



PvuI (7)
SgfI (6)

1 GGATCTGCGATCGCTCCGGTCCCGTCCAGTGGGCAGAGCGCACATCGCCACAGTCCCGAGAAAGTTGGGGGAGGGGTCCGCAATTGAACGGGTGCCTA
101 GAGAAGGTGGCGCGGGGTAAACTGGGAAAGTGATGTCGTGTACTGGCTCCGCCCTTTTCCCGAGGGTGGGGGAGAACCGTATATAAGTGCAGTAGTCGCC

Psp1406I (203)

201 GTGAACGTTCTTTTTCGCAACGGGTTTGGCCGCAGAACACAGCTGAAGCTTCGAGGSGCTCGCATCTCTCCTTCACGCGCCCGCGCCCTACCTGAGGCC
301 GCCATCCACGCGGTTGAGTCGGTCTTCCGCCCTCCCGCCTGTGGTGCCTCCGAACTGCGTCCGCCGTCTAGGTAAGTTTAAAGCTCAGGTCGAGACC

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

401 GGGCCTTTGTCCGCGCTCCCTTGGAGCCTACCTAGACTCAGCGGCTCTCCACGCTTTGCCTGACCCCTGCTTGCTCAACTCTACGCTTTGTGTTGTTTT

KasI (535) AgeI (552)

501 TCTGTTCTGCGCGCTTACAGATCCAAGCTGTGACCGGCGCTACCTGAGATCACCCGTAGGAGGGCCACCATGGTGTPTTTCGATGTGGACACGGAAGAGA
11 M V F S M W T R K R
601 CAAATTTTGTATCTTTTAAATATGCTCTTAGTCTTAGAGTCTTTGGGTTTCGATGGTTCCTAAAACCTACCTTGTGAAGTTAAAGTAAATATCCAG
11 Q I L I F L N M L L V S R V F G F R W F P K T L P C E V K V N I P
701 AGGCCCATGTGATCGTGGATGTCACAGACAAGCAATTTGACAGAAATCCCTGAGGGCATTCCCACTAACACCACCAATCTTACCCTTACCATCAACCCAT
44 E A H V I V D C T D K H L T E I P E G I P T N T T N L T L T I N H I

Clal (849)

801 ACCAAGCATCTCTCCAGATTCCTTCCGTAGGCTGAACCATCTGGAAGAAATCGATTTAAGATGCAATTTGTGTACTGTCTACTGGGGTCCAAAGCCAAT
77 P S I S P D S F R R L N H L E E I D L R C N C V P V L L G S K A N
901 GTGTGTACCAAGAGGCTGCAGATTAGACCTGGAAAGCTTTAATGGACTCTCTGACTTAAAGCCCTTTACCTGGATGGAAACCAACTCTGGAGATACCAC
111 V C T K R L Q I R P G S F S G L S D L K A L Y L D G N Q L L E I P
1001 AGGATCTGCCATCCAGCTTACATCTTCTGAGCCTTGAGGCTAACCAACATCTTCCATCAGAAAGGAGAATCTAACAGAAATGGTCAACATTTGAAACACT
144 Q D L P S S L H L L S L E A N N I F S I T K E N L T E L V N I E T L
1101 CTACTGGGTCAAACCTGTATTATCGAAATCCTTGAATGTTTCTTCTATTCTATTGAAAAGATGCTTTCCTAGTTATGAGAAATTTGAAGGTTCTCTCA
177 Y L G Q N C Y Y R N P C N V S Y S I E K D A F L V M R N L K V L S
1201 CTAAAAGATAACAATGTCAAGCTGTCCCAACAATTTGCCACCTAATTTACTAGAGCTCTATCTTTATAACAATATCAITTAAGAAATCCAAGAAAATG
211 L K D N N V T A V P T T L P P N L L E L Y L Y N N I I K K I Q E N

DraIII (1381)

BsrGI (1377)

1301 ATTTTAATAACCTCAATGAGTTGCAAGTCTTGGACCTAAGTGGAAATTCGCCCTCGATGTTATAATGTCCCATATCCGTGTACCCGTGTGAAAATAATTC
244 D F N N L N E L Q V L D L S G N C P R C Y N V P Y P C T P C E N N S
1401 CCCCTTACAGATCCATGACAATGCTTTCAAITTCAITGACAGAAATTAAGGTTTTCAGTTTACACAGTAATTTCTTTCAGCATGTGCCCCCAACATGGTTT
277 P L Q I H D N A F N S L T E L K V L R L H S N S L Q H V P P T W F
1501 AAAAAATGAGAAAACCTCCAGGAAGTACCTTCCCAAACCTACTTGGCCAGAGAAATGAGGAGGCCAAAATTTTGCATTTTCTTCCCAACCTTGTG
311 K N M R N L Q E L D L S Q N Y L A R E I E E A K F L H F L P N L V

