACAAAGAGAATTGGACAGGCGGTTTCTGAGGTGCTGGAGCAGTT
 213▶ H G C Q S V H L N F R F L P F G V I I V I L V T L F L G A I I C F
 1301 TGTGTGTGGACTAAGAAGAGGAAGCAGTTACAGTTCAGCCCTAAGGAACCTTTGACAATATATGAATATGTCAAGGACTCAGGAGCCAGTAGGGATCAAC
 247▶ C V W T K K R K Q L Q F S P K E P L T I Y E Y V K D S R A S R D Q

EcoO109I (1411)
BstXI (1437)

1401 AAGGATGCTCTAGGGCCTCTGGATCTCCCTCAGATGTCCAGGAAGATGGGAGGGGACAAAGAGAATTGGACAGGCGGTTTCTGAGGTGCTGGAGCAGTT
 280▶ Q G C S R A S G S P S D V Q E D G R G Q R E L D R R V S E V L E Q L

EcoRI (1509)
BsrGI (1585)

1501 GCCACAGCAGAATTCCTTGGAGATAGAGGCACCATGTACTCTATGATCCAGTGAAGCCTTTGATTCCACATCACAAGAAAAATGTACAGTATATTCA
 313▶ P Q Q N S P G D R G T M Y S M I Q C K P F D S T S Q E K C T V Y S

BamHI (1624)
NcoI (1687)

1601 GTAGTCCAGCCTCCAGGAAGTCTGGATCCAAGAAGAGGAACCAAGAACTTCTCTTAAGTTGTACCGTGTACGAGGAGTTGAAACCCATGGCTCAAG
 347▶ V V Q P S R K S G S K K R N Q N S S L S C T V Y E E V G N P W L K

MscI (1787)
NheI (1781)

1701 CTCACAACCTGCCAGGCTGAGCCGAGAGAGCTGGAGAAGTTGATGTCTACTCTAGTTGTTAGCAGTGGCCTCATCTCTAGCTAGTGGCCAGACATGA
 380▶ A H N P A R L S R R E L E N F D V Y S •

1801 TAAGATACATTGATGAGTTTGGACAAACCAACTAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCAT

HpaI (1919)
MfeI (1930)

1901 TATAAGCTGCAATAACAAGTTAAACAACAATTGCATTCTTTATGTTTCAGGTTTCAGGGGAGGTGGGAGGTTTTTAAAGCAAGTAAACCTC

EcoRI (2015)

2001 TACAAATGTGGTATGGAATCTAAAATACAGCATAGCAAACTTTAACCTCCAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATA
←

2101 GGCATCAGGGCTGTTGCCAATGTGCATTAGCTGTTTGCAGCCTCACCTCTTTCATGGAGTTTAAAGATATAGTGATTTTCCAAGGTTTGAAGTAGCT

SspI (2254)
SwaI (2268)

2201 CTTCAATTTCTTATGTTTTAAATGCACTGACCTCCACATTCCCTTTTGTAGTAAATATTCAGAAATAATTTAAATACATCATTGCAATGAAAATAAATG

EcoO109I (2329)

2301 TTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTGTAGTGGACTTAGGGAACAAAGAACCTTTAATAGAAATTGGA

2401 CAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCCTGGTGTACTTGAGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCCATTCTCAATGAGC
1+1▶
• N R T Y K L P I L E E I T T K V L K G N M E I L

BstXI (2558)

2501 ACAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTCTGCACATGCCACAGGGGCTGACCACCCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCC
115 V F C D P A Y D S I L E R C M G C P S V V R I S R D V E D S Y P H R
StuI (2693)
Eco147I (2693)

2601 TGACAGCCACAATGGTGTCAAAGTCCTTCTGCCGTTGCTCACAGCAGACCCAATGGCAATGGCTTCAGCACAGACAGTGACCCTGCCAATGTAGGCCTC
82 V A V I T D F D K Q G N S V A S G I A I A E A C V T V R G I Y A E
2701 AATGTGGACAGCAGAGATGATCTCCCAGTCTTGGTCTGATGGCCGCCCGACATGGTGTCTTGTCTCATAGAGCATGGTGATCTTCTCAGTGGCG
49 I H V A S I I E G T K T R I A A G V H H K N D E Y L M T I K E T A

BspHI (2843)

XmnI (2835)

2801 ACCTCCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGTCTTCATGATGGCCCTCCTATAGTGAGTCGTATTATACTATGCCGATATACTATGCCGAT
15 V E V L E L D Q Q S I N F T K M

VspI (2901)
AseI (2901)

2901 GATTAATTGTCAAACACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTTCATAACGAGCTCTGCTTATATAGACCTCCCACCGTACACGCCTACCGC

SpeI (3056)

3001 CCATTTGCGTCAATGGGGCGGAGTTGTTACGACATTTTGGAAAGTCCCGTTGATTTACTAGTCAAAAACAACTCCATTGACGTCATGGGGTGGAGAC

SnaBI (3184)
Eco105I (3184)

3100 TTGAAATCCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTACTG

NdeI (3289)

3200 CCAAGTAGAAAGTCCATAAGGTCATGTACTGGGCATAATGCCAGGCGGGCCATTTACCGTCATTGACGTCAATAGGGGGCGTACTTGGCATATGATAC

3300 ACTTGATGTACTGCCAAGTGGGCAGTTTACCGTAAATACTCCACCCATTGACGTCAATGGAAAGTCCCTATTGGCGTTACTATGGGAACATACGTCATTA

PstI (3468)
SdaI (3467) PacI (3475) BspLU11I (3485)

3400 TTGACGTCAATGGGCGGGGTCGTTGGGCGGTACGCCAGGCGGGCCATTTACCGTAAGTTATGTAACGCCCTG 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
3498 AAGGCCAGCAAAGGCCAGGAACCGTAAAAAGGCCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAAATCGACGCTCAAG
3598 TCAGAGGTGGCGAAACCCGACAGGACTATAAGATACCAGGCGTTTCCCCTGGAAAGTCCCTCGTGCCTCTCCTGTTCCGACCCTGCCGTTACCGGA
3698 TACCTGTCCGCCTTTCTCCCTTCGGAAGCGTGGCGCTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCCAAGCTGGGCT

ApaLI (3799)

3798 GTGTGCACGAACCCCCGTTCCAGCCGACCGCTGCGCCTATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGC

3898 AGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGCGGTGCTACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTT

3998 GGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGGTTTTTTTGT

4098 GCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGTCTGACGCTCAGTGAACGAAAACCTCACGTTAAGG

EagI (4235)

PacI (4215) SwaI (4224) NotI (4234)

4198 GATTTTGGTCATGGCTAGTTAATTAACATTTAAATC AGCGGCCGAATAAAATATCTTTATTTTCATTACATCTGTGTGGTTTTTTGTGTAATCGT

4298 AACTAACATACGCTCTCCATCAAACAAAACGAAACAAAACAACTAGCAAATAGGCTGTCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCG
4398 AA