



PvuI (7)
SgfI (6) 1 GGATCTGGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCGGAGAAGTTGGGGGAGGGGTGGCAATTGAACGGGTGCCTA
MfeI (82)
101 GAGAAAGTGGCGGGGTAAGTGGAAAGTGTGCTGTACTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

Psp1406I (203) **HindIII (245)** **Bsu36I (291)**
201 GTGAACGTTCTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCTTACGCGCCCGCCCTACCTGAGGCC
301 GCCATCCACGCGGTTGAGTCGCGTTTCTGCCGCTCCCGCTGTGGTGCCTCTGAACTGCGTCCGCCGTCTAGGTAAGTTAAAGCTCAGGTCGAGACC

NgoMIV (441)
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCTGCTTGTCAACTCTACGCTTTTGTTCGTTT

KasI (535) **AgeI (552)** **BstEII (555)** **NcoI (560)**
501 TCTGTTCTGCGCGCTTACAGATCCAAGCTGTGACCGCGCGCTACCTGAGATCACCGGTACCATTGGCACAGACTGTTAGAGAATGCTCATTGGCACTTCT
1▶ M A Q T V R E C S L A L L

HindIII (646)
601 TTTTTTGTTCATGTGGCTGCTGATTAAGCAAATATAGATGTGTGCAAGCTTGGCACTGTGACCGTCCAGCCTGCCCTGTGATTCTTGGGTGAGCT
13▶ F L F M W L L I K A N I D V C K L G T V T V Q P A P V I P L G S A

SspI (703) **AseI (762)**
701 GCCAATATTTCTGCTCCTTGAATCCCAAGCAAGGCTGTTACATTATCCCAGTTCTAACGAATTAATCCTCTTAAAGTTTGTCAATGATGCTCCTGTTG
47▶ A N I S C S L N P K Q G C S H Y P S S N E L I L L K F V N D V L V

NcoI (807) **XcmI (822)**
801 AAAATCTCCATGGCAAGAAAGTCCATGACCACACTGGTCACTCCTCCACTTTTCAAGTACCAACCTGTCCTTGGTATGACCTGTTTGTCTGCAAGCT
80▶ E N L H G K K V H D H T G H S S T F Q V T N L S L G M T L F V C K L
901 AAACGTAGCAACTCTCAAAAGAAGCCACAGTCCCAGTATGTGGGTGGAGACTCAGTTGGTGTGCTCCAGAGCCACCTCAAAACATATCATGTGTC
113▶ N C S N S Q K K P P V P V C G V E I S V G V A P E P P Q N I S C V
1001 CAGGAAGGAGAAAATGGAACGTGGCCTGTTCTGGAACCTGGAAGTACTTACTGTAACCAATTACACTTTACAGTTAAGTGGACCAAAACATC
147▶ Q E G E N G T V A C S W N S G K V T Y L K T N Y T L Q L S G P N N
1101 TGACCTGTGAGAAACAATTTTTCTGACAATGTCAGAAATGCAATCGCCTGGATCTTGGGATCAATCTAAGCCTGATTTAGCTGAATCCAGGTTTCA
180▶ L T C Q K Q C F S D N R Q N C N R L D L G I N L S P D L A E S R F I
1201 AGTCGGTGTACTGCCATCAACGATCTTGGAAATCTTCTTCACTTCCGCATACGTTACGTTCTTGGACATAGTGATCCCTTCCCGTGGGACATC
213▶ V R V T A I N D L G N S S S L P H T F T F L D I V I P L P W D I

EcoRV (1382)
1301 AGAATCAACTTTCTAAATGCTTCTGGGAGCAGAGGTACTGCACTGCAAGTGGGAAGTGGGGCAAGTGGTACTCAATCAACTCAGATATCAGCCTCTTAACA
247▶ R I N F L N A S G S R G T L Q W E D E G Q V V L N Q L R Y Q P L N
1401 GCACGCTCTGGAACATGGTCAATGCTACAAATGCCAAAGGAAAATAGCACTGCGAGACTGAGACCGTTTACAGAATATGAATTTCAAATCTCCTCTAA
280▶ S T S W N M V N A T N A K G K Y D L R D L R P F T E Y E F Q I S S K
1501 GCTACATCTCTGGAGGAAGTTGGAGTAATTGGAGTGAAGTCACTGAGAACACGAACACCAGAGGAAGAGCCTGTTGGATATTAGACATCTGGTACATG
313▶ L H L S G G S W S N W S E S L R T R T P E E E P V G I L D I W Y M
1601 AAACAAGACACTGACTATGACAGACAGCAGATCTCTTTTCTGGAAGAGTCTGAATCCATCAGAGGCAAGGGGAAGTCTCCTCACTATCAGGTGACGT
347▶ K Q D I D Y D R Q Q I S L F W K S L N P S E A R G K I L H Y Q V T
1701 TACAAGAGGTGACAAAGAAAACAACACTGCAGAATACTACAAGACACCTCCTGGACCAGGGTCATCCCCGAAGTGGGCTTGGACGGCATCAGTGTG
380▶ L Q E V T K K T T L Q N T T R H T S W T R V I P R T G A W T A S V S
1801 TGACGCCAACTCAAAAGGCGCTTCTGCACCCACTCACATTAACATAGTGGACCTATGTGGCACTGGGTTGCTGGCTCCTCACCAGGTCTCTGCAAAGTCG
413▶ A A N S K G A S A P T H I N I V D L C G T G T G L L A P H Q V S A K S
1901 GAGAACATGGACAACATTCTAGTGACCTGGCAGCTTCAAGAAAGCTGATTTGCTGCTGTCGGGAGTACATAGTGAATGGAGAGCTCCAACAGGGA
447▶ E N M D N I L V T W Q P P K K A D S A V R E Y I V E W R A L Q P G

