



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

1 GGATCTGCGATCGCTCCGGTGCCCGTCAGTGGGCAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA  
 101 GAGAAGTGGCGCGGGTAAACTGGAAAGTGATGTCGTGTAAGTGGCTCCGCCTTTTCCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

**HindIII (245)**
**EcoNI (287)**

201 GTGAACGTTCTTTTTCGCAACGGGTTTGCCGCCAGAACACAGTGAAGCTTCGAGGGCTCGCATCTCTCCTTACGCGCCCGCCCTACCTGAGGCC  
 301 GCCATCCACGCGGGTTGAGTCGCGTTTCTGCCGCCTCCCGCCTGTGGTGCCTCCTGAAGTGCCTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

**NgoMI (441)**
**NaeI (441)**

401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCTAACTCTACGCTTTTGTTCGTTT

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

501 TCTGTTCTGCGCGTTACAGATCCAAGCTGTGACCGCGCCTACCTGAGATCACCGGTCAACATGTTGGGGCAAGCTGTTCTGTTCAACGTTTCTGCT  
▶
▶ M L G Q A V L F T T F L L

**StuI (679)**
**Eco147I (679)**

601 CCTCAGGGCTCATCAGGGCAAGACTGCTCAGATTCTCCTGAAGAAGTGGTGGTGTCTCAGGAAAGCCTGTCCGGCTGAGGCCTTCCAACATACAGACA  
 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 TGGTTTCTAGTGATATCTATGGCTTTGATTATGGGGATTTTGTCTTAGTATCAAGTCAGCTCAGCTGCAAGACAGTGGTCACTACCTGCTGGAGCTCAC  
 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 CTACAGAAACGGAACAGTGTGCACTAAGAAGTCCAGATTCTTATACTTGATCATGTTGAGACACCTCACCTGAAGGCCAGTGAACGCTGGACTAAT  
 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 GGGACTTGTCAACTGTTTTTGTCTGCTCGGTGCCAAGGATGACAATGTGAGCTATGCTTTGTACAGAGGGAGCAGCTGATCTCAAATCAAAGGAATA  
 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 GTACCCACTGGGAGAACCAGACTGATGCCAGCAGCCTGCACACATATACTGCAACGTTAGCAACAGAGCCAGCTGGGCAAACACACCTGAACCTCAC  
 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 CCATGGCTGTAGGGCCTCTGGATCTCCCTCAGATGTCCAGGAAGTGGAGGGGACAAAGAGAATTGGACAGGCGGTTTCTGAGGTGCTGGAGCAGTT  
 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 AAGGATGCTCTAGGGCCTCTGGATCTCCCTCAGATGTCCAGGAAGTGGAGGGGACAAAGAGAATTGGACAGGCGGTTTCTGAGGTGCTGGAGCAGTT  
 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)**

1701 CTCACAACCTGCCAGGCTGAGCCGAGAGAGCTGGAGAAGTGTGATGCTACTCTAGTTGTTAGCAGTGGCCTCATCTCTAGCTAGTGGCCAGACATGA  
 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 GGCATCAGGGCTGTTGCCAATGTGCATTAGCTGTTTGCAGCCTCACCTCTTTCATGGAGTTTAAAGATATAGTATTTTCCAAGGTTTGAAGTAGCT

**SspI (2254)**
**SwaI (2268)**

2201 CTTCAATTTCTTATGTTTTAAATGCACTGACCTCCACATTCCCTTTTGTAGTAAATATTCAGAAATAATTTAAATACATCATTGCAATGAAAATAAATG

**EcoO109I (2329)**

2301 TTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTGTAGTGGACTTAGGGAACAAAGGAACCTTTAATAGAAATTGGA

2401 CAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCCTGGTGTACTTGGAGGGGATGAGTTCTCAATGGTGGTTTTGACCAGCTTGCATTCTCAATGAGC  
▶
▶
▶ 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 GATTAATTGTCAAACACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTTCATAAACGAGCTCTGCTTATATAGACCTCCCACCGTACACGCCTACCGC

SpeI (3056)

3001 CCATTTGCGTCAATGGGGCGGAGTTGTTACGACATTTTGAAAGTCCCGTTGATTTACTAGTCAAAAACAACTCCATTGACGTCATGGGGTGGAGAC

SnaBI (3184)  
Eco105I (3184)

3100 TTGAAATCCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTACTG

NdeI (3289)

3200 CCAAGTAGAAAGTCCATAAGGTCATGTACTGGGCATAATGCCAGGCGGGCCATTTACCGTCATTGACGTCAATAGGGGGCGTACTTGGCATATGATAC

3300 ACTTGATGTACTGCCAAGTGGGCAGTTTACCGTAAATACTCCACCCATTGACGTCAATGGAAAGTCCCTATTGGCGTTACTATGGGAACATACGTCATTA

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

3400 TTGACGTCAATGGGCGGGGTCGTTGGGCGGTGAGCCAGGCGGGCCATTTACCGTAAGTTATGTAACGCCCTG 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 AGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTT

3998 GGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGGTTTTTTTGT

4098 GCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGTCTGACGCTCAGTGAACGAAAACCTCACGTTAAGG

EagI (4235)

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

4198 GATTTTGGTCATGGCTAGTTAATTAACATTTAAATC AGCGGCCGAATAAAATATCTTTATTTTCATTACATCTGTGTGGTTTTTTGTGTAATCGT

4298 AACTAACATACGCTCTCCATCAAACAAAACGAAACAAAACAACTAGCAAATAGGCTGTCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCG  
4398 AA