



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

1 GGATCTGCATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCCGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA

101 GAGAAAGTGGCGCGGGTAAACTGGGAAAGTGTGCTGTACTGGCTCCGCTTTTTCCGAGGGTGGGGGAGAACC GTATATAAGTGCAGTAGTCGCC

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**HindIII (245)**
**PvuII (239)**
**Bsu36I (291)**

201 **GTGAACGTTCTTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCTTCACGCGCCGCCCTACCTGAGGCC**

301 **GCCATCCACGCGGTTGAGTCGCGTTCTGCCGCTCCCGCTGTGGTGCTCTGAACTGCGTCCGCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC**

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**NgoMIV (441)**

401 **GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCTGCTTGTCTCAACTCTACGCTTTGTTTCGTTT**

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**BstEII (555)**

501 **TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGCGCCTAC**CTGAGATCACCGGTCACCATGGACCCAAACAGACCACCTCTGTGTCTTGTGCT

1▶ **M D P K Q T T L L C L V L**

601 CTGTCTGGCCAGAGGATTCAAGCACAGGAAGGGGACTTTCCCATGCCTTTTCATATCTGCCAAATCGAGTCTGTGATTCCCTGGATGGATCTGTGAAA

13▶ **C L G Q R I Q A Q E G D F P M P F I S A K S S P V I P L D G S V K**

701 ATCCAGTCCAGGCCATTCGTGAAGCTTACCTGACCCAGCTGATGATCATAAAAACTCCACGTACCGAGAGATAGGCAGAGAAGACTGAAGTTTGAATG

**HindIII (722)** **PvuII (736)** **BbsI (779)**

47▶ **I Q C Q A I R E A Y L T Q L M I I K N S T Y R E I G R R L K F W N**

801 AGACTGATCCTGAGTTCGTTCATTGACCACATGGACGCAAAACAAGGCGGCTATCAGTCCAAATATAGGATAGGGCACTACAGATTCCGGTACAGTGA

80▶ **E T D P E F V I D H M D A N K A G R Y Q C Q Y R I G H Y R F R Y S D**

901 CACCCTGGAGCTGGTAGTGACAGGCTTGTATGGCAAACCTTCTCTGCGATCGGGTCTGGTGTGATGCCAGGAGAGAATATTTCCCTCACGTGC

**PstI (947)** **SspI (982)** **BbrPI (993)**

113▶ **T L E L V V T G L Y G K P F L S A D R G L V L M P G E N I S L T C**

1001 AGCTCAGCACACATCCCATTTGATAGATTTTACTGGCCAAGGAGGGAGAAGTTTCTCTGCCACAGCACAAAGTGGGGAACACCCGGCAAACCTTCTCTT

**XcmI (1088)**

147▶ **S S A H I P F D R F S L A K E G E L S L P Q H Q S G E H P A N F S**

1101 TGGTCTGTGGACCTCAATGTCTCAGGGATCTACAGGTGCTACGGTGGTACAACAGGAGCCCTACCTGTGGTCTTCCCAAGTAATGCCTTGAGCT

**EcoO109I (1101)** **XcmI (1181)**

180▶ **L G P V D L N V S G I Y R C Y G W Y N R S P Y L W S F P S N A L E L**

1201 TGTGGTCACAGACTCCATCCACCAAGATTACACGACGAGAAGCTTATCCGATGGCCGTGGCAGGACTGGTCTCGTGGCTCTTTGGCCATACTGGTT

213▶ **V V T D S I H Q D Y T T Q N L I R M A V A G L V A G L V L A I L V**

1301 GAAAAATTGGCACAGCATTACGGCACTGAACAAGGAGCCTCGGAGATGTGGCTGAACVAGCTGGAGCCAACAGATGTGTCACGAGGATTGACCTTTG

247▶ **E N W H S H T A L N K E A S A D V A E P S W S Q Q M C Q P G L T F**

1401 CACGAACACCAAGTGTCTGCAAGTAAACACCTGGAGGTGAAGGAGAGAGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGGACAAACCACA

**DraIII (1406)** **NheI (1449)**

280▶ **A R T P S V C K •**

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**HpaI (1587)** **MfeI (1598)**

1501 **ACTAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAAGTTAAACAACA**

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**EcoRI (1683)**

1601 **ATTGCATTCATTTATGTTTCAGGTTACAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAAACCTTACAAATGTGGTATGGAATCTAAAATACAGC**