Ppu10I (1639)

NsiI (1639)

1601 AGTTGGATTTTCTTTCAATTATGAGCTGCAGGTCTACATGATCTATAACTTTACCACATTCACCTCTTTCATTGGAAAACCTGAAAATTTCTGCGTGT
344 E L D F S F N Y E L Q V Y H A S I T L P H S L S S L E N L K I L R V
1701 CAAGGGGTATGTCTTTAAAGAGCTGAAAACTCCAGTCTTTCTGTATGTGACACAAGCTTCCAGGCTGGAAAGTTCTTGACCTTGGCACTAACTTCATAAAA
377 K G Y V F K E L K N S S L S V L H K L P R L E V L D L G T N F I K

EcoRV (1865)

Eco32I (1865)

1801 ATTGTGACCTCAACATATTTCAACATTTTGAACCTTCAAACCTCATAGACCTTTTCAGTGAATAAGATATCTCCTTCCAGAAGAGTCAAGAGAAGTTGGCT
411 I A D L N I F K H F E N L K L I D L S V N K I S P S E E S R E V G

StuI (1951)

Bsp120I (1935) Eco147I (1951)

1901 TTTGTCCTAATGCTCAAACCTCTGTAGACCGTCAATGGGCCCCAGGTCTTGGAGGCTTACACTATTTCCGATACGATGAATATGACCGGAGCTGCAGGTT
444 F C P N A Q T S V D R H G P Q V L E A L H Y F R Y D E Y A R S C R F
2001 CAAAAACAAAGAGCCACCTTCTTCTTGCCTTTGAATGCGAGACTGCCACATATATGGGCAGACCTTAGACTTAAGTAGAAAATAACATATTTTTTATTA
477 K N K E P P S F L P L N A D C H I Y G Q T L D L S R N N I F F I K

XcmI (2162)

2101 CCTTCTGATTTTCAGCATCTTTCAATTCCTCAAATGCCTCAACTTATCAGGAAACACCAATTTGGCCAAACTCTTAATGGCAGTGAACCTGCGCGTTGAGAG
511 P S D F Q H L S F L K C L N L S G N T I G Q T L N G S E L W P L R
2201 AGTTGCGGTACTTAGACTTCTCCAACAACCGGCTTGATTTACTCTACTCAACAGCCTTTGAAGAGCTCCAGAGTCTTGAAGTTCTGGATCTAAGTAGTAA
544 E L R Y L D F S N N R L D L L Y S T A F E E L Q S L E V L D L S S N

PagI (2374)

BspHI (2374)

2301 CAGCCACTATTTTCAAGCAGAAGGAATTACTCACATGCTAAACTTTACCAAGAAATTTACGGCTTCTGGACAAACTCATGATGAATGATAATGACATCTCT
577 S H Y F Q A E G I T H M L N F T K K L R L L D K L M M N D N D I S

BstBI (2434)

Bsp119I (2434)

XcmI (2407)

AsuII (2434)

2401 ACTTCGGCCAGCAGGACCATGGAAAGTACTCTTTCGAAATCTGGAGTTTCAGAGGCAACCAATTTAGATGTTCTATGGAGAGCCGGTGATAACAGATACT
611 T S A S R T M E S D S L R I L E F R G N H L D V L W R A G D N R Y

EcoRV (2538)
Eco32I (2538)
XmnI (2513)
2501 TGGACTTCTTCAAGAAATTTGTTCAATTTAGAGGTATTAGATATCTCCAGAAATTCCTGAAATTCCTTGCCCTCTGAGGTTTTGAGGGTATGCCGCCAAA
644▶ L D F F K N L F N L E V L D I S R N S L N S L P P E V F E G M P P N
2601 TCTAAAGAATCTCTCCTTGGCCAAAAATGGGCTCAAAATCTTTCTTTGGGACAGACTCCAGTTACTGAAGCATTGGGAAATTTGGACCTCAGCCATAAC
677▶ L K N L S L A K N G L K S F F W D R L Q L L K H L E I L D L S H N
SspI (2791)
2701 CAGCTGACAAAAGTACCTGAGAGATTGGCCAACTGTTCCAAAAGTCTCACAACACTGATTCTTAAGCATAATCAAATCAGGCAATTGACAAAATATTTTT
711▶ Q L T K V P E R L A N C S K S L T T L I L K H N Q I R Q L T K Y F
2801 TAGAAGATGCTTTGCAATTGCGCTATCTAGACATCAGTTCAAATAAATCCAGGTCAATTCAGAAGACTAGCTTCCAGAAAATGTCCCTCAACAATCTGGA
744▶ L E D A L Q L R Y L D I S S N K I Q V I Q K T S F P E N V L N N L E
HpaI (2964)
2901 GATGTGGTTTTACATCACAAATCGCTTTCTTTGCAACTGTGATGCTGTGTGGTTTGTCTGGTGGGTTAACCATACAGATGTTACTATTCCATACCTGGCC
777▶ M L V L H H N R F L C N C D A V W F V W W V N H T D V T I P Y L A
Bst1107I (3062) BglII (3077)
3001 ACTGATGTGACTTGTGTAGGTCCAGGAGCACAAAAGGTCAAAGTGTCAATCCCTTGATCTGTATACGTTGAGTTAGATCTCACAAACCTGATTCTGT
811▶ T D V T C V G P G A H K G Q S V I S L D L Y T C E L D L T N L I L
3101 TCTCAGTTTCCATATCATCAGTCTCTTTCTTATGGTAGTTATGACAAACAGTCACTCTTTTCTGGGATATGTGGTACATTTTATTATTTTGGAAAGC
844▶ F S V S I S S V L F L M V V M T T S H L F F W D M W Y I Y Y F W K A
3201 AAAGATAAAGGGTATCAGCATCTGCAATCCATGGAGTCTTGTATGATGCTTTTATTGTGTATGACACTAAAACTCAGCTGTGACAGAATGGGTTTTG
877▶ K I K G Y Q H L Q S M E S C Y D A F I V Y D T K N S A V T E W V L
3301 CAGGAGCTGGTGGCAAAATTTGGAAGATCCAAGAGAAAAACACTTCAATTTGTGTCTAGAAGAAAAGAGACTGGCTACCCAGGACAGCCAGTTCTAGAAAACC
911▶ Q E L V A K L E D P R E K H F N L C L E E R D W L P G Q P V L E N
3401 TTTCCAGAGCATAACAGCTCAGCAAAAAGACAGTGTTTGTGATGACACAGAAAATATGCTAAGACTGAGAGTTTAAAGATGGCAATTTTATTGTCTCATCA
944▶ L S Q S I Q L S K K T V F V M T Q K Y A K T E S F K M A F Y L S H Q
3501 GAGGCTCTGGATGAAAAGTGGATGTGATTATCTTGATATTCTTGGAAAAGCCTCTTCAGAAGTCTAAGTTTCTTCAGCTCAGGAAGAGACTCTGCAGG
977▶ R L L D E K V D V I I L I F L E K P L Q K S K F L Q L R K R L C R
3601 AGCTCTGCTTGTAGTGGCTGCAAAATCCACAGGCTCACCCATCTCTGGCAGTGCCTGAAAAATGCCCTGACCACAGACAATCATGTGGCTTATAGTC
1011▶ S S V L E W P A N P Q A H P Y F W Q C L K N A L T T D N H V A Y S
BamHI (3720) NdeI (3760)
3701 AAATGTTCAAGGAAACAGTCGGATCCTATCCCTATGATGTGCCAGACTGCTGGCTATCCATATGATGTTCTGATTATGCTGGATACCCCTTATGATGT
1044▶ Q M F K E T V G S Y P Y D V P D Y A G Y P Y D V P D Y A G Y P Y D V
NheI (3817)
3801 GCCAGACTATGCCATAAGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGGACAAACCACAACCTAGAATGCAGTGAATAAATGCTTTTATTGG
1077▶ P D Y A •
HpaI (3955)
3901 TGAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGCTGCAATAAACAGTTAACAAACAACATTCGATTCATTTTATGTTTTCAGGTTTCAGGGG
4001 GAGGTGTGGGAGGTTTTTTAAAGCAAGTAAAACCTCTACAATGTGGTATGGAATTTCTAAAATACAGCATAGCAAACTTTAACCTCCAAATCAAGCCTC
4101 TACTTGAATCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGCTGTTGCCAATGTGCATTAGCTGTTTGCAGCTCACCTTCTTTCATGAGGTTT
SspI (4290)
4201 AAGATATAGTGATTTTCCCAAGGTTTGAAGTCTCTTCATTTCTTTATGTTTAAATGCAGTACCTCCCACTTCCCTTTTATGATAAATATTTCAGA
Swal (4304)
4301 AATAATTTAAATACATCAITGCAATGAAAATAAATGTTTTTTTATTTAGGCAGAATCCAGATGCTCAAGGCCCTTCCATAATATCCCCAGTTTAGTAGTTGG
4401 ACTTAGGGAACAAAGAACCTTTAATAGAAATGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTTCTGGTGTACTTGAGGGGATGAGTTCTCAATG
4501 GTGGTTTTGACCAGCTTGCCATTCTCAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTCTGCACATGCCACAGGGGCTGACCAACC
127▶ 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 V R
4601 TGATGGATCTGTCCACCTCATCAGAGTAGGGTGCCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCCGTTGCTCACAGCAGACCAATGCAATGGC
94▶ 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 I A
StuI (4729)
Eco147I (4729)
4701 TTCAGCACAGACAGTACCCTGCAATGTAGGCTCAATGTGGACAGCAGAGATGATCTCCCAGTCTTGGTCTGATGGCCGCCGACATGGTGTCTG
61▶ 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 K
PagI (4879)
BspHI (4879)
XmnI (4871)
4801 TTGTCCTCATAGAGCATGGTGTCTTCTCAGTGGCGACCTCCACCAGTCCAGATCCTGCTGAGAGATGTTGAAGGTTCTTCATGATGGCCCTCTATAGT
27▶ 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
VspI (4937)
AseI (4937)
4901 GAGTCGTATTATACTATGCCGATATACTATGCCGATGATTAATTTGCAAAACACAGCGTGGATGGCGTCTCCAGCTTATCTGACGGTTCACTAAACGAGCTC
SpeI (5092)
5001 TGCTTATATAGACCTCCACCGTACACGCTACCGCCATTGCGTCAATGGGCGGAGTTGTTACGACATTTTGGAAAAGTCCCGTTGATTTACTAGTCA
5101 AAACAACTCCCATTTGACGTCAATGGGGTGGAGACTTGGAAATCCCGTGTAGTCAAACCGCTATCCACGCCAATGTATGACTGCCAAAACCGCATCATC

SnaBI (5220)
Eco105I (5220)

5201 ATGGTAAATAGCGATGACTAATACGTAGATGTACTGCCAAGTAGGAAAGTCCCATAAGGTCAATGTACTGGGCATAATGCCAGGCGGGCCATTTACCGTCAT

NdeI (5325)

5301 TGACGTCAATAGGGGGCGTACTTGGCATATGATACACTTGTATGTACTGCCAAGTGGGCAGTTTACCGTAAATACTCCACCCATTGACGTCAATGGAAAGT

5401 CCCTATTGGCGTTACTATGGGAACATACGTCATTATTGACGTCAATGGGCGGGGTCTTGGGCGGTCAGCCAGGCGGGCCATTTACCGTAAAGTTATGTA

PacI (5511)

SdaI (5503)

BspLU111 (5521)

5501 ACGCCTGCAGGTTAATTAAAGAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAAGGCCGCGTTGCTGGCGTTTTTCCATAGGCTCCGCCC

5601 CCCTGACGAGCATCACAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAAGATACCAGGCGTTTCCCCTGGAAGCTCCCTCGT

5701 CGCTCTCCTGTTCCGACCCCTGCCGCTTACCGGATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTGGCGCTTTCTCATAGCTCACGCTGTAGGTATCTCA

ApaLI (5835)

5801 GTTCGGTGTAGGTGTTTCGCTCCAAGCTGGGCTGTGTGCAGAACCCCGTTTCAGCCGACCGCTGCGCCTTATCCGGTAACTATCGTCTTGAGTCCAA

5901 CCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGCTACAGAGTTCTTGAAGTGGTGG

6001 CCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGGAAAAAGAGTTGGTAGCTCTTGATCCGGCAAAC

6101 AAACCACGCTGGTAGCGGTGGTTTTTTTGTGTTGCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAAGATCCTTTGATCTTTTCTACGGGGTC

EagI (6271)

PacI (6251) SmaI (6260) NotI (6270)

6201 TGACGCTCAGTGGAACGAAAACCTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATCAGCGGCCGCAATAAAAATATCTTTATTTTCAT

6301 TACATCTGTGTGTTGGTTTTTTTGTGTGAATCGTAACTAACATACGCTCTCCATCAAAACAAAACGAAACAAAACAACTAGCAAATAGGCTGTCCCCAG

6401 TGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA