



PvuI (7)
SgfI (6) 1 GGATCTGCGATCGCTCCGGTGCCCGTCAGTGGGAGAGCGCACATCGCCACAGTCCCCGAGAAGTTGGGGGAGGGGTCGGCAATTGAACGGGTGCCTA

101 GAGAAAGTGGCGCGGGTAAACTGGAAAAGTGTGCTGTACTGGCTCCGCCTTTTCCGAGGGTGGGGGAGAACCCTATATAAGTGCAGTAGTCGCC

HindIII (245)
Psp1406I (203) 201 GTGAACGTTCTTTTTTCGCAACGGGTTTGCCGCCAGAACACAGCTGAAGCTTCGAGGGCTCGCATCTCTCTTACCGCGCCGCCCTACCTGAGGCC

301 GCCATCCACGCCGGTTGAGTCGGCTTTCGCCGCTCCCGCCTGTGGTGCTCCTGAACTGCGTCCCGCTTAGGTAAGTTTAAAGCTCAGGTCGAGACC

NgoMIV (441)
401 GGGCCTTTGTCCGGCGCTCCCTTGAGCCTACCTAGACTCAGCCGGCTCTCCACGCTTTGCTGACCTGCTTCTCAACTCTACGCTTTTGTTCGTTT

AgeI (552) SphI (560)
501 TCTGTTCTGCGCGTTACAGATCCAAGCTGTGACCGCGCTACCTGAGATCACCGTCAGCATGCCATCTCCTCTCCCTGTCTCCTTCTCCTCTTTCT

601 TACCTTAGTAGGAGGAGGCCCCAGAAGTCTTACTGGTGGAGGTAGAAGAGGGAGGCAATGTTGTGCTGCCATGCCTCCCGACTCCTCACCTGTCTCT
13▶ T L V G G R P Q K S L L V E V E E G G N V V L P C L P D S S P V S

BstEII (724) 701 TCTGAGAAGCTGGCTTGGTATCGAGGTAACACAGTCAACACCCTTCTGGAGCTGAGCCCCGGTCCCTGGCCTGGGATTGCACGTGGGGTCCCTGGGCA
47▶ S E K L A W Y R G N Q S T P F L E L S P G S P G L G L H V G S L G

XmaI (757)
NdeI (829) 801 TCTTGCTAGTGATTGTCAATGTCTCAGACCATATGGGGGCTTCTACCTGTGCCAGAAGAGGCCCTTTCAAGGACATCTGGCAGCCTGCCTGGACAGT
80▶ I L L V I V N V S D H M G G F Y L C Q K R P P F K D I W Q P A W T V

901 GAACGTGGAGGATAGTGGGAGATGTTCCGGTGAATGCTTACAGCTCAGGACCTGGACTGTGACCTAAGGAACAGGTCCTCTGGGAGCCACAGGTC
113▶ N V E D S G E M F R W N A S D V R D L D C D L R N R S S G S H R S

PvuII (1012) 1001 ACTTCTGGTCCACGCTGTATGTGGGCTAAAGACCATCCTAAGGCTGGGGAACAAAGCCTGTATGTGCCCTCGGGGAGCAGTTTGAATCAGAGTC
147▶ T S G S Q L Y V W A K D H P K V W G T K P V C A P R G S S L N Q S

BglII (1110) 1101 TAATCAACCAAGATCTCACTGTGGCACCCGGTCCACACTTTGGTGTCTGTGGGTACCCCTGTCCAGTGGCCAAAGGCTCCATCTCCTGGACCA
180▶ L I N Q D L T V A P G S T L W L S C G V P P V P V A K G S I S W T H

Acc65I (1155)
AvrII (1207) 1201 TGTGCATCCTAGGAGACCTAATGTTTCACTACTGAGCCTAAGCCTTGGGGGAGAGCACCCGGTCAGAGAGATGTGGGTTTGGGGTCTCTTCTGCTTCTG
213▶ V H P R R P N V S L L S L S L G G E H P V R E M W V W G S L L L L

1301 CCCAAGCCACAGCTTTAGATGAAGGCACCTATTATTGCTCCGAGGAAACCTGACCATCAGAGGCACGTGAAGGTCATTGCAAGGTCAGTGTGGCTCT
247▶ P Q A T A L D E G T Y Y C L R G N L T I E R H V K V I A R S V W L

1401 GGCTGTTGAGAACTGGTGGATGGATAGTCCAGTGGTACTTATGATATGTCATCTTCTGTATGGTTTCTCTGGTGGCTTTTCTTATTGCAAAGAGC
280▶ W L L R T G G W I V P V V T L V Y V I F C M V S L V A F L Y C Q R A

1501 CTTTATCCTGAGAAGGAAAAGGAAGCAATGACTGACCCCGCAGGAGATTCTCAAAGTACGCTCCCTCGGGAAACGGGACCCAGAACCAGTACGGG
313▶ F I L R R K R K R M T D P A R R F F K V T P P S G N G T Q N Q Y G

AvrII (1662) 1601 AATGTGCTCTCCCTTCTACATCTACCTCTGGCCAGGCCATGCTCAGCGTTGGGCTGCTGGCTAGGGAGTGCCTGGGTCTATGAAATCCACGCA
347▶ N V L S L P T S T S G Q A H A Q R W A A G L G S V P G S Y G N P R

StuI (1757) SapI (1765) 1701 TTCAAGTCCAGGATACTGGAGCTCAGAGCCATGAAACAGGACTGGAAGAAGAGGGGAGGCCATGAAGAGCCAGACAGCAGGAGGGCTCTGAATTCTA
380▶ I Q V Q D T G A Q S H E T G L E E E G E A Y E E P D S E E G S E F Y

EcoRI (1792)
XemI (1836) 1801 TGAGAAGACTCCAACCTTGGCAGGACCAGGTTTCCAGGATGGGATGGCTATGAGAACCAGGATGAGCCATGGGTCCAGAGGAAGAAGATCC
413▶ E N D S N L G Q D Q V S Q D G S G Y E N P E D E P M G P E E E D S

BbsI (1891) 1901 TTTCCAATGCTGAGTCTTATGAAAATGCAGATGAGGAGCTGGCCCAACAGTTGGCAGGATGATGGACTTCTGAGCCCATGGGTCTGCGTGGGACC
447▶ F S N A E S Y E N A D E E L A Q P V G R M M D F L S P H G S A W D

BamHI (2051) 2001 CCAGCCGGGAAGCATCTCGCTTGGGTCCAGTCTATGAAGATATGAGAGGGATCTCTATGCGACTCCTCAGTCCACTCAATTGAGTCCGGTCCAG
480▶ P S R E A S S L G S Q S Y E D M R G I L Y A A P Q L H S I Q S G P S

BspHI (2100) 2101 TCATGAAGAAGATGCAGACTCTTATGAAAACATGGATAAGTCTGACGACCTAGAACCAGCATGGGAAGGAGAGGGCCACATGGGGACTTGGGAACCAAG
513▶ H E E D A D S Y E N M D K S D D L E P A W E G E G H M G T W G T T

NheI (2239) 2201 TGACTCCAAGTGACTAGCCTGGACTTCGTTAGTCCAGCTAGCTGGCCAGACATGATAAGATACATTGATGAGTTTGGACAAACCACAACCTAGAATGC
547▶ •

HpaI (2377) MfeI (2388) 2301 AGTGAAAAAATGCTTTATTTGTGAAATTTGTGATGCTATTGCTTTATTTGTAACCATTATAAGTGAATAAACAAGTTAAACAACAATTGCATCA

EcoRI (2473) 2401 TTTTATGTTTCAGGTTACAGGGGAGGTGTGGGAGGTTTTTAAAGCAAGTAAAACCTCTACAAATGTGGTATGGAATTCTAAAATACAGCATAGCAAAAC

2501 TTTAACCTCCAAATCAAGCCTCTACTTGAATCCTTTTCTGAGGGATGAATAAGGCATAGGCATCAGGGGCTGTTGCCAATGTGCATTAGCTGTTTGCAGC

SapI (2655)

2601 CTCACCTTCTTTCATGGAGTTTAAGATATAGTGATTTTTCCAAGGTTTGAAGTAGCTCTTCATTTCTTTATGTTTTAAATGCACTGACCTCCCACATTC

SspI (2712) SmaI (2726)

2701 CCTTTTTAGTAAATATTCAGAAATAATTTAAATACATCATTGCAATGAAAATAAATGTTTTTTATTAGGCAGAATCCAGATGCTCAAGGCCCTTCATAA

2801 TATCCCCAGTTTAGTAGTTGGACTTAGGGAACAAAGGAACCTTAATAGAAATTGGACAGCAAGAAAGCGAGCTTCTAGCTTTAGTTCCTGGTGTACTT

141 • N R T Y K

2901 GAGGGGGATGAGTTCCTCAATGGTGGTTTTGACCAGCTTGCCATTCTCAATGAGCACAAAGCAGTCAGGAGCATAGTCAGAGATGAGCTCTCTGCAC

135 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 S I L E R C

3001 ATGCCACAGGGGCTGACCACCCTGATGGATCTGTCCACCTCATCAGAGTAGGGGTGCCTGACAGCCACAATGGTGTCAAAGTCTTCTGCCCTTGCTCA

101 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 D K Q G N S V

StuI (3151)

