



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

1 GGATCTGCATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCCGAGAAGTTGGGGGAGGGGTCCGCAATTGAACGGGTGCCTA

101 GAGAAGGTGGCGCGGGTAAACTGGAAAAGTATGTCGTGTACTGGCTCCGCCTTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

Psp1406I (203)
HindIII (245)
Bsu36I (291)

201 GTGAACGTTCTTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCCTTCACGCGCCCGCCCTACCTGAGGCC

301 GCCATCCACGCCGGTTGAGTCGCGTTCTGCCGCTCCCGCTGTGGTGCTCCTGAACTGCGTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMIV (441)

401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCTCAACTCTACGCTTTTGTTCGTTT

BstEII (555)

AgeI (552)
NcoI (560)

501 TCTGTTTGTCCGCGTTACAGATCCAAGCTGTGACCGGCGCTACCTGAGATCACCGGTCCCATGGCATGTCAACTTGACTTGCTCATAGGTGTGATCTT

1▶ M A C Q L D L L I G V I F

XcmI (605)
BamHI (689)

601 CATGGCCAGCCCCGTGTTGGTAATATCTCCCTGTTCTCAGACGGCAGGATAGCCTTTTTCCGAGGCTGTAACCTCACCCAGATTCCCTGGATCCCTCAAT

13▶ M A S P V L V I S P C S S D G R I A F F R G C N L T Q I P W I L N

701 ACTACCACTGAGAGGCTCCTGCTCAGCTTCAACTATATCAGTATGGTGGTTGCCACATCATTCCACTCCTGGAGCAGCTCCAGTTGCTGGAGCTGGGGA

47▶ T T T E R L L L S F N Y I S M V V A T S F P L L E Q L Q L L E L G

801 CCCAGTATGCTAACTTGACCATTGGTCCAGGGCTTTCCAGAACTGCCCAATCTTAGGATCTTGACTTGGGCCAAAAGCCAGATCGAAGTCTTGAATCG

80▶ T Q Y A N L T I G P G A F R N L P N L R I L D L G Q S Q I E V L N R

901 AGATGCCCTTCAAGTCTGCCCCATCTCTGGAACCTCGGCTGTTTTCTGTGGACTCCTCAGTGTGTGTTAAGTACGGTTACTTCAGAAATCTATAT

113▶ D A F Q G L P H L L E L R L F S C G L S S A V L S D G Y F R N L Y

SmaI (796)

1001 TCATTAGCTCGTTAGACCTATCTGGCAACCAGATTACAGCCTCCGCTCCATTCTCATTCCGGAACTGAATTCCTTAAGCGACGTAATTTTGCTT

147▶ S L A R L D L S G N Q I H S L R L H S S F R E L N S L S D V N F A

SspI (1107)
XhoI (1132)

1101 TCAACCAAATATTCACTATATGTGAAGTGAACCTCGAGCCTCTGCAGGGCAAAACACTGTCTTTCTTTGGCCTCAAATTAACCTAAGCTGTTTCCAGCAGAT

180▶ F N Q I F T I C E D E L E P L Q G K T L S F F G L K L T K L F S R V

BglII (1257)

XbaI (1254)

1201 CTCTGTGGGCTGGGAGACATGCAGGAACCCCTCAGAGGCGTGAGGCTAGAACTCTAGATCTTTCTGAAAATGGCTGGACGTTGGACATCACAAGGAAC

213▶ S V G W E T C R N P F R G V R L E T L D L S E N G W T V D I T R N

1301 TTCAGCAACATCATCCAGGGAAGCCAGATTTCTCTTTGATTCTTAAACACCACATCATGGGTCTGGCTTTGGCTTCCAGAACATCAGAGATCCTGACC

247▶ F S N I I Q G S Q I S S L I L K H H I M G P G F G F Q N I R D P D

1401 AGAGCACATTTGCCAGCCTGGCCAGAAGTTCGGTGTGCAACTGGACCTTTCCGACGCTTTATCTTCTCCTTGAATCCTCGACTGTTTGGGACACTGAA

280▶ Q S T T F A S L A R S S V L Q L D L S H G F I F S L N P R L F G T L K

1501 GGATTTGAAGATGCTGAACCTTGCCCTCAACAAGATAAACAAGATTGGAGAGAATGCCTTTTATGGGCTTGACAGCCTCCAGGTTCTCAATCTATCTAT

313▶ D L K M L N L A F N K I G E N A F Y G L D S L Q V L N L S Y

1601 AATCTTTGGGGAACTCTATAATTCCAATCTATGGGCTTCTAGAGTAGCTACGTTGACCTTCAAAGGAACCAATTGGATCATTCAAGACCAAAA

347▶ N L L G E L Y N S N F Y G L P R V A Y V D L Q R N H I G I I Q D Q

Psp1406I (1716)
BglII (1731)

1701 CATTGAGATTATTAACAAACGTTACAAACCTTAGATCTCCGTGACAATGCTCTTAAGGCCATTGGTTTTATTCCAAGCATAAGATGGTCCCTCCTGGGAGG

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

1801 CAATAAGCTGGTCCATTTGCCACACATCCACTTTACTGCCAATCTCTAGAGTTATCTGAAAACAGGCTAGAAAACCTGTCCGACCTCTACTTCTCCTG

413▶ N K L V H L P H I H F T A N F L E L S E N R L E N L S D L Y F L L

HindIII (1983)

1901 CGAGTCCCCAGTCCAGTTTCTCATCTTGAATCAGAATCGCCTTTGTCATGCAAGGCGAGCCACACTCCCTCGGAGAACCAGCTTAGAACAGCTTT

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

2001 TCCTTACAGAGAATATGCTGCAGCTGGCTGGGAGACCGGCTCTGTTGGGATGTTTTCAAGGCCTTTCCCGCTCCAGATCTTTACTGAGTAATAA

480▶ F L T E N M L Q L A W E T G L C W D V F Q G L S R L Q I L Y L S N N

2101 CTACCTAATTTCTTCCACCTGGGATATTTAACGACCTGGTTGCAATACGGATGCTTAGTCTTAGTGCTAACAGCTGACCGTGCTCTCTCCGGGCAGT

513▶ Y L N F L P P G I F N D L V A L R M L S L S A N K L T V L S P G S

XbaI (2230)

2201 TTACTGCTAATTTAGAGATTCTCGACATATCTAGAAATCAGCTTTTCTCTCCTGACCCTGCTTTGTTTTCTCGCTTCTGTTTTGGACATAACTCATA

547▶ L P A N L E I L D I S R N Q L F S P D P A L F S S L R V L D I T H

2301 ACGAGTTCTGCTGCAACTGTGAACCTTAGCATTATCTCCTGGCTCAACCAACCAACGTCACCCTGTTCCGCTCTCTGACAGCTGTATTGCATGTA

580▶ N E F V C N C E L S T F I S W L N Q T N V T L F G S P A D V Y C M Y

ApaLI (2499)

2401 CCCTAACTCACTGCTAGGGGCTCCCTCTACAACATATCCACCGAAGACTGCGATGAAGGGAAGCCATGCGGTCCCTAAAGTTTTCCCTTTTTCATCCTG

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

XcmI (2582)

2501 TGCACGGTCACTTACTCTATTCTCTGTCATACCCTGTAGTCATAAAGTTCGGGGAATCTGTTTCTGTGCTATAAGACCATCCAGAAGCTGGTGT

647▶ C T V T L T L F L V I T L V V I K F R G I C F L C Y K T I Q K L V

Tth111I (2605) **BstAPI (2683)**
2601 TCAAGGACAAGGCTGGAGTTTGAACCTGGTGCATATAGATATGATGCCTACTTCTGCTTCAGCAGCAAAGACTTTGAATGGGCACAGAATGCTTTGCT
680▶ F K D K V W S L E P G A Y R Y D A Y F C F S S K D F E W A Q N A L L
2701 CAAACCTGGATGCTCACTACAGTTCCCGAAACAGGCTCAGGCTATGCTTTGAAGAAAGAGACTTCATTCCAGGGGAAAACCATATCTCCAACATCCAG
713▶ K H L D A H Y S S R N R L R L C F E E R D F I P G E N H I S N I Q
2801 GCGGCTGTCTGGGCAGCAGGAAGACGGTGTGTCTAGTGAGCAGACACTTCCTGAAGGATGGTTGGTGCCTGGAGGCCTTCAGGTATGCCAGAGCCGGA
747▶ A A V W G S R K T V C L V S R H F L K D G W C L E A F R Y A Q S R
2901 GTCTGTCTGATCTCAAGAGCATTCTCATCGTGGTGGTGGGATCGTGTCCAGTATCAGCTGATGAGACATGAGACCATCAGAGGTTTCTGCAAAA
780▶ S L S D L K S I L I V V V V G S L S Q Y Q L M R H E T I R G F L Q K

ScaI (3005) **BstXI (3030)** **NsiI (3066)**
3001 GCAACAGTACTTGAGGTGGCCTGAAGACCTCCAGGATGTTGGCTGGTTTCTCGATAAACTCTCCGGATGCATTCTAAAGGAAGAAAAAGCAAGAAAAGA
813▶ Q Q Y L R W P E D L Q D V G W F L D K L S G C I L K E E K A K K R

BamHI (3139) **NdeI (3179)**
3101 AGCAGTTCATCCAGTTGCGAACCATAGCAACCATTTCGGATCCATCCCTATGATGTGCCAGACTATGCTGGCTATCCATATGATGTTCTGATTATG
847▶ S S S I Q L R T I A T I S G S Y P Y D V P D Y A G Y P Y D V P D Y

NheI (3236)
3201 CTGGATACCCTTATGATGTGCCAGACTATGCCTAAAGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGGACAAACCACAACCTAGAATGCAGT
880▶ A G Y P Y D V P D Y A •

HpaI (3374) **MfeI (3385)**
3301 GAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAAAGTTAAACAACAACAAATTGCATTCATT

EcoRI (3470)
3401 TATGTTTCAGGTTTCAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAAACCTCTACAAATGTGGTATGGAATCTAAAATACAGCATAGCAAACTTT
3501 AACCTCCAAATCAAGCCTCTACTTGAATCCTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTTGCAGCCTC

SapI (3652)
3601 ACCTTCTTTCATGGAGTTAAGATATAGTGTATTTCCCAAGGTTTGAAGTCTCTTCTTCTTTATGTTTTAAATGCACTGACCTCCACATTCCT

SspI (3709) **Swal (3723)**
3701 TTTTAGTAAAATATTCAGAAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAATAT
3801 CCCCAGTTTAGTGTGGACTTAGGGAACAAAGAACCTTTAATAGAAATGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCCTGGTGTACTTGAG
141▶ • N R T Y K L

SacI (3984)
3901 GGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCATTTCATCTCAATGAGCACAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTCTGCACATG
134▶ 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 E R C M

BstXI (4013)
4001 CCACAGGGGCTGACCACCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCGTTGCTCACAG
100▶ 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 G N S V A
4101 CAGACCAATGGCAATGGCTTCAGCACAGACAGTGACCCTGCCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCAGTCTTGGTCTGATGGC
67▶ 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 T R I A

BspHI (4298)
4201 CGCCCCGACATGGTCTTGTTCCTCATAGAGCATGGTGTCTTCTCAGTGGCGACCTCCACAGCTCCAGATCCTGCTGAGAGATGTTGAAGGTCTTC
34▶ 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 N F T K

AseI (4356)
4301 ATGATGGCCCTCTATAGTGAGTCGTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGA
0▶ M

SacI (4413)
4401 CGGTTCACTAAACGAGCTCTGCTTATATAGACCTCCACCGTACACGCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTTACGACATTTTGAAAGT

SpeI (4511)
4501 CCCGTTGATTTACTAGTCAAAACAAACTCCCATTGACGTCAATGGGGTGGAGACTTGGAAATCCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTA

SnaBI (4639)
4601 CTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTAAGTCCCAAGTAGGAAAGTCCCATAAGGTCATGTAAGTGGGCATAATGCCAG

NdeI (4744)
4701 GCGGGCCATTTACCGTCATTGACGTCAATAGGGGGCGTACTTGGCATATGATACACTTGTACTGCAAGTGGGAGTTTACCGTAAATACTCCACCC
4801 ATTGACGTCAATGAAAGTCCCTATTGGCGTACTATGGGAACATACGTCATTATTGACGTCAATGGGCGGGGTCGTTGGGCGGTACGCCAGCGGGCC

PacI (4930) **SdaI (4922)** **BspLU11I (4940)**
4901 ATTTACCGTAAGTTATGTAACGCTGCAGGTTAATAAGAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGCCGCTTCTGGCGT
5001 TTTTCCATAGGCTCCGCCCTGACGAGCATCAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCC
5101 CCCTGGAAGTCCCTCGTGCCTCTCTGTTCCGACCTGCCGCTTACCGGATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTGGCGCTTCTCATAGC

ApaLI (5254)

5201 TCACGCTGTAGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCCAAGCTGGGCTGTGTGCACGAACCCCGTTAGCCCGACCCTGCGCCTTATCCGGTA

5301 ACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTAC

5401 AGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGT

5501 AGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGTTTTTTTTGTTTGCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTT

EagI (5690)

PacI (5670) SwaI (5679) NotI (5689)

5601 TGATCTTTTCTACGGGTCTGACGCTCAGTGGAACGAAAACTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATCAGCGGCCCAAT

5701 AAAATATCTTTATTTTCATTACATCTGTGTGTTGGTTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAAACAAAACGAAACAAAACAACTAG

5801 CAAAATAGGCTGTCCCCAGTGAAGTGCAGGTGCCAGAACATTTCTCTATCGAA