BamHI (2030) **BspLU11I (2045)**
2001 GCATCACGAAGTTTCCCCACACTGGCTGCGGATCCCCCGGACAACATGTCTGCTCTGATTTTCAAGAAACATAAAGCCCTATATCTGTTATGAAATCAG
480▶ S I T K F P P H W L R I P P D N M S A L I S E N I K P Y I C Y E I R

SphI (2103)
2101 GGTGCATGCACTGTGAGAGCAAGGAGGGTGCAGCTCCATCCGGGTGACTCCAAGCACAAGCACCAGTGAAGTGGCCCTCACATTACTGCCATCACA
513▶ V H A L S E S Q G G C S S I R G D S K H K A P V S G P H I T A I T
2201 GAGAAAAAGAACGCCTTTTCTTCTGGACCCATTCATTCCCGGAGCAAGGGGCTGCATCCTCATTACAGAATATACTGGAAGAACGAGACT
547▶ E K K E R L F I S W T H I P F P E Q R G C I L H Y R I Y W K E R D

NdeI (2384)
2301 CGACAGCACAACTGAGCTCTGCGAAATTCAGTACCGACGCTCTCAAACTCACATCCAATAAGCAGCCTACAGCCAGGGTACATATGTCCTATGGAT
580▶ S T A Q P E L C E I Q Y R R S Q N S H P I S S L Q P R V T Y V L W M

EcoRV (2487)
2401 GACAGCTGTGACAGCTGTGGTGAAGTCCCAAGGAAATGAAAGGGAATTTTGTCCACAGGGCAAAGCAACTGGAAGCATTCTGATATCAAGCATT
613▶ T A V T A A G E S P Q G N E R E F C P Q G K A N W K A F V I S S I
2501 TGCATCGTATCATCACGGTGGGACGTTCTCAATTCGTTACTTCCGGCAAAAGCATTACTCTCCTGTCTACTCTCAAACCTCAATGGTATAGCAGAA
647▶ C I A I I T V G T F S I R Y F R Q K A F T L L S T L K P Q W Y S R
2601 CCATTCCAGATCCAGCAACAGCACTTGGTAAAGAAGTATCCATTCTGGAGGAGAAGTCCAGTACCTACGGATAATCTCCTGATGGCATGGCCAC
680▶ T I P D P A N S T W V K K Y P I L E E K I Q L P T D N L M A W P T
2701 TCCTGAAGAGCCTGAGCCCTGATCATCCATGAAGTCTCTACCACATGATCCAGTTGTGACACAACCATATTACTTCAAAAGAGGCAAGGATTCCAA
713▶ P E E P E P L I I H E V L Y H M I P V V R Q P Y Y F K R G Q G F Q

SpeI (2880)
2801 GGCTACTCTACCTCAAGCAAGATGCAATGTATATTGCCAATCCACAAGCTACAGGAACCTCACAGCTGAGACCAGACAACCTAGTGAACCTATACAAG
747▶ G Y S T S K Q D A M Y I A N P Q A T G T L T A E T R Q L V N L Y K

MscI (2930)

2901 TGCTAGAAAGCAGAGACCTGACTCAAACCTGGCCAACCTGACCAGCCCTTGACAGTCACCCAGTGAACCTTCTAGCCATGAAGGCTATTTACC
780▶ V L E S R D P D S K L A N L T S P L T V T P V N Y L P S H E G Y L P

3001 CTCCAACATAGAAGATCTGTCCACATGAGGCTGACCAACTGATTCTTTGACCTGGAGCATCAACATATTTCTTTCCATTTTTGCATCAAGTTCT
813▶ S N I E D L S P H E A D P T D S F D L E H Q H I S L S I F A S S S

BsrBI (3124) XbaI (3135) BspHI (3167)

3101 CTCCGCCACTCATCTTCGGTGGTGAGCGGCTGACTCTAGATCGGTTAAAGATGGGCTATGACTCCCTCATGAGTAATGAGGCTTGATACTAGAAAGCCA
847▶ L R P L I F G G E R L T L D R L K M G Y D S L M S N E A •