1701 **ATAGCAAACTTTAACCTCAAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTTTGCCAATGTGCATTAGC**

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**SapI (1865)**

1801 **TGTTTGCAGCCTCACCTTCTTTCATGGAGTTTAAAGATAGTGTATTTTCCCAAGTTTGAAGTAGCTCTTCATTTCTTTATGTTTTAAATGCACTGACC**

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**SspI (1922)** **SwaI (1936)** **EcoO109I (1997)**

1901 **TCCCACATTCCTTTTTAGTAAAATATTCAGAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTTATTAGGCAGAAATCCAGATGCTCAAGG**

2001 **CCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTAAATAGAAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCC**

141▶ **• N R**

2101 TGGTGTACTTGAGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCCATTCATCTCAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAG

**BstXI (2226)**

138▶ **T Y K L P I L E E I T T K V L K G N M E I L V F C D P A Y D S I L**

2201 CTCTCTGCACATGCCACAGGGGCTGACCACCCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCTGACAGCCACAATGGTGTCAAAGTCTTCTGC

105▶ **E R C M G C P S V V R I S R D V E D S Y P H R V A V I T D F D K Q**

**StuI (2361)**

2301 **CGTTGCTCACAGCAGACCAATGGCAATGGCTTCAGCACAGACAGTACCCTGCCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCCAGTCT**

71▶ **G N S V A S G I A I A E A C V T V R G I Y A E I H V A S I I E G T K**

2401 TGGTCTGATGGCCGCCCGACATGGTCTTGTGTCCTCATAGAGCATGGTGTCTTCTCAGTGGCGACCTCCACAGCTCCAGATCCTGCTGAGAGAT

38▶ **T R I A A G V H H K N D E Y L M T I K E T A V E V L E L D Q Q S I**

BbsI (2507)  
**XmnI (2503)**
AseI (2569)

2501 GTTGAAGTCTTCATGGTGGCCCTCCTATAGTGAGTCGTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACACAGCGTGGATGGCGTCT  
 5' N F T K M

Sacl (2626)

2601 CCAGCTTATCTGACGGTTCACATAACGAGCTCTGCTTATATAGACCTCCACCGTACACGCCTACCGCCATTTCGCTCAATGGGGCGGAGTTGTTACGA

**SpeI (2724)**

2701 CATTTTGGAAAGTCCCGTTGATTTACTAGTCAAAAACAACTCCATTGACGTCAATGGGGTGGAGACTTGAAATCCCGTGAGTCAAACCGCTATCCAC

**SnaBI (2852)**

2801 GCCCATTGATGTACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTACTGCCAAGTAGGAAAGTCCATAAGGTCATGTACTG

**NdeI (2957)**

2901 GGCATAATGCCAGGCGGCCATTTACCGTCATTGACGTCAATAGGGGCGTACTTGGCATATGATACACTTGTACTGCCAAGTGGGCGAGTTTACCGT

3001 AAATACTCCACCCATTGACGTCAATGGAAAGTCCCTATTGGCGTACTATGGGAACATACGTCATTATTGACGTCAATGGGCGGGGTCGTTGGGCGGTC

PacI (3143)  
 PstI (3136)  
**SdaI (3135)**
**BspLU11I (3153)**

3101 AGCCAGGCGGGCATTACCCTAAGTTATGTAACGCTGCAGGTTAATAAGAACATGTGAGCAAAGGCCAGCAAAGGCCAGGAACCGTAAAAAGGCC

3201 GCGTTGCTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGAT

3301 ACCAGGCGTTTTCCCCTGGAAGCTCCCTCGTGCCTCTCTGTTCCGACCCTGCCGTTACCGGATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTGGC

**ApaI (3467)**

3401 GCTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTTCGCTCCAAGCTGGGCTGTGTGCACGAACCCCGTTCCAGCCGACCGCTGC

3501 GCCTTATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATG

3601 TAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGG

3701 AAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAACCACCGCTGGTAGCGGTGTTTTTTGTTTGAAGCAGCAGATTACGCGCAGAAAAAAGGATCT

PacI (3883) SwaI (3892)

3801 CAAGAAGATCCTTTGATCTTTTCTACGGGCTGACGCTCAGTGAACGAAAACCTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAAT

**EagI (3903)**  
**NotI (3902)**

3901 CAGCGGCCGAATAAAATATCTTTATTTTATTACATCTGTGTGTTGGTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAAACAAAACGAAA

4001 CAAAACAAACTAGCAAAATAGGCTGTCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA