



150

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

Psp1406I (203) 201 GTGAACGTTCTTTTTCGCAACGGGTTTCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCCTTACGCGCCCGCCGCTACCTGAGGCC
HindIII (245)
Bsu36I (291)
301 GCCATCCACGCGGGTTGAGTCGCGTTTCTGCCGCTCCCGCTGTGGTGCCTCCTGAAGTGCCTCCGCGCTAGGTAAGTTAAAGCTCAGGTCGAGACC
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCCTGCTTGTCAACTCTACGCTTTTGTTCGTTT

BstEII (555)
AgeI (552) 501 TCTGTTCTGCGCCGTTACAGATCCAAGCTGTGACCGCGCCTACCTGAGATCACGGTACCATTGGGCCCTACTGTGCCCGCACCCCTTTCTCTCT
601 GGTGCAGGCGGGCACTGGCAGCGGCCCTGGCCGAGGGCACCTGCCTGCCTTCTGCCTGTGAGCTCCAGCCCATGGTCAGGTGGACTGCAACTGG
13▶ V Q A A A L A A A L A E G T L P A F L P C E L Q P H G Q V D C N W
XmaI (740)
701 CTGTTCTGAAGTCTGTGCCGACTTTTTCGGCTGGAGCCCCCGGCAATGTACCAGCCTCTCCTTAATCTCCAACCGCATCCACCATTGCATGACT
47▶ L F L K S V P H F S A G A P R A N V T S L S L I S N R I H H L H D
801 CTGACTTCGTTCCACCTGTCCAACCTGCGGGTCTCAACCTCAAGTGAAGTGCCTCCGCGCGCCGCTCAGCCCATGCACTTCCCTGCGTATGACCAT
80▶ S D F V H L S N L R V L N L K W N C P P A G L S P M H F P C R M T I
901 CGAGCCCAACACCTTCTGGCTGTGCCACCCTGGAGGAGCTGAAGTGAAGTGCCTGAGCTACAACGGCATCACGACCGTGCCTGCCAGTCCCTCGTGCC
113▶ E P N T F L A V P T L E E L N L S Y N G I T T V P A L P S S L V S
BsrGI (1073)
1001 CTGTCGCTGAGCCACACCAGCATCTGGTGTAGGCCACCCACTTACCAGGCTGCACGCCCTGCGCTTTCTGTACATGGACGGCAACTGCTACTACA
147▶ L S L S H T S I L V L G P T H F T G L H A L R F L Y M D G N C Y Y
SacII (1111)
1101 TGAACCCCTGCCCGGGCCCTGGAGGTGGCCAGGCGCCCTCTCGGCTGGCAACCTCACGCACCTGTGCTCAAGTACAACAACCTCACGGAGT
180▶ M N P C P R A L E V A P G A L L G L G N L T H L S L K Y N N L T E V
1201 GCCCGCGCGCTGCCCGCAGCTGGACACCCTGCTGTCTACAACCATTTGTCACCCTGGACCCGAGGACCTGGCAACCTGACTGCCCTGCGC
213▶ P R R L P P S L D T L L L S Y N H I V T L A P E D L A N L T A L R
SdaI (1349)
1301 GTGCTTACGCTGGGTGGAACTGCCCGCTGCGACCATGCCCGCAACCCCTGAGGGAGTGCCCAAAGAACTTCCCAAGCTGCACCCTGACACCTTCA
247▶ V L D V G G N C R R C D H A R N P C R E C P K N F P K L H P D T F
StuI (1419) 1401 GTCACCTGAGCCGCTCGAAGGCCTGGTGTGAAGGACAGTCTCTCTACAACTAGAGAAAGATTGGTTCCGCGGCCTGGGAGGCTCCAAGTGTCTGA
280▶ S H L S R L E G L V L K D S S L Y K L E K D W F R G L G R L Q V L D
SacII (1470)
FspI (1565) 1501 CCTGAGTGAGAACTTCTCTATGACTACATCACCAAGACCACCATCTTCAACGACCTGACCCAGCTGCGCAGACTCAACTGTCTTCAATTACCACAAG
313▶ L S E N F L Y D Y I T K T T I F N D L T Q L R R L N L S F N Y H K
BsrBI (1686)
1601 AAGGTGCTCTCGCCACCTGCACCTGGCGTCTCTTTGGGAGTCTGGTGTCCCTGGAGAAGCTGGACATGCACGGCATCTTCTCCGCTCCCTCACCA
347▶ K V S F A H L H L A S S F G S L V S L E K L D M H G I F F R S L T
1701 ACATCACGCTCCAGCCGCTGACCCGGCTGCCAAGCTCCAGAGTCTGCGTCTGACGCTGAATTCATCAACAGGCCAGCTCAGCATCTTTGGGGCCTT
380▶ N I T L Q P L T R L P K L Q S L R L Q L N F I N Q A Q L S I F G A F
NotI (1858)
1801 CCCGAGCTGCTCTTCTGGACCTGTCGGACAACCGCATCAGCGGAGCCGCGACGCCAGCGCCCTGGGGGAGGTGGACAGCAGGGTGAAGTCTGG
413▶ P S L L F V D L S D N R I S G A A T P A A A L G E V D S R V E V W
1901 CGATTGCCAGGGGCTGCTCCAGGCCGCTGGACGCGTCAAGGACTTCATGCAAGCTGCAACCTCAACTTCACTTGGACCTGTCACGGA
447▶ R L P R G L A P G P L D A V S S K D F M P S C N L N F T L D L S R
2001 ACAACCTGGTACAATCCAGCAAGAGATGTTTACCGCCTCTCCGCTCCAGTGCCTGCGCTGAGCCACAACAGCATCTCAGGGCGTTAATGGCTC
480▶ N N L V T I Q Q E M F T R L S R L Q C L R L S H N S I S Q A V N G S
2101 CCAGTTCGTGCGGCTGACCAGCTGCGAGTGTGACCTGTCCACAACAAGCTGGACCTGTACCATGGGCGCTATTACGGAGCTGCCACAGCTGGAG
513▶ Q F V P L T S L R V L D L S H N K L D L Y H G R S F T E L P Q L E
SphI (2234)
2201 GCACTGGACCTCAGCTACAACAGCCAGCCCTTACGATGCAGGGCTGGGCCACAACCTCAGCTTCTGGGCCAGCTGCCCTCCTGCGTACCTCAGCC
547▶ A L D L S Y N S Q P F S M Q G V G H N L S F V A Q L P S L R Y L S
FspI (2301) 2301 TTGCGCACAAATGGCATCCACAGCCGCTGTACAGAAGCTCAGCAGCGCCTGTTGCGCGCCCTGGACTTCAGCGGCAACTCCCTGAGCCAGATGTGGGC
580▶ L A H N G I H S R V S Q K L S S A S L R A L D F S G N S L S Q M W A
2401 GGAGGGAGACCTCTATCTGCTTTTTCAAAGGCTTGAAGAACCTGGTCCAGCTGAGCTGTCGAGAACCTCTGCGAGAACCCTCTGCACACCCTCCTGCTCCTG
613▶ E G D L Y L C F F K G L R N L V Q L D L S E N H L H T L L P R H L
2501 GACAACCTGCCAAGAGCCTGCGGAGTGTGCTCTCCGGACAATAACCTGGCCTTCTTCAACTGGAGCAGCTGACCGTCTGCCCGGCTGGAAGCCC
647▶ D N L P K S L R Q L R L R D N N L A F F N W S S L T V L P R L E A
2601 TGGATCTGGCAGGAAACAGCTGAAGGCCCTGAGCAACGGCAGCTGCCGCTGGCATCCGGCTCCAGAAGCTGGAGCTGAGCAGCAACAGCATCGGCTT
680▶ L D L A G N Q L K A L S N G S L P P G I R L Q K L D V S S N S I G F
BamHI (2775)
2701 CGTGATCCCCGCTTCTTCTGTCGCGGACTCGGCTGATAGAGCTTAACTCAGCGCAATGCCCTGAAGACAGTGGATCCCTCCTGGTTCTGTTCTCTTA
713▶ V I P G F F V R A T R L I E L N L S A N A L K T V D P S W F G S L

XmaI (2899)
SrfI (2898)

SandI (2803) **B**srBI (2836)

2801 GCAGGGACCTGAAAATCCTAGACGTGAGCGCCAAACCCGCTCCACTGCGCCTGCGGGGCGGCCTTTGTGGACTTCTGCTGGAGAGACAGGAGGCCGTGC
747▶ A G T L K I L D V S A N P L H C A C G A A F V D F L L E R Q E A V

BspLU11I (2920) **P**shAI (2968)

2901 CCGGGCTGTCCAGGCGCGTCACATGTGGCAGTCCGGGCGCAGCTCCAGGGCCGAGCATCTTACACAGGACCTGCGTCTCTGCTGGATGAGACCTCTC
780▶ P G L S R R V T C G S P G Q L Q G R S I F T Q D L R L C L D E T L S
3001 CTTGGACTGCTTTGGCCTCTCGCTGCTAATGGTGGCGCTGGCCTGGCAGTGCACACCTCTGTGGCTGGACCTTGGTACTGCTTCCAC
813▶ L D C F G L S L L M V A L G L A V P M L H H L C G W D L W Y C F H
3101 CTGTGTCTGGCCATTTGCCCGACGGCGGGCGGAGCAGGGGCGAGGACACCTGCTCTATGATGCCTTCTGTGGTCTTGCACAAGTGCAGAGTGCAGTGG
847▶ L C L A H L P R R R R Q R G E D T L L Y D A F V V F D K V Q S A V

BsrGI (3209)

3201 CTGATTGGGTGTACAACGAGCTCCGCGTGCAGCTGGAGGAGCGCGGGGCGCCGGGCGCTCCGCTCTGCTGGAGGAGCGAGACTGGCTCCCTGGTAA
880▶ A D W V Y N E L R V Q L E E R R G R R A L R L C L E E R D W L P G K

RsrII (3368) **B**ssHII (3390)

3301 GACGCTCTTCGAGAACCTGTGGCCTCGGTCTACAGCAGCCGCAAGACCATGTTCTGTGCTGGAACACACGGACCGGGTCAAGCCCTCTGCGCGCCAGC
913▶ T L F E N L W A S V Y S S R K T M F V L D H T D R V S G L L R A S
3401 TTCCTGCTGGCCAGCAGCGCTGTTGGAGGACCGCAAGGACGTCGTAGTGTGCTGATCCTGCGCCCGCGCTATCGGTCCCGCTACGTGCGGCTGC
947▶ F L L A Q Q R L L E D R K D V V V L V I L R P A A Y R S R Y V R L

PshAI (3595)

3501 GCCAGCGCTCTGCCCGCAGAGCTCTCTCTGGCCCCACCAGCCAGTGGCCAGGGTAGTTTCTGGCCAACTGGGCATAGCCCTGACCAGGGACAA
980▶ R Q R L C R Q S V L L W P H Q P S G Q G S F W A N L G I A L T R D N

NheI (3664)

3601 CCGTCACTTCTATAACCGAACTTCTGCCGGGGCCCCAGACAGCCGAATAGCACAGACTGCCTGCTAGCTGGCCAGACATGATAAGATACATTGATGAG
1013▶ R H F Y N R N F C R G P T T A E •

3701 TTTGGACAAACCACTAGAATGCAGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAAC

HpaI (3802) **M**feI (3813) **E**coRI (3898)

3801 AAGTTAAACAACAATTGCATTCATTTATGTTTCAGGTTTCAGGGGAGGTGTGGGAGTTTTTTAAAGCAAGTAAACCTCTACAAATGTGGTATGGA
3901 ATTCTAAAATACAGCATAGCAAACTTTAACCTCAAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTG
4001 CCAATGTGCATTAGCTGTTTGCAGCCTCACCTTCTTTCATGGAGTTTAAAGATATAGTGTATTTTCCCAAGTTTGAACATAGCTCTTCATTTCTTTATGTT

SspI (4137) **S**waI (4151)

4101 TTAATGCACTGACCTCCCACATCCCTTTTTAGTAAAATATTCAGAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTATTAGGCAGAA
4201 TCCAGATGCTCAAGGCCCTTCATAATATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTAAATAGAAATTGGACAGCAAGAAAGCGAGCT
4301 TCTAGCTTTAGTTCCTGGTACTTGGAGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCATTTCATCTCAATGAGCACAAAGCAGTCAGGAGC
144▶ • 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
4401 ATAGTCAGAGATGAGCTCTGACATGCCACAGGGGCTGACCACCCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCTGACAGCCACAATGGTG
110▶ 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 V A V I T
4501 TCAAAGTCTTCTGCCCGTTGCTCACAGCAGACCAATGGCAATGGCTTTCAGCACAGACAGTGCACCTGCCAATGTAGGCCTCAATGTGGACAGCAGAGA
76▶ 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 I H V A S I
4601 TGATCTCCCAGTCTTGGTCTGATGGCCGCCCGACATGGTCTTGTGCTCATAGAGCATGGTATCTTCTCAGTGGCGACCTCCACCAGCTCCAG
43▶ 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 V E V L E L

BspHI (4726) **X**mnI (4718) **A**seI (4784)

4701 ATCCTGCTGAGAGATGTTGAAGTCTTCATGATGGCCCTCTATAGTGTGATTATACTATGCCGATATACTATGCCGATGATTAATTTGTCAAACA
10▶ D Q Q S I N F T K M
4801 GCGTGGATGGCGTCTCCAGCTATCTGACGGTTCACATAACGAGCTCTGCTTATATAGACCTCCACCCTACACGCTACCGCCATTTGCGTCAATGGG

SpeI (4939)

4901 GCGGAGTTGTACGACATTTTGGAAAGTCCCGTTGATTTACTAGTCAAACAAACTCCCATTGACGTCAATGGGGTGGAGACTTGGAAATCCCCGTGAG

SnaBI (5067)

5000 TCAAACCGCTATCCACGCCATTGATGTACTGCCAAAACGCATCATCATGGTAATAGCGATGACTAATACGTAGATGTACTGCCAAGTAGGAAAGTCCC

NdeI (5172)

5100 ATAAGTCACTGACTGGGCATAATGCCAGCGGGCCATTTACCGTCATTGACGTCAATAGGGGGCGTACTTGGCATATGATACACTTGTACTGACCAA
5200 GTGGGCAGTTTACCGTAAATACTCCACCATTGACGTCAATGGAAAGTCCCTATTGGCGTTACTATGGGAACATACGTATTATTGACGTCAATGGGCGG

SdaI (5350) **P**aeI (5358) **B**spLU11I (5368)

5300 GGGTCTTGGGCGGTGAGCCAGGCGGGCCATTTACCGTAAATGTAACGCCTGCAGGTTAA TTAAGAACATGTGAGCAAAGGCCAGCAAAGGCC
5398 AGGAACCGTAAAAAGGCCGCTTGTGGCGTTTTTCCATAGGCTCCGCCCTGACGAGCATCACAATAATCGACGCTCAAGTCAGAGGTGGCGAAACC
5498 CGACAGGACTATAAGATACCAGGCTTTCCCTGGAAGCTCCCTGCTGCGCTCTCTGTTCCGACCCTGCCGTTACCGGATACCTGTCCGCTTTCT

ApaLI (5682)

5598 CCCTTCGGGAAGCGTGGCGCTTTCTCATAGCTCACGCTGATGATCTCAGTTCGGTGTAGGTCGTTCCGCTCCAAGCTGGGCTGTGTGCAGAACCCCC

5698 GTTCAGCCCACCCTGCGCCTTATCCGGTAACTATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGA
5798 TTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCT
5898 GAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAACAAACCACCGCTGGTAGCGGTGGTTTTTTGTTTGAAGCAGCAGATTACG
5998 CGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGTCTGACGCTCAGTGGAACGAAAACTCACGTTAAGGGATTTTGGTCATGGCTA
PacI (6098) SwaI (6107) NotI (6117)
6098 GTTAATTAACATTTAAATC AGCGGCCCAATAAAATATCTTTATTTTCATTACATCTGTGTGTTGGTTTTTTGTGTGAATCGTAACTAACATACGCTCTC
6198 CATCAAAACAAAACGAAACAAAACAAACTAGCAAATAGGCTGTCCCCAGTGCAAGTGCAAGTGCCAGAGTCCAGAACATTTCTCTATCGAA