MscI (3228) NheI (3222)

3201 ACGTACCTCATTATCTGCCCGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGGACAAACCACAACCTAGAATGCAGTGAAAAAATGCTTT

HpaI (3360) MfeI (3371)

3301 ATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAGTTAACACAACAATTGCATTCATTTTATGTTTCAGGTTCC

EcoRI (3456)

3401 AGGGGGAGGTGTGGGAGGTTTTTTAAAGCAAGTAAACCTCTACAATGTGGTATGGAATTCTAAAATACAGCATAGCAAACCTTAAACCTCAAATCAA
3501 GCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTTGCCAATGTGCATTAGCTGTTTCAGCCTCACCTTCTTTCATGG

SspI (3695)

3601 AGTTTAAGATATAGTGTATTTTCCCAAGGTTTGAACCTAGCTCTTCATTCTTTATGTTTTAAATGCAGCTGACCTCCACATTCCTTTTTAGTAAAATAT

SwaI (3709) EcoO109I (3770)

3701 TCAGAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTCATAATATCCCCAGTTTAGTA
3801 GTTGGACTTAGGGAACAAAGAACCTTTAATAGAAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCTGGTGTACTTGAGGGGGATGAGTTCCT
1414 • N R T Y K L P I L E E

BstXI

3901 CAATGGTGGTTTTGACCAGCTTGCATTCTCAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTGACATGCCACAGGGGCTGAC
129▶ 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 G C P S V
4001 CACCCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCCGTTGCTCACAGCAGACCCAATGGCA
96▶ 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 S G I A

StuI (4134)

4101 ATGGCTTACAGCACAGACAGTACCTGCCAATGTAGCCCTCAATGTGGACAGCAGAGATGATCTCCCAAGTCTTGGTCTGATGGCCGCCCGACATGGT
62▶ 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 A G V H H

BspHI (4284) BbsI (4280)

4201 GCTTGTGCTCATAGAGCATGGTGTCTTCTCAGTGGCAGCTCCACCAGCTCCAGATCCTGCTGAGAGATGTTGAAGTCTTCATGATGGCCCTCT
29▶ 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 M

AseI (4342)

4301 ATAGTGAGTCGTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTCACTAAAC

SpeI (4497)

4400 GAGCTCTGCTTATATAGACCTCCACCGTACACGCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTTACGACATTTGGAAAGTCCCGTTGATTTA
4499 CTAGTCAAAACAAACTCCCATTGACGTCATGGGGTGGAGACTTGGAAATCCCCGTGAGTCAAACCGCTATCCACGCCATTGATGTAAGTCCAAAAC

SnaBI (4625)

4598 GCATCATCATGGTAATAGCGATGACTAATACGTAGATGTACTGCCAAGTAGGAAAGTCCATAAGGTCATGTACTGGCATAATGCCAGGCGGGCCATTT

NdeI (4730)

4698 ACCGTCATTGACGTCAATAGGGGGCTACTTGGCATATGATACACTTGTACTGCCAAGTGGGCAGTTTACCGTAAATACTCCACCCATTGACGTCAA
4798 TGGAAAGTCCCTATTGGCGTTACTATGGGAACATACGTCATTATTGACGTCATGGGGGGGGTCTGTTGGCGGTGAGCCAGGCGGGCCATTTACCGTAA

SdaI (4908) PacI (4916) BspLU11I (4926)

4898 GTTATGTAACGCCTGCAGGTTAA TTAAGAACATGTGAGCAAAGGCCAGCAAAGGCCAGGAACCGTAAAAAGGCCGCTTGTGGCGTTTTTCCATA
4996 GGCTCCGCCCCCTGACGAGCATCAAAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAGATACCAGGCGTTTCCCCTGGAAG
5096 CTCCTCGTGGCTCTCCTGTTCCGACCCTGCCGTTACCGGATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTGGCGTTTCTCATAGCTCACGCTGT

ApaLI (5240)

5196 AGGTATCTCAGTTCGGTGTAGGTCGTTCCGCTCCAAGCTGGGCTGTGTGCAGAACCCCGTTCAGCCCGACCGCTGCGCCTTATCCGGTAACTATCGTC
5296 TTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGCGGTGCTACAGAGTTCTT
5396 GAAGTGGTGGCTAACTACGGCTACACTAGAAGACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGA
5496 TCCGGCAAACAAACCACCGCTGGTAGCGGTGGTTTTTTGTTTGAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTT

EagI (5676) PacI (5656) SwaI (5665) NotI (5675)

5596 CTACGGGTCTGACGCTCAGTGGAAACGAAAACCTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATC AGCGGCCGCAATAAAATATC
5695 TTTATTTTTCATTACATCTGTGTGTTGGTTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAAACAAAACGAAACAAAACAACTAGCAAATAG
5795 GCTGTCCCAAGTCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA