



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

1 GGATCTGCGATCGCTCCGGTCCCGTCAGTGGGCAGAGCGCACATCGCCACAGTCCCCGAGAAGTTGGGGGAGGGTTCGGCAATTGAACGGGTGCCTA

101 GAGAAGGTGGCGCGGGTAAACTGGGAAAGTGATGTCGTGTAAGTCTGGCTCCGCTTTTCCCGAGGGTGGGGGAGAACCGTATATAAGTGCAGTAGTCGCC

Psp1406I (203) **HindIII (245)** **Bsu36I (291)**
EcoNI (287)

201 GTGAACGTTCTTTTCGCAACGGGTTTCCCGCCAGAACACACAGCTGAAGCTTCGAGG**GGCTCGCATCTCTCCTTTCAGCGCCCGCCCTACCTGAGGCC**

301 GCCATCCACGCGCGTTGAGTTCGGCTTCTCCGCTCCCGCTGTGGTGCCTCTGAAGTGCCTCGCGCTTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMIV (441)
NgoMI (441)
NaeI (441)

401 GGGCCTTTGTCCGCGCTCCCTTGGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCCTGACCCTGCTTGTCTCAACTCTACGCTTTGTTCGTTT

KasI (535) **AgeI (552)**

501 TCTGTTCGCGCGTTACAGATCCAAGCTGTGACCGCGCTACCTGAGATCACCGGTAGAGGGCCATCATGAGACAGACTTTGCCTTGTATCTACTTTT

ApaLI (650)
DraIII (644)

601 TGGGGGGCCCTTTTGCCTTTGGGATGCTGTGTGCATCCTCCACCACCAAGTGCAGTGTAGCCATGAAGTTGCTGACTGCAGCCACTGAAGTTGACTC

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

Asp718I (701)
Acc65I (701)

701 AGGTACCCGATGATCTACCCACAAACATAACAGTGTGAACTTACCCATAATCAACTCAGAAGATTACCAGCCCAACTTCACAAGGTATAGCCAGCT

44▶ **Q V P D D L P T N I T V L N L T H N Q L R R L P A A N F T R Y S Q L**

XcmI (826)

801 AACTAGCTTGGATGTAGGATTTAACACCATCTCAAACTGGAGCCAGAAATGTGCCAGAACTTCCCATGTTAAAAGTTTGAACCTCCAGCACAATGAG

77▶ **T S L D V G F N T I S K L E P E L C Q K L P M L K V L N L Q H N E**

901 CTATCTCAACTTCTGATAAAACCTTTGCTTCTGCAAGAAATTTGACTGAAGTTCATCTCATGTCCAACCTCAATCCAGAAAATTAATAATCCCTTTG

111▶ **L S Q L S D K T F A F C T N L T E L H L M S N S I Q K I K N N P F**

BglII (1025)

1001 TCAAGCAGAAGAAATTAATCACATTAGATCTGTCTCATAAATGGCTTGTATCTACAAAATTAGGAACTCAGGTTTCAGCTGGAAAATCTCCAAGAGCTTCT

144▶ **V K Q K N L I T L D L S H N G L S S T K L G T Q V Q L E N L Q E L L**

EcoRV (1143)
Eco32I (1143)

1101 ATTATCAAACAATAAAATTAACGCGCTAAAAGTGAAGAACTGGATATCTTTGCCAATTCATCTTTAAAAAATTAGAGTTGTATCGAATCAAATTAATA

177▶ **L S N N K I Q A L K S E E L D I F A N S S L K K L E L S S N Q I K**

SmaI (1268)

1201 GAGTTTCTCCAGGGTGTCTTTCAGCAATTTGGAAGATTATTTGGCCCTCTTCTGAACAAATGCCAGCTGGGTCCAGCCTTACAGAGAAGCTATGTTTGG

211▶ **E F S P G C F H A I G R L F G L F L N N V Q L G P S L T E K L C L**

1301 AATTAGCAAACAAGCATTCGGAATCTGTCTCTGAGTAAACAGCCAGCTGTCCACCACCAGCAATACAACCTTCTTGGGACTAAAAGTGGACAAATCTCAC

244▶ **E L A N T S I R N L S L S N S Q L S T T S N T T F L G L K W T N L T**

1401 TATGCTCGATCTTTCCTACAACAACCTAAATGTGGTTGGTAACGATTCCTTTGCTTGGCTTCCACAACCTAGAAATATTTCTTCTTCTAGAGTATAATAATA

277▶ **M L D L S Y N N L N V V G N D S F A W L P Q L E Y F F L E Y N N I**

Asp718I (1543)
Acc65I (1543)