3101 CAGCAGACCAATGGCAATGGCTTCAGCACAGACAGTACCCTGCCAATGTAGGCCTCAATGTGGACAGCAGAGATGATCTCCCAGTCTTGGTCTGAT

68 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 G T K T R I

BbsI (3297)
XmnI (3293)

3201 GGCGCCCGACATGGTGCTTGTGTCCTCATAGAGCATGGTGATCTTCTCAGTGGCGACCTCCACCAGTCCAGATCCTGCTGAGAGATGTTGAAGGTC

35 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 Q S I N F T

AseI (3359)

3301 TTCATGGTGGCCCTCCTATAGTGAGTCGTATTATACTATGCCGATATACTATGCCGATGATTAATTGTCAAACAGCGTGGATGGCGTCTCCAGCTTATC

1 K M

3401 TGACGGTCACTAAACGAGCTCTGCTTATATAGACCTCCACCGTACACGCCTACCGCCATTTGCGTCAATGGGGCGGAGTTGTTACGACATTTTGGAA

SpeI (3514)

3501 AGTCCCGTTGATTTACTAGTCAAAACAACTCCATTGACGTCAATGGGTGGAGACTTGAAATCCCGTGAGTCAAACCGCTATCCAGCCATTGAT

SnaBI (3642)

3601 GTACTGCCAAAACCGCATCATCATGGTAATAGCGATGACTAATACGTAGTACTGCCAAGTAGGAAAGTCCATAAGGTCATGTACTGGGCATAATGC

NdeI (3747)

3701 CAGCGGGCCATTTACCGTCATTGACGTCAATAGGGGGCTACTTGGCATATGATACACTTGTACTGCCAAGTGGGCAGTTTACCCTAAATACTCCA

3801 CCCATTGACGTCAATGGAAAGTCCCTATTGGCGTTACTATGGGAACATACGTCAATTATTGACGTCAATGGGCGGGGTCTGTTGGGCGGTACGCCAGGCGG

PacI (3933)

PstI (3926)
SdaI (3925) BspLU11I (3943)

3901 GCCATTTACCGTAAGTTATGTAACGCTGCAGGTTAAITAAAGAACATGTGAGCAAAAGGCCAGCAAAAGGCCAGGAACCGTAAAAGGCCGCTTGTGG

4001 CGTTTTTCCATAGGCTCCGCCCCCTGACGAGCATCAGAAAATCGACGCTCAAGTCAGAGGTGGCGAAACCCGACAGGACTATAAGATACCAGGCGTT

4101 TCCCCCTGGAAGCTCCCTCGTGCCTCTCTGTCCGACCCTGCCGTTACCGGATACCTGTCCGCTTTCTCCCTTCGGGAAGCGTGGCGCTTTCTCAT

ApaLI (4257)

4201 AGCTCACGCTGTAGGTATCTCAGTTCGGTGTAGTTCGCTCCAAGCTGGGCTGTGTGCACGAACCCCGTTAGCCCGACCGCTGCGCCTTATCCG

4301 GTAACATCGTCTTGAGTCCAACCCGGTAAGACACGACTTATCGCCACTGGCAGCAGCCACTGGTAACAGGATTAGCAGAGCGAGGTATGTAGGCGGTGC

4401 TACAGAGTCTTGAAGTGGTGGCCTAACTACGGCTACACTAGAAGAACAGTATTTGGTATCTGCGCTCTGCTGAAGCCAGTTACCTTCGAAAAAGAGTT

4501 GGTAGCTCTTGATCCGGCAAAACAAACCACCGCTGGTAGCGGTGTTTTTTTTTTGTTGCAAGCAGCAGATTACGCGCAGAAAAAAGGATCTCAAGAGATC

EagI (4693)
PacI (4673) SmaI (4682) NotI (4692)

4601 CTTTGATCTTTTCTACGGGGTCTGACGCTCAGTGAACGAAAACCTCACGTTAAGGGATTTTGGTCATGGCTAGTTAATTAACATTTAAATCAGCGGCCGC

4701 AATAAAATATCTTTATTTTATTACATCTGTGTGTTGGTTTTTTTGTGTGAATCGTAACATAACATACGCTCTCCATCAAAAACAAAACGAAAACAAAACAAAC

4801 TAGCAAAATAGGCTGTCCCAGTGCAAGTGCAGGTGCCAGAACATTTCTCTATCGAA