1501 CAGCATTTGTTTTCTCACTCTTTGTCACGGGCTTTTCAATGTGAGGTACCTGAATTTGAAACGGTCTTTTACTAAAACAAAGTATTTCCCTTGCCTCACTCC

311▶ **Q H L F S H S L H G L F N V R Y L N L K R S F T K Q S I S L A S L**

1601 CCAAGATGATGATTTTTCTTTTCAGTGGCTAAAATGTTTGGAGCACCTTAAACATGGAAGATAATGATATTCAGGCATAAAAAGCAATATGTTTCACAGG

344▶ **P K I D D F S F Q W L K C L E H L N M E D N D I P G I K S N M F T G**

1701 ATTGATAAACTGAAATACTTAAAGTCTATCCAACCTCTTCAAGATTGGGAACCTTTGCAAAATGAAACATTTGTATCACTTGTCTCATCTCCCTTACAC

377▶ **L I N L K Y L S L S N S F T S L R T L T N E T F V S L A H S P L H**

ScaI (1871)

1801 ATACTCAACCTAACCAAGAATAAAATCTCAAAAATAGAGAGTGTGCTTTCTCTTGGTTGGGCCACTAGAAGTACTTGCCTGGGCTTAAATGAAATTTG

411▶ **I L N L T K N K I S K I E S D A F S W L G H L E V L D L G L N E I**

XbaI (1931)

1901 GGCAAGAAGTCAAGCCAGGAATGGAGAGGTCTAGAAAATATTTTGAATCTATCTTCTTCAACAAGTACCTGCAGCTGACTAGGAACCTCCTTTG

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

2001 CTTGGTCCCAAGCCTTCAACGACTGATGCTCCGAAGGGTGGCCCTTAAAAATGTGGATAGCTCTCTTCCACCAITCCAGCCTCTTCGTAACTTGACCAAT

477▶ **L V P S L Q R L M L R R V A L K N V D S S P S P F Q P L R N L T I**

BspLU11I (2140)

2101 CTGGATCTAAGCAACAACAATAGCCAACATAAATGATGACATGTTGGAGGGTCTTTGAGAACTAGAAAATCTCGATTTGCAGCATAACAACCTAGCAC

511▶ **L D L S N N N I A N I N D D M L E G L E K L E I L D L Q H N N L A**

2201 GGCTCTGGAAACAGCAAAACCTTGGTGGTCCCAATTTAATTTCTTAAAGGGTCTGTCTCACCTCCACATCTTAACTTGGAGTCCAACGGCTTTGACGAGAT

544▶ **R L W K H A N P G G P I Y F L K G L S H L H I L N L E S N G F D E I**

ClaI (2340)

2301 CCCAGTTGAGGCTTCAAGGATTTAATTTGAACTAAAGATCATCGATTTAGGATTTGAATAATTTAAACACACTTCCAGCATCTGTCTTTAATAATCAGGTTG

577▶ **P V E V F K D L F E L K I I D L G L N N L N T L P A S V F N N Q V**

XmnI (2450)

2401 TCTCTAAAGTCAATTGAACCTTCAAGAATCTCATAACATCCGTTGAGAAGAAGGTTTTCGGGCCAGCTTTTTCAGGAACCTGACTGAGTTAGATATGCGCT

611▶ **S L K S L N L Q K N L I T S V E K K V F G P A F R N L T E L D M R**

PmlI (2516)
Eco72I (2516)
BbrPI (2516)

2501 TTAATCCCTTTGATGTCAGGTGAAAGTATTGCCTGGTTTGTAAATGGATTAAACGAGACCCATACCAACATCCCTGAGCTGTCAAGCCACTACCTTTG
644 ▶ **F N P F D C T C E S I A W F V N W I N E T H T N I P E L S S H Y L C**
2601 CAACACTCCACCTCACTATCATGGGTTCCAGTGGAGACTTTTGGATACATCATCTTGCAGAACAGAGTGCCTCCCTTTGAACTCTTTTTCATGATCAATACC
677 ▶ **N T P P H Y H G F P V R L F D T S S C K D S A P F E L F F M I N T**

BsiBI (2711)
BsaBI (2711)

EcoRV (2756)
Eco32I (2756)

2701 AGTATCCCTGTTGATTTTATCTTTATTTGACTTCTCATCCACTTTGAGGGCTGGAGGATATCTTTTATTTGGAATGTTTTCAGTACATCGAGTTCTTGGTT
711 ▶ **S I L L I F I F I V L L I H F E G W R I S F Y W N V S V H R V L G**
2801 TCAAAGAAATAGACAGACAGACAGAACAGTTTGAATATGCAGCATATATAATTCATGCCTATAAAGATAAGGATTGGGTCTGGGAACATTTCTCTCAAT
744 ▶ **F K E I D R Q T E Q F E Y A A Y I I H A Y K D K D W V W E H F S S M**

HpaI (2979)

2901 GGAAAAGGAAGACCAATCTCTCAAATTTTGTCTGGAAGAAAAGGACTTTGAGCGGGTGTTTTGAAC TAGAAGCAATGTTAACAGCATCAAAAAGAAGC
777 ▶ **E K E D Q S L K F C L E E R D F E A G V F E L E A I V N S I K R S**
3001 AGAAAATTTATTTTGTATAACACACCATCTATTAAGAACCCATTTATGCAGAAAGATTCAAGGTACATCATGCAGTTCAACCAAGCTATTGAACAAAATC
811 ▶ **R K I I F V I T H H L L K D P L C K R F K V H H A V Q Q A I E Q N**

BstXI (3106)

3101 TGGATTCCATTATATTTGGTTTTCCTTGGAGGATTCAGATTATAAACTGAACCATGCCTCTGTTTGCAGAGAGGAATGTTTAAATCTCACTGCATCTT
844 ▶ **L D S I I L V F L E E I P D Y K L N H A L C L R R G M F K S H C I L**

MscI (3204)

BalI (3204)

BamHI (3261)

3201 GAACCTGGCCAGTTCAGAAAGAACGGATAGGTGCCTTTCGTATATAAATGCAAGTAGCACTTGGATCCTATCCCTATGATGTGCCAGACTATGCTGGCTAT
877 ▶ **N W P V Q K E R I G A F R H K L Q V A L G S Y P Y D V P D Y A G Y**

MscI (3364)

BalI (3364)

NdeI (3301)

NheI (3358)

3301 CCATATGATGTTCTGATTATGCTGGATACCCCTTATGATGTGCCAGACTATGCTTAAAGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGGGA
911 ▶ **P Y D V P D Y A G Y P Y D V P D Y A .**

HpaI (3496)

3401 **CAAACCAACTAGAAATGCAGTGAAGAAAATGCTTTTATTTGTGAAAATTTGTGATGCTATGCTTTTATTGTAAACCATTTATAAGCTGCAATAAACAGTTA**

EcoRI (3592)

3501 **ACAACAACAATTCGATTCATTTTATGTTTTCAGGTTTCAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAACCTCTACAATATGTTGGTATGGAATCTA**

3601 **AAATACAGCATAGCAAACTTTAACCTCCAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGCTGTGGCAATG**

3701 **TGCATTAGCTGTTTGCAGCCTCACCTTCTTTCATGGAGTTTAAAGATATAGTGTATTTTCCCAAGGTTTGAAC TAGCTCTTCATTTCTTTATGTTTTAAAT**

SwaI (3845)

3801 **GCACCTGACCTCCACATTTCCCTTTTATGTAATAATTCAGAAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTTATTAGGCAGAAATCCAGA**

3901 **TGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAGGAACCTTTAATAGAAATTTGGACAGCAAGAAAGCGAGCTTCTAGC**

4001 **TTTAGTTCCCTGGTGTACTTTGAGGGGATGAGTTTCCCTCAATGGTGGTTTTGACCAGCTTGCATTCATCTCAATGAGCACAAAGCAGTCAGGAGCATAGTC**
141 ◀ **. N R 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**

SacI (4106)

BstXI (4135)

4101 **AGAGATGAGCTCTCTGCACATGCCACAGGGGTGACCACTCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCTGACAGCCACAATGGTGTCAAAG**
108 ◀ **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 V A V I T D F**

StuI (4270)

Eco147I (4270)

4201 **TCCTTCTGCCCGTTGCTCACAGCAGACCAATGGCAATGGCTTCAGCACAGACAGTGCCTGCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCT**
74 ◀ **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 I H V A S I I E**

4301 **CCCCAGTCTTGGTCTGATGGCCGCCCGACATGGTGTCTTGTCTCCTATAGAGCATGGTGTATCTTCTCAGTGGCGACCTCCACCAGCTCCAGATCCTG**
41 ◀ **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 V E V L E L D Q**

VspI (4478)

AseI (4478)

XmnI (4412)

4401 **CTGAGAGATGTTGAAGTCTTCATGATGGCCCTCTATAGTGGTCTTATACTATGCCGATATACATATGCCGATGATTAATTGTCAAACAGCGTGG**
8 ◀ **Q S I N F T K M**

SacI (4535)

4501 **ATGGCGTCTCCAGCTTATCTGACGGTTCACATAAAGCGCTCTGCTTATATAGACCTCCACCGTACACGCCTACCGCCATTTGCGTCAATGGGGCGGAG**

SpeI (4633)

4601 **TTGTTACGACATTTTGGAAAGTCCCCTTGAATTTACTAGTCAAAAACAACTCCCAATTGACGTCAATGGGGTGGAGACTTGGAAATCCCCTGAGTCAAACC**

SnaBI (4761)

Eco105I (4761)

4701 **GCTATCCACGCCCATTTGATGACTGCCAAAACCGCATCATCATGGTAAATAGCGATGACTAAATACGTAGATGTAATGCCAAGTAGGAAAGTCCCAATAGGT**

NdeI (4866)

4801 **CATGTACTGGGCATAATGCCAGCGGGCCATTTACCGTCATTGACGTCAATAGGGGGCGTACTTGGCATATGATACACTTGTACTGCCAAGTGGGCA**

4901 **GTTTTACCGTAAATACTCCACCCATTGACGTCAATGGAAAGTCCCTATTGGCGTTACTATGGGAACATACGTCAATTTGACGTCAATGGGGCGGGTCTGT**

PacI (5052)

SdaI (5044)

BspLU11I (5062)

5001 **TGGGCGTTCAGCCAGGGCGGCCATTTACCGTAAGTTATGTAAACCGCTGCAGGTTAATTAAGAACATGTGAGCAAAGGCCAGCAAAGGCCAGGAACCGTT**

5101 AAAAAGCCCGTGTGCTGGCGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCACAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGAC

5201 TATAAAGATACCAGGCGTTTTCCCCCTGGAAGCTCCCTCGTGCGCTCTCCTGTTCCGACCCTGCCGCTTACCGGATACCTGTCCGCTTTCTCCCTTCGGG

ApaI (5376)

5301 AAGCGTGGCGCTTTCTCATAGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCCAAGCTGGGCTGTGTGCACGAACCCCGTTCAGCCC

5401 GACCGCTGCGCTTATCCGTAACCTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAG

5501 CGAGGTATGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGT

5601 TACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAAACAAACCACCGCTGGTAGCGGTGGTTTTTTTTGTTTGCAAGCAGCAGATTACGCCGAGAAAA

PacI (5792)

5701 AAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGTCTGACGCTCAGTGGAAACGAAAACCTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAA

EagI (5812)

SwaI (5801) NotI (5811)

5801 CATTTAATCAGCGGCCCAATAAAATACTTTAATTTTCAATACATCTGTGTGTGGTTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAAAC

5901 AAAACGAAACAAAACAACTAGCAAATAGGCTGTCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA